

**PROJECT MANUAL OF  
CONSTRUCTION DOCUMENTS**

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**MADRAS ELEMENTARY SCHOOL &  
BUFF ELEMENTARY SCHOOL  
IMPROVEMENTS**

**Project No: 22140B**

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Jefferson County School District 509J  
455 SE Buff Street  
Madras, OR 97741

**BID SET**

Specifications

VOLUME 1

September 11, 2023

PROJECT MANUAL OF  
CONSTRUCTION DOCUMENTS

# MADRAS ELEMENTARY SCHOOL & BUFF ELEMENTARY SCHOOL IMPROVEMENTS

OWNER

**JEFFERSON COUNTY SCHOOL DISTRICT 509J**

455 SE Buff Street

Madras, OR 97741

541.475.6192

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Simon White, Facilities Director

**Tiller's School Consulting, LLC**

Mike Tiller, Project Manager

mike.tiller@tillersschoolhouse.com

ARCHITECT

**SAJ Architecture**

721 SW Industrial Way, Suite 130

Bend, OR 97702

541.330.6506

Jonah Jensen, AIA, Principal-in-Charge – jonahj@saj-arch.com

Lee Georgetown, AIA, Project Architect – leeg@saj-arch.com

ARCHITECT'S CONSULTANTS

CIVIL ENGINEER

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62930 O.B. Riley Rd. Suite 100

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**MORRISON MAIERLE**

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Bend, OR 97702

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ELECTRICAL ENGINEER

**MORRISON MAIERLE**

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OWNER'S CONSULTANTS

ROOFING CONSULTANT

**A-TECH/NORTHWEST, INC**

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HVAC CONTROLS

**ALLIANT SYSTEMS**

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503.680.7336

Contact: Ross Notebaart

Email: [r.notebaart@alliant-systems.com](mailto:r.notebaart@alliant-systems.com)

COMMISSIONING AGENT

**SYSTEMS WEST ENGINEERING**

550 NW Franklin Ave, Suite 448

Bend, OR 97703

541.342.7210

Contact: Brian Barks

Email: bbarks@systemswestengineers.com

ARCHITECT'S SEAL

The undersigned hereby certifies that the Architectural Technical Specifications in this project manual were prepared by me or under my direct supervision, and that I am duly registered under the laws of the State of Oregon and hereby affix my Professional Seal.



SAJ Architecture

END OF ARCHITECTURAL CERTIFICATION



CIVIL ENGINEER'S SEAL

The undersigned hereby certifies that the Civil Technical Specifications in this project manual were prepared by me or under my direct supervision, and that I am duly registered under the laws of the State of Oregon and hereby affix my Professional Seal.



HWA Inc

END OF CIVIL CERTIFICATION

MECHANICAL ENGINEER'S SEAL

The undersigned hereby certifies that the Mechanical Technical Specifications in this project manual were prepared by me or under my direct supervision, and that I am duly registered under the laws of the State of Oregon and hereby affix my Professional Seal.



EXPIRES: JUNE 30, 2024

Morrison-Maierle

END OF MECHANICAL CERTIFICATION

#### ELECTRICAL ENGINEER'S SEAL

The undersigned hereby certifies that the Electrical Technical Specifications in this project manual were prepared by me or under my direct supervision, and that I am duly registered under the laws of the State of Oregon and hereby affix my Professional Seal.



Morrison-Maierle

END OF ELECTRICAL CERTIFICATION

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**JEFFERSON COUNTY SCHOOL DISTRICT 509J**

**Madras Elementary School, 215 SE 10<sup>th</sup> Street, Madras, OR 97741**

**Buff Elementary School, 335 SE Buff Street, Madras, OR 97741**

**Madras Elementary School & Buff Elementary School Upgrades**

**Bids Due October 4, 2023 @ 1:00 PM Local Prevailing Time**

**Invitation to Bid**

Sealed bids will be received by Simon White, Director of Operations, Jefferson County School District 509J, at the Administration Building, 445 SW Buff Street, Front Desk, Madras, Oregon, 97741, by the time and date listed above. The bids will then be publicly opened and read aloud. 1<sup>st</sup> Tier Subcontractor Disclosure Statements are due by 3:00 PM on the above date in order for bids to be considered for award. Bids and 1<sup>st</sup> Tier Subcontractor Disclosure Statement received after the required time and date time will not be considered.

**Madras Elementary School:**

1. New Single-Ply Roof/Parapet Cap
2. Accessibility Upgrades
3. Restroom Upgrade

**Buff Elementary School:**

1. New Single-Ply Roof/Parapet Cap
2. Parent Drop-Off Driveway Improvements
3. HVAC Equipment Upgrade
4. Accessibility Upgrades
5. Restroom Upgrade

A **MANDATORY** pre-bid meeting will be held on September 27, 2023 @ 1:00 PM prevailing local time in the Board Room at the Administration Building located at 445 SE Buff Street, Madras, OR.

Bidding documents are those prepared by SaJ Architects, 721 SW Industrial Way, Suite 130, Bend, OR 97702, (253) 279-6769. Bidding documents may be obtained from the following: Central Oregon Builders Assoc. (COBA), 1051 NE 4<sup>th</sup> St., Bend OR 97703, 541-389-1058 or online at: [www.coba.org](http://www.coba.org). Bidding documents will be available for examination during the bidding period at Jefferson County School District's Administration Office and at SaJ Architects.

This project is a PREVAILING WAGE project therefore no bid will be received or considered unless the Bid contains a statement by the bidder, as part of the bid, that "Contractor agrees to be bound by and will comply with the applicable provisions of 279C.838, 279C.840 or 40 U.S.C. 3141 to 3148."

Publish Date: September 11, 2023  
September 13, 2023

1.1 SUBMISSION OF BIDS AND BID OPENING:

- A. In accordance with ORS 279C.365, bids will be received by Simon White, Director of Operations, Jefferson County School District 509J for the Madras Elementary School & Buff Elementary School Upgrades, and will be opened and read aloud at the times and places set forth in the Advertisement for Bids. Bidders, or their representatives, and other interested persons may be present at the opening of proposals.
- B. The envelope containing the Bid form and required attachments must be sealed and addressed to Jefferson County School District 509J, Jefferson County, Oregon, 445 SW Buff Street, Madras, Oregon 97741, and marked on the outside: "Madras Elementary School & Buff Elementary School Upgrades", with name of the Bidder and its Oregon State Construction Contractor's Board Registration Number. A similar, separate envelope shall be used to submit the First-Tier Subcontractor Disclosure Statement at the time and location identified in the Advertisement for Bids.
- C. The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

1.2 BIDDING DOCUMENTS:

- A. Bidding Documents include the Advertisement for Bids, Instructions to Bidders, Bid Form, First Tier Subcontractor Disclosure Statement, the Bid Bond, Affidavit of Non Collusion, the Statement of Qualifications, and the proposed Contract Documents, including any Addenda issued prior to receipt of bids. -All requirements and obligations of the Bidding Documents are hereby incorporated by reference into the Contract Documents and are binding on the Successful Bidder upon award of the Contract.
- B. Bidders may obtain complete sets of the Bidding Documents as designated in the Advertisement for Bids. Bidders are responsible for all costs of reproduction.
- C. Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the District or the Architect shall assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- D. The District, in making copies of the Bidding Documents available on the above terms, does so only for the purpose of obtaining Bids on the Work and does not confer a license or grant authority for any other use.

1.3 DEFINITIONS:

- A. THE BID:  
Bid is a complete and properly signed offer to do the work for the sums stipulated therein, submitted in accordance with the Bidding Documents.
- B. BASE BID:  
The Base Bid is the sum stated in the Bid for which the Bidder offers to perform all the Work shown and described in the Bidding Documents as a lump sum bid, to which Work may be added or deducted for the sums stated in Alternate Bids, if any.
- C. ALTERNATES:  
An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted by the District. Any or all Alternates may be accepted or rejected in any order.

1.4 QUALIFICATIONS OF BIDDERS:

- A. Before the Bid is considered for award, the District shall review the bidder qualification form submitted with Bidder's Bid. Bidder qualifications to be listed upon the qualification form will include as a minimum, a listing of Bidder's previous contracts of a nature similar with technical complexity, operations and size to that being bid upon; a listing of Bidder's staff to include managerial, technical, and laboring positions; summary of Bidder's plan for completion of the Work and equipment available

for use in the execution of the Contract; and the listing of the projects to which Bidder is currently obligated or anticipates being obligated during this Work. The District reserves the right to request the Bidder submit the following additional information within seventy-two (72) hours after Bid opening: (1) references, to include a listing of previous and current projects, (2) financial statements indicating current financial status, prepared in accordance with generally accepted accounting principles, by a Certified Public Accountant licensed to do business in the State of Oregon, and (3) Contractor's Drug Testing policy in accordance with ORS 279C.505(2). The District reserves the right to reject the Bid of any Bidder who fails to furnish promptly and properly all the information called for as aforesaid when notified to do so.

B. Pursuant to ORS 279C.440, a Bidder may be disqualified from consideration for award of District contracts if any of the following conditions appear:

1. Bidder has been convicted of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract, or in the performance of such contract or subcontract.
2. Bidder has been convicted under state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property or any other offense indicating a lack of business integrity or business honesty that currently, seriously and directly affects the Bidder's responsibility as a contractor.
3. Bidder has been convicted under state or federal antitrust statutes.
4. Bidder has committed a violation of a contract provision that is regarded by the District or the Construction Contractors Board to be so serious as to justify disqualification. A violation may include but is not limited to a failure to perform the terms of a contract or an unsatisfactory performance in accordance with the terms of the contract. However, a failure to perform or an unsatisfactory performance caused by acts beyond the control of the Bidder may not be considered to be a basis for disqualification.
5. Bidder does not carry workers' compensation or unemployment insurance as required by statute.

C. Bidder's representations concerning its qualifications will be construed as a covenant under the Contract. Should it appear that Bidder has made a material misrepresentation, District shall have the right to terminate the Contract for Contractor's breach, and District may then pursue such remedies as exist elsewhere under this Contract, or as otherwise are provided at law or equity.

D. The District shall issue a written decision to disqualify a Bidder under ORS 279C.440. Such decision will identify the reasons why the Bidder is disqualified. The Bidder may appeal its disqualification pursuant to ORS 279C.445.

1.5 BIDDER'S REPRESENTATIONS: Each Bidder by submitting its Bid represents that:

A. Bidder has read and understands the Bidding Documents and its Bid is made in accordance therewith; and Bidder agrees to be bound by the terms and requirements set forth in the Bidding and Contract Documents.

B. Bidder has visited the site, has familiarized itself with the local conditions under which the Work is to be performed in accordance with Paragraph 12 herein, and has correlated its observations with the requirements of the proposed Contract Documents.

C. Its Bid is based upon the materials, systems and equipment required by the Bidding Documents without exception.

D. Bidder has the capability, in all respects, and the moral and business integrity, reliability, technical ability, financial resources, physical plant, management, superintendence, equipment and materials which will assure effective and efficient good-faith performance in full compliance with the Contract Documents and with any and all schedules and completion dates required by the District.

E. The Bidder acknowledges and represents that it has made allowances for normal inclement weather indigenous to the Project Site, in its estimating, planning and scheduling of the Work.



F. The Bidder further acknowledges that the Contract Documents are, in its opinion, appropriate and adequate for completing this project and for the construction of sound and suitable work.

G. The Bidder hereby certifies that the Work shall be completed, in place, in full accordance with the Contract Documents, within the time limits specified.

**1.6 PREPARATION AND SUBMITTAL OF BID FORM:**

A. Bids shall be submitted utilizing the Bid Form provided with the Bidding Documents, and shall be complete in every respect. The total Bid amount shall be entered in words and figures in the space provided. Where applicable, the unit price of lump sum items, and their extensions, shall be entered in figures in the respective columns provided for each bid item. All entries shall be typewritten or printed in ink. The signatures of all persons shall be in longhand. Any entry of an amount that appears on the face of the bid to have involved an erasure, deletion, whiteout, substitution and/or other such change or alteration shall be initialed by the person signing the bid and show the date of the change or alteration. A failure to comply with this requirement may be cause for disqualification of the Bid.

B. For lump sum Bids, in the event of a discrepancy between the Bid amount in writing and that in figures, the written value shall govern.

C. Bids shall not contain any restatement or qualifications of work to be done, and alternate bids will not be considered unless called for. No oral, email, facsimile or telephonic bids or modifications will be considered.

D. Bids shall be delivered to the District on or before the day and hour set for the receipt of bids, enclosed in a sealed, opaque envelope and bearing the title of the work, name of the Bidder and Bidder's CCB Registration Number.

**1.7 BID SECURITY:**

A. Each Bid must be accompanied by bid security in the form of: (1) an irrevocable letter of credit; or (2) a cashier's check or a Certified Check of the Bidder, made payable to the District; or (3) a surety bond on the Bid Bond Form provided herein or on a similar form which in every respect materially complies with said Bid Bond. Bid security shall be in the amount of ten percent (10%) of the Base Bid plus any positive alternate amounts. Any Bid Bond shall be issued by a Surety company licensed to conduct business in the State of Oregon and be acceptable to the District. The Surety signing the Bid Bond shall be registered with the Oregon State Insurance Commissioner, and the Surety's name shall appear in the current Authorized Insurance Company list in the State of Oregon published by the office of the Insurance Commissioner. Each Surety's name must also appear on the United States Treasury Department's list of authorized sureties, circular 570, as amended.

B. The Bid security is given as a guarantee that the Bidder will enter into a Contract if awarded the Work and, in the case of refusal or failure to so enter into said Contract, the security shall be declared forfeited to the District, in accordance with ORS 279C.385. Such security shall be returned to all but the three (3) lowest Bidders within seven (7) days after the opening of the Bids and the remaining securities will be returned within forty-eight- (48) hours after the District and the successful Bidder have executed the Contract. If no Contract has been awarded or the Bidder has not been notified of the acceptance of its Bid, within thirty (30) days of the Bid opening, the Bidder may withdraw its Bid and request the return of its Bid security. If, at the District's request, the Bidder agrees to extend and maintain its' Bid beyond the specified thirty (30) days, its Bid security will not be returned until after the District and the Successful Bidder have executed the Contract.

**1.8 INSURANCE BINDER:**

A. Each Bid shall be accompanied by a letter or form from the Bidder's insurance company stating that upon award of the Contract the types and amount of insurance required elsewhere in these specifications will immediately become effective.

**1.9 UNIT PRICES:**

SECTION 00 2113  
INSTRUCTIONS TO BIDDERS

Bid Set  
September 11, 2023

A. The Bidder shall include in the spaces provided on the Bid Form a Bid for each unit price.

B. The District may accept or reject any or all of these unit prices and include them in the Contract. The District is not obligated to use these unit prices and may require the Contractor to provide a complete breakdown of costs listed therein.

1.10 STATEMENT OF QUALIFICATIONS:

Each bid shall be accompanied by a Statement of Qualification completed on the form included herein or on a similar form, which materially includes the information requested.

1.11 LIQUIDATED DAMAGES (Forfeiture of Security Deposit):

The successful Bidder, upon its failure or refusal to execute the Contract within ten (10) days after it has received a Notice of Intent to Award, shall forfeit to the District the security deposited with its Bid, as liquidated damages for such failure or refusal.

1.12 SITE CONDITIONS AND CONDITIONS OF THE WORK:

A. Each Bidder must acquaint itself thoroughly as to the character and nature of the Work to be done and the conditions under which the work will be performed. Each Bidder furthermore must make a careful examination of the site of the Work and inform itself fully as to the difficulties to be encountered in the performance of the Work, the facilities for delivering, storing and placing materials and equipment, existing and available services and utilities, environmental and access constraints, permit requirements and other conditions relating to construction and labor.

B. The Successful Bidder, subject to Paragraph 12.6 of the General Conditions, Section 00 7000, entitled "Differing Site Conditions", assumes all risk as to the nature and behavior of the soil or subsurface conditions which underlie the Work or is adjacent thereto, or difficulties that may be due to any unfavorable conditions that may be encountered in the Work, whether apparent on surface inspection or disclosed after construction begins.

C. No plea of ignorance of conditions that exist or may hereafter exist on the site of the Work, or difficulties that may be encountered in the execution of the Work, as a result of failures to make necessary investigations and examinations, will be accepted as an excuse for any failure or omission on the part of the Successful Bidder to fulfill in every detail all the requirements of the Contract Documents and to complete the Work for the consideration set forth therein, or as a basis for any claim whatsoever.

D. Insofar as possible, the Successful Bidder, in carrying out its work, must employ such methods or means as will not cause interruption of or interference with the Work of the District or any separate Contractor.

E. The Contract includes excavation on an unclassified basis. The cost of all excavation and backfill required under this Contract is a part of the Base Bid. No distinction will be made insofar as payment is concerned between earth and rock.

F. ☐ If box is checked, either Bidder or a subcontractor must be licensed under ORS 468A.720 regarding asbestos abatement.

1.13 BIDDER'S QUESTIONS, ADDENDA AND INTERPRETATIONS:

A. Bidders and Sub Bidders- shall promptly notify the District of any ambiguity, inconsistency or error which they may discover upon examination of the Bidding and Contract Documents or of the site and local conditions. No interpretation of the meaning of the drawings, specifications or other Contract Documents will be made to any Bidder orally.

B. Every request for such technical and design interpretation shall be in writing addressed to SaJ Architects, 721 SW Industrial Way, Suite 130, Bend, OR 97702. To be given consideration the request must be received by the Architect at least seven (7) calendar days prior to the date fixed for the opening of the Bids.

C. Any and all such interpretations and any supplemental instruction will be in the form of written addenda to the Bidding Documents which, if issued, will be mailed or transmitted via email to all prospective Bidders (to the respective addresses and email addresses furnished for such purposes) not later than seventy-two (72) hours prior to the date and time fixed for the opening of the Bids. (Each Bidder wishing to receive notice of addenda shall register as a prime bidder with Central Oregon Builders Association (COBA) 1051 NE 4<sup>th</sup> Street, Bend, Oregon 97703. The District will be responsible for any other explanations or interpretations of the proposed documents. Failure of any Bidder to receive any such addendum or interpretation shall not relieve any Bidder from any obligation under its Bid as submitted. All addenda so issued shall become a part of the Contract Documents.

D. If the Bidder (or any person bidding to Bidder and/or subsequently in contract with the Bidder, relating to the subject project) knows, or should have known, that an ambiguity, discrepancy, error, omission or conflicting statement exists in the Bidding or Contract Documents, said Bidder (or sub bidder-) has an obligation to seek a clarification thereof from the District prior to the Bid. The District will welcome such a clarification request, and, if deemed necessary by the District, the District will issue a written addendum clarifying the matter in question. Change orders presented at the initial meeting between the District and the Contractor will be presumed to have been the proper subject of a clarification and will be disallowed.

E. Each Bidder shall ascertain prior to submitting its Bid that it has received all Addenda issued and shall acknowledge receipt and inclusion in its Proposal of all Addenda.

1.14 PROTEST PROCESS:

A. A Bidder may protest the Specifications or Contract terms and conditions by delivering a written protest on those matters to the District not less than ten (10) days prior to the date fixed for the opening of the Bids. All protests of Specifications or Contract terms and conditions must be in writing, and must comply with OAR 137-049-0260(3).

B. A Bidder may submit to the District a written protest of the District's intent to award the Contract within seven (7) days after the District's issuance of the notice of intent to award the Contract. A Bidder may submit a protest of the award only as allowed by, and only in compliance with, OAR 137-049-0450(4).

1.15 SECURITY FOR FAITHFUL PERFORMANCE:

The Successful Bidder shall furnish a Performance Bond and Payment Bond, each in an amount equal to one hundred percent (100%) of the Contract sum, as security for the faithful performance of this Contract and also as security for the payment of all persons performing labor and furnishing materials under this Contract. The Performance and Payment Bonds shall be acceptable to the District, in accordance with State law and shall be delivered to the District not later than the date of execution of the Contract. The Surety signing the Bidder's Bond shall be registered with the Oregon State Insurance Commissioner, and the Surety's name shall appear in the current Authorized Insurance Company list in the State of Oregon published by the office of the Insurance Commissioner. Each Surety's name must also appear on the United States Treasury Department's list of authorized sureties, circular 570, as amended. No Work shall commence at the project site until approved Bonds are received by the District. Both bonds shall be in compliance with ORS Sections 279C.375, 279C.625 and 701.430.

1.16 TIME FOR COMPLETION:

The time for completion of this Contract shall be as listed in the Bid Form, Specification Section 00 4100 noted as "Milestone Dates List" for Substantial Completion, and as fixed in the Owner-Contractor- Agreement.

1.17 LOCATION OF THE WORK:

The site of the proposed work is on District owned property, public streets, easements and/or other right-of-way's-, as shown on the drawings.

1.18 LIABILITY INSURANCE AND WORKER'S COMPENSATION:

The Successful Bidder will be required to carry public liability and worker's compensation and other insurance in the amounts and under the terms stipulated under the General Conditions. No Work shall commence at the project site until approved Certificates are received by the District.

1.19 BIDDERS REFERRED TO LAWS:

A. The attention of the Bidders is called to the provisions of all Local, State and Federal laws, regulations, ordinances and resolutions applicable to the work, as well as laws, regulations, ordinances, resolutions and permits relating to obstructing streets, maintaining signals, storing and handling of explosives, preserving safety or affecting the Bidder, or its employees or its work hereunder in its relation to the District or any other person. The Bidder shall obey all such laws, regulations, ordinances, permits or resolutions applicable to the Work or controlling or limiting Contractors while engaged in the execution of the Work under this Contract.

B. The provisions of this Contract shall be interpreted in accordance with the laws of the State of Oregon and in accordance with the laws, ordinances, regulations, permits and resolutions of the City of Madras and Jefferson County.

C. The District will not receive or consider a Bid for a Public Improvement Contract unless the Bidder is registered with the Construction Contractors Board, or is licensed by the State Landscape Contractors Board, as specified in OAR 137-049-0230, as applicable.

1.20 TAXES:

Contractor shall include in its Bid and pay for all applicable taxes. Refer to General Conditions regarding further discussion.

1.21 RIGHT TO REJECT BIDS:

The District may reject any Bid not in compliance with all prescribed public contracting procedures and requirements, including the requirement to demonstrate the Bidder's responsibility under ORS 279C.375(3)(b), and may reject for good cause all Bids after finding that doing so is in the public interest. The District reserves the right to cancel the solicitation at any time in its sole discretion and to waive minor informalities and irregularities, in accordance with applicable law, when it deems necessary or advisable, in its sole discretion.

1.22 MODIFICATION OR WITHDRAWAL OF BID:

A. Prior to the time and date designated for receipt of Bids, any Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder, and must be received by the District on or before the date and time set for receipt of Bids, and it shall be so worded as not to reveal the amount of the original Bid.

B. Withdrawn Bids may be resubmitted up to the time designated for the receipt of the Bids provided that they are then fully in conformance with the Instructions to Bidders.

C. After Bid opening, the District may permit a Bidder to withdraw its Bid, based on one or more clerical errors in the Bid, only if the Bid shows with objective proof and by clear and convincing evidence:

1. The nature of the error;
2. That the error is not a minor informality under this subsection or an error in judgment;
3. That the error cannot be corrected or waived under DJ-AR 49-0350;
4. That the Bidder acted in good faith in submitting a Bid that contained the claimed error and in claiming that the alleged error in the Bid exists;
5. That the Bidder acted without gross negligence in submitting a Bid that contained a claimed error;
6. That the Bidder will suffer substantial detriment if the Contracting Agency does not grant the Bidder permission to withdraw the Bid;
7. That the Contracting Agency's or the public's status has not changed so significantly that relief from the forfeiture will work a substantial hardship on the Contracting Agency or the public it represents; and

8. That the Bidder promptly gave notice of the claimed error to the Contracting Agency.
- D. Bid security, if any is required, shall be in an amount sufficient for the Bid as modified or resubmitted.
- E. A decision denying withdrawal of Bid pursuant to Article 21.A herein shall be final and conclusive unless the Bidder appeals the decision within ten (10) days after receipt of the decision.
- F. If, upon appeal, it is determined that the decision refusing withdrawal of the Bid was arbitrary or capricious, the sole relief shall be withdrawal of the Bid and return of the Bid security.

1.23 DISCLOSURE AND SUBSTITUTION OF FIRST-TIER SUBCONTRACTORS

- A. Within two (2) working hours after the date and time of the deadline when the bids are due to the public contracting agency, for any Public Improvement project exceeding \$100,000, all Bidders shall submit to the Agency a disclosure form, included in the Bid Form (Section 00 4100), identifying any first-tier subcontractors (those Entities that would be contracting directly with the prime contractor) that will be furnishing labor and/or materials on the contract, if awarded, whose subcontract value would be equal to or greater than:
  1. Five percent (5%) of the total Contract Price, but at least \$15,000; or
  2. \$350,000, regardless of the percentage of the total Contract Price.
- B. Bidders are required to disclose the following information about each required first-tier subcontractor:
  1. The subcontractor's name and address,
  2. The category of Work that the subcontractor would be performing,
  3. The subcontractor's Construction Contractor Board (CCB) registration number, if one is required, and
  4. The subcontract dollar value.
- C. The District must reject a bid if the Bidder fails to submit the disclosure form with this information by the stated deadline. (DJ-AR 49-0360) If there are no subcontractors or suppliers required to be disclosed, Bidder must provide the required disclosure form, noting on the completed form "None". Compliance with the disclosure and submittal requirements of ORS 279C.370 and this rule is a matter of Responsiveness. Bids which are submitted by Bid Closing, but for which the separate disclosure submittal has not been made by the specified deadline, are not Responsive and shall not be considered for Contract Award. A First Tier Subcontractor Disclosure Form which has no subcontractors or suppliers and is completed with the word "None" must be submitted separately and be properly marked in the same manner as any other first-tier subcontractor disclosure form.
- D. Substitution of affected first-tier subcontractors shall be made only in accordance with ORS 279C.585.

1.24 DETAILED BID BREAKDOWN:

- A. Upon notification from the District to the Bidder that it has submitted the apparent lowest responsive Bid, the Bidder shall, within twenty-four (24) hours, provide a detailed breakdown of its Bid in a form acceptable to the District.
- B. The breakdown may be used by the District to verify accounting requirements, and to determine whether the Bidder has grossly misjudged the requirements of any area.
- C. The Bidder's failure to provide the requested detailed breakdown in the specified time may result in rejection of the Bid Proposal in the sole discretion of the District.

1.25 AWARD OF CONTRACT:

If the District determines that a contract is to be awarded, it will award the contract to the lowest responsive and responsible Bidder. The "lowest responsible bidder" will be the lowest bidder who has substantially complied with all bidding requirements and procedures and who has not been disqualified by the District under ORS 279C.440. In determining the lowest responsible bidder, the District shall add a percentage increase of the bid of nonresident bidder as required by ORS 279A.120. In the event that all Bids exceed the District's cost estimate, the District may negotiate with the lowest responsive and responsible Bidder in accordance with ORS

279C.340 to solicit value engineering and other options to attempt to bring the contract within the contracting agency's cost estimate.

A. The Lowest Bidder is determined by the aggregate amount of the Base Bid, plus any Alternates selected by the District.

B. A Responsive Bidder shall mean a Bidder who has submitted a Bid which conforms, in all material respects, to the Bidding Documents.

C. A Responsible Bidder shall mean a Bidder who has the capability, in all respects, to perform fully the Contract requirements and the moral and business integrity and reliability which will assure good faith performance. In determining responsibility, the District must determine that the Bidder:

1. Has available the appropriate financial, material, equipment, facility and personnel resources and expertise, or ability to obtain the resources and expertise, necessary to meet all contractual responsibilities;

2. Has completed previous contracts of a similar nature with a satisfactory record of performance. A satisfactory record of performance means that, to the extent the costs associated with and time available to perform a previous contract were within the Bidder's control, the Bidder stayed within the time and budget allotted for the procurement and otherwise performed the contract in a satisfactory manner. A Contracting Agency should carefully scrutinize a Bidder's record of contract performance if the Bidder is or recently has been materially deficient in contract performance. In reviewing the Bidder's performance, the Contracting Agency should determine whether the Bidder's deficient performance was expressly excused under the terms of contract, or whether the Bidder took appropriate corrective action. The Contracting Agency may review the Bidder's performance on both private and Public Contracts in determining the Bidder's record of contract performance. The Contracting Agency shall make its basis for determining that a Bidder is not responsible under this paragraph part of the Solicitation file;

3. Has a satisfactory record of integrity. A Bidder may lack integrity if a Contracting Agency determines the Bidder demonstrates a lack of business ethics such as violation of state environmental laws or false certifications made to a Contracting Agency. A Contracting Agency may find a Bidder not Responsible based on the lack of integrity of any Person having influence or control over the Bidder (such as a key employee of the Bidder that has the authority to significantly influence the Bidder's performance of the Contract or a parent company, predecessor or successor Person). The standards for Conduct Disqualification under DJ-AR 49-0370 may be used to determine a Bidder's integrity. A Contracting Agency may find a Bidder non-responsible based on previous convictions of offenses related to obtaining or attempting to obtain a contract or subcontract or in connection with the Bidder's performance of a contract or subcontract. The Contracting Agency shall make its basis for determining that a Bidder is not responsible under this paragraph part of the Solicitation file;

4. Is legally qualified to contract with the Contracting Agency; and

5. Has supplied all necessary information in connection with the inquiry concerning responsibility. If the Bidder fails to promptly supply information requested by the Contracting Agency concerning responsibility, the Contracting Agency shall base the determination of responsibility upon any available information, or may find the Bidder not responsible.

D. The ability of the low Bidder to provide the required bonds will not of itself demonstrate responsibility of the Bidder.

E. The District reserves the right to defer award of this Contract for a period of thirty (30) days after the due date of the Bids. During this period of time, the Bidder shall guarantee the prices quoted in its Bid.

1.26 SUBCONTRACTORS:

A. All Subcontractors proposed for the Work must be acceptable to the District.

B. The District reserves the right to request the proposed Subcontractors to complete qualification forms and/or current financial statements prepared by a Certified Public Accountant. These forms will be similar to those required of a Bidder under the Instructions to Bidders.

1.27 MINIMUM WAGE RATES:

Labor required for the construction of this project is subject to the minimum wage rates as provided in the Supplementary General Conditions. No Bid will be received or considered by the District unless the Bid contains a statement by the Bidder as a part of its Bid that "Contractor agrees to be bound by and will comply with the provisions of 279C.838, 279C.840 or 40 U.S.C. 3141 to 3148." If Federal Funds are being used the Contractor must adhere to the "Davis-Bacon Act" rates.

1.28 PREBID CONFERENCE (MANDATORY):

A Mandatory Prebid- Conference will be conducted by the District at the time indicated in the Advertisement for Bids to afford Bidders the opportunity to question the District and the Architect. The meeting will be held at the location identified in the Advertisement for Bids. (If no time is given in the Advertisement for Bids, no Pre-Bid Conference will be held.) Any statements made by the District's representatives at the conference are not binding upon the District unless confirmed by written addendum.

1.29 MILESTONE DATES AND SCHEDULE:

A. A list of Milestone Dates is included in the Bidding Documents. Each Bidder shall submit the list of Milestone Dates, in its original form, with its bid and, in so doing, will attest that the Bidder intends to complete the Work and other aspects of the Project within the Milestone Dates. The Bidder may not condition its Bid on the acceptance District of delayed Milestone Dates.

B. Within seven (7) calendar days after issuance of Notice to Proceed, the Contractor shall deliver to the District a detailed construction schedule for review and acceptance by the District and shall thereafter be referred to as the Schedule. The Schedule shall be, in form and content, acceptable to the District.

C. The Bidder's attention is drawn to Division 1, Section 01 3200 of the General Requirements entitled "Schedule and Reports" for additional requirements.

1.30 SUBSTITUTIONS:

The attention of potential bidders and other interested parties is called to the conditions set forth in Division 1, Section 01 2500 of General Requirements, "Substitutions", regarding approval and product options for substitutions.

1.31 CONTRACTOR'S DRUG TESTING PROGRAM

Per ORS 279C.505(2), prior to Contract Award, Contractor shall certify to the District that it has a drug testing program in place for its employees that includes, at a minimum, the following:

- A. A written employee drug-testing policy.
- B. Required drug testing for all new Subject Employees or alternatively, required testing of all Subject Employees every 12 months on a random selection basis, and
- C. Required testing of a Subject Employee when the Contractor has reasonable cause to believe the Subject Employee is under the influence of drugs.

1.32 BACKGROUND CHECKS

- A. No Unsupervised Contact with Students. Unsupervised contact with students means contact with students that provide the person opportunity and probability for personal communication or touch when not under direct supervision. Contractor will ensure that Contractor, any subcontractors, and their officers, agents and employees will have no direct unsupervised contact with students while on District property. Contractor will work with the District to ensure compliance with this requirement. If Contractor is unable to ensure through a security plan that none of its officers, agents or employees will have direct,

unsupervised contact with students in a particular circumstance or circumstances, Contractor shall so notify the District prior to beginning any Work that could result in such contact. Contractor authorizes District to obtain information about Contractor and Contractor's history and to conduct a criminal background check, including fingerprinting, of any officer, agent or employee of Contractor that will have unsupervised contact with students. Contractor also agrees to cause Contractor's employees and/or subcontractors, if any, to authorize District to conduct such background checks. Contractor shall pay all fees assessed by Oregon Department of Education and by the District's background check vendor for processing the background check. District may deduct the cost of such fees from a progress of final payment to the Contractor under this contract, unless the Contractor elects to pay such fees directly.

1.33 PERMITS & FEES

The Owner shall coordinate and obtain all permits necessary to obtain the general building permit for the Project. The Owner will pay for the general building permits (including right of way permits, grading and drainage, foundation, mechanical, plumbing and electrical as necessary to initially begin construction), utility connection fees, system development charges and related inspections. The Contractor will be responsible to obtain and pay for all other permits, assessments, penalties, charges, licensing and re-inspection fees required for the proper execution of the Work which are legally required at the time the bids are received or thereafter as a consequence of the Contractor's acts or omissions. The Contractor is responsible for coordinating and obtaining all required inspections and approval signatures. The Contractor is required to submit all inspection records to the District at the completion of the project and as a prerequisite for final payment. Contractor shall not be entitled to any additional time for performance because of its failure to secure or coordinate with the Owner for procurement of any required permits on a timely basis. The contractor will be required to maintain the permit documents at the site as required by the governing authority.

END OF SECTION



SECTION 00 4100  
BID FORM

Bid Set  
September 11, 2023

Bids Due (Date): October 4, 2023

Time: 1:00 PM Local Prevailing Time

TO:

JEFFERSON COUNTY SCHOOL DISTRICT 509J

OWNER

445 SE BUFF STREET, Front Desk

ADDRESS

MADRAS, OREGON 97741

CITY/STATE

FROM:

BIDDER

ADDRESS

CITY/STATE

TELEPHONE

EMAIL ADDRESS

Operating as (strike out conditions that do not apply) an individual, a Limited Liability Company, a Corporation, organized and existing under the law of the State of \_\_\_\_\_, or a Proprietorship, a Partnership, or Joint Venture consisting of \_\_\_\_\_

**BASE BID:**

1. Having become completely familiar with the local conditions and legal requirements affecting the cost of Work at the place where Work is to be executed, and having carefully examined the site conditions as they currently exist, and having carefully examined Bidding Documents prepared by SaJ Architects titled,

**MADRAS ELEMENTARY SCHOOL  
&  
BUFF ELEMENTARY SCHOOL  
UPGRADES**

together with any addenda to such Bidding Documents as listed hereinafter, the undersigned hereby proposes and agrees to provide all labor, materials, physical plant, equipment, transportation and other facilities and services as necessary and/or required to execute all of the Work described by the aforesaid Bidding Documents for the lump sum consideration:

**BASE BID:** \_\_\_\_\_ Dollars (\$ \_\_\_\_\_).

said amount being hereinafter referred to as the Base Bid.

2. If notified of acceptance of this Bid and contract award within thirty (30) calendar days after receipt of bids, the undersigned agrees to deliver all bonds and proof of insurance coverage required by the Specifications and to execute a contract for the abovenamed project work and the above stated consideration on the form required, within ten (10) calendar days of such notification.

**BID ALTERNATES:**

3. Bid Alternates for this project are as follows (reference Specification Section 01 2300 Alternates and Unit Prices for a complete description of all alternates):

JEFFERSON COUNTY SCHOOL DISTRICT 509J  
Madras Elementary School & Buff Elementary School Upgrades

00 4100-1

1. All mechanical, electrical, and structural work associated with Roofs C, D & E. (Excludes roofing renovation work; Roofing renovation work at these roofs is part of the base bid and is not included in this alternate.)

1. All mechanical and electrical work associated with Roof B.

1. All work associated with the replacement of the two (2) rooftop packed units at roofs D & E.

2. All work associated with the renovation of the North Boys and North Girls Restrooms. (Excludes exhaust fan work in both restrooms; Exhaust fan work in these restrooms is part of base bid and is not included in this alternate.)
3. All work associated with the renovation of the South Unisex Restroom at the South end of Central Hallway.

4. Provide unit cost pricing to add or deduct the following items (See Section 01 2300 Alternates and Unit Prices for a complete description of the following Unit Price Items):

5. The undersigned acknowledges receipt of the following addenda: (List by number and date appearing on

SECTION 00 4100  
BID FORM

Bid Set  
September 11, 2023

addenda.)

Addendum No.

Date

Addendum No.

Date

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**TIME OF COMPLETION:**

6. The undersigned agrees to substantially complete all Work under this Contract within the dates specified in the milestone date schedule, as set forth in the Owner-Contractor Agreement and this bid form.

**CHANGES IN WORK:**

7. The undersigned agrees that when changes in Work are ordered which involve extra cost over and above Contract Sum, and when such work, due to an emergency, is ordered to proceed on basis of cost-plus fee, such shall be as required by the General Conditions and Supplementary Conditions.

**BID SECURITY:**

8. Bid security in the amount of ten percent (10%) of the Base Bid plus any additive alternates is attached. Failure to submit such security shall result in the Bid being considered non-responsive.
9. The undersigned further agrees to execute the formal Contract within ten (10) days from date of Owner's Notice of Intent to Award, and in case the undersigned fails or neglects to appear within the specified time to execute the Contract, and the undersigned is considered having abandoned the Contract by the Owner, the bid security accompanying this Bid will be forfeited to the Owner by reason of such failure on the part of the undersigned.
10. The undersigned further agrees that the bid security may be retained by the Owner and that said bid security shall remain with the Owner until the Contract has been signed and Performance Bond in a form acceptable to the Owner has been made and delivered to the Owner.
11. The undersigned has checked all of the above figures, and understands that Owner and the Project Manager will not be responsible for any errors or omissions on part of undersigned in preparing this Bid.
12. In submitting this Bid, it is understood by the Bidder that the Bid is a "firm offer," irrevocable, valid and binding, and may not be withdrawn for a period of thirty (30) days from time of opening.
13. The undersigned hereby acknowledges that he has read and understands the Drawings, Specifications, Addenda and all other Contract Documents pertaining to this Project. The undersigned certifies that the Contract Documents are, in his opinion, adequate, feasible and complete for performing the Work and constructing the Work in a sound and suitable manner for the use specified and intended by the Contract Documents. The undersigned further certifies that he has, or has available, the equipment, personnel, materials, facilities and technical and financial ability necessary to complete the Work in accordance with the Contract Documents and within the time specified therein. The Bidder certifies that he has made allowances for normal inclement weather indigenous to the Project site.
14. The following information is provided pursuant to the Contract Documents:

(1) Legal Name of Firm: \_\_\_\_\_

a. If Firm is a corporation or limited liability company, state of incorporation or organization:  
\_\_\_\_\_.

SECTION 00 4100  
BID FORM

Bid Set  
September 11, 2023

- b. If Firm is a partnership, state names of partners:

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- c. If Firm is an individual using a trade name, state name of individual:

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- (2) Construction Contractors Board Registration Number: \_\_\_\_\_

- (3) Signature of person or persons legally authorized to bind Bidder to a Contract. A Bid submitted by an agent shall have a current Power of Attorney attached certifying the agent's authority to bind the Bidder.

- a. Signature: \_\_\_\_\_

- b. Name (type): \_\_\_\_\_

- c. Title: \_\_\_\_\_ (Corporate Seal)

- d. Address: \_\_\_\_\_

15. The names and addresses of other persons interested as principals in this Bid are as follows:

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16. The undersigned declares that the person or persons signing this Bid is/are fully authorized to sign on behalf of the firm listed and to fully bind the firm listed to all the Bid's conditions and provisions thereof.

17. It is agreed that no person or persons or company other than the firm listed below or as otherwise indicated has any interest whatsoever in this Bid or the Contract that may be entered into as a result of the Bid and that in all respects the Bid is legal and firm, submitted in good faith without collusion or fraud.

18. It is agreed that the undersigned has complied or will comply with all requirements of local, state, and national laws, and that no legal requirement has been or will be violated in making or accepting this Bid, in awarding the Contract to him and/or in the prosecution of the work required.

19. Pursuant to ORS 279A.120, bidder (check one) is \_\_\_/is not \_\_\_ a resident bidder. If not, indicate State of residency \_\_\_\_\_.

20. Contractor agrees to be bound by and will comply with the provisions of 279C.838, 279C.840 or 40 U.S.C. 3141 to 3148.

21. Contractor certifies that it has not discriminated and will not discriminate against minority, women or emerging small business enterprises in obtaining any required subcontracts.

22. The following bank reference is given:

SECTION 00 4100  
BID FORM

Bid Set  
September 11, 2023

Name of Bank: \_\_\_\_\_

Address: \_\_\_\_\_

Bank Officer: \_\_\_\_\_

Respectfully submitted this \_\_\_\_\_ day of \_\_\_\_\_, 2023

Firm Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Signature: \_\_\_\_\_

Name (type): \_\_\_\_\_

Title: \_\_\_\_\_

**ENCLOSURES:**

- ☐ Bid Form
- ☐ Bid Bond
- ☐ Affidavit of Non Collusion
- ☐ Acknowledgement of Principal Bidder
- ☐ Milestone Dates List
- ☐ Insurance Binder
- ☐ Statement of Qualifications
- ☐ First Tier Subcontractor Disclosure Form

**FORM OF BID BOND**

**KNOW ALL MEN BY THESE PRESENTS:** That we, \_\_\_\_\_ as Principal and \_\_\_\_\_ a Corporation duly organized and existing under the laws of the State of \_\_\_\_\_ and legally doing business in the State of Oregon, a surety, are held and firmly bound and obligated unto the Jefferson County School District 509J, Jefferson County, and the State of Oregon, hereinafter called the Owner, in the full and just sum of Dollars (\$ \_\_\_\_\_), lawful money of the United States of America for the payment of which sum of money well and truly to be made, the said Principal and Surety bind themselves, their and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

Signed, Sealed and Dated this \_\_\_\_\_ day of \_\_\_\_\_ AD, 20\_\_\_\_.

**THE CONDITION OF THIS OBLIGATION IS SUCH,** that if the Owner shall make any award to the Principal for: MADRAS ELEMENTARY SCHOOL & BUFF ELEMENTARY SCHOOL UPGRADES, according to the terms of the proposal or bid made by the Principal therefore, and the Principal shall duly make and enter into a Contract with the Owner in accordance with the terms of said proposal or bid and award and shall give bond for the faithful performance thereof, with Surety and Sureties approved by the Owner, then this obligation shall be null and void; otherwise it shall be and remain in full force and effect.

**IN TESTIMONY WHEREOF,** the Principal and Surety have caused these presents to be duly signed and sealed.

\_\_\_\_\_  
Principal:

\_\_\_\_\_  
By:

\_\_\_\_\_  
Surety:

\_\_\_\_\_  
By:Attorney-in-Fact:

State of Oregon                   )  
County of                         ) ss

Sign Here:

(Title)

Notary Public in and for the State of Oregon, residing at:

00 4100-7

**(ACKNOWLEDGEMENT OF PRINCIPAL OF BIDDER, IF A CORPORATION)**

State of \_\_\_\_\_ )  
County of \_\_\_\_\_ ) ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, 2023 before me personally came and appeared to me known, who being by me duly sworn, did depose and say that he resides at \_\_\_\_\_

that he is the \_\_\_\_\_ of \_\_\_\_\_ the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the impressions affixed to said instrument is an impression of such seal; that it was so affixed by order of the directors of said corporation; and that he signed his name thereto by like order.

\_\_\_\_\_  
(SEAL)  
My Commission Expires \_\_\_\_\_

**(ACKNOWLEDGEMENT OF PRINCIPAL OF BIDDER, IF A LIMITED LIABILITY COMPANY)**

State of \_\_\_\_\_ )  
County of \_\_\_\_\_ ) ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, 2023 before me personally came and appeared, to me known, and known to me to be one of the members/managers of the firm of \_\_\_\_\_ described in and who executed the foregoing instrument, and he acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
(SEAL)  
My Commission Expires \_\_\_\_\_

**(ACKNOWLEDGEMENT OF PRINCIPAL OF BIDDER, IF A PARTNERSHIP)**

State of \_\_\_\_\_ )  
County of \_\_\_\_\_ ) ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, 2023 before me personally came and appeared, to me known, and known to me to be one of the partners of the firm of \_\_\_\_\_ described in and who executed the foregoing instrument, and he acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
(SEAL)  
My Commission Expires \_\_\_\_\_



**(ACKNOWLEDGEMENT OF PRINCIPAL OF BIDDER, IF A SOLE PROPRIETORSHIP)**

State of \_\_\_\_\_ )  
County of \_\_\_\_\_ ) ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, 2023 before me personally came and appeared, to me known, and known to me to be one of the members of the firm of \_\_\_\_\_, described in and who executed the foregoing instrument, and he acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
(SEAL)  
My Commission Expires \_\_\_\_\_

**MILESTONE DATES LIST**

Substantial Completion

August 23, 2024

Final Completion

September 9, 2024

**STATEMENT OF QUALIFICATIONS (Page One)**

**This Statement of Qualification form shall be submitted with the bid.**

Submitted By (Firm/Company): \_\_\_\_\_

Address: \_\_\_\_\_

1. Date Firm First Organized \_\_\_\_\_

2. Financial Status:

What is bonding capacity? \$ \_\_\_\_\_

Credit available for this Contract? \$ \_\_\_\_\_

Gross amount of Contracts now in hand? \$ \_\_\_\_\_

Current value of assets? \$ \_\_\_\_\_

Has Contractor (or Contractor's responsible managing individual) ever declared bankruptcy? If so, when and where?

3. List projects similar to the requirements of this project for which Contractor had a contract in excess of \$500,00 during the past three (3) years. Start with current or most recent projects:

Project Name	Owner (Phone #)	Contract Amount	Project Status (Dates)
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**STATEMENT OF QUALIFICATIONS (Page Two)**

4. Who will be the Project Manager? \_\_\_\_\_

Who will be the Project Superintendent? \_\_\_\_\_

List experience relevant and similar to the requirements of this project for which this individual has been Project Superintendent:

Project Name	Owner (Phone #)	Contract Amount	Project Status (Dates)
--------------	-----------------	-----------------	------------------------

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

5. Please state the work Contractor normally performs with Contractor's own forces.

_____
_____
_____

6. Please list any litigation or arbitration between firm and any Owner in the last three years.

_____
_____
_____
_____

**I certify that the foregoing statement is true to the best of my information and belief. I understand the Owner is relying upon this statement in their determination as to whether Contractor is a responsible bidder.**

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Signature and Title of Officer)

**1st TIER SUBCONTRACTOR DISCLOSURE INSTRUCTIONS AND FORM**

(1) Pursuant to ORS 279C.370 Bidders are required to disclose information about certain first-tier subcontractors when the District estimates the Contract value for a Public Improvement to be greater than \$100,000. Specifically, when the Contract amount of a first-tier subcontractor furnishing labor, or labor and materials, would be greater than or equal to: (i) 5% of the project Bid, but at least \$15,000, or (ii) \$350,000 regardless of the percentage, the Bidder must disclose the following information about that subcontract in its Bid submission or within two (2) working hours after Closing:

- (a) The subcontractor's name,
- (b) Dollar value and,
- (c) The category of work that the subcontractor would be performing.

If the Bidder will not be using any subcontractors that are subject to the above disclosure requirements, the Bidder is required to indicate "NONE" on the Disclosure Form. The district must reject a bid if the bidder fails to submit the disclosure form with this information by the stated deadline.

(2) A Bidder shall submit the disclosure form required by ORS 279C.370 either in its Bid submission or within two (2) working hours after Closing. Compliance with the disclosure and submittal requirements is a matter of responsiveness. Bids which are submitted by Closing, but for which the disclosure submittal has not been made by the specified deadline, are not responsive and shall not be considered for Contract award.

(3) The District shall obtain, and make available for public inspection, the disclosure forms required by ORS 279C.370. The District shall also provide copies of disclosure forms to the Bureau of Labor and Industries as required by ORS 279C.835. The District is not required to determine the accuracy or completeness of the information submitted. Substitution of affected first-tier subcontractors shall be made only in accordance with ORS 279C.585.

**FIRST TIER SUBCONTRACTOR DISCLOSURE FORM**

<b>PROJECT:</b> Madras Elementary School & Buff Elementary School Upgrades
<b>BID CLOSING:</b> October 4, 2023, 1:00 PM Local Prevailing Time

This form must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date and within two working hours after the advertised bid closing time.

List below the name of each subcontractor that will be furnishing labor or will be furnishing labor and materials and that is required to be disclosed, the category of work that the subcontractor will be performing and the dollar value of the subcontract. Enter "NONE" if there are no subcontractors that need to be disclosed. (ATTACH ADDITIONAL SHEETS IF NEEDED.)

SPEC SECTION	NAME	ADDRESS	CCB #	CONTRACT AMOUNT

END OF SECTION

**REFERENCE:**

1. The Form of Agreement between the Owner and the Contractor shall be in the following form:

\*\*\*\*\*

**OWNER-CONTRACTOR AGREEMENT**

DATE OF CONTRACT:

CONTRACT NUMBER: 0113-2023

PROJECT NUMBER: 0110-23

**THIS AGREEMENT**, made this day of , 2023.

By and Between

Jefferson County School District 509J  
445 SE Buff Street  
Madras, OR 97741

And

(Contractor)  
(Mailing Address)

All correspondence, submittals and notices relating to or required under this Contract shall be sent in writing to the above addresses or fax numbers; unless either party is notified in writing by the other, of a change in address.

**WITNESSETH**

**WHEREAS**, it is the intention of the Owner to obtain the services of the Contractor in connection with the Jefferson County School District Madras Elementary School & Buff Elementary School Upgrades, Hereinafter referred to as the "Project" or the "Work"; and

**WHEREAS**, the Contractor desires to perform such construction in accordance with the terms and conditions of this Agreement,

**NOW, THEREFORE**, in consideration of the promises made herein and other good and valuable consideration, the following terms and conditions are hereby mutually agreed to, by and between the Owner and the Contractor:

**Article 1**  
**DEFINITIONS**

- 1.1 Capitalized terms used but not defined in this Agreement shall have the meanings given such terms in the Information for Bidders and the General Conditions, as applicable.
- 1.2 The Contract Documents are as defined in the General Conditions. Such documents form the Contract, and all are as fully a part thereof as if attached to this Agreement or repeated herein.
- 1.3 The Drawings and Specifications referred to in the Contract Documents have been prepared by SaJ Architects for the Jefferson County School District 509J, Jefferson County, Oregon and are entitled, Jefferson County School District: Madras Elementary School & Buff Elementary School Upgrades
- 1.4 The Construction Project Manager is Mike Tiller, Tiller's Schoolhouse Consulting, LLC.

**Article 2**  
**STATEMENT OF THE WORK**

- 2.1 The Contractor shall provide and pay for all materials, tools, equipment, labor and professional and non-professional services, and shall perform all other acts and supply all other things necessary to fully and properly perform and complete the Work as required by the Contract Documents.
- 2.2 The Contractor shall further provide and pay for all related facilities described in any of the Contract Documents, including all work expressly specified therein and such additional work as may be reasonably inferred therefrom, saving and excepting only such items of work as are specifically stated in the Contract Documents not to be the obligation of the Contractor. The totality of the obligations imposed upon the Contractor by this Article and by all other provisions of the Contract Documents, as well as the structures to be built and the labor to be performed, is herein referred to as the "Work".

**Article 3**  
**ARCHITECT**

- 3.1 The Architect (as defined in the General Conditions) shall be:

SaJ Architects

The Owner may, without liability to the Contractor, unilaterally amend this Article from time to time by designating a different person or organization to act as its Architect and so advising the Contractor in writing, at which time the person or organization so designated shall be the Architect for purposes of this Contract.

**Article 4**  
**TIME OF COMMENCEMENT AND COMPLETION**

- 4.1 The Contractor shall commence the Work promptly upon the date established in the Notice to Proceed.
- 4.2 Time is of the essence. The Contractor shall achieve Substantial Completion(s) and Final Completion, within the time periods stated hereunder taken from the date of Notice to Proceed and Contractor's Bid.

SPECIFIC DATES:



SECTION 00 5200  
FORM OF AGREEMENT

Bid Set  
September 11, 2023

Substantial Completion  
Final Completion

August 23, 2024  
September 9, 2024

4.3.1 The liquidated damages incurred by the Owner due to the Contractor's failure to Substantially Complete the "Project" within the Contract Time, including any extensions thereof, shall be Zero dollars (\$0) per day. The liquidated damages incurred by the Owner due to the Contractor's failure to finally complete the Jefferson County School District "Project" within the Contract Time, including any extensions thereof, shall be Zero dollars (\$0) per day for each consecutive day beyond the Time for Final Completion.

4.3.2 The amount of liquidated damages for failure to meet any of the above noted Final Completion dates are in addition to the amount of liquidated damages for failure to Substantially Complete the Work.

4.4 The Contractor agrees said sums are agreed upon as a reasonable and proper measure of damages which the Owner will sustain per day by failure of the contractor to complete the Work within time as stipulated, it being recognized by the Owner and the Contractor that the injury to the Owner which could result from a failure of the contractor to complete on schedule is uncertain and cannot be computed exactly. In no way shall costs for liquidated damages be construed as a penalty on the Contractor.

4.5 The amount of liquidated damages set forth in Article 4.3 hereinabove shall be assessed cumulatively. This provision for liquidated damages does not bar the Owner's rights to enforce other rights and remedies against the contractor, including but not limited to, specific performance or injunctive relief. The amount of liquidated damages relates only to the Owner's inability to do the Work; and it does not limit the Owner from recovering, in addition, costs incurred for extended administration or additional services relating to or arising out of a delay completion.

4.6 If Final Completion is not achieved through no fault of the contractor, the Owner may process final payment under ORS 279C.570 and withhold one hundred percent (100%) of the value of the uncompleted work. This value shall be determined by the Construction Project Manager.

**Article 5**  
**CONTRACT SUM**

5.1 Provided that the Contractor shall strictly and completely perform all of its obligations under the Contract Documents, and subject only to additions and deductions by modification or as otherwise provided in the Contract Documents, the Owner shall pay to the Contractor, in current funds and at the times and in the installments hereinafter specified, the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) (herein referred to as the "Contract Sum").

5.2 The Contract Sum is based upon the following alternates, which are set forth in the Contract Documents and which are hereby accepted by the Owner:

Buff Elementary School:

- A. Alternate #1: Accepted \_\_\_\_\_ Rejected \_\_\_\_\_  
a. All mechanical, electrical, and structural work associated with Roofs C, D & E. (Excludes roofing renovation work; Roofing renovation work at these roofs is part of the base bid and is not included in this alternate.)
- B. Alternate #2: Accepted \_\_\_\_\_ Rejected \_\_\_\_\_  
a. All mechanical and electrical work associated with Roof B.

Madras Elementary School:

- A. Alternate #1: Accepted \_\_\_\_\_ Rejected \_\_\_\_\_

- a. All work associated with the replacement of the two (2) rooftop packed units at roofs D & E.

B. Alternate #2: Accepted \_\_\_\_\_ Rejected \_\_\_\_\_

- a. All work associated with the renovation of the North Boys and North Girls Restrooms. (Excludes exhaust fan work in both restrooms; Exhaust fan work in these restrooms is part of base bid and is not included in this alternate.)
- b. All work associated with the renovation of the South Unisex Restroom at the South end of Central Hallway.

**Article 6**  
**PROGRESS PAYMENTS**

6.1 The Contractor hereby agrees that on the date established for updates for every month during the performance of the Work he will deliver to the Construction Project Manager an Application for Payment in accordance with the provisions of the General Conditions and Section 01 2900. This date may be changed upon mutual agreement, stated in writing, between the Owner and Contractor. Payment under this Contract shall be made as provided in the General Conditions.

6.2 Past-due progress payments shall bear interest at the statutory rate in accordance with ORS 279C.570.

**Article 7**  
**OTHER REQUIREMENTS**

7.1 The Contractor shall submit the Performance Bond, Payment Bond, Certificates of Insurance, and Certificate of Compliance with Oregon tax laws, as required by the Contract Documents, prior to commencement of the Work.

7.2 The Contractor shall perform at least five percent (5%) of the total Work with forces that are in the direct employment of the Contractor's organization.

7.3 Subcontracting requirements shall be in accordance with ORS 279A.105, and as further described in the General Conditions and Supplementary Conditions (if any).

7.4 The Contractor shall comply with the Prevailing Wage Rates of the State of Oregon, effective, January 1, 2022 and as amended, attached by reference, governing all covered workers for all work on this project.

7.5 The Contractor agrees to comply with Title VI of the Civil Rights Act of 1964, and with Section V of the Rehabilitation Act of 1973, and ORS Chapters 659 and 659a.

**IN WITNESS WHEREOF**, the parties execute this Agreement as of the day and year first written above.

**OWNER**            Jefferson County School District 509J  
                         Jefferson County, Oregon

By: \_\_\_\_\_

SECTION 00 5200  
FORM OF AGREEMENT

Bid Set  
September 11, 2023

Date: \_\_\_\_\_

**CONTRACTOR**

By: \_\_\_\_\_ (Seal)  
(Title)

Date: \_\_\_\_\_

CERTIFICATE OF COMPLIANCE WITH OREGON TAX LAWS

By signature on the Contract, I, the undersigned being authorized to represent \_\_\_\_\_ hereby certify that \_\_\_\_\_ is not, to the best of my knowledge, in violation of any Oregon tax law described in ORS 305.380(4). For the purposes of this certification, "Oregon tax laws" are ORS 320.005 to 320.150 and 403.200 to 403.250 and ORS chapters 118, 314, 316, 317, 318, 321 and 323 and the elderly rental assistance program under ORS 310.630 to 310.706 and local taxes administered by the Department of Revenue under ORS 305.620.

Signature

\_\_\_\_\_ Date

END OF SECTION

SECTION 00 6113  
PERFORMANCE & PAYMENT BOND

Bid Set  
September 11, 2023

Bond No. \_\_\_\_\_

Amount: \$ \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS that, we  
, as Principal (Contractor), and \_\_\_\_\_, a corporation organized and existing under the  
laws of the State of Oregon \_\_\_\_\_, and duly authorized to transact a SURETY business in the State of  
Oregon, as SURETY, are held and firmly bound unto JEFFERSON COUNTY SCHOOL DISTRICT 509J,  
JEFFERSON COUNTY, OREGON, in the sum of \_\_\_\_\_ DOLLARS, (\$  
) , lawful money of the United State of America, for the payment whereof well and truly to be made, we and each of  
use, jointly and severally, bind ourselves, our and each of our heirs, executors, administrators, successors and assigns  
firmly by these presents.

THE CONDITIONS of this obligation are such that, whereas the above Principal did on the \_\_\_\_\_ day of  
\_\_\_\_\_, 2023 enter into a Contract with Jefferson County School District 509J, Jefferson County, Oregon for the  
construction required for the Madras Elementary School & Buff Elementary School Upgrades, which Contract is made  
a part hereof as if fully copied herein;

NOW, THEREFORE, if the said Principal faithfully, punctually and completely performs and abides by all  
covenants and conditions of said Contract, and with all laws, ordinances, regulations, and orders of the State of  
Oregon, and Jefferson County, and the agencies and bureaus thereof, directly or indirectly governing or applicable to  
the Principal's performance under the said Contract, including but not limited to the requirements of Oregon Revised  
Statutes Chapter 279A and 279C relating to public contracts, which hereby is made a part hereof as if fully copied  
herein, and shall make payment promptly, as due to Jefferson County School District 509J, Jefferson County, Oregon  
and to all other public entities as may be required, and to all subcontractors and to all persons supplying to the Principal  
or his (its) subcontractors' equipment, supplies, labor, or materials for the prosecution of the work or any part thereof,  
provided for in said Contract, then this obligation shall be null and void, otherwise to be in full force and effect.

Surety agrees (1) that any extension of time allowed said Principal for completion of work or for delivery under  
the said Contract shall not impair this obligation or reduce any period of maintenance or warranty provided in said  
Contract; (2) that any change made in the terms or provisions of said Contract increasing the price to be paid to  
Principal, without notice to the SURETY shall not impair this obligation, but any such change shall automatically  
increase the obligation of the SURETY hereunder in a like amount, PROVIDED that such increase shall not exceed  
twenty-five percent (25%) of the original amount of this obligation without consent of the SURETY; and (3) that this  
obligation shall continue to bind the said Principal and SURETY notwithstanding successive payments made  
hereunder for successive breaches, until the full amount of the said obligation is exhausted.

IN WITNESS WHEREOF, the Principal and Surety have caused these presents to be executed on this  
day of \_\_\_\_\_, 2023.

Principal

By: \_\_\_\_\_

Title \_\_\_\_\_

Surety

By: \_\_\_\_\_

Attorney in Fact

COUNTERSIGNED:

JEFFERSON COUNTY SCHOOL DISTRICT 509J  
Madras Elementary School & Buff Elementary School Upgrades

00 6113-1

SECTION 00 6113  
PERFORMANCE & PAYMENT BOND

Bid Set  
September 11, 2023

Oregon Resident Agent

Address

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NOTE

If Principal is operating under an assumed business name, there must also be set forth in the first paragraph of the bond, the names of all the partners or the individuals owning the business, and the bond must be executed by one of them.

If the Principal is a corporation, the bond must be executed by one of the officers authorized to execute bonds, showing his official title and the seal of the corporation.

The bond must be executed by an attorney-in-fact for the surety company, showing on the face thereof the Oregon agent for service, and bear the seal of the surety company. Where the bond is executed by a person outside the state of Oregon, his authority to execute bonds should be shown.

The bond must be furnished by a surety company authorized to do business in Oregon, and in an amount equal to the full contract price.

END OF SECTION

In accordance with ORS 279A.120:

1. The District shall prefer goods or services that have been manufactured or produced in this state if price, fitness, availability and quality are otherwise equal.
2. The District shall add a percent increase to the bid of a nonresident bidder equal to the percent, if any, of the preference given to the bidder in the state in which the bidder resides.
3. When a public contract is awarded to a nonresident bidder and the contract price exceeds \$10,000, the bidder shall promptly report to the Department of Revenue, on forms to be provided by the Department, the total contract price, terms of payment, length of contract and such other information as the Department may require before the bidder may receive final payment on the contract. The District shall satisfy itself that the requirement of this subsection has been complied with before the District issues final payment on a public contract.
4. For purposes of this subsection, a "nonresident bidder" means a bidder who is not a resident bidder. "Resident bidder" means a bidder that has paid unemployment taxes or income taxes in Oregon during the 12 calendar months immediately preceding submission of the bid, has a business address in Oregon, and has stated in its bid whether the bidder is a "resident bidder" under ORS 279A.120.

END OF SECTION

**REFERENCES:**

1. The General Conditions shall be "General Conditions of the Contract and/or Construction, Jefferson County School District 509J, Jefferson County, Oregon," bound herein.

**SUPPLEMENTS:**

1. Supplements may modify, change, delete, or add to the General Conditions. Where any article of the General Conditions is modified or any paragraph deleted, subparagraph or clause thereof is modified, or deleted by these supplements, the unaltered provisions of such article, paragraph, subparagraph or clause shall remain in effect. The General Conditions and the Supplementary General Conditions are applicable to all of the Work under this Contract and shall apply to one Contractor and all Subcontractor's and Sub-subcontractors.

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ARTICLE 1  
GENERAL PROVISIONS

1.1 DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Owner-Contractor Agreement, the Conditions of the Contract (General, Supplementary and Special), the Drawings, the Specifications, and all Addenda issued prior to execution of the Contract, written amendments to the Contract signed by the Owner and the Contractor, Change Orders, a written interpretation or clarification issued by the Architect pursuant to Subparagraph 3.2.17 or a written order issued by the Construction Project Manager pursuant to Subparagraph 12.1.2, the Bidding Documents, such as the Advertisement or Invitation to Bid and the Instructions to Bidders, and the Contractor's Proposal.

1.1.2 THE CONTRACT

The Contract is the sum of all the Contract Documents. This Contract represents the entire and integrated agreement between the Owner and the Contractor and supersedes all prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by (1) a written amendment to the Contract signed by the Owner and the Contractor, (2) a Change Order, (3) a written interpretation or clarification issued by the Architect pursuant to Subparagraph 3.2.17, or (4) a written order issued by the Construction Project Manager pursuant to Subparagraph 12.1.2.

1.1.3 THE WORK

The Work comprises the completed construction required by the Contract Documents and includes all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.

1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

1.1.5 PLANS OR DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

1.1.6 SPECIFICATIONS

The Project Manual is that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services. These are written to, and for, the Contractor, with guidance and reference given to suppliers and subcontractors in separate sections. It is the responsibility of the Contractor to ensure that all construction items in each section are implemented.

1.1.7 PROJECT MANUAL

The Project Manual is a volume assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.

1.1.8 AS SHOWN, AS INDICATED, AS DETAILED

These words, and words of like implication, refer to information contained in the drawings describing the Work, unless explicitly stated otherwise in other Contract Documents.

1.1.9 BIDDER

Any individual, company, corporation, partnership, or joint venture who submits a bid to the Owner for the Work as distinct from a sub-bidder who submits a bid to a Bidder. "Lowest responsible bidder" and "resident bidder" are as defined in ORS 279C.375 and ORS 279A.120.

1.1.10 BIDDING DOCUMENTS

The Invitation to Bid, Instructions to Bidders, Sample Forms, Proposal, all Conditions of the Contract, Specifications, Drawings and Addenda issued prior to receipt of bids by Owner.

1.1.11 DIRECTED, REQUIRED, ACCEPTABLE

When these words refer to the Work or its performance, "directed," "required," "permitted," "ordered," "designated," "prescribed," and words of like implication, mean "by direction of," "requirements of," "permission of," "order of," "designation of," or "prescription of" the Architect. Likewise, "acceptable," "satisfactory," "in the judgement of," and words of like import, mean "recommended by," "acceptable to," "satisfactory to," or "in the judgement of" the Architect.

1.1.12 MANUFACTURER

An individual, company, or corporation who manufactures, fabricates, or assembles a standard product. A standard product is one that is not made to special design, and is furnished by either direct sale or by contract to the Contractor, Subcontractor or Vendor.

1.1.13 MATERIAL SUPPLIER OR VENDOR

A person or organization who supplies, but who is not responsible for the installation of, materials, products and equipment of a standard nature that are not specifically fabricated for this particular contract.

1.1.14 PRODUCT

The term "product" includes materials, systems and equipment.

1.1.15 PROPOSAL

A complete and properly signed document (whether entitled "bid" or "proposal") whereby a Bidder proposes to do the Work or designated portion thereof for the sums stipulated therein, supported by data called for by the bidding requirements.

1.1.16 PROVIDE

As a directive to the Contractor, "provide" means "furnish and install completely".

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract Documents are complementary, and what is required by anyone shall be as binding as if required by all. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work. Work not covered in the Contract Documents will not be required unless it is consistent therewith or is reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings unless otherwise specifically defined herein.

1.2.2 The organization of the Specifications into division, sections and articles, and the arrangement of the Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

1.2.3 If any portion of the Contract Documents shall be in conflict with any other portion, the various documents comprising the Contract Documents shall govern in the order of precedence as herein set forth according to their latest date of execution; written interpretation or clarification by the Architect issued pursuant to Subparagraph 3.2.18 or by the Construction Project Manager pursuant to Subparagraph 12.1.2; Change Orders; written amendments to the Owner-Contractor Agreement; the Owner-Contractor Agreement; Addenda; Special Conditions; Supplementary Conditions; General Conditions; Specifications; Drawings; Bidding Documents; Contractor's Proposal. The Specifications take precedence over Drawings for the specific type or quality of materials or the quality of installation; the Drawings take precedence over the Specifications with regard to quantities, locations or detail of installation; as between schedules and general notes given on Drawings, the general notes shall take precedence; as between general notes given on the Drawings and specific, detailed notes, the latter shall take precedence; as between large-scale Drawings and small-scale Drawings, the larger scale shall take precedence. Specifications having greater detail or specificity; and details take precedence over general drawings.

1.2.4 The Contractor agrees that nothing contained in the Contract Documents or any Contract between the Owner and the Construction Project Manager or the Owner and the Architect shall create any contractual relationship between

the Construction Project Manager and the Contractor, the Architect and the Contractor, the Architect and the Construction Project Manager, or between the Owner, Architect and Construction Project Manager and any Subcontractor or Sub-subcontractors. The Contractor acknowledges and agrees that this Agreement is not intended to create, nor shall any provision be interpreted as creating any contractual relationship between the Owner or Contractor and any third parties.

1.2.5 Any material or operation specified by reference to published specifications of a manufacturer, a society, an association, a code, or other published standard, shall comply with requirements of the listed document which is current on date of receipt of Proposals. In case of a conflict between referenced document and Project Specifications, Project Specifications shall govern. In case of a conflict between referenced documents, the one having more stringent requirements or higher value shall govern.

1.2.6 The Contractor, if requested, shall furnish an affidavit from manufacturer certifying that a material or product delivered to job meets requirements specified.

1.2.7 By executing the Contract, the Contractor represents that Contractor has visited the site, familiarized itself with the local conditions under which the Work is to be performed, and correlated Contractor's observations with the requirements of the Contract Documents.

1.2.8 The Contract Documents may be executed in counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument.

### 1.3 OWNERSHIP AND USE OF DRAWINGS AND SPECIFICATIONS

1.3.1 Unless otherwise provided in the Contract Documents, the Contractor will be furnished one copy of the Contract Documents. Any reproduction and use of the Contract Documents shall be solely and exclusively for the execution of the Work, and may not be used on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner and Architect.

1.3.2 After Bid Award, electronic copies containing simplified versions of the electronic construction drawings will be forwarded to the general contractor for the general contractor's use and distribution as base drawings for the preparation of the general contractor's shop drawings. The Architect, or the Architect's consultants, will not issue electronic drawing files of any nature to anyone other than the Contractor. The electronic copies may contain the following simplified drawings, as deemed appropriate by the Architect: Civil Site Plan(s), Base Floor and Reflected Ceiling Plans from architectural, structural, mechanical, electrical and other specialty consultants, General Building Sections.

The electronic copies will not contain the following items: Addenda issued during bidding, Specifications, Details, Schedules, or other items issued in the Project Manual.

Electronic drawings will generally be in AutoCad format, unless other formats are used by the Architect or their consultants. The Architect will not convert the formats provided to the Contractor, from other formats.

1.3.3 All Drawings, Specifications and copies thereof furnished to, or made by, the Contractor are and shall remain property of the Architect and the Owner. With the exception of one contract set for each party to the Contract, such documents are to be returned or suitably accounted for to the Owner on request at the completion of the Work. Submission or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the common law copyright or other reserved rights of the holder thereof.

ARTICLE 2  
OWNER

2.1 DEFINITION

2.1.1 The Owner is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number. The term Owner means the Owner or its authorized representatives or agents.

2.2 CONSTRUCTION PROJECT MANAGER

2.2.1 The Construction Project Manager is the Owner's exclusive representative and agent to the Contractor with respect to this Project during construction and until the issuance of the final Certificate of Payment. The Owner's communications with the Contractor and Architect shall be exclusively through the Construction Project Manager. The Construction Project Manager will have full authority to act on behalf of the Owner with regard to all aspects of this Project except that the Owner must approve all Change Orders and payments to the Contractor. All of the Construction Project Manager's actions with regard to this Project will be as an agent and representative of the Owner. If no Construction Project Manager is designated in the Owner-Contractor Agreement, all references to the "Construction Project Manager" shall be deemed to refer to the Owner.

2.2.2 The Construction Project Manager is not authorized to revoke, alter, enlarge, relax or release any requirements of the Contract Documents, nor to approve or accept any portion of the Work not executed in accordance with, nor to issue instructions contrary to the Contract Documents.

2.3 INFORMATION, SERVICES AND RIGHTS OF THE OWNER

2.3.1 The Owner, through the Construction Project Manager, will provide administration of the Contract as hereinafter described.

2.3.2 The Owner and the Construction Project Manager shall at all times have access to the Work whenever it is in preparation or progress. The Contractor shall provide safe facilities for such access.

2.3.3 The Owner and the Construction Project Manager shall not be responsible for or have control or charge of the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

2.3.4 The Owner and Construction Project Manager will not be responsible for the failure of the Contractor to plan, schedule and execute the Work in accordance with the approved schedule or the failure of the Contractor to meet the Contract completion dates or the failure of the Contractor to schedule and coordinate the Work of Contractor's own trades and Subcontractors or to coordinate and cooperate with other separate Contractors.

2.3.5 The Owner and Construction Project Manager will not be responsible for the acts or omissions of the Architect, the Contractor, any other contractor, or any subcontractor, or any other contractor's or subcontractor's agents or employees, or any other persons performing any of the Work.

2.3.6 The Construction Project Manager has authority to disapprove, condemn or reject work on behalf of the Owner when, in the Construction Project Manager's opinion, the Work does not conform to the Contract Documents. Whenever in the Construction Project Manager's reasonable opinion it is considered necessary or advisable to ensure the proper implementation of the intent of the Contract Documents, the Construction Project Manager shall have the authority to require special inspection or testing of any work in accordance with the provisions of the Contract Documents whether or not such work is then fabricated, installed, or completed.

2.3.7 The Construction Project Manager will have authority to require special inspection or testing of the Work in accordance with Subparagraph 2.3.6 whether or not such Work is then fabricated, installed or completed. However, neither the Construction Project Manager's authority to act under Subparagraphs 2.3.6 and 2.3.7, nor any decision made by the Construction Project Manager in good faith either to exercise or to not exercise such authority, shall give rise to any duty or responsibility of the Construction Project Manager to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the Work.

2.3.8 The Construction Project Manager shall have the authority and discretion to call, schedule and conduct job meetings to be attended by the Contractor, Subcontractor representatives and the Architect to discuss such matters as procedures, progress, problems and scheduling.

2.3.9 The Construction Project Manager will establish procedures to be followed for processing all shop drawings, catalogs and other Project reports and other documentation, test reports and maintenance manuals.

2.3.10 The Construction Project Manager will review all requests for changes and shall implement the processing of Change Orders including applications for extensions of time.

2.3.11 The Construction Project Manager will review and process all applications for payment by the Contractor, including final application for payment and will consult with the Architect as appropriate.

2.3.12 The Owner will furnish all surveys in its possession describing the physical characteristics, legal limitations and utility locations for the site of the Project. The Contractor shall carefully review this data since the Owner makes no warranty as to accuracy or completeness of such surveys.

2.3.13 The Owner will secure and pay for easements for permanent structures or permanent changes in existing facilities.

2.3.14 Information or services under the Owner's control will be furnished by the Owner with reasonable promptness to avoid delay in the orderly progress of the Work.

## 2.4 OWNER'S RIGHT TO STOP THE WORK

2.4.1 If the Contractor fails to correct defective Work as required by Paragraph 4.6 or persistently fails to carry out the Work or supply labor or material in accordance with the Contract Documents, the Construction Project Manager, by a written order, may instruct the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Construction Project Manager to stop the Work on behalf of the Owner shall not give rise to any duty on the part of the Construction Project Manager to exercise this right for the benefit of the Contractor or any other person or entity.

2.4.2 The Construction Project Manager may order the Contractor in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as it may determine to be appropriate for the convenience of the Owner.

## ARTICLE 3 ARCHITECT

### 3.1 DEFINITION

3.1.1 The Architect is the person or organization lawfully licensed to practice architecture or engineering, or any entity lawfully practicing architecture or engineering, and identified as such in the Owner-Contractor Agreement, and is referred to throughout the Contract Documents as if singular in number. The term Architect means the Architect and its architects and engineers, whether under contract or within its own organization, or its authorized representatives.

3.1.2 Communications between the Contractor or subcontractors and Architects, employees or subconsultants, shall be limited to matters of information; but in no case shall such communications relate to or authorize changes in the Work or give rise to claims for additional Work. The Architect, its architects, engineers, and their employees must communicate with the Contractor only through the Architect's authorized representative and through the Construction Project Manager as provided elsewhere in these contract documents.

### 3.2 SERVICES OF THE ARCHITECT

3.2.1 The Architect will provide certain services as hereinafter described.

3.2.2 The Architect shall at all times have access to the Work whenever it is in preparation or progress. The Contractor shall provide safe facilities for such access so the Architect may perform its functions under the Contract Documents.

3.2.3 The Architect is not the agent of the Owner and has no authority to agree on changes in the Contract Sum or Contract Time on the Owner's behalf. The Architect will not be responsible for or have control or charge of the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in

connection with the Work, and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not be responsible for the acts or omissions of the Contractor, any Subcontractors, or any of their agents or employees, or any other persons performing any of the Work.

3.2.4 The Architect shall review Shop Drawings, Product Data and Samples, and other submissions of the Contractor as well as the Work performed by the Contractor but only for conformance with the design concept of the Project and for general compliance with the Contract Documents. The review of submittals shall be accomplished by the Architect within fifteen (15) calendar days from date of receipt except when authorized otherwise by the Construction Project Manager.

3.2.5 The Construction Project Manager will establish with the Architect, procedures to be followed for review and processing of all Shop Drawings, catalog submissions, Project reports, test reports, maintenance manuals, and other necessary documentation, as well as requests for changes and applications for extensions of time.

3.2.6 The Architect shall, when requested by the Construction Project Manager, prepare Change Orders.

3.2.7 Should errors, omissions or conflicts in the Drawings, Specifications or other Contract Documents by the Architect be discovered, the Architect will prepare such amendments or supplementary documents, and provide consultation as may be required.

3.2.8 The Architect will make such periodic visits to the Project site as may be necessary to familiarize itself generally with the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Contract Documents. On the basis of such on-site observations, the Architect shall endeavor to guard the Owner against defects and deficiencies in the Work of the Contractor. The Architect and its consulting engineers shall not be required to make exhaustive or full-time on-site inspections to check the quality or quantity of the Work, but shall make as many inspections as may be reasonably required to fulfill the Architect's obligations to the Owner.

3.2.9 The Architect will render written field reports to the Construction Project Manager in the form required by the Construction Project Manager relating to the periodic visits and inspections of the Project required by Subparagraph 3.2.8.

3.2.10 The Architect shall consult with the Construction Project Manager regarding the Contractor's Applications for Payment and shall sign the Certificates of Payment as provided in Subparagraph 9.4.2.

3.2.11 If the Architect observes any work that does not conform to the Contract Documents, the Architect shall report this observation to the Construction Project Manager.

3.2.12 The Architect has authority to disapprove, condemn or reject work on behalf of the Owner when, in the Architect's opinion, the Work does not conform to the Contract Documents. Whenever in the Architect's reasonable opinion it is considered necessary or advisable to ensure the proper implementation of the intent of the Contract Documents, the Architect will have the authority to require special inspection or testing of any Work in accordance with the provisions of the Contract Documents whether or not such Work is then fabricated, installed or completed.

3.2.13 The Architect will prepare on a regular basis, a "deficiency list" of items during the process of construction that are not in conformance with the Contract Documents. The Construction Project Manager will transmit such lists to the Contractor for corrections.

3.2.14 The Architect will prepare and submit to the Construction Project Manager "punchlists" at Substantial Completion of Work of the Contractor which are not in conformance with the Contract Documents. The Construction Project Manager will transmit such lists to the Contractor for correction or completion thereof.

3.2.15 The Architect and Construction Project Manager shall conduct observations to determine the dates of Substantial Completion and Final Completion and will jointly issue a final Certificate for Payment.

3.2.16 The Architect will prepare a set of reproducible Record Drawings showing significant changes in the Work made during the construction process, based on the as-built drawings and other data furnished by the Contractor. The Architect will also transmit the as-built drawing in electronic format.

3.2.17 The Architect will provide the Owner assistance in the original operation of any equipment or system such as initial start-up, testing, adjusting and balancing.

3.2.18 As required, the Architect will render to the Construction Project Manager, within a reasonable time, interpretations or clarifications of requirements of the Contract Documents. The Architect will make all interpretations consistent with the intent of, and reasonably inferable from, the Contract Documents. The Architect's decisions in matters relating to artistic effect shall be final if consistent with the intent of the Contract Documents.

3.2.19 All communications, correspondence, submittals and documents exchanged between the Architect and the Contractor in connection with the Project shall be through the Construction Project Manager or in the manner prescribed by the Construction Project Manager.

3.2.20 If the Owner terminates the employment of the Architect, the Owner may appoint a new Architect. Status of the new Architect under the Contract Documents shall be that of the former Architect.

3.2.21 The Architect is not bound to define the limits of any subcontract, and will not enter into disputes between the Contractor and its employees, including Subcontractors. Notwithstanding any provision of the Contract Documents to the contrary, all decisions, order and certificates of Architect are advisory only and not binding upon Owner until approved by Owner.

#### ARTICLE 4 CONTRACTOR

##### 4.1 DEFINITION

4.1.1 The Contractor is the person or organization identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number. The term Contractor means the Contractor or its authorized representatives, who shall have authority to bind the Contractor in all matters pertinent to this Contract.

4.1.2 The service or services to be rendered under this Contract are those of an independent contractor. Contractor is not an officer, employee or agent of the Owner as those terms are used in ORS 30.265.

4.1.3 Contractor is not a contributing member of the Public Employees' Retirement System and will be responsible for any federal or state taxes applicable to payment received under this Contract. Contractor will not be eligible for any benefits from these contract payments of federal Social Security, employment insurance, workers' compensation or the Public Employees' Retirement System, except as a self-employed individual.

4.1.4 If this payment is to be charged against federal funds, Contractor certifies that it is not currently employed by the federal government. This does not preclude the Contractor from holding another contract with the Federal Government. Contractor certifies he/she is not an employee of the Jefferson County School District 509J, Jefferson County, Oregon for purposes of performing work under this Contract.

4.1.5 Contractor shall certify that all subcontractors performing Work described in ORS 701.005(2) (i.e., construction work) will be registered with the Construction Contractors Board or licensed by the State Landscape Contractors Board in accordance with ORS 701.035 to 701.055 before the subcontractors commence Work under the Contract.

##### 4.2 REVIEW OF CONTRACT DOCUMENTS

4.2.1 Before submitting a Proposal to the Owner, and continuously after the execution of this Agreement, the Contractor shall carefully study and compare the Contract Documents and shall at once report to the Owner through the Construction Project Manager, any error, inconsistency or omission the Contractor may discover including any requirement which may be contrary to any law, ordinance, rule, regulation or order of any public authority bearing on the performance of the Work. By submitting a Proposal for this Agreement and the Work under it, the Contractor agrees that the Contract Documents, along with any supplementary written instructions issued by or through the Construction Project Manager that have become a part of the Contract Documents, appear accurate, consistent, and complete insofar as can reasonably be determined. If the Contractor has reported in writing an error, inconsistency or omission and has promptly stopped the affected Work until instructed, and otherwise followed the instructions of the Owner, the Contractor shall not be liable to the Owner or the Architect for any damage resulting from failing to report to the Owner or the Architect of any such errors, inconsistencies or omissions in the Contract Documents. The Contractor shall do no Work without Contract Documents and, when required, approved Shop Drawings, Product Data or samples for such portions of the Work.

#### 4.3 SUPERVISION AND CONSTRUCTION PROCEDURES

4.3.1 The Contractor shall supervise and direct the Work, using its best skill and attention. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

4.3.2 The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing any of the Work.

4.3.3 The Contractor shall not be relieved from its obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Architect or the Construction Project Manager in their administration of the Contract, or by inspections, tests or approvals (or the lack thereof) required or performed under Paragraph 4.22 by persons other than the Contractor.

4.3.4 The Contractor shall employ a competent Superintendent and necessary assistants who shall be in regular attendance at the Project site during all phases of the progress of the Work. The Superintendent shall represent the Contractor and all communications given to the Superintendent shall be as binding as if given to the Contractor. As soon as practicable after Contract award, the Contractor shall provide a management chart and a list of personnel which shall constitute the superintending staff. All references to the Superintendent below shall be taken to mean superintending staff. The Contractor shall not employ a proposed Superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the Superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

4.3.5 The Superintendent shall remain on the Project not less than eight hours per day, five days a week unless the job is closed down due to a general strike, conditions beyond the control of the Contractor, termination of the Contract in accordance with the Contract Documents, or until Final Completion. The Superintendent shall not be employed on any other project during the course of this Work. The Superintendent that is assigned to the Project by the Contractor shall not be relieved of his position until after the Project has had its Final Completion with the Punchlist complete in its entirety, all the O & M Manuals complete, as-built drawings complete and accepted, and all demonstrations have been delivered.

4.3.6 If the Owner and/or Architect object to the Contractor's Project Team (i.e., Superintendent, Project Manager, etc.) that has been assigned to the Project, the Owner will reply in writing within seven (7) days after bid. Contractor will then assign different members to perform the Work acceptable to both Owner and Architect.

4.3.7 Before starting work, the Contractor shall locate all general reference points. The Contractor shall employ a registered surveyor (licensed by the State of Oregon) to perform such work. The Contractor shall take such steps as are necessary to prevent the dislocation or destruction of the reference points, and shall be responsible for the accuracy of the site and building layout and elevations for the work.

#### 4.4 LABOR AND MATERIALS

4.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the execution and completion of the Work in accordance with the Contract Documents and any applicable code, regulation or statute, whether or not specifically required thereby as long as the same is reasonably inferable therefrom as being necessary to produce the intended results, and whether temporary or permanent, and whether or not incorporated or to be incorporated in the Work.

4.4.2 All work under this Contract shall be performed in a skillful and workmanlike manner.

4.4.3 The Contractor shall at all times enforce strict discipline and good order among its employees and Subcontractors, and shall not employ on the Work any unfit person or anyone not skilled in the task assigned. The Owner may, in writing, require the Contractor to remove from the Work any employee the Owner deems incompetent, careless or otherwise objectionable.

#### 4.5 WARRANTY

4.5.1 The Contractor warrants to the Owner and the Architect that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All work not conforming to these requirements, including



substitutions not properly approved and authorized, is hereby deemed defective. If required by the Construction Project Manager or the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

4.5.2 If, within one year after the Date of Final Completion of the Work or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so. This obligation shall survive Termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

4.5.3 Nothing contained in this Paragraph 4.5 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 4.6 hereof. The establishment of the time period of one year after the Date of Final Completion or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which its obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligations other than the obligation to correct the Work in accordance with this Paragraph 4.5.

4.5.4 The warranties set forth in Paragraph 4.5 and elsewhere in the Contract Documents shall survive final acceptance under Paragraph 9.9.

#### 4.6 UNCOVERING AND CORRECTION OF WORK

4.6.1 If any portion of the Work should be covered contrary to the request of the Owner, the Architect or the requirements specifically expressed in the Contract Documents, it must be, if required in writing by the Owner, uncovered for observation and shall be replaced at the Contractor's expense.

4.6.2 If any other portion of the Work has been covered which the Architect or the Owner has not specifically requested to observe prior to being covered, either may request to see such Work and it shall be uncovered by the Contractor. If such Work be found in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work be found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it be found that this condition was caused by the Owner or a separate contractor as provided in Article 6, in which event the Owner shall be responsible for the payment of such costs.

4.6.3 The Contractor shall promptly correct all Work rejected by the Construction Project Manager or the Architect as defective or as failing to conform to the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for the Architect's and the Construction Project Manager's additional services made necessary thereby.

4.6.4 The Contractor shall, unless removal is waived by the Owner, remove from the site all portions of the Work which are defective or non-conforming, or if permitted or required, shall correct such Work in place by and at the expense of the Contractor promptly after notice, and such rejected Work shall not thereafter be tendered for acceptance unless the Contractor gives notice that the Work was subject to former rejection or requirement of correction.

4.6.5 If the Contractor does not proceed with the correction of such defective or non-conforming Work within a reasonable time fixed by written notice from the Owner, the Owner may either (1) by contract or otherwise replace or correct such Work and charge the Contractor the cost occasioned the Owner thereby and remove and store the materials or equipment at the expense of the Contractor; or (2) terminate this Contract for default as provided in Paragraph 13.3.

4.6.6 The Contractor shall bear the cost of restoring any work of the Owner or separate contractors destroyed or damaged by such correction or removal.

4.6.7 If the Owner prefers to accept defective or non-conforming Work, it may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect a reduction in the Contract Sum where appropriate and equitable. If the amount is determined after final payment, it shall be paid to the Owner by the Contractor.

#### 4.7 TAXES

4.7.1 The Contractor shall pay all consumer, use, and other similar taxes for the work or portions thereof provided by the Contractor, which are legally enacted at the time the bids are received, whether or not yet effective. Compliance with all Oregon tax laws shall be certified by the Contractor.

#### 4.8 PERMITS, FEES AND NOTICES

4.8.1 The Owner shall coordinate and obtain all permits necessary to obtain the general building permit for the Project. The Owner will pay for the general building permits (including right of way permits, grading and drainage, foundation, mechanical, plumbing and electrical as necessary to initially begin construction), utility connection fees, system development charges and related inspections. The Contractor will be responsible to obtain and pay for all other permits, assessments, penalties, charges, licensing and re-inspection fees required for the proper execution of the Work which are legally required at the time the bids are received or thereafter as a consequence of the Contractor's acts or omissions. The Contractor is responsible for coordinating and obtaining all required inspections and approval signatures. The Contractor is required to submit all inspection records to the District at the completion of the project and as a prerequisite for final payment. Contractor shall not be entitled to any additional time for performance because of its failure to secure or coordinate with the Owner for procurement of any required permits on a timely basis. The contractor will be required to maintain the permit documents at the site as required by the governing authority.

4.8.2 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations or orders of any public authority bearing on the performance of the Work.

4.8.3 If the Contractor performs any of the Work knowing it to be contrary to any laws, ordinances, rules, regulation or orders of any public authority bearing on the performance of the Work, and does so without reasonable notice to the Construction Project Manager of same, Contractor shall assume full responsibility therefor and shall bear all costs attributable thereto.

4.8.4 The Contractor and its subcontractors shall comply with the provisions of ORS 757.541 through 757.571 relating to notice prior to excavation.

#### 4.9 ALLOWANCES

4.9.1 Allowances will not be used under this contract.

#### 4.10 CONTRACTOR'S CONSTRUCTION SCHEDULE

4.10.1 The Contractor, immediately after being awarded the Contract, shall prepare and submit, for the Construction Project Manager's approval, a Construction Schedule for the Work which shall provide for expeditious and practicable execution of the Work for completion within the Contract Time. This schedule shall be coordinated with the entire Project Construction Schedule to the extent required by the Contract Documents. The Construction Schedule shall be revised as required by the conditions of the Work and the Project, subject to the Construction Project Manager's approval.

The Contractor's Construction Schedule shall conform to the requirements of Division 1, Section 01 3200.

#### 4.11 RESPONSIBILITY FOR COMPLETION

4.11.1 The Contractor shall furnish such manpower, services, materials, facilities and equipment and shall work such hours, including night shifts, overtime operations, Sundays and holidays, as may be necessary to ensure the prosecution and completion of the Work or specified portions thereof within the specific dates of the Contract. If it becomes apparent to the Construction Project Manager from progress on the current Construction Schedule that the Work will not be completed within the Contract Time, the Contractor agrees that it will, as necessary, take some or all of the following actions, at no additional cost to the Owner, to improve the progress:

1. increase manpower in such quantities and crafts as will substantially eliminate, in the judgment of the Construction Project Manager, the backlog of work;
2. increase the number of working hours per shift, shifts per working day, working days per week or the amount of equipment, or any combination of the foregoing, sufficiently to substantially eliminate, in the judgment of the Construction Project Manager, the backlog of work; and
3. reschedule activities to achieve maximum practical concurrency of accomplishment of activities.

In addition, if any of the conditions noted under paragraph 4.11.2 should occur, the Construction Project Manager may require the Contractor to submit a Recovery Schedule demonstrating the Contractor's proposed plan to make up lag in scheduled progress and to ensure completion of the Work within the Contract Time. If the Construction Project Manager finds the proposed plan not acceptable, it may require the Contractor to submit a new plan. If the actions taken by Contractor or the second plan proposed are not satisfactory, the Construction Project Manager may require Contractor to take any of the actions set forth in this Paragraph 4.11, without additional cost to the Owner, to make up the lag in scheduled progress.

4.11.2 In the event any of the following conditions exist, the Contractor shall, at no additional cost to the Owner, require that its' Superintendent, workers, and all subcontractors affecting the progress of the work be at the job site not less than ten (10) hours per day, six (6) days per week:

1. should Substantial Completion not be accomplished on schedule;
2. should Final Completion not be accomplished on schedule;
3. should the Project schedule indicate the Contractor to be ten (10) or more work days behind schedule at any time during construction up until twenty (20) days prior to scheduled Substantial Completion;
4. should the Project schedule indicate the Contractor to be five (5) or more work days behind schedule at any time during the last twenty (20) days prior to scheduled Substantial Completion.

4.11.3 Failure of the Contractor to substantially comply with the requirements of this Paragraph 4.11 may be considered grounds for a determination by the Owner, pursuant to Subparagraph 13.3.1, that the Contractor is failing to prosecute the Work with such diligence as will ensure its completion within the time specified.

#### 4.12 DOCUMENTS AND SAMPLES AT THE SITE

4.12.1 The Contractor shall maintain in a safe place at the site for the Owner one record copy of all Drawings, Specifications, Addenda, Change Orders, amendments and written interpretations and clarifications, in good order and marked currently to record all changes applicable to the Work made during construction and approved Shop Drawings, Product Data and Samples. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work certified in writing by the Contractor to show complete and exact "as-built" conditions, stating sizes, kind of materials, vital piping, conduit locations and similar matters.

#### 4.13 SHOP DRAWINGS AND SAMPLES

4.13.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared by the Contractor or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

4.13.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor which illustrate a material, product or system for some portion of the Work.

4.13.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

4.13.4 The Contractor shall review, approve and submit, with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the Owner or any separate contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents. Contractor shall submit all shop drawings, samples, product data in the quantity and format specified in Division 1, Section 01 3300.

4.13.5 By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that it has determined and verified all materials, field measurements, and field construction criteria related thereto, and that it has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Contractor shall adhere to any supplementary processing and scheduling instructions, pertaining to Shop Drawings, as may be issued by the Construction Project Manager.

4.13.6 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Architect's review of Shop Drawings, Product Data or Samples under Subparagraph 3.2.4 unless the Contractor has received a Change Order for same. Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data or Samples by the Architect's review thereof.

4.13.7 The Contractor shall make any corrections required by the Architect and shall resubmit the corrected copies of Shop Drawings or new Samples. Resubmittal of Shop Drawings necessitated by required corrections shall not be a cause for extension of time. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than the corrections requested on previous submittals.

4.13.8 No portion of the Work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been reviewed by the Architect as provided in Subparagraph 3.2.4. All such portions of the Work shall be in accordance with approved submittals.

4.13.9 Shop Drawings and Samples shall be dated and bear: Project name; description or names of equipment, materials and items; and complete identification of locations at which materials or equipment are to be installed.

4.13.10 Submission of Shop Drawings, Product Data or Samples shall be accompanied by transmittal letter containing Project name, Contractor's name, number of drawings and samples, titles and other pertinent data.

4.13.11 Each Shop Drawing and Product Data submittal shall bear the Contractor's stamp or seal stating that the submittal has been reviewed by the Contractor and that it conforms to the requirements of the Contract Documents.

#### 4.14 USE OF SITE

4.14.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site or access to the site with any materials or equipment.

4.14.2 The Contractor shall coordinate all of its operations with and secure approval from the Owner before using any portion of the site.

4.14.3 The Contractor shall not occupy the site nor commence work thereon until deemed by the Construction Project Manager to be in compliance with all bond and insurance requirements.

#### 4.15 CUTTING AND PATCHING OF WORK

4.15.1 The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work or to make its several parts fit together properly.

4.15.2 The Contractor shall not damage or endanger any portion of the Work of the Owner or any separate contractors by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate contractor except with the written consent of the Owner and of such separate contractor. The Contractor shall not unreasonably withhold its consent to cutting or otherwise altering the Work from the Owner or any separate contractor.

4.15.3 Existing structures and facilities, including but not limited to buildings, utilities, topography, streets, curbs, walks, etc., that are damaged or removed due to required excavations or other construction work, shall be patched, repaired or replaced by the Contractor to the satisfaction of the Construction Project Manager, the Architect, the owner of such structures and facilities and authorities having jurisdiction. In the event the local jurisdictional authorities require that such repairing and patching be done with their own labor and materials, the Contractor shall abide by such regulations and pay for such work.

#### 4.16 CLEANING UP

4.16.1 The Contractor at all times shall keep the premises and streets or areas used for access thereto free from accumulation of waste materials or rubbish caused by its operations. At the completion of the Work, the Contractor shall remove all its waste materials and rubbish from and about the Project as well as all tools, construction equipment, machinery and surplus materials.

4.16.2 If the Contractor fails to clean up during or at the completion of the Work, the Owner may do so as provided in Paragraph 6.3 and the cost thereof shall be charged to the Contractor.

#### 4.17 COMMUNICATIONS

4.17.1 The Contractor shall forward all communications, whether to the Architect or Owner, only through the Construction Project Manager. Similarly, all communications to the Contractor from the Owner and Architect will be through the Construction Project Manager.

#### 4.18 ROYALTIES AND PATENTS

4.18.1 The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall indemnify and hold the Owner, Construction Project Manager and Architect harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, it shall be responsible for such loss unless it promptly gives notice of such infringement to the Construction Project Manager.

#### 4.19 INDEMNIFICATION

4.19.1 To the fullest extent permitted by law, the Contractor shall at its sole cost and expense, indemnify, defend, satisfy all judgments and hold harmless the Owner, the Construction Project Manager and the Architect, and their respective directors, officers, agents, representatives, and employees, from and against all claims, actions, judgments, costs, penalties, liabilities damages, losses and expenses, including but not limited to attorney's fees arising out of or resulting from the performance of the Work, provided that any such claim, action, judgment, cost, penalty, liability, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent or other wrongful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Paragraph 4.19. If any provision herein could be read to require a type or degree of indemnification or insurance not permitted by Oregon law, it is hereby expressly restricted to require only that type or degree of indemnification or insurance which is permitted by Oregon law. Without limitation, to the extent required under ORS 30.140, no provision of this Agreement shall require Contractor, or its surety or insurer to indemnify another against liability for damage arising out of death or bodily injury to persons or damage to property caused in whole or in part by negligence of the indemnitee, provided this paragraph shall not affect any provision of this Agreement that requires Contractor or Contractor's surety or insurer to indemnify against liability for damage arising out of death or bodily injury to persons or damage to property to the extent that the death or bodily injury to persons or damage to property arises out of the fault of the indemnitor, or the fault of the indemnitor's agents, representatives or subcontractors.

4.19.2 In any and all claims against the Owner, the Construction Project Manager or the Architect or any of their agents, representatives or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Paragraph 4.19 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workers' workmen's compensation acts, disability acts or other employee benefit acts.

4.19.3 No provision of this Paragraph 4.19 shall give rise to any duties on the part of the Construction Project Manager, the Architect or the Owner or their agents, representatives or employees.

4.19.4 It is the intent of this contract to require the Contractor to indemnify the Owner, Construction Project Manager, and the Architect and their agents, representatives and employees, to the fullest extent permitted by Oregon Revised Statutes as it now exists or is hereafter amended. It is specifically intended that the Contractor's indemnity shall cover allegations of concurrent negligence of indemnitor and indemnitee, their agents or employees; and that the duty to so indemnify shall cover all costs of defense of such claims. The Contractor's indemnity obligations shall not cover allegations or adjudicated determinations that the liability arises from the sole negligence of an indemnitee. The Contractor shall provide insurance covering such indemnity obligations subject to the terms and conditions provided in Article 11 including the naming of Owner, Construction Project Manager and Architect as additional insured upon such policy.

4.19.5 The provisions of Subparagraph 4.19 shall survive the completion, termination or expiration of this Contract.

#### 4.20 PERSONS AUTHORIZED TO SIGN DOCUMENTS

4.20.1 The Contractor shall, within five (5) days after Notice to Proceed or execution of the Contract, whichever is earliest, file with the Construction Project Manager a list of all persons who are authorized to sign documents such as contracts, certificates, and affidavits, on behalf of the Contractor and to fully bind the Contractor to all the conditions and

provisions of such documents, except that in the case of a corporation it shall file with the Construction Project Manager a certified copy of a resolution of the Board of Directors of the corporation in which are listed the names and titles of the corporation's personnel who are authorized to sign documents on behalf of the corporation and to fully bind the corporation to all the conditions and provisions of such documents.

#### 4.21 CONDITIONS AFFECTING THE WORK

4.21.1 The Contractor shall be responsible for having taken all steps necessary to ascertain the nature and location of the Work, and the general and local conditions and legal requirements which can affect the Work or the cost thereof. Failure by Contractor to fully acquaint itself with conditions which may affect the Work, including, but not limited to, conditions relating to transportation, handling, storage of materials, availability of labor, utility services, roads, weather, topographic and subsurface conditions, other separate contractors, applicable provisions of law, and the character and availability of equipment and facilities needed prior to and during the prosecution of the Work, shall not relieve Contractor of its responsibilities under the Contract Documents and shall not constitute a basis for an equitable adjustment under any circumstances. The Owner assumes no responsibility for any understanding or representations concerning conditions made by the Contractor, any of its officers, agents, employees or Subcontractors prior to the execution of this Contract, unless such understanding or representations are expressly stated in the Contract Documents.

4.21.2 If in the execution of the Work any valuable items or materials of any kind are discovered buried or hidden within the Work, such items or materials shall be the property of the Owner. The Contractor shall take reasonable precautions to prevent any persons from removing or damaging such items or materials and shall, immediately upon discovery thereof and before removal, acquaint the Construction Project Manager or the Architect with such discovery and carry out, at the expense of the Owner, the Construction Project Manager's orders as to disposal of the same.

#### 4.22 TESTS

4.22.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested or approved, the Contractor shall arrange for such inspection, testing or approval, and shall give the Construction Project Manager timely notice of its readiness so the Architect and the Construction Project Manager may observe such inspection, testing or approval. The Owner shall bear all costs of such inspections, tests or approvals.

4.22.2 If the Architect or the Construction Project Manager determines that any Work requires special inspection, testing, or approval which Subparagraph 4.22.1 does not include, the Construction Project Manager will instruct the Contractor to order such special inspection, testing or approval, and the Contractor shall give notice as provided in Subparagraph 4.22.1. If such special inspection or testing reveals a failure of the Work to comply (1) with the requirements of the Contract Documents, or (2) with respect to the performance of the Work, with laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, the Contractor shall bear all costs thereof, including compensation for the Architect's and the Construction Project Manager's additional services made necessary by such failure. If such special inspection or testing reveals that the Work is in compliance with all applicable requirements, the Owner shall bear all costs thereof.

4.22.3 Inspections and tests required to establish compliance with the Contract Documents, as provided for in the Contract Documents, will be made by a pre-qualified, independent testing agency approved by the Owner. The cost of services of such agency will be paid by the Owner. When the initial tests indicate non-compliance with the Contract Documents, any subsequent retesting occasioned by non-compliance shall be performed by the same agency and the cost thereof borne by the Contractor. Representatives of the testing agency shall have access to the Work at all times. The Contractor shall provide facilities for such access in order that the agency may properly perform its functions.

4.22.4 Inspections or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

4.22.5 The independent testing agency shall prepare the test reports, logs, and certificates applicable to the specific inspections and tests and promptly deliver the specified number of copies of same to the designated parties. Certificates of inspection, testing or approval required by public authorities shall be secured by the Contractor and delivered to it by the Owner, in such time as to not delay progress of the Work or final payment therefor.

4.22.6 Inspection and laboratory testing shall be provided as called for in the General Requirements and Technical Specifications by an independent testing consultant retained by the Owner.

#### 4.23 ENVIRONMENTAL POLLUTION

4.23.1 Unless disposition of environmental pollution is specifically a part of this Contract, Contractor shall immediately notify Owner of any hazardous substance(s) which Contractor discovers or encounters during performance of the work required by this Contract. "Hazardous substance(s)" are those substances, materials, or wastes regulated in 40 CFR, Part 261 and defined as hazardous in 40 CFR S 261.3. In addition to notifying Owner of any hazardous substance(s) discovered or encountered, Contractor shall immediately cease working in any particular area of the project where a hazardous substance(s) has been discovered or encountered if continued work in such area would present a bona fide risk or danger to the health or well being of Contractor's or any subcontractor's work force.

4.23.2 Upon being notified by Contractor of the presence of hazardous substance(s) on the project site, Owner shall arrange for the proper disposition of such hazardous substance(s).

#### 4.24 SPILL RESPONSIBILITY

4.24.1 Contractor will be responsible for any and all releases of hazardous substances during performance of the Contract which occur as a result of, or are contributed by, actions of its agents, personnel, or subcontractors. Contractor agrees to promptly dispose of such spills or leaks to satisfaction of the Owner and proper regulatory agencies in a manner that complies with applicable federal, state, and local laws and regulations. Cleanup shall be at no cost to the Owner.

4.24.1.1 Contractor shall obtain the Owner's written consent prior to bringing onto the work site any (i) environmental pollutants or (ii) hazardous substances or materials, as the same or reasonably similar terms are used in any applicable federal, state, or local statutes, rules or ordinances. Notwithstanding such written consent from the Owner, the Contractor, at all times, shall:

1. properly handle, use and dispose of all environmental pollutants and hazardous substances or materials brought onto the work site, in accordance with all applicable federal, state, or local statutes, rules, or ordinances;
2. be responsible for any and all spills, releases, discharges, or leaks of (or from) environmental pollutants or hazardous substances or materials which Contractor has brought onto the work site; and
3. promptly clean up, without cost to the Owner, such spills, releases, discharges, or leaks to the Owner's satisfaction and in compliance with all applicable federal, state, or local statutes, rules or ordinances.

4.24.1.2 Contractor shall be liable for any and all costs, expenses, damages, claims, and causes of action, or any of them, related to or arising out of a spill, release, discharge, or leak of (or from) any environmental pollutant or hazardous substance or material, to the extent such spill, release, discharge, or leak was caused or contributed to by Contractor's (i) negligence or (ii) failure to perform in accordance with the Contract Documents. Nothing in this paragraph 4.24 shall limit Contractor's liability or responsibility under paragraph 4.19 of the General Conditions.

4.24.2 Contractor shall report all reportable quantity releases to applicable federal, state, and local regulatory and emergency response agencies. Reportable quantities are found in 40 CFR, Part 302, Table 302.4 for hazardous substances and in OAR 340-142 for petroleum products. Upon discovery, regardless of quantity, Contractor must telephonically report all releases to the Owner. A written follow-up report shall be submitted to Owner within 48 hours of the telephonic report. Such written report shall contain, at a minimum:

4.24.2.1 Description of items released (identity, quantity, manifest no., and all other documentation required by law).

4.24.2.2 Whether the quantities released require EPA/DEQ reporting, and, if so, when it was reported.

4.24.2. Exact time and location of release, including a description of the area involved.

4.24.2.4 Containment procedures initiated.

4.24.2.5 Summary of communications about the release Contractor has had with members of the press or State officials other than Owner.

4.24.2.6 Description of cleanup procedures employed or to be employed at the site, including disposal location of spill residue.

4.24.2.7 Personnel injuries, if any, resulting from, or aggravated by, the release.

#### 4.25 ENVIRONMENTAL CLEAN-UP

4.25.1 As part of the Final Completion Notice, or as a separate written notice submitted with or before the Notice of Final Completion, the Contractor shall certify to the Owner that all environmental pollution clean-up which was performed as part of this Contract has been disposed of in accordance with all applicable rules, regulations, laws, and statutes of all agencies having jurisdictions over such environmental pollution. The notice shall indemnify and hold the Owner harmless from any claims resulting from the disposal of the environmental pollution including removal, encapsulation, transportation, handling, and disposal.

### ARTICLE 5 SUBCONTRACTORS

#### 5.1 DEFINITION

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform any of the Work at the site. The term Subcontractor is referred to throughout the Construction Documents as if singular in number and means a Subcontractor or its authorized representatives. The term Subcontractor does not include any separate contractor or its subcontractors.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform any of the Work at the site. The term Sub-subcontractor is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or its authorized representatives.

5.1.3 Nothing contained in the Contract Documents is intended to nor shall it create any contractual relationship between the Owner, the Construction Project Manager, the Architect or any of their agents, employees or representatives and any Subcontractor or Sub-subcontractor.

#### 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Within five (5) days of receipt of a Notice to Proceed, the Contractor shall furnish to the Construction Project Manager in writing for review and acceptance by the Owner the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. The Construction Project Manager will promptly reply to the Contractor in writing stating whether or not the Owner, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Construction Project Manager to reply promptly shall constitute notice of no reasonable objection. The Contractor understands and agrees that it alone is responsible to the Owner for all of the Work under this Agreement and that any review of Subcontractors or Sub-subcontractors by Owner or the Construction Project Manager will not in any way make the Owner responsible to nor for the actions or failures of any Subcontractor or Sub-subcontractor.

5.2.2 The Contractor shall not contract with any such proposed person or entity to whom the Owner has made reasonable objection under the provisions of Subparagraph 5.2.1.

5.2.3 If the Owner, the Construction Project Manager or the Architect, has reasonable objection to any such proposed person or entity, the Contractor shall submit a replacement to whom the Owner, the Construction Project Manager and Architect, have no reasonable objection, and the Contract Sum shall be increased or decreased by the difference in cost occasioned by such replacement and an appropriate Change Order shall be issued; however, no increase in the Contract Sum shall be allowed for any such substitution unless the Contractor has acted promptly and responsively in submitting names as required by Subparagraph 5.2.1 or if the Construction Project Manager stated said objection in writing before the submission by the Contractor of the accepted proposal or if the proposed subcontractor is unable to enter into and carry out its work under its proposed subcontract, or if the Subcontractor fails to comply with all applicable laws, or if the proposed subcontractor is not an on-going business in the field of its proposed subcontract, or if the proposed subcontractor does not have a labor force and the means of supply compatible with the scope of the subcontract.

5.2.4 If the Owner requires a change of any proposed subcontractor or person or organization previously accepted by it the Contract Sum shall be increased or decreased by the difference in cost occasioned by such change and an appropriate Change Order shall be issued.



5.2.5 The Contractor shall make no substitution for any Subcontractor, person or entity previously selected if the Owner, the Construction Project Manager or the Architect, makes objection to such substitution.

### 5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By an appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor in terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner. Said agreement shall preserve and protect the rights of the Owner under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with its Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Paragraph 5.3, and shall identify to the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to its Sub-subcontractors.

### 5.4 PREPARATORY WORK

5.4.1 Before starting each section of Work, the Contractor shall ensure that the responsible Subcontractor has carefully examined all preparatory work that has been executed to receive its work. The Subcontractor shall check carefully, by whatever means are required, to ensure that the work and adjacent related work will finish to proper contours, planes, and levels. The Subcontractor shall promptly notify the Contractor who shall notify the Construction Project Manager in writing of any defects or imperfections in preparatory work which will, in any way, affect satisfactory completion of the Work. Absence of such notification will be construed as an acceptance of preparatory work and later claims of defects therein will not be recognized.

5.4.2 Under no conditions shall a section of Work proceed prior to preparatory work having been completed, cured, dried, and otherwise made satisfactory to receive such related work. Responsibility for timely installation of all materials and equipment rests solely with the Contractor, who shall maintain coordination control at all times.

## ARTICLE 6 WORK BY OWNER OR BY SEPARATE CONTRACTORS

### 6.1 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform work related to the Project with its own forces, and to award separate contracts in connection with other portions of the Project or other work on the site under any contract terms and conditions which the Owner, in its sole discretion, may require.

6.1.2 When separate contracts are awarded for different portions of the Project or other work on the site, the term Contractor in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

### 6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall connect and coordinate its Work with theirs as required by the Contract Documents.

6.2.2 If any part of the Work depends for proper execution or results upon work of the Owner or any separate contractor, the Contractor shall, prior to proceeding with the Work, carefully inspect and promptly report to the Owner any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and promptly report shall constitute an acceptance of the Owner's or separate contractors' work as fit and proper to receive its Work, except as to latent defects which Contractor could not have reasonably discovered by its inspection.

6.2.3 Any costs caused by defective or ill-timed work shall be borne by the party responsible therefor.

6.2.4 Should the Contractor wrongfully cause damage to work or property of the Owner, or to other work on the site, the Contractor shall promptly remedy and be wholly responsible for such damage.

6.2.5 Should the Contractor wrongfully cause damage to the work or property of any separate contractor, the Contractor shall upon due notice promptly attempt to settle with such other contractor by agreement, or otherwise to resolve the dispute at law. If such separate contractor sues or initiates a proceeding against the Owner, the Construction Project Manager and/or the Architect on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor who shall defend such proceedings at its own expense, and if any judgment or award against the Owner, the Construction Project Manager and/or the Architect arises therefrom, the Contractor shall pay or satisfy it and shall reimburse the Owner, the Construction Project Manager and/or the Architect for all attorneys' fees and court or arbitration costs which the Owner, the Construction Project Manager and/or the Architect have incurred.

6.2.6 In the event there is more than one contractor engaged on the Project, each such contractor shall be responsible to the other for damages to work, injury to any person or persons, or for any loss, cost, claims or damages arising out of or in connection with the work required by each contract with the Owner or any loss, cost, expense or damage caused by separate contractor's neglect or failure to finish or satisfactorily complete its part of the Work within the time prescribed. In all events the provisions of Paragraph 4.19 shall be applicable.

6.2.7 Whenever the Contractor receives items from a separate contractor or from the Owner for storage, erection or installation, the Contractor receiving such items shall give receipt for items delivered, and thereafter will be held responsible for care, storage and any necessary replacing of item or items received.

6.2.8 When certain items of equipment and other work are indicated as "NIC" (not in contract), or to be furnished and installed under other contracts, any requirements for preparation of openings, provision of backing, etc., for receipt of such "NIC" work will be furnished upon written request of the Contractor who shall properly form and otherwise prepare its work in a satisfactory manner to receive such "NIC" work.

### 6.3 OWNER'S RIGHT TO PERFORM DISPUTED WORK

6.3.1 If a dispute arises between the Contractor and separate contractors as to their responsibility for cleaning up as required by the Contract Documents, for accomplishing coordination or doing required cutting, filling, excavating or patching as required by the Contract Documents, the Owner may carry out such work and charge the cost thereof to the several contractors responsible therefor as the Owner shall determine to be just.

## ARTICLE 7 MISCELLANEOUS PROVISIONS

### 7.1 GOVERNING LAW

7.1.1 This Contract shall be governed by the laws of the State of Oregon, without giving effect to any conflict-of-law principle that would result in the laws of any other jurisdiction governing this Contract.

7.1.2 If any of the provisions of this Contract shall be held invalid or unenforceable in any respect, the enforceability of the provision in any other respect and of the remaining provisions of this Contract will not be impaired, if the essential terms and conditions of this Contract remain, valid, binding, and enforceable.

### 7.2 SUCCESSORS AND ASSIGNS

7.2.1 The Owner and the Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contractor shall not assign the Contract or sublet it in whole or part without the written consent of the Owner, nor shall the Contractor assign any monies due or to become due to it hereunder, without the prior written consent of the Owner.

### 7.3 WRITTEN NOTICE

7.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or member of the firm or entity or to an officer of the corporation for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party who gives the notice.

#### 7.4 CLAIMS AND DAMAGES

7.4.1 Claims by either the Owner or Contractor must be initiated by written notice to the other party, with a copy sent to the Architect. Claims by either party must be initiated within 7 days after occurrence of the event giving rise to such claim or within 7 days after the claimant first recognizes the condition giving rise to the claim, whichever is later.

#### 7.5 PERFORMANCE BOND, LABOR AND MATERIAL PAYMENT BOND

7.5.1 Contractor shall secure, include costs therefore in the Proposal, and pay for a performance bond and payment bond in compliance with ORS 279C.380 and other applicable Oregon Revised Statutes issued by a bonding company licensed to transact business in the State of Oregon.

Liability under each bond shall be:

100% of Contract sum for (1) performance of the Contract and (2) labor and material payment.

7.5.2 The Contractor shall deliver the required bonds to the Owner not later than three (3) days following the date the Owner-Contractor Agreement is entered into.

7.5.3 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

7.5.4 The Contractor shall commence no work on site until satisfactory compliance with Subparagraph 7.5.1. through

7.5.3. Failure to obtain such bonds in a timely manner shall not be a basis of claim for extension in time.

#### 7.6 RIGHTS AND REMEDIES

7.6.1 The duties and obligations of the Contractor imposed by the Contract Documents and the rights and remedies of the Owner available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law or equity.

7.6.2 The failure of the Owner, the Construction Project Manager or the Architect to insist in any one or more instances upon the strict performance of any one or more of the provisions of this Contract, or to exercise any right herein contained or provided by law, shall not be construed as a waiver or relinquishment of the performance of such provision or right(s) or of the right to subsequently demand such strict performance or exercise such right(s), and the rights shall continue unchanged and remain in full force and effect.

7.6.3 Contractor agrees that it can be adequately compensated by money damages or time extensions for any breach of this Contract which may be committed by the Owner and hereby agrees that, no default, act, or omission of the Owner, the Construction Project Manager or the Architect, except only for failure to make payments as required by the Contract Documents, shall constitute a material breach of the Contract entitling Contractor to cancel or rescind the provisions of this Contract or (unless the Owner shall so consent or direct in writing) to suspend or abandon performance of all or any part of the Work. Contractor hereby waives any and all rights and remedies to which it might otherwise be or become entitled, saving only its right to money damages or time extensions pursuant to the terms of this contract.

#### 7.7 DISPUTE RESOLUTIONS

7.7.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract shall be subject to mediation as a condition precedent to binding dispute resolution. Mediation shall be before the Arbitration Service of Portland, Inc. The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in Madras, Oregon, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

7.7.2 Any claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by then-current rules of the Arbitration Service of Portland, Inc. in effect on the date of the Contract. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all claims then known to that party on which arbitration is permitted to be demanded. A demand

for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the claim. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Contract shall be specifically enforceable under applicable law in any court having jurisdiction thereof. Each party consents and submits to the jurisdiction of the state courts located in Jefferson County, Oregon.

7.7.3 Either party, at its sole discretion, may consolidate an arbitration conducted under this Contract with any other arbitration to which it is a party provided that the arbitrations to be consolidated substantially involve common questions of law or fact, and the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s). Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder.

## ARTICLE 8 TIME

### 8.1 DEFINITIONS

8.1.1 Unless otherwise provided, the Contract Time is the period of time allotted in the Contract Documents for Final Completion of the Work, including authorized adjustments thereto.

8.1.2 The date of commencement of the Work is the date established in the Notice to Proceed. If there is no Notice to Proceed, it shall be the date of the Owner-Contractor Agreement or such other date as may be established therein.

8.1.3 The Date of Substantial Completion of the Work or designated portion thereof is the date certified by the Architect and the Construction Project Manager when the Work has sufficiently progressed, in accordance with the Contract Documents, so the Owner can fully occupy and utilize the Work or designated portion thereof for the use which it is intended, with all of the parts and systems operable as required by the Contract Documents and where all work is complete, accessible, operable and usable by the Owner. Only incidental corrective work under "punchlists" and final cleaning (if required) beyond cleaning needed for the Owner's full use may remain for Final Completion.

8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically designated.

### 8.2 PROGRESS AND COMPLETION

8.2.1 All time limits stated in the Contract Documents are of the essence of the Contract.

8.2.2 The Contractor shall begin the work on the date of commencement as defined in Subparagraph 8.1.2. It shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial and Final Completion within the Contract Dates stated in the Contract Documents.

8.2.3 If a date or time of completion is included in the Contract, it shall be the Date of Substantial Completion as defined in Subparagraph 8.1.3, including authorized extensions thereto, unless otherwise provided.

8.2.4 Attention is directed to the fact that the Work is urgently needed by the Owner and that time is of the essence. For this reason, it shall be agreed that the Contractor will substantially complete the Work, or designated portions thereof, under the Contract, within the time and dates established in the Contract Documents for such completion, and that it will complete the Contract in all its details for final acceptance as specified after Substantial Completion.

### 8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 Except as specifically provided under Paragraph 2.4 (Owner's Right to Stop Work) or Paragraph 12.1 (Changes in the Work), Contractor shall not be entitled to payment or compensation of any kind from the Owner for direct, indirect, or impact damages, including but not limited to costs of acceleration, arising because of reasonable hindrance or delay from any cause whatsoever, whether such hindrance or delay be foreseeable or unforeseeable or avoidable or

unavoidable provided however, that this provision shall not preclude recovery by Contractor for damages for unreasonable delays or hindrances caused by the acts or omissions of the Owner or persons acting for the Owner. Notwithstanding the foregoing, under no circumstances shall Contractor be entitled to delay damages attributable to a delay in Owner's execution of the Contract unless the Owner executes the Contract after the time provided for in the Contract Documents. The Contractor shall not in any event be entitled to damages arising out of actual or alleged loss of efficiency; morale, fatigue, attitude, or labor rhythm; constructive acceleration; home office overhead; expectant underrun; trade stacking; reassignment of workers; concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics ripple; seasons change; extended overhead; profit upon damages for delay; impact damages; or similar damages. Except as provided in this subparagraph, the Contractor's sole remedy for delays shall be an extension of time.

8.3.2 The Contract Time shall be adjusted only for Changes in the Work (pursuant to Paragraph 12.1), Owner's Rights to Stop Work (pursuant to Subparagraph 2.4) and Excusable Delays (pursuant to Subparagraph 8.3.3). In the event the Contractor requests an extension of the Contract Time, it shall furnish such justification and supporting evidence as the Owner may deem necessary for a determination as to whether the Contractor is entitled to an extension of time under the provisions of this Contract. The Owner, after receipt of such justification and supporting evidence, shall make its findings of fact and decision thereon and shall advise the Contractor in writing thereof. If the Owner finds that the Contractor is entitled to any extension of the Contract Time, the Owner's determination as to the total number of days' extension shall be based upon the currently approved schedule and on all data relevant to the extension. Such data will be included in the next monthly updating of the schedule. The Contractor acknowledges and agrees that actual delays (due to said changes, suspension of Work or excusable delays) in activities which, according to the schedule, do not affect the Contract Time or Specific Dates, will not be the basis for an extension of the Contract Time or Specific Dates.

8.3.3 Subject to other provisions of this Contract, Contractor may be entitled to an extension of the Contract Time (but no increase in the Contract Sum) for delays arising from unforeseeable causes beyond the control and without the fault or negligence of the Contractor or its Subcontractors as follows:

8.3.3.1 Labor strikes (including strikes affecting transportation), that do, in fact, directly and critically affect the progress of the Work; however, an extension of Contract Time on account of an individual labor strike shall not exceed the number of calendar days of said strike;

8.3.3.2 Acts of God, tornado, fire, hurricane, blizzard, earthquake, typhoon, or flood that damage completed work or stored materials, provided that an act of neglect by the Contractor did not contribute to such damage;

8.3.3.3 Abnormal inclement weather; however

1. Contractor agrees that it shall not be entitled to a time extension for normal inclement weather which can be expected at the Project locale due to precipitation **or** temperature, based upon actual data from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) for the locale of the Project.
2. Contractor agrees that the measure of abnormal inclement weather due to precipitation **or** temperature during the period covered by this Contract shall be the number of days in excess of the average of the previous 10 years as shown in the NOAA weather data, in which precipitation exceeded the average by 0.10 inch (or in the case of snow or ice pellets, 1 inch or more), or in which the highest temperature was 32 degrees F. or below. Either precipitation **or** temperature will be used for the entire month in question.
3. No extension of time will be made for abnormal inclement weather after the principal portions of the Work are enclosed except for site work which critically affects the Contract Time or Specific Dates. For the purpose of this Paragraph 8.3, the term "enclosed" is defined to mean when the Work is sufficiently closed in (exterior walls up and roof in place) so as to permit any structure, or major portion thereof which is part of the Work, to be adequately heated so as to allow the various trades to perform their work. The Construction Project Manager shall determine when the structure is

"enclosed" and shall issue, upon the request of Contractor, a letter certifying the date the Work became enclosed for the purposes thereof.

4. If the total calendar days lost due to inclement weather, from the start of the Work at the Project site by the Contractor until the principal portions of the Work are enclosed, exceeds the total number of days to be expected for the same period, a time extension, if granted, shall only be the number of calendar days needed to equal the excess number of calendar days lost due to such abnormal inclement weather.

8.3.3.4 Acts of the public enemy, acts of the State, Federal or local Government in its sovereign capacity, and acts of another contractor in the performance of a contract with the Owner relating to the Project.

8.3.4 All claims for extensions of time shall be made in writing to the Construction Project Manager no more than seven (7) days after the beginning of the delay; otherwise all such claims are waived by the Contractor. In the case of a continuous cause of delay only one written claim is necessary. The Contractor shall provide an estimate of the probable effect of such delay on the progress of the Work.

8.3.5 If no schedule or agreement is made stating the dates upon which written interpretations as set forth in Subparagraph 3.2.17 shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations until fifteen (15) days after demand is made for them, and not then unless such claim is reasonable.

## ARTICLE 9 PAYMENTS AND COMPLETION

### 9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Owner-Contractor Agreement and, including authorized adjustments thereto, is the total amount payable by the Owner to the Contractor for the performance of the Work under the Contract Documents.

### 9.2 SCHEDULE OF VALUES

9.2.1 Before the first Application for Payment, the Contractor shall submit to the Owner a Schedule of Values allocated to the various portions of the Work, as set forth in Division 1, Section 01 2973 of the General Requirements entitled "Schedule of Values," and supported by such data to substantiate its accuracy as the Construction Project Manager and the Owner may require. This schedule, unless objected to by the Owner, shall be used only as a basis for the Contractor's Applications for Payment.

### 9.3 APPLICATIONS FOR PAYMENT

9.3.1 On or about the dates specified in the Contract Documents, Contractor shall meet with the Construction Project Manager and submit a completed Progress Report, in accordance with the requirements of Contract Documents, supported by such data substantiating the Contractor's right to payment as the Owner or Construction Project Manager may require. Contractor shall also certify that it has paid all due and payable amounts for which previous certificates for payment were issued and payments received from the Owner. Each application for payment thereafter shall include the Contractor's statement that prevailing wages have been paid in accordance with ORS 279C.800 through 279C.870.

9.3.1.1 The submission and approval of the Construction Schedule and monthly updates thereof as required by the Contract Documents shall be an integral part and basic element of the Application upon which progress payment shall be made. The Contractor shall be entitled to progress payments only upon substantial compliance with all the requirements of this Article 9, which compliance shall be a condition precedent to the processing of Contractor's Applications.

9.3.2 Retainage shall be in accordance with ORS 279C.550 through 279C.570.

9.3.2.1 The Owner shall make progress payments on the contract monthly as work progresses on the Work. Payments shall be based upon estimates of work completed that are approved by the Architect and the Owner. A progress payment shall not be considered acceptance or approval of any work or waiver of any defects therein. The Owner shall

pay to the Contractor interest on the progress payment, not including retainage, at a rate equal to three times the discount rate on 90-day commercial paper in effect at the Federal Reserve Bank in the Federal Reserve district that includes Oregon on the date that is 30 days after receipt of the invoice from the contractor or 15 days after the payment is approved by the contracting agency, whichever is the earlier date, but the rate of interest may not exceed 30 percent. The interest shall commence 30 days after the request for payment is made by the Contractor or 15 days after the payment is approved by the Owner, whichever is the earlier date.

9.3.2.2 The Owner shall reserve as retainage from any progress payment on this Contract an amount not to exceed five percent of the payment.

9.3.2.3 The retainage held by the Owner shall be included in and paid to the Contractor as part of the final payment of the Contract Sum. The Owner shall pay to the Contractor interest at the rate of one and one-half percent per month on the final payment due the Contractor, interest to commence 30 days after the work under the contract has been completed and accepted and to run until the date when the final payment is tendered to the Contractor. The Contractor shall notify the Owner in writing when the Contractor considers the work complete and the Owner shall, within 15 days after receiving the written notice, either accept the work or notify the Contractor of work yet to be performed on the Contract. If the Owner does not within the time allowed notify the Contractor of work yet to be performed to fulfill contractual obligations, the interest provided by this subparagraph shall commence to run 30 days after the end of the 15-day period.

9.3.3 Payments may be made by the Owner at its sole discretion, on account of materials or equipment not incorporated in the Work but delivered and suitably stored at the site by the Contractor. Materials once paid for by the Owner become the property of the Owner and may not be removed from the Project site without the Owner's written permission.

9.3.4 The Contractor warrants that title to all Work (including all materials and equipment) within the scope of an Application for Payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contractor from Owner, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances (hereinafter referred to in this Article 9 as "liens"); and that no Work, materials or equipment covered by Application for Payment will have been acquired by the Contractor, or by any other person performing or furnishing any portion of the Work for Contractor, subject to an agreement under which a security interest therein or any other encumbrance thereon is retained by the seller or supplier, or is otherwise imposed thereon by Contractor or such other person.

9.3.5 Everything charged to the Contractor by the Owner under the provisions of the Contract shall be paid to the Owner within three (3) days of written demand. Such charges may be deducted by the Owner from monies due or to become due under the Contract. The Owner may recover such charges from the Contractor or its surety.

#### 9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Construction Project Manager after receipt of the Contractor's Application for Payment, will within a reasonable time issue a Certificate of Payment to the Owner, with a copy to the Contractor, for such amount as the Construction Project Manager and Architect, determine is properly due, or notify the Contractor in writing of the reasons for withholding a Certificate as provided in paragraph 9.6.

9.4.2 The signing of a Certificate for Payment will constitute a representation by the Construction Project Manager or Architect to the Owner, that based upon observations at the site, pursuant to their agreements with the Owner, and the data comprising the Application for Payment, the Work has progressed to the point indicated and that, to the best of their knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to: an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion; the results of any subsequent tests required by or performed under the Contract Documents; minor deviations from the Contract Documents correctable prior to completion; and any specific qualifications stated in the Certificate for Payment); and that the Contractor is entitled to payment in the amount certified. However, by signing a Certificate for Payment, the Construction Project Manager and Architect shall not thereby be deemed to represent that either has made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, or that either has reviewed the construction means, methods, techniques, sequences or procedures, or that either has made any examination to ascertain how or for what purpose the Contractor has used the monies previously paid on account of the Contract Sum.

#### 9.5 PROGRESS PAYMENTS

9.5.1 After a Certificate for Payment has been issued, the Owner shall make payment in the manner and within the time provided in Division 1, Section 01 2900.

9.5.1.1 Prior to the twenty-fifth (25<sup>th</sup>) day of each month, the Contractor shall submit to the Architect and the Construction Project Manager a draft Application for Payment. The Application shall be on the forms required by Division 1, Section 01 2900 and shall be accompanied by such other certificates as may be required by the Owner. On or before the last day of each month, the Contractor shall submit to the Architect and the Construction Project Manager an Application for Payment that has been corrected from the draft Application. No Application for payment will be accepted after the date of Substantial Completion until the Request for Final Payment, except that if extensions in the contract Time total thirty (30) calendar days or more there shall be additional progress payments for each full thirty (30) calendar days of the Contract Time extension.

9.5.1.2 The Owner shall make payment on or before the fourteenth (14<sup>th</sup>) day of the month following Application submittal. Progress payments shall bear interest at the statutory rate established in ORS 279C.570, thirty days (30) after the request for payment is made by the Contractor or fifteen days (15) after the payment is approved by the Owner, whichever is the earlier date. Interest, if any, on a final payment due and unpaid shall commence upon expiration of the applicable time period under Article 13.

9.5.2 The Contractor shall pay each Subcontractor (including material suppliers and laborers) performing labor or furnishing material for the Work within seven (7) days of receipt of payment from the Owner out of the amount paid to the Contractor on account of the Work of such Subcontractor, material supplier, or laborer, the amount which said Subcontractor is entitled as required by Oregon Revised Statutes, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such Work. The Contractor shall, by an appropriate agreement with each Subcontractor, also require each Subcontractor to make payments to its Sub-subcontractors in similar manner. The Contractor or Subcontractor may withhold payment of not more than 5% from the monies earned by any Subcontractor or any Sub-subcontractor or supplier in accordance with ORS 701.410 to 701.440 as it now exists or may hereafter be amended except as provided in ORS 279C.580.

9.5.3 The Owner may, on request and at its discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Construction Project Manager on account of Work done by such Subcontractor.

9.5.4 Neither the Owner, the Construction Project Manager nor the Architect shall have any obligation to pay, nor to see to the payment of, any monies to any Subcontractor except as may otherwise be required by law.

9.5.5 No Certificate for a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the Project by the Owner, shall constitute an acceptance of any Work which is not in accordance with the Contract Documents.

9.5.6 Contractor agrees to keep the Work and the site(s) on which Work is to be performed free and clear of all liens and claims of liens on materials furnished pursuant to the Contract Documents. Contractor hereby waives any right it may have in connection with the Work to file any liens, mechanics or otherwise. Notwithstanding anything to the contrary contained in the Contract Documents, if any such lien is filed or there is any reason to believe that any lien may be filed at any time during the progress of the Work or the duration of this Contract, the Owner may refuse to make any payment otherwise due the Contractor or withhold from any payment due to Contractor a sum sufficient in the opinion of the Owner to pay all obligations and expenses necessary to satisfy such lien or claim and completely indemnify the Owner against any such lien or claim unless and until Contractor shall furnish satisfactory evidence that the indebtedness and the lien in respect thereof, if any, has been satisfied, discharged and released of record or that the Contractor has caused such lien to be released of record if and as provided by law pending the resolution of any dispute between Contractor and the person filing such lien; and if such evidence is not furnished by Contractor to the Owner within a period of five (5) days after demand to do so, the Owner may discharge such indebtedness and deduct the amount required therefore, together with any and all losses, costs, damages and attorney's fees suffered or incurred by the Owner from any sum payable to Contractor under the Contract Documents. Final Payment to Contractor may be withheld until the Work and the site(s) on which the Work is to be performed are free and clear of any and all liens or rights thereto arising because of Work performed or materials furnished under the Contract Documents. This Subparagraph 9.5.6 shall be specifically included in all subcontracts and Purchase Orders entered into by Contractor.



9.5.7 Pursuant to Oregon Revised Statutes ORS 279C.505, the Contractor shall make prompt payment, as due, to all persons supplying to the Contractor labor or material for the prosecution of the work provided for herein, pay all contributions or amounts due the State Industrial Accident Fund from the Contractor incurred in the performance of the contract herein, not permit any lien or claims to be filed or prosecuted against the Owner on account of any labor or material furnished, and to pay the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

9.5.8 Pursuant to ORS 279C.515, if the Contractor fails, neglects or refuses to make prompt payments of any claim for labor or services furnished to the Contractor or a subcontractor by any person in connection with a "public contract", as defined in ORS 279A, as such claim become due, the proper official representing the Owner may pay such claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to come due the Contractor by reason of this Contract, but the payment of a claim in the manner authorized herein shall not relieve the Contractor or its surety from its or its obligation with respect to any unpaid claims.

#### 9.6 PAYMENTS WITHHELD

9.6.1 The Construction Project Manager and Architect may decline to certify payment and may withhold the Certificate in whole or in part, to the extent necessary to protect the Owner, if in their opinion they are unable to make representations to the Owner as provided in Subparagraph 9.4.2. If the Construction Project Manager and Architect are unable to make representations to the Owner as provided in Subparagraph 9.4.2 and to certify payment in the amount of the Application, they will notify the Contractor as provided in Subparagraph 9.4.1. If the Contractor, the Architect and the Construction Project Manager cannot agree on a revised amount, the Construction Project Manager and Architect will promptly issue a Certificate for Payment in the amount for which they are able to make such representations to the Owner. The Construction Project Manager and Architect may also decline to certify payment or any part thereof or, because of subsequent observations, they may nullify the whole or any part of any Certificate for Payment previously issued, to such extent as may be necessary in their opinion to protect the Owner from loss because of:

1. defective work not remedied;
2. third party claims filed or reasonable evidence indicating probable filing of such claims;
3. failure of the Contractor to make payments as required by the Contract to Subcontractors or for labor, materials or equipment;
4. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
5. damage to the Owner or another contractor;
6. reasonable evidence that the Work will not be or has not been completed within the Contract Time or Specific Dates;
7. failure to carry out the Work in accordance with the Contract Documents;
8. liens filed or reason to believe it is probable a lien will be filed for any portion of the Work, as more specifically provided in Subparagraph 9.5.6; or
9. failure or refusal of the Contractor to fully comply with Division 1, Section 01 3200 of the General Requirements entitled "Schedules and Reports."

9.6.2 When the above grounds in Subparagraph 9.6.1 are removed, payment shall be made for amounts withheld because of them.

#### 9.7 FAILURE OF PAYMENT

9.7.1 If the Owner does not make payment to the Contractor within the time provided for elsewhere in the Contract Documents, or if no time is stated, within a reasonable time, after receipt of the Contractor's approved Application for Payment from the Construction Project Manager; and if the Contractor is not responsible for such failure; and if the Owner is otherwise not entitled under the Contract Documents or applicable law to withhold payment, Contractor shall give Owner written notice thereof within seven (7) days of such failure to make payment. Should the Owner fail, within fourteen (14) days of receipt of such notice from the Contractor, to make payment to Contractor or to specify, in writing, the justification for withholding or not making payment, Contractor may stop the Work until payment of the amount owing according to the Contract Documents has been received. In such event, the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, which shall be effected by appropriate Change Order as provided herein. Should Owner specify to Contractor, within the fourteen (14) day period stated

above, the basis for the Owner's refusal to make payment, such decision of the Owner shall be final and binding upon the Contractor unless the Contractor, within seven (7) days of the receipt of such writing from the Owner, notifies the Construction Project Manager.

#### 9.8 SUBSTANTIAL COMPLETION

9.8.1 When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner, is substantially complete as defined in Subparagraph 8.1.3, the Contractor shall prepare for the Owner a list of items to be completed or corrected and request in writing that the Work be inspected for Substantial Completion determination. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Architect and the Construction Project Manager, on the basis of an inspection, jointly determine that the Work or designated portion thereof is substantially complete, they will then prepare a Certificate of Substantial Completion, state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall not commence until the Date of Final Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion or the Contract Documents. The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

9.8.2 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Construction Project Manager and the Architect, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or such portion thereof, as provided in the Contract Documents.

9.8.3 Should the Architect and the Construction Project Manager determine that the Work or the portion thereof designated by Contractor pursuant to Subparagraph 9.8.1 is not substantially complete, they shall provide the Contractor a written notice stating why the Work or designated portion thereof is not Substantially Complete. The Contractor shall expeditiously complete the Work and shall re-request in writing that the Architect and the Construction Project Manager perform a Substantial Completion inspection. Contractor shall pay Owner for all costs associated with such re-inspection by the Construction Project Manager and Architect.

9.8.4 The acceptance of Substantial Completion payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the Application for Payment for the Substantial Completion payment, and except for the sum due for Final Completion and the retainage sum due after Final Completion.

#### 9.9 FINAL COMPLETION AND FINAL PAYMENT

9.9.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect and the Construction Project Manager will promptly make such inspection and, when they find the Work acceptable under the Contract Documents and the Contract fully performed, they will jointly issue a final Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor, and noted in said final Certificate, is due and payable. The final Certificate for Payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth in Subparagraph 9.9.2 have been fulfilled.

9.9.1.1 For Final Completion of the Work or designated portion thereof to be achieved, (1) Substantial Completion of the Work or designated portion thereof must have been achieved, (2) the Owner must have received a final certificate of occupancy and all other governmental approvals necessary and required for the Owner to occupy or utilize the Work or designated portion thereof for its intended purpose, or a temporary certificate of occupancy if Contractor is not responsible for the non-issuance of a final certificate of occupancy, (3) the Contractor must have submitted all warranties, operating and maintenance manuals, as-built drawings and Specifications, keys and other submittals required for the Work or designated portion thereof, and (4) the Contractor otherwise must have fully performed and completed all of its other obligations required for Final Completion under the Contract Documents with respect to the Work or designated portion thereof.

9.9.2 Neither final payment nor the remaining retained percentage shall become due until the Work is free and clear of any and all liens as required by Subparagraph 9.5.6 and the Contractor submits to the Owner (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or its

property might in any way be responsible, have been paid or otherwise satisfied, (2) consent of surety, if any, to final payment, (3) valid waivers of all construction lien claims by the Contractor and each Subcontractor in a form acceptable to the Owner, and (4) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner.

If any Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against any loss. If any such lien or claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the Owner may be compelled to pay in discharging such lien or claim, including all costs and attorneys' fees. The Owner may withhold from final payment any sum that the Owner has reason to believe may be needed to satisfy any lien, claim or threat of lien arising out of the Work. The Owner may deduct from final payment an amount equal to any costs, expenses and attorneys' fees incurred by the Owner in removing or discharging any liens arising out of the Work. Payment of the retained percentage shall be in accordance with and subject to the conditions as set forth in ORS 279C.570.

9.9.3 If Owner, after a substantial portion of the work has been completed, finds that an unreasonable delay will occur in the completion of the remaining portion of the contract for any reason not the result of a breach thereof, it may, if the Contractor agrees, delete from the contract the remaining work and accept as final the improvement at the stage of completion then attained and may make payment in proportion to the amount of work accomplished.

9.9.4 The making of Final Payment shall not constitute a waiver of any claims by the Owner against the Contractor.

9.9.5 The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Application for Payment.

#### 9.10 LIQUIDATED DAMAGES

9.10.1 Should the Contractor fail to substantially complete the Work on or before the date stipulated for Substantial Completion (or such later date as may result from extension of time granted by Owner), it shall pay the Owner, as liquidated damages, the sum specified in the Contract for each consecutive calendar day that terms of the contract remain unfulfilled beyond the date allowed by the Contract, which sum is agreed upon as a reasonable and proper measure of damages which the Owner will sustain per day by failure of the Contractor to complete the Work or designated portion thereof within time as stipulated; it being recognized by the Owner and the Contractor that the injury to the Owner which could result from a failure of the Contractor to complete on schedule is uncertain and cannot be computed exactly. In no way shall costs for liquidated damages be construed as a penalty on the Contractor.

9.10.2 For each consecutive calendar day that the Work remains incomplete after the date established for Final Completion, the Owner will retain from the compensation otherwise to be paid to the Contractor the sum specified in the Contract. This amount is the minimum measure of damages the Owner will sustain by failure of the Contractor to complete all remedial work, correct deficient work, clean up and other miscellaneous tasks as required to complete all work specified. This amount is in addition to the liquidated damages prescribed above.

9.10.3 For the purposes of Liquidated Damages, the date of Final Completion shall be the date as stated in the Architect's letter to the Owner that the Project is finally complete.

#### 9.11 OWNER'S RIGHT TO OCCUPY INCOMPLETE WORK

9.11.1 Should the Work, or any portion thereof, be incomplete for Substantial Completion or Final Completion at the scheduled date or dates, the Owner shall have the right to occupy any portion of the Work. In such an event, the Contractor shall not be entitled to any extra compensation on account of said occupancy by the Owner or by the Owner's normal full use of the Work, nor shall the Contractor interfere in any way with said normal full use of the Work. Further, in such an event, the Contractor shall not be entitled to any extra compensation on account of the Owner's occupancy and use of the Work, nor shall the Contractor be relieved of any responsibilities of the Contract including the required times of completion. Such occupancy by the Owner does not, by itself, constitute Substantial Completion nor Final Completion.

ARTICLE 10  
PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Owner, the Construction Project Manager and the Architect, or their agents, employees or representatives, are not responsible for the means, methods, techniques, sequences or procedures utilized by the Contractor, or for safety precautions and programs in connection with the Work. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.

10.1.2 Any notice given to the Contractor by the Owner, the Construction Project Manager or the Architect of a safety or property protection violation will not; (1) relieve the Contractor of sole and complete responsibility for the violation and the correction thereof, or of sole liability for the consequences of said violation; (2) impose any obligation upon Owner, Construction Project Manager or Architect to inspect or review Contractor's safety program or precautions or to enforce Contractor's compliance with the requirements of this Article 10; and (3) impose any continuing obligation upon Owner, Construction Project Manager or Architect to provide such notice to Contractor or any other person or entity.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

1. all employees on the Work and all other persons who may be affected thereby;
2. all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of its Subcontractors or Sub-subcontractors; and
3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavement, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

10.2.4 When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

10.2.5 The Contractor shall promptly remedy all damage or loss to any property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, any Subcontractor, and Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under Clause 10.2.1.2 and 10.2.1.3, except damage or loss caused by the acts or omissions of the Owner or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to its obligations under Paragraph 4.19.

10.2.6 The Contractor shall designate a responsible member of its organization at the site whose duty shall be the prevention of accidents and monitoring of the Work to insure compliance with all applicable laws, ordinances, rules, regulations and lawful orders of public authority bearing on the safety of persons or protection of property. This person shall be the Contractor's Superintendent unless otherwise designated by the Contractor in writing to the Owner.

10.2.7 The Contractor shall not load or permit any part of the Work to be loaded so as to endanger its safety.

10.3 EMERGENCIES

10.3.1 In any emergency affecting the safety of persons or property, the Contractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 12 for Changes in the Work.

ARTICLE 11  
INSURANCE

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor shall purchase and maintain such insurance as will protect it, the Owner, the Construction Project Manager and the Architect and their agents, representatives and employees from claims set forth below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by itself or by any Subcontractor or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefit and other similar employee benefit acts (with Workers' Compensation and Employers Liability Insurance in an amount not less than those necessary to meet the statutory requirements of the state(s) having jurisdiction over any portion of the Work;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of persons performing work or services or supplying materials for the Work;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than its employees;
4. claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
7. Without limiting the above, during the term of the Contract, the Contractor shall, at its own expense, purchase and maintain the following insurance with companies licensed to do business in the jurisdiction in which the Project is located and satisfactory to the Owner.

1. Workers' Compensation with limits as required by law.
2. Employer's Liability (Stop Gap) \$ 1,000,000
3. Commercial General Liability Insurance covering bodily injury and property damage on an "occurrence" form. This coverage shall include contractual liability insurance for the indemnity provided under this contract. The \$2,000,000 Each Occurrence limit can be met by any combination of underlying General Liability and Umbrella or Excess coverage limits to meet the below requirements:

The following limits of insurance will be carried:

a.	Coverage	Limit
	Each Occurrence	\$2,000,000
	General Aggregate	\$4,000,000 *
	Products-Completed Operations Aggregate	\$4,000,000*
	Personal & Advertising Injury	\$2,000,000
	Fire Damage (Any one Fire)	\$100,000
	Medical Expense	\$5,000

\*To apply on a per location basis

4. Comprehensive Automobile Liability covering all owned, non-owned, and hired automobiles ("Symbol 1"):
  - a. Combined Single Limit \$ 1,000,000

5. Umbrella coverage will also be required, and will apply over all primary liability policies including but not limited to coverages outlined in 2, 3, & 4 above.
  - a. Occurrence/Aggregate Limit Insert the greater of \$5,000,000 or dollar value equal to 25% of the Construction Budget
6. Jefferson County School District 509J, its officers, directors, employees, Construction Project Manager, and Architect shall be named as additional insured on all liability policies, by endorsement. This additional insured coverage shall include completed operations.
7. There shall be no cancellation, material change, exhaustion of aggregate limits or intent not to renew insurance coverage without 30 days written notice the Jefferson County School District. Any failure to comply with this provision will not affect the insurance coverage provided to the District.
8. As evidence of the insurance coverage required by this contract, including additional insured endorsement, the contractor shall furnish a Certificate of Insurance to Jefferson County School District 509J. No contract shall be effected until the required certificates have been received and approved by the District. A renewal certificate will be sent to the District 10 days prior to coverage expiration. Where noted above, copies of policy endorsements must be attached to all Certificates of Insurance. Note that certificates cannot change, modify or endorse insurance policies.

11.1.2 The insurance required by Subparagraph 11.1.1 shall be primary and noncontributing to any insurance possessed or procured by the Owner, and limits of liability shall not be less than those set forth in the Special Conditions of this Contract.

11.1.3 The insurance required by Subparagraph 11.1.1 shall include contractual liability insurance applicable to the Contractor's obligations under Paragraph 4.19.

11.1.4 The insurance required by Subparagraph 11.1 shall be written for not less than any limits of liability specified in the Contract Documents or required by law, whichever is greater.

11.1.5 Before signing this Contract, or commencing work on any project or allowing any Subcontractor to commence work, the Contractor shall obtain all insurance required under this subparagraph. The Contractor shall maintain this insurance until Final Completion. Proof of insurance will be required prior to performing work under the warranty.

11.1.6 The service or services to be rendered under this contract are those of an independent contractor in accordance with ORS 670.600 and 670.605. Contractor is not an officer, employee or agent of the Owner as those terms are used in ORS 30.265.

11.1.7 The Contractor, its subcontractors, if any, and all employees providing work, labor or materials under this Contract are subject employers under the Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide worker's compensation coverage that satisfies Oregon law for all their subject workers. Out-of-state employers must provide Oregon worker's compensation coverage for their workers who work at a single location within Oregon for more than thirty days (30) in a calendar year. Contractors who perform the work without the assistance or labor of any employee need not obtain such coverage. This shall include Employers Liability Insurance with coverage limits of not less than \$1,000,000 each accident.

11.1.8 Coverages provided by the Contractor must be underwritten by an insurance carrier deemed acceptable by the Owner. The Owner reserves the right to reject any or all insurance carrier(s) with an unacceptable financial rating.

#### 11.2 - PROPERTY INSURANCE

11.2.1 Unless otherwise provided, the Owner shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. This insurance shall include the interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work and shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss or damage including, without duplication of coverage, theft, vandalism and malicious mischief. All contractors, subcontractors, and sub-subcontractors will be financially responsible for their own equipment, tools, machinery, and supplies during the course of this project. If not covered

under the all risk insurance or other wise provided in the Contract Documents, the Contractor shall effect and maintain similar property insurance on portions of the Work stored off the site or in transit.

11.2.2 Any loss insured under Subparagraph 11.2.1 is to be adjusted with the Owner and made payable to the Owner as trustee for this insured, as their interests may appear, subject to the requirements of any applicable mortgagee clause and of Subparagraph 11.2.8. The Contractor shall pay each Subcontractor a just share of any insurance monies received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each Subcontractor to make payments to its Sub-subcontractor in similar manner.

11.2.3 The Owner and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to this Paragraph 11.2 or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by the Owner as trustee. The Contractor shall require, by appropriate agreement, written where legally required for validity, similar waivers in favor of the Owner and the Contractor by Subcontractors and Sub-subcontractors. With respect to the waiver of rights of recovery, the term Owner shall be deemed to include, to the extent covered by property insurance applicable thereto, its consultants, employees and agents, including the Construction Project Manager and the Architect and their consultants, officers, employees and agents. The Contractor waives as against any separate contractor described in Article 6 all rights for damages caused by fire or other perils in the same manner as is provided above as against the Owner. The Owner shall require, by appropriate agreement, written where legally required for validity, similar waivers in favor of the Contractor by any separate contractor and its Subcontractors and Sub-subcontractors.

11.2.4 If required in writing by any party in interest, the Owner as trustee shall, upon the occurrence of an insured loss, give bond for the proper performance of its duties. It shall deposit in a separate account any money so received, and it shall distribute it in accordance with such agreement as the parties in interest may reach, or in accordance with a court order or award. If after such loss no other special agreement is made, replacement of damaged work shall be covered by an appropriate Change Order.

11.2.5 The Owner as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within five days after the occurrence of loss to the Owner's exercise of this power, and if such objection be made, the matter shall be decided by a court of competent jurisdiction or as the parties in interest otherwise agree. The Owner as trustee shall, in that case, make settlement with the insurers in accordance with the directions of such arbitrators. If distribution of the insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

11.2.6 If the Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion thereof, Contractor shall obtain the consent of the insurance company or companies providing the property insurance, by endorsement to the policy or policies. No insurance required by this Article 11 shall be canceled or lapsed on account of such partial occupancy or use.

11.2.7 In the event Contractor neglects, refuses or fails to provide the insurance required under the Contract Documents, or if such insurance is canceled for any reason, the Owner shall have the right but not the duty to procure the same, and the cost thereof shall be deducted from monies then due or thereafter to become due to Contractor.

11.2.8 Contractor will be responsible for a deductible carried by the Owner on Property Insurance policies referenced in 11.2.1. This deductible level will be \$25,000 per occurrence.

### 11.3 EFFECT OF SUBMISSION OF CERTIFICATES

11.3.1 The Owner and Construction Project Manager shall be under no obligation to review any Certificates of Insurance provided by the Contractor or to check or verify the Contractor's compliance with any and all requirements regarding insurance imposed by the Contract Documents. The Contractor is fully liable for the amounts and types of insurance required herein and is not excused should any policy or certificate of insurance provided by the Contractor not comply with any and all requirements regarding insurance imposed by the Contract Documents.

### 11.4 FAILURE OF COMPLIANCE

11.4.1 Should the Contractor fail to provide and maintain in force any and all insurance, or insurance coverage required by the Contract Documents or by law, or should a dispute arise between Owner and any insurance company of Contractor over policy coverage or limits of liability as required herein, the Owner shall be entitled to recover from the Contractor all amounts payable, as a matter of law, to Owner or any other parties, including but not limited to the

Construction Project Manager and the Architect, had the required insurance or insurance coverage been in force. Said recovery shall include, but is not limited to interest for the loss of use of such amounts of money, plus all attorney's fees costs and expenses incurred in securing such determination and any other consequential damages arising out of the failure of the Contractor or insurance company to comply with the provisions of the Contract Documents, or any policy required hereby, or any other requirements regarding insurance imposed by law. Nothing herein shall limit any damages for which Contractor is responsible as a matter of law.

ARTICLE 12  
CHANGES IN THE WORK

12.1 CHANGES IN THE WORK

12.1.1 The Owner may, at any time, without notice to the sureties and without invalidating the Contract, by written order designated or indicated to be a Change Order, make any Change in the Work within the general scope of the Contract, including, but not limited to Changes:

1. in the Specifications and the Drawings,
2. in the sequence, method or manner of performance of the Work,
3. in the Owner-furnished facilities, equipment, materials, services or site, or
4. directing acceleration in the performance of the Work.

12.1.2 Any other written order (which terms as used in this Subparagraph shall include direction, instruction, interpretation or determination) from the Owner, the Construction Project Manager or the Architect which causes any such change, shall be treated as a Change Order under this subparagraph, provided that the Contractor gives the Construction Project Manager prompt, written notice stating the date, circumstances and source of the order and that the Contractor regards the order as a Change Order.

12.1.3 Except as provided in Subparagraphs 12.1.1 and 12.1.2, no order, statement, or conduct of the Owner, the Construction Project Manager or the Architect shall be treated as a change or entitle the Contractor to an equitable adjustment hereunder.

12.1.4 If any change under this Paragraph 12.1 causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the Work under this Contract, including work not affected directly by the change, an equitable adjustment shall be made and the Contract modified in writing accordingly; provided, however, that except for claims based on defective Specifications, no claim for any Change under Subparagraph 12.1.2 shall be allowed for any costs incurred more than seven (7) days before the Contractor gives the Construction Project Manager written notice as therein required.

12.1.5 If the Contractor intends to assert a claim for an equitable adjustment under this Article, it must, within twenty (20) days after receipt of a written Change Order under Subparagraph 12.1.1 above or the furnishing of a written notice under Subparagraph 12.1.2, submit to the Construction Project Manager a written statement setting forth the general nature and approximate cost of such claim, unless this period is extended by the Construction Project Manager. The statement of claim hereunder may be included in the notice under Subparagraph 12.1.2 above.

12.1.6 No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after Final Payment under this Contract.

12.1.7 The cost or credit to the Owner resulting from a Change in the Work shall be determined in one or more of the following ways (subject to DJ-AR 49-0910):

1. by mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data as the Construction Project Manager may require to permit evaluation. At a minimum, the Contractor shall submit an itemized breakdown of the cost and/or time required by the Change in the Work including, but not limited to, the following:
  - a. Material quantities and costs.
  - b. Direct labor hours and hourly rates for specific work or operation to be performed.
  - c. Equipment costs or rental charges.



- d. Specified overhead and profit markup as identified in Subparagraph 12.1.10.
2. by unit prices stated in the Contract Documents or subsequently agreed upon;
3. by cost to be determined in a manner agreed upon by the parties plus a stipulated fixed or percentage fee; or
4. by the method provided in Subparagraph 12.1.12.

12.1.8 For the purposes of Subparagraph 12.1.7, cost shall be limited to the following: cost of materials and equipment, including cost of delivery; cost of in-field labor not including project staff or supervision, including Social Security, payroll taxes, fringe benefits, unemployment insurance and workers' compensation insurance; rental rate of and fuel for power tools and equipment not normally on the project.

12.1.9 For the purposes of Subparagraph 12.1.7, overhead shall include the following: project insurance, bond premiums, general administration, supervision which includes project managers and staff not completing direct material work in the field, superintendence, general foremen, wages of time-keepers, watchmen and clerks, small tools, incidentals, general office expense, home office overhead, project office overhead and expenses, and all other expenses not included in "cost."

12.1.10 For the purposes of Subparagraph 12.1.7, combined overhead and profit included in the total cost to the Owner for any Change shall not exceed the rates set forth in the following schedule:

1. for the Contractor, for work performed by its own forces, 15% of cost;
2. for each Subcontractor involved, work performed by Subcontractor forces, 15% of the cost; and
3. for the Contractor, for work performed by Subcontractors;

9% of total subcontractor costs if total subcontractor costs are less than \$5,000, and

7% of total subcontractor costs if total subcontractor costs are equal to or greater than \$5,000

This shall also apply for overhead and profit to the Subcontractor for its Sub-subcontractors.

12.1.11 If the net value of a Change results in a credit from the Contractor or Subcontractor, the credit given shall be the net cost without overhead or profit. The cost as used herein shall include all items of labor, materials and equipment.

12.1.12 If none of the methods set forth in Subparagraph 12.1.7.1, is agreed upon, the Contractor, provided it receives a written order signed by the Construction Project Manager, shall promptly proceed with the Work involved. The cost of such Work shall then be determined subject to DJ-AR 49-0910 by the Construction Project Manager on the basis of the reasonable expenditures and savings of those performing the Work attributable to the change, including, in the case of an increase in the Contract Sum, the stipulated allowance for overhead and profit. In such case, and also under Subparagraphs 12.1.7.3 and 12.1.7.4 above, the Contractor shall keep and present, in such form as the Construction Project Manager may prescribe, an itemized accounting together with appropriate supporting data for inclusion in a Change Order. Unless otherwise provided in the Contract Documents, cost shall be limited to the following: cost of materials, including cost of delivery; cost of labor, including social security, payroll taxes, unemployment insurance, and fringe benefits required by agreement or custom; workers' or workmen's compensation insurance; and rental value of equipment and machinery. Pending final determination of cost by the Owner, payments of account shall be made on the Certificate for Payment issued by the Construction Project Manager and the Architect.

12.1.13 The amount of credit to be allowed by the Contractor to the Owner for any deletion or change which results in a net decrease in the Contract Sum will be the amount of the actual net cost as confirmed by the Owner. When both additions and credits covering related Work or substitutions are involved in any one Change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any, with respect to that Change.

12.1.14 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a proposed Change Order that application of the agreed unit prices to the quantities of Work proposed will cause substantial inequity to the Owner or the Contractor, the applicable unit prices shall be equitably adjusted.

12.1.15 Nothing in this Article shall excuse the Contractor from proceeding with the Contract as changed.

12.1.16 The amount payable to the Contractor under this Contract, the Contract Time and the date required for performance of any part of the Work may be changed only by a written Change Order to this Contract.

12.1.17 In the event that the Contractor fails to submit its proposal within the designated period of time or in the event that the parties are unable to agree as to the reasonable cost and time to perform the Change in or addition to the Work based upon the Contractor's Proposal and the Construction Project Manager and Owner do not elect to have the Change in the Work performed on a time and material basis, the Owner and Construction Project Manager shall make a unilateral determination of the reasonable cost and time to perform the Change in the Work, based upon their own estimates, the Contractor's submission or a combination thereof. A Change Order shall be issued for the amounts of cost and time determined by the Construction Project Manager and the Owner and shall become binding upon the Contractor unless the Contractor submits its protest in writing to the Owner within twenty (20) days of the issuance of the Change Order. Owner has the right to direct in writing the Contractor to perform the Change in the Work, which is the subject of such Change Order. Failure of the parties to reach agreement regarding the cost and time of the performing the Change in the Work and/or any pending protests, shall not relieve that Contractor from performing the Change in the Work promptly and expeditiously.

#### 12.2 CLAIMS FOR ADDITIONAL COST

12.2.1 If the Contractor wishes to make a claim for an increase in the Contract Sum, it shall give the Construction Project Manager written notice thereof within seven (7) days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Paragraph 10.3. No claim shall be valid unless so made. Contractor hereby waives all claims not so made. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order, subject to DJ-AR 49-0910.

12.2.2 If the Contractor claims that additional cost is involved because of, but not limited to, any written interpretation pursuant to Subparagraph 3.2.17, the Contractor shall make such claim as provided in Subparagraph 12.2.1.

#### 12.3 DISPUTES REGARDING CHANGES.

12.3.1 If any dispute should arise between the parties with respect to an increase or decrease in the Contract Sum or an expansion or contraction in the Contract Time as a result of a Change in the Work, the Contractor shall not suspend performance of a Change in the Work or the Work itself unless otherwise so ordered by the Owner in writing. The Owner shall, however, pay to the Contractor up to the Owner's reasonable estimated value of the Change in the Work, regardless of the dispute if said Change in the Work results in an increase in the Contract Sum; and the Owner shall have the right to decrease the Contract Sum up to the Owner's reasonable estimated value of the Change in the Work, regardless of the dispute, if said Change in the Work results in a decrease in the Contract Sum.

#### 12.4 AUDIT RIGHTS

12.4.1 With respect to any Change in the Work resulting in an increase in the Contract Sum, the Contractor shall afford (and shall require its Subcontractors to afford) access to the Owner at all reasonable times to any books, correspondence, instructions, receipts, vouchers, memoranda and records of any kind relating thereto, all of which shall be maintained by the appropriate parties for a period of at least two (2) years from and after the date the Owner makes payment on account of such Change in the Work. The Contractor authorizes the Owner (and shall require its Subcontractors to authorize the Owner) to check directly with any suppliers of labor and material with respect to any item chargeable to the Owner under this Article, to confirm balances due and to obtain sworn statements and waivers of lien, all if the Owner so elects.

#### 12.5 MINOR CHANGES IN THE WORK

12.5.1 The Owner shall have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or an extension to the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be affected by written order, and shall be binding on the Owner and the Contractor. The Contractor shall carry out such written orders promptly.

#### 12.6 DIFFERING SITE CONDITIONS

12.6.1 Should the Contractor encounter subsurface and/or latent conditions at the site materially differing from those shown on the drawings or indicated in the specifications, it shall immediately give notice to the Construction Project Manager of such conditions before they are disturbed. The Construction Project Manager and the Architect shall thereupon promptly investigate the conditions and if it finds that they materially differ from those shown on the drawings or indicated in the specifications, the Architect shall at once make such changes in the drawings and/or specifications

as it may find necessary. Any increase or decrease of cost resulting from such changes shall be adjusted in the manner provided herein for adjustments as to extra and/or additional work and changes. However, neither the Owner, Construction Project Manager nor the Architect shall be liable or responsible for additional work, costs or changes to the Work due to material differences between actual conditions and any geotechnical, soils and other reports, surveys and analyses made available for the Contractor's review.

#### 12.7 GENERAL PROVISIONS RELATED TO CHANGES

12.7.1 The Contractor shall not be entitled to any amount of indirect costs, damages or expenses of any nature, including, but not limited to, so-called "impact" costs, labor inefficiency, wage, material or other escalations beyond the prices upon which the proposal is based and to which the parties have agreed pursuant to the provisions of Article 12, and which the Contractor, its Subcontractors or Sub-subcontractors or any other person may incur as a result of reasonable delays, interferences, suspensions, changes in sequence or the like, arising from the performance of any and all changes in the Work performed pursuant to this Article 12. It is understood and agreed that the Contractor's sole and exclusive remedy in such event shall be recovery of its direct costs as compensable hereunder and an extension of the Contract Time, but only in accordance with the provisions of the Contract Documents. This provision shall not preclude recovery by Contractor for damages for unreasonable delays, interferences, suspensions, changes in sequence or the like that are caused by the acts or omissions of the Owner or persons acting for the Owner pursuant to the provisions of the Contract.

### ARTICLE 13 TERMINATION OF THE CONTRACT

#### 13.1 TERMINATION BY THE CONTRACTOR

13.1.1 The Contractor shall have the right to terminate the contract only upon those conditions and with such rights as are set forth in ORS 279C.

#### 13.2 TERMINATION FOR CONVENIENCE OF OWNER

13.2.1 The Owner may, at any time upon ten days' written notice to the Contractor and Contractor's surety, terminate (without prejudice to any right or remedy of the Owner) the whole or any designated portion of the Work for the convenience of the Owner.

#### 13.3 DEFAULT TERMINATION

13.3.1 The Owner may, upon ten (10) days' written notice to the Contractor, terminate (without prejudice to any right or remedy of the Owner or any subsequent buyer of any portion of the Work) the whole or any portion of the Work required by the Contract Documents in any one of the following circumstances:

1. if the Contractor refuses or fails to prosecute the Work or any separable part thereof with such diligence as will ensure the Substantial Completion of the Work within the Contract Time;
2. if the Contractor is in material default in carrying out any provisions of this Contract for a cause within its control;
3. if the Contractor is adjudged a bankrupt, makes a general assignment for the benefit of its creditors, or if a receiver is appointed on account of its insolvency;
4. if the Contractor fails to supply a sufficient number of properly skilled workers or proper materials;
5. if the Contractor fails to make prompt payment to Subcontractors or for materials or labor;
6. if the Contractor persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction; or
7. if the Contractor substantially violates any provision of the Contract Documents.

The right of the Contractor to proceed shall not be so terminated under this Paragraph 13.3 because of any delays in the completion of the Work due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor or its Subcontractors as set forth in Subparagraph 8.3.3.

13.3.2 If, after Contractor has been terminated for default pursuant to this Paragraph 13.3, it is determined that none of the circumstances set forth in Subparagraph 13.3.1 exist, then such termination shall be considered a termination for convenience pursuant to Paragraph 13.2.

#### 13.4 ALLOWABLE TERMINATION COSTS

13.4.1 If the Owner terminates the whole or any portion of the Work pursuant to Paragraph 13.2, then the Owner shall only be liable to Contractor for those costs reimbursable to Contractor in accordance with Subparagraph 13.4.2, plus a markup of ten percent on the actual fully accounted costs recovered under 13.4.2; provided, however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, no profit shall be included or allowed hereunder and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss.

13.4.2 If the Owner terminates the whole or any portion of the Work pursuant to Paragraph 13.2, the Owner shall pay the Contractor the amounts determined by the Construction Project Manager as follows:

1. an amount for supplies, services, or property accepted by the Owner pursuant to Subparagraph 13.5.1.6 (or sold or acquired pursuant to Subparagraph 13.5.1.7) and not heretofore paid for, and to the extent provided in the Contract such amount shall be equivalent to the aggregate price for such supplies or services computed in accordance with the Price or Prices specified in the Contract, appropriately adjusted for any saving of freight or other charges; and
2. the total of:
  - (1) the cost incurred in the performance of the Work terminated, including initial costs and preparatory expense allocable thereto, but exclusive of any costs attributable to supplies or services paid or to be paid for under Subparagraph 13.4.2.1 or 13.4.2.2(2),
  - (2) the cost of settling and paying claims arising out of the termination of Work under subcontracts or orders, pursuant to Subparagraph 13.5.1.5, which are properly chargeable to the terminated portion of the Contract (exclusive of amounts paid or payable on account of completed items of equipment delivered or services furnished by subcontractors or vendors prior to the effective date of the Notice of Termination), which amounts shall be included in the costs payable under (1) above, and
  - (3) the reasonable costs of settlement, including accounting, legal, clerical and other expenses reasonably necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of the Contract and for the termination and settlement of subcontracts thereunder, together with reasonable storage, transportation and other costs incurred in connection with the protection or disposition of property allocable to this Contract.

13.4.3 The total sum to be paid to the Contractor under this Paragraph 13.4 shall not exceed the Contract Sum as reduced by the amount of payments otherwise made, by the Contract Price of Work not terminated and as otherwise permitted by this Contract. Except for normal spoilage, and except to the extent that the Owner shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the Contractor, as provided in this Subparagraph 13.4.3, the fair value, as determined by the Construction Project Manager, of property which is destroyed, lost, stolen or damaged so as to become undeliverable to the Owner or to a buyer pursuant to Subparagraph 13.5.1.7.

13.4.4 If the Owner terminates in whole or in any part of the Work pursuant to Paragraph 13.3, then the Owner may procure, upon such terms and in such manner as the Construction Project Manager may deem appropriate, supplies or services similar to those so terminated, and the Contractor shall be liable to the Owner for any excess costs for such similar supplies or services. The Contractor shall continue the performance of this Contract to the extent not terminated hereunder.

#### 13.5 GENERAL TERMINATION PROVISIONS

13.5.1 After receipt of a Notice of Termination from the Owner, pursuant to Paragraph 13.2 or 13.3, and except as otherwise directed by the Construction Project Manager, the Contractor shall:

1. stop Work under the Contract on the date and to the extent specified in the Notice of Termination;
2. place no further orders or subcontracts for materials, services or facilities, except as may be necessary for completion of such portion of the Work under the Contract as is not terminated;

3. terminate all orders and subcontracts to the extent that they relate to the performance of Work terminated by the Notice of Termination;
4. assign to the Owner in the manner, at the times and to the extent directed by the Construction Project Manager, all of the right, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the Owner shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;
5. settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the Construction Project Manager, to the extent it may require, which approval or ratification shall be final for all the purposes of this clause;
6. transfer title and deliver to the entity or entities designated by the Owner, in the manner, at the times and to the extent, if any, directed by the Construction Project Manager, and to the extent specifically produced or specifically acquired by the Contractor for the performance of such portion of the Work as had been terminated:
  - (1) the fabricated or unfabricated parts, Work in process, partially completed supplies and equipment, materials, parts, tools, dies, jigs and other fixtures, completed Work, supplies and other material produced as part of, or acquired in connection with the performance of, the Work terminated by the Notice of Termination, and
  - (2) the completed or partially completed plans, drawings, information and other property related to the Work;
7. use its best efforts to sell, in the manner, at the times, to the extent and at the price or prices directed or authorized by the Construction Project Manager, any property of the types referred to in Subparagraph 13.5.1.6; provided, however, that the Contractor:
  - (1) shall not be required to extend credit to any buyer, and
  - (2) may acquire any such property under the conditions prescribed by and at a price or prices approved by the Construction Project Manager; and provided further that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the Owner to the Contractor under this Contract or shall otherwise be credited to the price or cost of the Work covered by this Contract or paid in such other manner as the Construction Project Manager may direct;
8. take such action as may be necessary, or as the Construction Project Manager may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the Owner has or may acquire an interest.

13.5.2 The Contractor shall, from the effective Date of Termination until the expiration of three years after final settlement under this Contract, preserve and make available to the Owner, at all reasonable times at the office of the Contractor, but without direct charge to the Owner, all books, records, documents and other evidence bearing on the costs and expenses of the Contractor under this Contract and relating to the Work terminated hereunder, or, to the extent approved by the Construction Project Manager, photographs, micro-photographs or other authentic reproductions thereof.

13.5.3 In arriving at any amount due the Contractor pursuant to Paragraph 13.4, there shall be deducted:

1. all unliquidated advance or other payments on account theretofore made to the Contractor applicable to the terminated portion of this Contract;
2. any claim which the Owner may have against the Contractor;
3. such claim as the Construction Project Manager determines to be necessary to protect the Owner against loss because of outstanding or potential liens or claims; and
4. the agreed price for, or the proceeds of sale of any materials, supplies or other things acquired by the Contractor or sold, pursuant to the provisions of Subparagraph 13.5.1.7, and not otherwise recovered by or credited to the Owner.

13.5.4 If the termination, pursuant to Paragraph 13.2, be partial, the Contractor may file with the Construction Project Manager a claim for an equitable adjustment of the price or prices specified in the Contract relating to the continued portion of the Contract (the portion not terminated by the Notice of Termination), and such equitable adjustment as may

SECTION 00 7000  
GENERAL CONDITIONS OF THE CONTRACT

Bid Set  
September 11, 2023

be agreed upon shall be made in such price or prices. Any claim by the Contractor for an equitable adjustment under this clause must be asserted within six months from the effective date of the Notice of Termination.

13.5.5 The Contractor shall refund to the Owner any amounts paid by the Owner to the Contractor in excess of costs reimbursable under Paragraph 13.4.

13.5.6 The Owner may, at its option and Contractor's expense, have costs reimbursable under Paragraph 13.4 audited and certified by independent certified public accountants selected by the Owner.

13.5.7 The Contractor shall be entitled to only those damages and that relief from termination by the Owner as specifically provided in Article 13.

END OF SECTION

SECTION 00 7300  
SUPPLEMENTARY GENERAL CONDITIONS OF THE CONTRACT

Bid Set  
September 11, 2023

REFERENCE:

"GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," consist of the General Conditions of the Contract (Section 00 7000) and are further revised and supplemented by the provisions of these Supplementary General Conditions of the Contract, hereinafter called the "Supplementary General Conditions." The General Conditions and the Supplementary General Conditions are applicable to all of the Work under this Contract and shall apply to the Contractor, and to all Subcontractors and Sub-subcontractors.

SUPPLEMENTS:

The following supplements modify, change, delete, or add to the General Conditions.

PUBLIC CONTRACTING PROVISIONS

In accordance with OAR 137-049-0200, the following contract provisions are required by Oregon law:

- (1) Contractor shall make payment promptly, as due, to all persons supplying to the Contractor labor or materials for the performance of the work provided for in this agreement. [ORS 279C.505(1)(a)]
- (2) Contractor shall pay all contributions or amounts due the Industrial Accident Fund from the Contractor or Subcontractor incurred on the performance of the agreement. [ORS 279C.505(1)(b)]
- (3) Contractor shall not permit any lien or claim to be filed or prosecuted against the state or a county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or materials. [ORS 279C.505(1)(c)]
- (4) Contractor shall pay to the Department of Revenue all sums withheld from employees under ORS 316.167. [ORS 279C.505(1)(d)]
- (5) Contractor shall demonstrate that an employee drug testing program is in place. [ORS 279C.505(2)]
- (6) For demolition, Contractor shall salvage or recycle construction and demolition debris, if feasible and cost-effective. [ORS 279C.510(1)]
- (7) For lawn and landscape maintenance, Contractor is required to compost or mulch yard waste material at an approved site, if feasible and cost-effective. [ORS 279C.510(2)]
- (8) If Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the Contractor or Subcontractor by any person in connection with the agreement as the claim becomes due, the proper office or officers representing the state or county, school district, municipality, municipal corporation or subdivision thereof, as the case may be, may pay such claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to become due the Contractor by reason of this agreement. [ORS 279C.515(1)]
- (9) If Contractor or a first-tier Subcontractor fails, neglects or refuses to make payment to a person furnishing labor materials in connection with the public improvement agreement within 30 days after receipt of payment from the contracting agency or a contractor, the Contractor or Subcontractor shall owe the person the amount due plus interest charges commencing at the end of the 10-day period that payment is due under ORS 279C.580 (4) and ending upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.580. The rate of interest on the amount due is nine percent per annum. The amount of interest may not be waived. [ORS 279C.515(2)]
- (10) If Contractor or Subcontractor fails, neglects or refuses to make payment to a person furnishing labor or materials in connection with the agreement, the person may file a complaint with the Construction Contractors Board, unless payment is subject to a good faith dispute as defined in ORS 279C.580. The payment of a claim in the manner authorized in this section does not relieve the Contractor or the Contractor's surety from obligation with respect to any unpaid claims. [ORS 279C.515(3, 4)]
- (11) A person may not be employed for more than 10 hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency or when the public policy absolutely requires it, and in such cases, except in cases of agreements for personal services as defined in ORS 279C.100, the employee shall be paid at least time and a half pay:

JEFFERSON COUNTY SCHOOL DISTRICT 509J00 7300-1  
Madras Elementary School & Buff Elementary School Upgrades

SECTION 00 7300  
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- (a)(i) For all overtime in excess of eight hours in any one day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; or
- (a)(ii) For all overtime in excess of 10 hours in any one day or 40 hours in one week when the work week is four consecutive days, Monday through Friday; and
- (b) For all work performed on Saturday and on any legal holiday specified in ORS 279C.540.  
[ORS 279C.520 (1)]
- (12) Employer must give notice in writing to employees either at the time of hire or before commencement of work on the agreement, or by posting a notice in a location frequented by employees, of the number of hours per day and days per week that the employees may be required to work. [ORS 279C.520 (2)]
- (13) Contractor shall promptly, as due, make payment to any person, copartnership, association or corporation furnishing medical, surgical and hospital care services or other needed care and attention, incident to sickness or injury, to the employees of the Contractor, of all sums that the Contractor agrees to pay for the services and all moneys and sums that the Contractor collected or deducted from the wages of employees under any agreement for the purpose of providing or paying for the services. [ORS 279C.530 (1)]
- (14) All employers, including Contractor, that employ subject workers who work under this Contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its subcontractors complies with these requirements. [ORS 279C.530 (2)]
- (15) The specifications contain the existing state prevailing rate of wage and, if applicable, the federal prevailing rate of wage required under the Davis-Bacon Act (40 U.S.C. 276a) that must be paid to workers in each trade or occupation required for the public works employed in the performance of the agreement either by the Contractor or Subcontractor or other person doing or contracting to do the whole or any part of the work contemplated by this agreement. [ORS 279C.830 (1)(a)]
- (16) Workers shall be paid not less than the specified minimum hourly rate of wage in accordance with ORS 279C.838 and ORS 279C.840. Current prevailing wage rates can be viewed at [http://www.oregon.gov/boli/WHD/PWR/Pages/pwr\\_state.aspx](http://www.oregon.gov/boli/WHD/PWR/Pages/pwr_state.aspx) [ORS 279C.830(1)(c)]
- (17) The Contractor and every Subcontractor must have a public works bond filed with the Construction Contractors Board before starting work on the project, unless exempt under ORS 279C.836 (7) or (8).
- (a) Contractor must have a public works bond filed with the Construction Contractors Board before starting work on the project, unless exempt under ORS 279C.836 (4), (7), (8), or (9).
- (b) Contractor must require each Subcontractor to have a public works bond filed with the Construction Contractors Board before starting work on the project, unless exempt under ORS 279C.836 (7) or (8).  
[ORS 279C.830 (2)]
- (18) Contractor must include in each subcontract for property or services the Contractor enters into with a first-tier subcontractor, including a material supplier:
- (a) A payment clause that obligates the Contractor to pay the first-tier subcontractor for satisfactory performance under the subcontract within 10 days out of amounts the District pays to the Contractor under the contract.
- (b) A clause that requires the Contractor to provide a first-tier subcontractor with a standard form that the first-tier subcontractor may use as an application for payment or as another method by which the subcontractor may claim a payment due from the Contractor.
- (c) A clause that requires the Contractor, except as otherwise provided in this paragraph, to use the same form and regular administrative procedures for processing payments during the entire term of the subcontract. A Contractor may change the form or the regular administrative procedures the Contractor uses for processing payments if the Contractor:
- (A) Notifies the subcontractor in writing at least 45 days before the date on which the Contractor makes the change; and
- (B) Includes with the written notice a copy of the new or changed form or a description of the new or changed procedure.
- (d) An interest penalty clause that obligates the Contractor, if the Contractor does not pay the first-tier subcontractor within 30 days after receiving payment from the District, to pay the first-tier subcontractor an interest penalty on amounts due in each payment the Contractor does not make in accordance with the payment clause included in the subcontract as required above.



SECTION 00 7300  
SUPPLEMENTARY GENERAL CONDITIONS OF THE CONTRACT

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(e) A clause that requires the first-tier subcontractor to include, in all of the first-tier subcontractor's subcontracts with each lower-tier subcontractor or supplier, payment and interest penalty clauses that conform to the standards of paragraphs (a)-(d) of this Section (18). [ORS 279C.580(3)]

(19) Contractor, or a first-tier subcontractor, is not obligated to pay an interest penalty if the only reason that Contractor or the first-tier subcontractor did not make payment when payment was due is that Contractor or the first-tier subcontractor did not receive payment from the District or Contractor, as applicable, when payment was due. The interest penalty:

(a) Applies to the period that begins on the day after the required payment date and that ends on the date on which the amount due is paid; and

(b) Is computed at the rate of nine percent per annum. [ORS 279C.580(3)]

(20) A person claiming to have supplied labor or materials for the performance of the work under this contract has a right of action on Contractor's payment bond only if the person gives written notice of the claim to Contractor and the District as provided in ORS 279C.605. [ORS 279C.605]

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

In accordance with ORS 279C.525, the following is a list of federal, state and local agencies of which the Owner has knowledge that have enacted ordinances or regulations relating to environmental pollution and the preservation of natural resources that may affect the performance of the Work.

- 1     Federal Agencies  
Agriculture, Department of Forest Service  
Soil Conservation Service  
Defense, Department of Army Corps of Engineers  
Energy, Department of Federal Energy Regulatory Commission  
Environmental Protection Agency  
Health and Human Services, Department of  
Housing and Urban Development, Department of Solar Energy and Energy Conservation Bank  
Interior, Department of  
Bureau of Land Management  
Bureau of Indian Affairs  
Bureau of Reclamation  
Geological Survey  
U.S. Fish and Wildlife Service  
Labor, Department of  
    Mine Safety and Health Administration  
    Occupation Safety and Health Administration  
Transportation, Department of  
    Federal Highway Administration  
    Coast Guard

- 2     State Agencies  
Agriculture, Department of Soil and Water Conservation Districts  
Energy, Department of Environmental Quality,  
Department of Fish and Wildlife, Department of Forestry, Department of  
Geology and Mineral Industries,  
Department of Human Services,  
Department of Insurance Division (Department of Consumer and Business Services)  
Land Conservation and Development Commission  
Parks and Recreation,  
Department of State Engineer, State Lands, Department of Water Resources Department

- 3     Local Agencies  
City Councils  
County Courts

JEFFERSON COUNTY SCHOOL DISTRICT 509J00 7300-3  
Madras Elementary School & Buff Elementary School Upgrades

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County Commissioners, Board of Design Commissions  
Historical Preservation Commission  
Planning Commissions

END OF SECTION

SECTION 01 1000  
SUMMARY OF THE WORK

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PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. General Requirements.
- B. Work Covered by Contract Documents.
- C. Contractor Use of Premises.
- D. Related Work by Owner.
- E. Owner Furnished Products.
- F. Contractor Designed Elements.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. General

- 1. The Work shall be providing all supplies, tools, equipment, scaffolding, transportation, utilities, service, superintendence, labor, and the furnishing of all materials, items, and accessories needed for the **Madras Elementary School & Buff Elementary School Upgrades.**
- 2. The intent of the Contract Documents is that a single Contractor completes the project including the furnishing of all supervision, material, labor and equipment to provide complete and operative systems.
- 3. All on-site work, including demolition, installation and final cleaning is required to be completed during the regularly scheduled hours. Contractor is to coordinate work to accommodate the continuous operation of the adjacent streets and utilities, without interruption or hindrance.

B. Description

- 1. Jefferson County School District 509J: The Project Consists of:

**Madras Elementary School:**

- 1. New Single-Ply Roof/Parapet Cap
- 2. Accessibility Upgrades
- 3. Restroom Upgrade

**Buff Elementary School:**

- 1. New Single-Ply Roof/Parapet Cap
- 2. Parent Drop-Off Driveway Improvements
- 3. HVAC Equipment Upgrade
- 4. Accessibility Upgrades
- 5. Restroom Upgrade

- 2. The Contractor shall provide for all scheduling, coordination, cutting and patching and all other items required by the contract Documents to complete the Work and provide complete operational systems.

C. No officer or employee of Jefferson County School District 509J has any authority to place any interpretation, either verbal or written, upon the contents and description of work included in the Contract Documents.

D. Prior to bidding, the Contractor shall visit the site and fully inform himself of the areas in which work is to take place, including the limits of area allowed for working conditions, the areas limited for access to the work, and the areas available for the delivery and storage of new material. Access to each site is to be coordinated by, and at the convenience of, the Owner and the building occupants. To arrange access to the site, please call Mike Tiller, Tiller's Schoolhouse Consulting, LLC, (541) 550-9431. :

E. The Contractor represents that he has carefully examined prior to bidding, all Contract Documents and site conditions, understanding the character, quality and quantity of work called for and all conditions of the contract.

1.03 CONTRACTOR'S USE OF PREMISES

- A. The Contractor's work limits are as indicated on the Drawings.
- B. Contractor shall limit his use of premise for Work and for storage to allow for:
  - 1. Owner occupancy and operations.
  - 2. Public use.
    - 3. Coordinated use of premises under direction of the Owner.
    - 4. Full responsibility for protection and safekeeping of products under this Contract stored at Site.
    - 5. Moving stored products, under Contractor's control, which interfere with operations of Owner or separate Contractor.
    - 6. Obtaining and paying for use of additional storage or work areas needed for operations.
  - 7. Conformance to fire/life/safety requirements and fire equipment access.
  - 8. Worker vehicle parking on-site.
  - 9. Storage of all materials required for the project on-site.
- C. Construction Operations:
  - 1. Do not unreasonably encumber Site and Structure with materials or equipment.
  - 2. Do not load structure with weight that will endanger structure.
  - 3. Contractor shall direct all construction vehicle and delivery traffic along an access route as approved by the Owner.

1.04 EXCESSIVE NOISE

- A. Minimize noise during working hours. Notify Owner at least 24 hours prior to any necessary excessive noise. Comply with Owner's instructions.

1.05 OWNERS SALVAGED MATERIALS

- A. The owner may salvage selective items in good condition that are removed during the demolition phase. Contractor to schedule a pre-demolition walk-thru with the Owner, including the maintenance and technology departments, is to allow the Owner the opportunity to review demolished materials and equipment to determine which items are to be salvaged.
- B. Contractor is to relocate salvaged items to an on-site storage location as directed by the Owner for reclamation by Jefferson County School District 509J.
- C. Contractor is to dispose off-site all materials and equipment not selected by the Owner for salvage, in a manner approved and authorized by all State, County, City and all other Governing Agencies.

1.06 RELATED WORK BY OWNER OR OTHERS

- A. NIC & OFOI Items: If applicable, items designated on the Drawings and/or described in the Project Manual as "NIC" (Not in Contract) or "OFOI" (Owner Furnished and Owner Installed) are not included in the Contract.
- B. Contractor's Responsibilities:
  - 1. Designate delivery date for each portion of the Work in the Progress Schedule.

2. Storage of products if requested.
3. Coordinate installation with the Progress Schedule.
4. Provide all preparatory work necessary for proper installation including blocking and backing and finish work including caulking, grouting, furring, preparation of subfloors for finish flooring materials, and painting adjacent surfaces as required for NIC or OFOI equipment.

1.07 OWNER-FURNISHED PRODUCTS

- A. OFCI Items: If applicable, items designated on project Drawings and/or described as "OFCI" (Furnished by Owner and installed by Contractor).
- B. Owner's Responsibilities for OFCI Equipment:
  1. Arrange for delivery of shop drawings, product data, samples, manufacturer's instructions, and certificates to Contractor.
  2. Deliver supplier's bill of materials to Architect for review.
  3. Arrange and pay for delivery to site in accordance with Progress Schedule.
  4. Inspect deliveries jointly with Contractor.
  5. Submit claims for transportation damage.
  6. Arrange for replacement of damaged, defective, or missing items.
  7. Arrange for manufacturers' field services; arrange for and deliver manufacturers' warranties and bonds to Contractor.
- C. Contractor's Responsibilities:
  1. Designate submittals and delivery date for each product in Progress Schedule.
  2. Review shop drawings, product data, samples, and other submittals. Submit to Architect with notification of any observed discrepancies or problems anticipated due to non-conformance with Contract Documents.
  3. Receive and unload products at site.
  4. Inspect deliveries jointly with Owner, record shortages and damaged or defective items.
  5. Handle products at site, including uncrating and storage.
  6. Protect products from damage and from exposure to elements.
  7. Coordinate, provide and install appropriate backing for connections.
  8. Assemble, install, connect, adjust, and finish products as stipulated in respective specification sections.
  9. Provide installation inspections required by public authorities.
  10. Clean, repair, or replace items damaged by Contractor.
  11. Remove and dispose of crating and packing materials for Owner-furnished materials and equipment delivered to the site.

1.08 CONTRACTOR DESIGNED ELEMENTS

- A. Where work of this Contract requires bidder design, comply with following requirements.
  1. Submit Shop Drawings and Calculations to Architect for review.
  2. Submit Shop Drawings and Calculations to City or County for approval and permits.
  3. All Shop Drawings and Calculations shall be stamped by Registered Architect or Engineer licensed in State of Oregon.

1.09 EXISTING UTILITIES

- A. Utilities of record are shown on the Drawings insofar as possible to do so. These, however, are shown for convenience only and the Owner and Architect assume no responsibility for improper locations or failure to show utility location on the Drawings. The Contractor is responsible for

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determining the location of all existing utilities (whether shown or not) prior to commencing work. At Contractor's expense, immediately repair and restore operation of any utilities damaged during construction; conform to utility company's repair requirements.

1.10 OBJECTIONS TO APPLICATION OF PRODUCTS

A. All Contractors submitting a bid for this Project shall thoroughly familiarize themselves with specified products and installation procedures and submit to Design Consultant any objections (in writing) no later than seven (7) days prior to Bid Date. Submittal of Bid constitutes acceptance of products and procedures specified.

1.11 MISCELLANEOUS

A. Work includes, but is not limited to:

1. Maintaining pedestrian and vehicular access to and around existing facilities.
2. Not encumbering site access with materials or equipment.
3. Obtaining and paying for use of additional storage or work areas needed for operations.
4. Contractor is responsible for controlling dust, sedimentation, and erosion on site. Wind born dust is to be controlled by continuous watering of disturbed ground. Erosion and sedimentation control are to be provided in compliance with City of Madras ordinances and Department of Environmental Quality regulations. Sedimentation is not allowed to leave the site. Standing water is not to be allowed in such a capacity to hinder construction operations or emergency vehicle access and operations.

PART 2 – PRODUCTS  
Not Used

PART 3 – EXECUTION  
Not Used

END OF SECTION

PART 1 GENERAL

1.01 ALTERNATIVE BID ITEMS

- A. Alternates are described throughout the Contract Documents (Drawings and Specifications). Procedures for recording and noting alternate bid items are indicated in Sections 00 2113 and 00 4100 of the General Conditions. Contractor shall note description of alternate bid items and provide an individual separate price, which includes all costs necessary to add or deduct the cost of said bid item from the Base Bid price. Both additive and deductive bid alternates are indicated on the Drawings and Specifications.
- B. The Owner reserves the right to accept any one, all, or none of the alternate bid items. The determination of the lowest bonafide bid will include an evaluation of alternates to be accepted by the Owner.
- C. In preparing his price for each alternate bid item, the Contractor shall include all costs necessary to provide and install complete and in operating order in accordance with Contract Documents, and as indicated in the General Requirements and General Conditions, all component parts necessary to add or deduct each alternate bid item individually.
- D. ]Bidding Requirements:
  - 1. Refer to the Bid Form (Section 00 4100) to list all appropriate costs attributed to the alternates described in this section.
  - 2. The alternate bid items are clearly described in the Contract Documents. It is the responsibility of the bidding Contractor to realize that described or inferred adjustments may be necessary due to the acceptance or rejection of alternate bid items. All alternate bids are to be complete bids.
  - 3. Additive alternates are all inclusive of the additional work described.
  - 4. Deductive alternates include all work necessary to provide and install materials necessary to finish the affected system or area.
- E. Following are the descriptions of the alternate bid items. The Contractor shall note on the Bid Form clearly whether each individual item is additive or deductive in the space provided:

1.02 DESCRIPTION OF ALTERNATES

- A. BUFF ELEMENTARY ALTERNATE NO. 1 : All mechanical, electrical, and structural work associated with Roofs C, D & E. (Excludes roofing renovation work; Roofing renovation work at these roofs is part of the base bid and is not included in this alternate.)
- B. BUFF ELEMENTARY ALTERNATE NO. 2 : All mechanical and electrical work associated with Roof B.
- C. MADRAS ELEMENTARY ALTERNATE NO.1: All work associated with the replacement of the two (2) rooftop packed units at roofs D & E.
- D. MADRAS ELEMENTARY ALTERNATE NO. 2 : (1) All work associated with the renovation of the North Boys and North Girls Restrooms. (Excludes exhaust fan work in both restrooms; Exhaust fan work in these restrooms is part of base bid and is not included in this alternate. (2) All work associated with the renovation of the South Unisex Restroom at the South end of Central Hallway.

1.03 DESCRIPTION OF UNIT PRICES

Not Used

SECTION 01 2300  
ALTERNATES & UNIT PRICES

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PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION



SECTION 01 2500  
SUBSTITUTIONS

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September 11, 2023

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Substitutions During Bidding: Instructions to Bidders.
- B. Shop Drawings, Product Data, Samples: General Conditions and Section 01 3300.

1.02 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standards, select any product meeting standards, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any product and manufacturer named.
- C. For products specified "Basis of Design," use the product specified or follow the procedure outlined below for approval of different products.
- D. If products or manufacturers are not named in the specified sections, contractors shall follow the procedure outlined below for approval.

1.03 SUBSTITUTIONS

- A. During bidding, the Architect will consider requests for substitutions only when received on the form provided as pages 01 2500-3 & 4. No request will be considered unless received seven (7) days prior to the time and date set for the receipt of bids. Requests for substitutions after the bid date will be only considered if in conformance to specified section 01 2500-1.06. All Substitution Requests shall be submitted electronically.
- B. In connection with the use of any substitute item approved by the Architect it shall be in the Contractor's responsibility to see that such items meet all space requirements, and that any alterations to connecting items necessitated by use of the alternate items are properly made, at no increase in cost to the Owner.
- C. Specific reference in the specifications to any article, device, product, materials, form or type of construction, etc., by name, make or catalog number, shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition.
- D. In making request for substitution, Bidder/Contractor represents:
  - 1. They have personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.
  - 2. They will provide the same guarantee for substitution as for product or method specified.
  - 3. They will coordinate installation of accepted substitution into Work, making such changes as may be required for Work to be complete in all respects at no additional cost to Owner.
  - 4. They waive all claims for additional costs or time extensions related to substitution which consequently becomes apparent.
  - 5. They will reimburse Owner for review or redesign services associated with re-approval by authorities.
- E. In order to allow the fullest competition, consistent with the Owner's interests, the Architect will give consideration, prior to submission of proposals, to requests for approval of products and materials competitive with and similar to those specified by proprietary name.
- F. To be considered and in order to facilitate review of requests for approval of substitutions for specified products or materials, all such requests shall be made in writing on the form included as a part of this section.
- G. Should any proposed product substitution require any redesign work to accommodate the substitute product, costs for such re-design work shall be included in the Bid amount and shall be paid to the Owner in the required re-design work.

1.04 ARCHITECT'S OPTIONS

- A. Architect will be sole judge of acceptability of any proposed substitution – unless products have been specifically designated as non-substitutable by the Owner.
- B. Only listed products in this Project Manual or approved substitutions may be used on Contract Work.
- C. Each request for substitution approval shall include:
  - 1. Identity of product for which substitution is requested; include specification page and paragraph number.
  - 2. Identity of substitution; include complete product description, drawings, photographs performance and test data, and any other information necessary for evaluation.
  - 3. Quality comparison of proposed substitution with specified product.
  - 4. Changes required in other work because of substitution.
  - 5. Effect on construction progress schedule.
  - 6. Cost comparison of proposed substitution with specified product.
  - 7. Any required license fees or royalties.
  - 8. Availability of local maintenance service.
  - 9. Source of replacement materials.

1.05 DURING BIDDING PERIOD

- A. No request for substitution approval will be considered unless a written request in triplicate has been submitted on Standard Form bound hereinafter, and has been received by Architect seven (7) days prior to the time and date set for receipt of bids.
- B. Request submitted without self-addressed- and stamped envelope will not be individually acknowledged.

1.06 AFTER CONTRACT AWARD

- A. Approval will be granted by the Owner only when:
  - 1. Specified product cannot be delivered without project delay, or
  - 2. Specified product has been discontinued, or
  - 3. Specified product has been replaced by superior product, or
  - 4. Specified product cannot be guaranteed as specified, or
  - 5. Product will not perform properly, or
  - 6. Specified product will not fit within designated space, or
  - 7. Specified product does not comply with governing codes or regulations, or
  - 8. Substitution determined by the Owner to be in his best interest.

TO: **SaJ Architects**  
**721 SW Industrial Way, Suite 130**  
**Bend, OR 97702**

**PROJECT NAME: Madras Elementary School & Buff Elementary School Upgrades**

We hereby submit for consideration, the following product instead of specified item for above project:

Section: \_\_\_\_\_ Paragraph: \_\_\_\_\_

Specified Item

Proposed Substitution:

Attach complete dimensional information and technical data including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or specifications, which proposed substitution will require for its proper installation.

Submit with request all necessary samples and substantiating data to provide equal quality, performance, and appearance to that which is specified. Clearly mark manufacturer's literature to indicate equality in performance. Differences in quality of materials and construction shall be indicated.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitutions do not affect dimensions shown on drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.
5. The proposed substitution will have no effect on applicable codes.
6. The manufacturer's guarantee or warranties of proposed product is equivalent to; or exceeds that of the specified product.
7. Proposed substituted item will match all sizes, profiles, specifications and colors of item originally specified.

List of names and location of three similar projects on which product was used, date of installation, and Architect's name and phone number.

Project No. 1:

Project No. 2:

Project No. 3:

SECTION 01 2500  
SUBSTITUTIONS

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**CERTIFICATION OF EQUAL  
PERFORMANCE AND  
ASSUMPTION OF LIABILITY  
FOR EQUAL PERFORMANCE**

UNDERSIGNED ATTESTS THAT  
  
FUNCTION AND QUALITY ARE  
  
EQUAL TO OR SUPERIOR TO  
SPECIFIED ITEMS.

FOR USE BY ARCHITECT:

\_\_\_\_\_ Accepted \_\_\_\_\_ Accepted as Noted  
\_\_\_\_\_ Not Accepted \_\_\_\_\_ Received Too Late

By: \_\_\_\_\_

Date: \_\_\_\_\_

Remarks: \_\_\_\_\_  
\_\_\_\_\_

Submitted By:

Signature : \_\_\_\_\_

Title: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Telephone: \_\_\_\_\_

Date : \_\_\_\_\_

Signature: \_\_\_\_\_

Above signature must be by person having authority to  
legally bind his firm to the above terms.

SECTION 01 2500  
SUBSTITUTIONS

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END OF SECTION

1.01 GENERAL

- A. In addition to requirements stipulated in General Conditions the following shall apply to this Contract:
1. In event that the Contractor or a Subcontractor, at any tier, determines that some portion of the Drawings, Specifications, or other Contract Document require clarification or interpretation, the Contractor shall submit a Request for Interpretation (RFI) to the Architect.
  2. The RFI shall clearly and concisely set forth the issues for which the clarification or interpretation is sought, and why a response is needed. The RFI shall also set forth the Contractor's interpretation or understanding of the issues.
  3. Prior to submitting a RFI from a Subcontractor, the General Contractor shall review the RFI for appropriateness and completeness and, if needed, obtain clarifications from the Subcontractor.
  4. The Architect will review each RFI, and determine whether or not the document qualifies as a Request for Interpretation as defined below. If the Architect determines that the document is not a legitimate RFI, it will be returned to the Contractor unreviewed as to content.
  5. The Architect will respond to RFI's within 5 working days of receipt from the Contractor, unless a longer time will be required to provide an adequate response. If a longer time is determined necessary, the Architect will, within 5 working days, notify the Contractor of the anticipated response time. An extension to the Contract Time will not be considered unless the Contractor submits a written request for extension to the Architect within 5 working days thereafter.
  6. Unless specifically noted to the contrary, RFI responses from the Architect will not alter requirements of the Contract Documents. If the Contractor believes that an Architect's response does affect the Contract Sum or Contract Time, the Contractor shall, within 5 working days, submit a written notice to the Architect, stating proposed changes and documenting the reasons for such changes. Failure to give such notice shall waive the Contractor's right to seek additions to the Contract Sum or extensions to the Contract Time under the Changes Article of the General Conditions.

1.02 UNACCEPTABLE RFI CLAIMS

- A. The Owner will not authorize increases to the Contract Sum or extensions to the Contract Time caused by Contractor's additional field or office staffing, project delays, decreased labor productivity, etc. when such claims are caused by any or all of the following:
1. Project Communications:
    - a) Routine communications between the Owner, Architect, and Contractor, including correspondence, memos, field-reports, test-reports, telephone calls, faxed messages, E-mail, etc.
  2. Substitution Requests:
    - a) Requests by Contractor to substitute products or methods of construction. Shop Drawings & other Submittals:
      - a) Contractor prepared drawings, product data, samples, etc. submitted for Architect's review to ascertain that Contractor clearly understands Project design intent and Contract Document requirements.
  3. Value Engineering Requests:
    - a) Communications regarding Contractor-originated Value Engineering requests.

JEFFERSON COUNTY SCHOOL DISTRICT 509 J

01 2613-1

Madras Elementary School & Buff Elementary School Upgrades

4. Non-conforming Work:
  - a) Communications regarding Work that has not been performed in compliance with the Contract Documents.
5. Finding Existing Information:
  - a) Directing Contractor where to locate requested information within Drawings, Specifications, or other Contract Documents.

1.03 REQUESTS

- A. Requests may be submitted only when Requestor cannot obtain interpretations or information through research, Contract Documents review, or other reasonable means.
- B. Requests shall include the following information:
  1. Sequential Request Numbers
  2. Sender's & Receiver's names, firm names, and related addresses
  3. Request Issue Date
  4. Requested Reply Date
  5. Request Description
  6. References & Attachments
  7. Sender's Recommendations
  8. Space for Receiver's Response
- C. Submissions of Requests shall be through the Electronic Management Procedures, Section 01 3000.

END OF SECTION

4. Non-conforming Work:
  - a) Communications regarding Work that has not been performed in compliance with the Contract Documents.
5. Finding Existing Information:
  - a) Directing Contractor where to locate requested information within Drawings, Specifications, or other Contract Documents.

1.03 REQUESTS

- A. Requests may be submitted only when Requestor cannot obtain interpretations or information through research, Contract Documents review, or other reasonable means.
- B. Requests shall include the following information:
  1. Sequential Request Numbers
  2. Sender's & Receiver's names, firm names, and related addresses
  3. Request Issue Date
  4. Requested Reply Date
  5. Request Description
  6. References & Attachments
  7. Sender's Recommendations
  8. Space for Receiver's Response
- C. Submissions of Requests shall be through the Electronic Management Procedures, Section 01 3000.

END OF SECTION



SECTION 01 2663  
CHANGE ORDER PROCEDURES

Bid Set  
September 11, 2023

PART 1 - GENERAL

1.1 RESPONSIBLE PARTIES

- A. Immediately following Contract execution, Owner will and Contractor shall identify who, within their respective organizations, will be responsible for executing Change Orders. Architect, Contractor and Owner shall each separately maintain a log of all COR's, RFP's and RFI log, however, Contractor will maintain the official COR's, RFP's and RFI log.

1.2 RELATED SECTIONS

- A. General and Supplementary Conditions
- B. Section 01 2500: Product Substitutions
- C. Section 01 3000: Electronic Management Procedures
- D. Section 01 3200: Construction Progress Schedules
- E. Section 01 7800: Contract Closeout
- F. Section 01 7839: Project Record Documents

1.3 DEFINITIONS

- A. Proposal Request:
  - 1. Means request from Architect to Contractor for changes to Contract sum and/or Contract Time for proposed changes to the Work.
- B. Change Order:
  - 1. See General Conditions.
- C. Construction Change Directive:
  - 1. Means written order to Contractor executed on AIA Form G713 or other similar form designated by the Owner, and signed by Owner and Architect, which amends Contract Documents as described, and authorizes Contractor to proceed with change affecting Contract Sum and/or Contract Time, for inclusion in subsequent Change Order.
- D. Architect's Supplementary Instructions
  - 1. Means written order, instruction, or interpretation to Contractor, executed on AIA Form G710 or other similar form designated by Architect, and signed by Architect, which authorizes minor changes in Work not altering Contract Sum and/or Contract Time.
- E. Request for Interpretation (RFI):
  - 1. See Section 00 9300: Requests for Interpretation

1.4 OWNER OR ARCHITECT INITIATED CHANGES

- A. Requests will include:
  - 1. Detailed description of change, including change location and products.
  - 2. Supplementary or revised Drawings and Specifications.
  - 3. When appropriate, projected time span for making change, and specific statement as to whether or not overtime work is authorized.
  - 4. When appropriate, specific time period during which request price will be considered valid
- B. Such request is for information only, and is not an instruction or authorization to execute the change or an order to stop Work in progress.

1.5 CONTRACTOR INITIATED CHANGES

SECTION 01 2663  
CHANGE ORDER PROCEDURES

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A. Requests shall include

1. Description of proposed change
2. Statement of reason for making change
3. Statement of effect upon Contract Sum and Contract Time
4. Statement of effect upon work of other Contractors
5. Statement of effect upon work by Owner
6. Documentation supporting any change to Contract Sum and/or Contract Time

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. In lieu of Proposal Request, Architect may issue Construction Change Directive for Contractor to proceed with change for subsequent inclusion in future Change Order.
- B. Directive will describe Work changes with attachments of revised Contract Documents defining details of change, and designating any changes in Contract Sum and/or Contract Time.
- C. Owner and Architect will sign and date Construction Change Directive as authorization for Contractor to proceed with changes.
- D. Upon receipt of the Construction Change Directive the Contractor shall proceed with the work as directed.

1.7 DOCUMENTATION OF PROPOSALS & CLAIMS

- A. Support quotation for each Proposal with sufficient substantiating data to allow Architect to evaluate quotation.
- B. When requested by Architect, submit the following Cost and Time data:
  1. Labor required
  2. Equipment required
  3. Products required
    - a. Quantity required
    - b. Purchase source
    - c. Unit cost
  4. Credit for deleted Work, similarly documented
  5. Overhead and profit
  6. Justification for any change in Contract Time
- C. Support each claim for additional cost, and for work done on time-and-material/force account basis with documentation as required for lump-sum proposal, plus the following information:
  1. Name of Owner's authorized agent who ordered work, and date of order.
  2. Dates and times of work performed, and by whom.
  3. Time records, including summary of hours worked, and hourly rates paid.
- D. Support all costs of Requests or Claims as outlined in Article 12 of the General Conditions of the Contract.

1.8 PREPARATION OF CHANGE ORDERS

- A. Architect will prepare each Change Order.
- B. Change Order Form: AIA Document G-701.
- C. Change Order will describe Work changes with attachments of any revised Contract Documents, which define Change details.
- D. Change Order will adjust Contract Sum and/or Contract Time.

SECTION 01 2663  
CHANGE ORDER PROCEDURES

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1.9 LUMP-SUM/FIXED PRICE CHANGE ORDERS

- A. Change Order contents will be based on, either:
  - 1. Architect's Proposal Request and Contractor's responsive Proposal as mutually agreed between Owner and Contractor.
  - 2. Contractor's Change Proposal as recommended by Architect, and as mutually agreed between Owner and Contractor.
- B. Owner and Architect will sign and date Change Order as authorization for Contractor to proceed with Changes.
- C. Contractor shall sign and date Change Order to indicate agreement with specified terms.

1.10 UNIT PRICE CHANGE ORDERS

- A. Change Order contents will be based on, either:
  - 1. Architect's definition of required changes.
  - 2. Contractor's Change Proposal as recommended by Architect
  - 3. Survey of completed work.
- B. Unit Price amounts shall be, either:
  - 1. Those stated in Agreement, if any.
  - 2. Those mutually agreed upon between Owner and Contractor.
- C. When quantities of Items affected by Change Order can be determined prior to start of work:
  - 1. Owner and Architect will sign and date Change Order as authorization for Contractor proceed with changes.
  - 2. Owner and Architect will sign and date Change Order to indicate agreement with specified terms.
- D. When quantities of Items affected by Change Order cannot be determined prior to start of work:
  - 1. Architect or Owner will issue Construction Change Authorization directing Contractor to proceed with change on basis of unit prices, and will cite applicable unit prices.
  - 2. At change completion, Architect will determine work cost based upon agreed unit prices and quantities used.
  - 3. Contractor shall submit documentation to establish quantities of units or each Item and any claim for change in Contract Time.
  - 4. Owner and Contractor will sign and date Change Order to indicate their agreement with specified terms.

1.11 TIME & MATERIAL & FORCE ACCOUNT CHANGE ORDERS

- A. Architect and Owner will issue Construction Change Authorization directing Contractor to proceed with changes according to the process defined in the General Conditions.
- B. At Change completion, Contractor shall submit itemized accounting of change with supporting data as specified above in "Documentation of Proposals and Claims."
- C. Architect will determine allowable cost of such work, as provided in Contract Conditions.
- D. Architect will sign and date Change Order to establish change in Contract Sum and/or Contract Time.
- E. Owner and Contractor will sign and date change order to indication their agreement with specified terms.

1.12 CORRELATION OF CHANGE ORDERS WITH CONTRACTOR'S OTHER SUBMITTALS

- A. Revise Schedule of Values and subsequent Request for Payment Forms to record each Change as separate item of work, and to record adjusted Contract Sum.

SECTION 01 2663  
CHANGE ORDER PROCEDURES

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- B. Revise Construction Schedule to reflect each change in Contract Time.
- C. Revise Sub schedules to show changes for other items of Work affected by Changes.
- D. Upon completion of Change Order Work, record pertinent changes in Record Documents.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED SECTIONS

- A. Section 00 7000: General Conditions
- B. Section 00 7300: Supplementary Conditions
- C. Section 01 1000: Summary of Work
- D. Section 01 2973: Schedule of Values
- E. Section 01 3100: Electronic Management Procedures
- F. Section 01 7800: Contract Closeout

1.02 ANTICIPATED PAYMENT AMOUNTS

- A. To assist Owner in establishing his Construction Financing and budget cash flows, the Contractor, prior to submitting his first Application for Payment, shall deliver to Architect a schedule of anticipated payment amount to be requested with each subsequent application.

1.03 FORMAT AND DATA REQUIRED

- A. Submit itemized applications typed on AIA Document G702, Application and Certificate for Payment, together with Continuation Sheets AIA Document G703 or similar form approved by the Architect.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
  - 1. Fill in required information.
  - 2. Fill in summary of dollar values to agree with respective totals indicated on Continuation Sheets.
  - 3. Execute certification with signature of responsible officer of Contracting Firm.
- B. Continuation Sheets:
  - 1. Identify each major item of Work by number and title matching those listed in Table of Contents of this Project Manual.
  - 2. Fill in scheduled Dollar Value for each Item.
  - 3. Fill in Dollar Value in each Column for each scheduled Line Item when Work has been performed or Products stored.
  - 4. Round off Values to nearest dollar.
  - 5. List each Change Order, executed prior to date of submission, at end of Continuation Sheets. Include Change Order Number and brief description.

1.05 SUBSTANTIATING DATA

- A. Submit, when requested by Architect, to justify Line Item amounts.

1.06 APPLICATION SCHEDULE

- A. Refer to the General Conditions for schedule.

1.07 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to Architect at times stipulated.
- B. Submit Application electronically.
- C. When Architect finds Application properly completed and correct, he will transmit Certificate for Payment to Owner, with copy to Contractor.

SECTION 01 2900  
APPLICATIONS FOR PAYMENT

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PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

- A. Change Order Procedures: Section 01 2663.

1.2 SCHEDULE FORMAT

- A. Type Schedule on AIA Document G-703, Application for Payment, Continuation Sheet or similar form approved by the Architect.
- B. Forms can be obtained from:
  - 1. AIA Service Corp., Publications Div., 1735 New York Avenue, Washington D. C. 20006.
  - 2. Portland Chapter AIA Office, 403 NW 11<sup>th</sup> Avenue, Portland, Oregon 97209 (503-223-8757).

1.3 SCHEDULE HEADINGS

- A. Identify each major Work Item by number and title.
- B. Coordinate Headings with Construction Progress Schedule.

1.4 CONTENT

- A. As basis for computing Progress Payment values, separately list installed value of each of the following:
  - 1. Each major Work Item.
  - 2. Each Subcontracted Work Item. For each major Subcontractor, list products and operations of that Subcontract as separate Line Items.
  - 3. Any Products to be stored, for which separate payments will be requested.
- B. Include directly proportional amount of Contractor's Overhead and Profit in each Component Listing.
- C. Round off Values to nearest Dollar.
- D. Sum of Values listed shall equal total Contract Sum.

1.5 SUBMITTAL REQUIREMENTS

- A. Submit 3 copies of Schedule at least 5 days prior to first Application for Payment.
- B. Form and content shall be acceptable to Architect.

SECTION 01 2973  
SCHEDULE OF VALUES

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1.6 SUBSTANTIATING DATA

- A. When requested by Architect, submit justifying Substantiating Data on Line Item Amounts in question.

END OF SECTION



PART 1 GENERAL

1.01 RELATED SECTIONS

- A. General and Supplementary General Conditions
- B. Section 01 1000: Summary of Work.
- C. Section 01 3119: Meetings.
- D. Section 01 3000: Electronic Management Procedures.
- E. Section 01 3200: Schedules and Reports.
- F. Section 01 3300: Shop Drawings, Product Data, and Samples.
- G. Section 01 5000: Temporary Facilities.
- H. Section 01 7329: Cutting and Patching.
- I. Section 01 7413: Cleaning.
- J. Section 01 7800: Contract Closeout.

1.02 CONSTRUCTION ORGANIZATION AND START-UP

- A. Establish on-site lines of authority and communications including the following:
  - 1. Attend Pre-construction Meeting and Progress Meetings as required by the Architect or Owner.
- B. Comply with procedures for intra-project communications including:
  - 1. Submittals
  - 2. Reports and records
  - 3. Recommendations
  - 4. Coordination drawings
  - 5. Schedules
  - 6. Resolution of conflicts
- C. Contract Documents Interpretation:
  - 1. Consult with Architect to obtain interpretation.
  - 2. Assist in resolution of questions and conflicts that may arise.
  - 3. Transmit written interpretations to Subcontractors, and to other concerned parties.
  - 4. Permits and Approvals:
    - a. Verify in writing to Architect within thirty (30) days after Notice to Proceed that Subcontractors have obtained required permits and inspections for work and for temporary facilities.
- D. Control Use of Site:
  - 1. Supervise field engineering and Project layout.
  - 2. Allocate field office and storage space and work and storage area for use of each Subcontract or Contractor.
- E. Access to the Site and Contractor Responsibilities:
  - 1. Access to the site is to occur via the existing roads onto School grounds from City of Madras public access streets. Contractor is to coordinate and maintain existing (or establish safe temporary alternative) student drop off areas, whether by bus or private vehicle and maintain access to building for delivery activities of the School District. Contractor is to maintain safety barricades as appropriate for the work being conducted and control of traffic on public streets.

1.03 COORDINATING SUBCONTRACTORS' WORK

- A. Coordinate the Work of all Subcontractors and make certain that, where the Work of one trade is dependent upon the Work of another trade, the Work first installed is properly placed, installed, aligned, and finished as specified or required to properly receive subsequent materials applied or attached thereto.

- B. Direct Subcontractors to correct defects in substrates they install when Subcontracts of subsequent materials have a reasonable and justifiable objection to such surfaces.
- C. Do not force Subcontractors to apply or install products to improperly finished product.
- D. Coordinate changes to assure that:
  - 1. Requirements of Contract Documents are fulfilled.
  - 2. Changes in Contract requirements of all affected trades are reflected in executed Change Orders.
- E. Scheduling and Installation Sequence:
  - 1. Coordinate scheduling, submittals, and Work of various sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
  - 2. Schedule work in accordance with current Project construction schedule.
    - a. Coordinate schedules of all trades.
    - b. Verify timely deliveries of products for installation by other trades.
    - c. Verify that labor and equipment are adequate for work and schedule.
    - d. Verify that material deliveries are adequate to maintain schedule.
- F. Space Requirements:
  - 1. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings.
  - 2. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building.
  - 3. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- G. Concealed Services:
  - 1. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within construction.
  - 2. Coordinate locations of fixtures and outlets with finish elements.
- H. Ascertain need for cutting and patching, and coordinate with work of other trades, and the Architect.
- I. Completion and Clean Up:
  - 1. Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner occupancy.
- J. Start-Up, Inspection, and Acceptance of Equipment:
  - 1. Verify that manufacturer's representative is present.
  - 2. Verify that utilities, specified connections, and safety devices are complete and equipment is ready to operate.
  - 3. Verify that equipment has been tested, adjusted, and balanced, is cleaned, repainted as required, and operational prior to inspection.
  - 4. Coordinate and comply with requirements for Start-up Functions, Training, and Equipment Inspections with Owner's Commissioning Agent.
- K. Access for Corrective Work:
  - 1. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.04 COORDINATING UTILITIES

- A. The Contractor shall be responsible for coordination of all utilities to be installed for service to the project and shall cooperate with all utility agencies. Utilities may include, but are not limited to, water, sewer, natural gas, telephone, electrical, fiber optic, and cable. The Contractor shall maintain communication with the utilities in order to coordinate time and requirements of the utilities' installation.
- B. The Contractor shall provide all work necessary to comply with the requirements of the Contract Documents for work by the utility company that does not meet the Contract Document requirements, or for work that is disturbed by the utility installation.
- C. The Contractor shall be responsible to locate and protect existing utilities.
- D. The Contractor shall comply with ORS 757.541 through 757.571 relating to notice prior to excavation.

1.05 CLOSE-OUT DUTIES

- A. At completion of Work of each subcontract, conduct inspection to assure that:
  - 1. Work is acceptable and in compliance with the requirements of the Contract Documents.
  - 2. Assist the Architect in inspection.
  - 3. Temporary facilities and debris have been removed from Site.
- B. Substantial Completion:
  - 1. Conduct inspection and prepare list of work to be completed or corrected.
  - 2. Assist Architect in inspection.
  - 3. Supervise correction and completion of Work as established in Architect's inspection reports and "punchlists".
  - 4. Obtain all approvals from governing authorities, including the Certificate of Occupancy.
- C. Final Completion:
  - 1. Submit and obtain approval of all contract close-out documents.
  - 2. Assist Architect and Owner in inspection.

1.06 OWNER'S NOTICE

- A. The Contractor shall give the Owner, forty-eight (48) hours advance notice of his intention to work overtime, nights, Sundays or holidays, or anytime outside the usual working hours. In no case will the Contractor do any such work without first notifying the Owner to permit arrangements for proper inspection. Unless of an emergency nature, compensation for work performed in violation of this paragraph will not be made.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

SECTION 01 3100  
PROJECT COORDINATION

01 3100-4

END OF SECTION

SECTION 01 3119  
MEETINGS

Bid Set  
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PART 1 – GENERAL

1.01 DESCRIPTION

A. Work included:

1. In general, project meetings will be held weekly at the job site, or in a mutually agreed upon location, in accordance with a mutually acceptable schedule. The General Contractor will conduct project meetings throughout the construction period.
2. The purpose of the project meetings is to enable orderly review of progress during construction and to provide for systematic discussion and analysis of problems that might arise between the Owner, Architect and/or Contractor relative to execution of the Work.

1.02 RELATED SECTIONS

A. Section 01 3000: Electronic Management Procedures

1.03 AUTHORITY DESIGNATION

- A. Persons designated by the Contractor to attend and participate in project meetings shall have all required authority to commit the Contractor to solutions as agreed upon in the project meetings.

1.04 SUBMITTALS

- A. Agenda Items: To the maximum extent possible, advise the Owner at least twenty-four (24) hours in advance of the project meeting regarding all agenda items to be discussed.

1.05 AGENDA

A. Pre-construction Meeting

1. The Owner in conjunction with the Architect will conduct this meeting within ten (10) days after date of Notice to Proceed with work at the Project Site.
2. Location: To be determined.
3. Attendance:
  - a. Owner and his representatives
- b. Architect and his Professional Consultants
  - c. Contractor's Project Manager and Superintendent
  - d. Major Subcontractors
  - e. Major Suppliers, as appropriate
  - f. Others, as appropriate
4. Suggested Agenda:
  - a. Distribution (by Contractor) and discussion of:
    - 1) List of major Subcontractors and Suppliers
  - b. Critical Work sequencing
  - c. Major Equipment deliveries and priorities
  - d. Project Coordination
  - e. Designation of responsible personnel
  - f. Procedures and processing of:
    - 1) Field decisions
    - 2) Proposal requests
    - 3) Submittals
    - 4) Change Orders
    - 5) Applications for Payment
  - 6) Schedules and Reports
  - g. Procedures for maintaining Record Documents
- h. Use of premises:
  - 1) Office, work, and storage areas
  - 2) Owner's requirements
- i. Construction facilities, controls, and construction aids

- j. Temporary utilities
    - k. Safety and first aid- procedures
    - l. Security procedures
  - m. Housekeeping procedures
- B. Project Meetings
- 1. The Owner in conjunction with the Architect will conduct weekly meetings at the Project Site, during the course of the installation, in the job trailer required under Division 01 5000, to coordinate the Work, answer questions, and resolve problems.
  - 2. Suggested Meeting Agenda:
    - a. Attendees:
      - List of attendees and company they represent.
    - b. Minutes Review:
      - Corrections, additions and/or deletions to previous minutes
    - c. Outstanding Action Items:
      - Review of items not resolved from previous meeting
    - d. Technical Concerns:
      - Discussion of technical aspects of the project including problems to be resolved under the following categories:
        - Civil/Landscape
        - Mechanical
        - Electrical
        - Architectural
        - Technology/Data
    - e. As-Built Review:
      - Confirm results of the as-built review
    - f. Shop Drawings:
      - Confirm results of shop drawing review; list those not submitted by Contractor that are due and shop drawings not returned by Architects or Engineers.
    - g. RFI's:
      - Confirm approved and outstanding RFI's.
    - h. RFP's:
      - Confirm approved and outstanding RFP's.
    - i. Schedule Review:
      - Confirm status of work, areas of concern and general status of work as of the meeting date.
    - j. Projection of Work:
      - Discussion of anticipated concentration of work for the next period.
    - k. Procurement:
      - Verify and update status of procurement activities.
    - l. Other Concerns:
      - Any other items to be discussed
    - m. Review of all Action Items:
      - Each action item will be consolidated with item, action person responsible and date to be resolved.
    - n. Summary:
      - Confirmation of next meeting date, location and time, plus those requested to be in attendance.
  - 3. All items to be discussed shall be brought up at the time the appropriate agenda item is discussed. All attendees shall familiarize themselves with the agenda and be prepared in advance with their items for discussion.
- C. Special Meetings: The Owner may call special meetings at the project site or at other locations to coordinate the work, answer questions, and resolve problems.

1.06 PREINSTALLATION CONFERENCES

- A. When required in individual Specification Sections and/or as requested, convene pre-installation conference at work Site prior to commencing work of Section.
- B. Require attendance of parties directly affecting, or affected by, work of specific Section.
- C. Notify Architect four days in advance of meeting date.
- D. Prepare agenda, preside at conference, record minutes, and distribute copies within two days after conference to participants, with electronic copy to Architect.
- E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

1.07 MINUTES

- A. The Contractor will compile minutes of each project meeting and will distribute copies to all interested parties within seven (7) days after the meeting. Items in the minutes shall be numbered consecutively and grouped under divisions and sections. Each item shall be carried forward until resolved.
- B. The minutes compiled by the Contractor will be the official record minutes and all clarifications and/or corrections shall be transmitted in writing to the Owner within fourteen (14) days of date of receipt of the minutes or unless noted during the next schedule meeting under the appropriate agenda item. Transmitted corrections shall be legibly submitted on company letterhead.
- C. One (1) bound volume of all minutes or access to them through the electronic management procedures shall be maintained by the Contractor in the job office until project completion.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Construction Administration communication shall be transmitted to each project entity in electronic (PDF) format using construction management software, specifically designed for transmitting construction communications between project team members.
- B. The intent of electronic communication is to increase collaboration, expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
- C. The Documentation created and tracked in the construction management software and transmitted electronically shall include the following:
  - 1. RFI's
  - 2. ASI's
  - 3. APR's
  - 4. Change Orders
  - 5. Submittals

Plans and specifications and any updates thereto will be reviewable within this system.

- D. Definitions:
  - 1. RFI – Request for Interpretation
  - 2. GC – General Contractor
  - 3. QC – Quality Control

1.02 PROCEDURES

- A. RFI (Requests for Interpretation) Procedure – GC's RFI's will be reviewed via the construction management software website. Subcontractors RFI's will be reviewed by the GC before the Architect or Architect's Consultants. Once the GC review is complete, the GC will either respond with an answer or forward the RFI to the Architect for a formal response. All responses to RFI's will be emailed to the Contractor via (PDF) with a link to the construction management software website embedded in the (PDF) for reference.
- B. Submittal Procedure – GC's submittals will be reviewed via the construction management software website with the exception of physical samples. The submittals will be posted on the website for the review. Once the submittal review is completed by the GC, the GC will email the reviewed submittal via construction management software to the Architect for review.
  - 1. Submittal Documents to be submitted via the construction management software for the Architect manual upload included but not limited to:
    - a. Design Document Submittals
    - b. Shop Drawings
    - c. Product Data
    - d. Warranty and Closeout Documentation
  - 2. Submittals to be physically submitted include but are not limited to. Note that although these submittals are handled physically, their status will be tracked within the construction management software:
    - a. Product finishes and color selection samples
    - b. Product finishes and color verification samples
    - c. Finish/color boards
    - d. Physical samples of materials
  - 3. Administrative Submittals to be created and submitted using the construction management software include but are not limited to:



- a. List of product substitutions.
    - b. List of contact personnel.
    - c. Notices for roadway interruption, work outside regular hours, and utility cut over's.
    - d. Plans for safety, demolition, environmental protecting, and similar activities.
    - e. Quality Control Plan(s).
    - f. Daily Photographs.
  - 4. Compliance Submittals to be created and submitted using the construction management software include but are not limited to:
    - a. Field Test Reports
    - b. Quality Control certifications
    - c. Manufacturer's documentation and certifications for quality of products and materials provided.
    - d. Record and Closeout Submittals
  - C. Plans and Specifications along with Architects forms (APR's, ASI, and CCDs) will be distributed via email from the construction management software website. These documents will be openly available in a shared folder under the documents tab on the website to all contractors and Suppliers.
- 1.03 COSTS
- A. All costs of construction management software services, throughout the complete project, will be included in the Bid Price.
- 1.04 AUTOMATED SYSTEM NOTIFICATION
- A. Review comments made (or lack thereof) by any party via the construction management software shall not relieve the GC from compliance with requirements of the Contract Documents. The GC is responsible for managing, tracking and documenting the Work to comply with the requirements of the Contract Documents. Owner and Architect acceptance/review acknowledgement via automated system notifications extends only to the face value of the submitted documentation in question and constitutes validation of the GC's specific submitted information only.

END OF SECTION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The work under this Contract will be planned, scheduled, executed and reported pursuant to the provisions of Article 4.10 of the General Conditions CONTRACTOR'S CONSTRUCTION SCHEDULE, and Article 4 of the Owner-Contractor Agreement ("Time and Commencement and Substantial Completion").
- B. If the Contractor should desire or intend to complete the Work earlier than any required Milestone or Completion date, the Owner or Architect not be liable to the Contractor for any costs or other damages should the Contractor be unable to complete the Work before this earlier date. The duties, obligations and warranties of the Owner to the Contractor shall be consistent with and applicable only to the completion of the Work on the Milestone and Completion dates required in the Owner-Contractor Agreement, unless Owner and the Contractor otherwise agree in writing.

1.02 CONSTRUCTION SCHEDULE - BAR CHART

- A. The Construction Schedule shall be in the form of a bar chart and shall consist of horizontal lines, or bars, plotted along a daily time scale. The time-scale shall indicate all required Milestone and Completion dates as set forth in the Owner-Contractor Agreement. The horizontal bar(s) shall indicate the start and finish dates as well as the total time period of performance for each activity. The Contractor shall arrange the chart so as to show the activities which are necessary to fulfill each and every Milestone and Completion date requirement.

1.03 POST AWARD ACTIVITIES

- A. The Contractor shall perform the following immediately after receipt of the Notice to Proceed:
  - 1. Prepare a detailed Construction Schedule that represents the Contractor's best judgment on how he shall prosecute and complete the Work in compliance with the Contract Milestone Dates and any Specific Dates stipulated in the Supplementary Conditions.
- B. Within (10) calendar days following Notice to Proceed, submit to the Owner and Architect a draft of the Construction Schedule for review and comment. Before the first Application for Payment, the Contractor shall submit to the Owner and Architect a Schedule of Values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Owner and Architect may require. This schedule, unless objected to by the Owner or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.
- C. The Construction Schedule shall indicate completion date for the project that is not later than the project's required completion date. All activity durations shall be given in calendar days.
- D. It is to be understood and agreed by the Contractor is an estimate to be revised from time to time as progress proceeds, and that the Owner does not guarantee that Contractor can start work activities on the start dates or complete work activities on the finish date shown in the schedule, or as same may be updated or revised; nor does the Owner guarantee that Contractor can proceed at all times in the sequence established by said schedule.
- E. The Owner and Architect will review the Contractor's Schedule. If required, a meeting will be held between the Owner and the Contractor to resolve any conflicts between the Contractor's schedule and the overall Project Construction. The Contractor shall revise his schedule as required by the Owner to support the Project Construction and shall submit his revised schedule to the Owner and Architect within five (5) days for final review and approval.
- F. The Contractor is required to adhere to the Milestone Dates as set forth in the Bid Form.

1.04 RECOVERY SCHEDULE

- A. Should any conditions exist, such that certain activities shown on the Contractor's Detailed Construction Schedule fall behind schedule to the extent that any of the mandatory Milestone Dates or Completion Dates are in jeopardy, the Contractor shall be required to, at no cost to the Owner, prepare and submit to the Owner and Architect, a supplementary Recovery Schedule, in a form and detail appropriate to the need, to explain and display how he intends to reschedule those activities to regain compliance with the Detailed Construction Schedule during the immediate subsequent pay period.
- B. The Contractor, Owner and Architect shall do the following after determination of the requirement for a Recovery Schedule:
  - 1. Within three (3) calendar days, the Contractor shall present to Owner and Architect the Recovery Schedule. The Recovery Schedule shall represent the Contractor's best judgment as to how he shall reorganize his work so that he may return to the approved Construction Schedule within the immediate subsequent pay period. The Recovery Schedule shall be prepared to a similar level of detail as the Construction Schedule.
- C. Five (5) calendar days prior to the expiration of the Recovery Schedule, the Owner, Architect and the Contractor will meet at the job site to determine whether the Contractor has regained compliance with the Construction Schedule. At the direction of the Owner, one of the following will happen:
  - 1. If, in the opinion of the Owner, the Contractor is still behind schedule, the Contractor in conjunction with the Owner and Architect will prepare another Recovery Schedule, at the Contractor's expense, pursuant with 2.02 (B) of this Section, to take effect during the immediate subsequent pay period.
  - 2. If, in the opinion of the Owner, the Contractor has sufficiently regained compliance with the Construction Schedule, the use of the Construction Schedule will be resumed.

1.05 FLOAT TIME

- A. Float or slack time is not for the exclusive use or benefit of either the Contractor or the Owner. Contractor's work shall proceed according to start dates, and the Owner shall have the right to reserve and apportion float time according to the needs of the project. The Contractor acknowledges and agrees that actual delays, effecting paths of activities containing float time, will not have any affect upon Contract Completion times, providing that the actual delay does not exceed the float time associated with those activities.
- B. Extensions of time will be granted only to the extent that the activity or activities affected exceed the total float or slack along the path of activities affected at the time of Notice to Proceed of a Change Order or the commencement of any delay or condition for which an adjustment is warranted under the Contract Documents.

1.06 COORDINATION

- A. The Contractor shall coordinate his work with activities of the Owner and shall cooperate fully with the Owner in maintaining orderly progress toward completion of the work as scheduled. The Owner's decisions regarding priority between the Contractor's work and the activities of the Owner at the site shall be final and shall not be cause for extra compensation or extensions of time, except where extensions of time is granted because of delay for which Contractor is otherwise entitled to an extension of time under the Contract Documents.

PART 2 PRODUCTS

Not Used.

SECTION 01 3200  
SCHEDULES & REPORTS

Bid Set  
September 11, 2023

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 3300  
SHOP DRAWINGS, PRODUCT DATA AND SUBMITTALS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Submit to the Architect shop drawings, product data and samples required by Specifications Sections or as specifically requested by Owner or Architect.
- B. The Contractor shall prepare and submit with the Construction Schedule, an incorporated schedule listing dates for submission and approval times allowed for all required shop drawings, product data and samples, tied into Construction Schedule with appropriate logic.

1.02 RELATED SECTIONS

- A. Section 01 3000: Electronic Management Procedures
- B. Section 01 3200: Schedule and Reports
- C. Section 01 7800: Contract Closeout: Record Documents

1.03 SHOP DRAWINGS

- A. Original drawings, prepared by Contractor, subcontractor, manufacturer, supplier or distributor, which illustrate some portion of the Work showing fabrication, layout, setting or erection details.
- B. Shop drawings shall be prepared for this particular project. Drawings prepared specifically for other projects and revised for this project will be rejected.
- C. When necessary, base shop and setting drawings upon actual measurements taken at site and other job conditions. Show any variations and revisions to Contract Documents that are necessary for proper installation of work. Fabrication or installation of work shall not be started until shop or setting drawings have been checked and returned with "furnish as submitted" or "furnish as corrected" indicated by Architect.
- D. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
- E. Submit shop drawings, required by Contract Documents for execution of the Work, to the Architect no later than 15 days prior to contemplated or actual need in shop or at site, and earlier where more time may be required for review and/or procurement by Contractor.
- F. Provide shop drawings with cross-reference to drawing and detail numbers on Contract Drawings to facilitate review.
- G. Provide shop drawings which demonstrate to Architect that:
  - 1. Contractor understands design concept of certain portions of Work.
  - 2. Equipment and material to be provided meet design and technical requirements of Contract Documents.
  - 3. Methods of fabrication and installation.
- H. After review, reproduce and distribute in accordance with Article on Procedures above and for Record Documents described in Section 01 7839.

1.04 PRODUCT DATA

- A. Manufacturer's standard schematic drawings:
  - 1. Modify drawings to delete information, which is not applicable to project.
  - 2. Supplement standard information to provide additional information applicable to project.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance chart, illustrations and other standard descriptive data.
  - 1. Clearly mark each copy and identify pertinent materials, products or models.
  - 2. Show dimensions and clearances required.

SECTION 01 3300  
SHOP DRAWINGS, PRODUCT DATA AND SUBMITTALS

Bid Set  
September 11, 2023

3. Show performance characteristics and capacities.
  4. Show wiring diagrams and controls.
  - C. Submit product data required by Contract Documents for execution of the Work, to the Architect no later than 15 days prior to contemplated or actual need in shop or at site, and earlier where more time may be required for review.
  - D. Provide product data with cross-reference to Specifications Section of Project Manual to facilitate review.
  - E. Provide PDFs of product data to Architect/Engineer via electronic management procedures.
  - F. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01 7839 - Record Documents.
- 1.05 SAMPLES
- A. Physical examples to illustrate materials, equipment or workmanship and to establish standards by which completed work is judged.
  - B. Office Samples: Of sufficient size and quantity to clearly illustrate:
    1. Functional characteristics of product or material, with integrally related parts and attachment devices.
    2. Full range of color samples.
    3. Include identification on each sample, with full Project information.
    4. Submit samples in ample time for review or selection, as applicable, so as to not delay Work.
    5. Take into account delivery time of all manufactured items when submitting samples.
  - C. Submit samples of size and quantity specified, or, if not specified, of sufficient size and quantity to illustrate functional and aesthetic characteristics of Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work. Submit samples of finishes from full range of manufacturers' standard colors, or in specified custom colors, textures, and patterns, for Architect's selection.
  - D. Field Samples:
    1. Construct each sample complete, including work of all trades required in finished Work.
    2. A copy of each sample shall stay onsite for review by the Architect and Owner.
- 1.06 MANUFACTURER'S INSTRUCTIONS
- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for Product Data.
  - B. Identify conflicts between manufacturers' instructions and Contract Documents.
- 1.07 MANUFACTURER'S CERTIFICATES
- A. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer for review, specified for Product Data.
  - B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
  - C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.
- 1.08 REQUIRED SUBMITTAL QUANTITIES TO ARCHITECT AND OWNER
- A. Construction Schedule – Provide bond copies on paper no larger than 11x17". Provide one paper copy each to Owner and Architect plus electronic version.

SECTION 01 3300  
SHOP DRAWINGS, PRODUCT DATA AND SUBMITTALS

Bid Set  
September 11, 2023

- B. Shop Drawings – Provide drawings electronically unless specifically required by Mechanical and Electrical Sections. Submit Shop Drawings in accordance with Section 01 3000 Electronic Management Procedures.
- C. Product Data – Submit Product Data in accordance with Section 01 3000 Electronic Management Procedures.
- D. Office Samples – See specific section covering product or material.
- E. Field Samples – See section covering specific system.

1.09 CONTRACTOR RESPONSIBILITIES

- A. Review shop drawings, product data and samples prior to submission. Contractor shall review and verify shop drawings, product data and samples prior to submission to Architect. Submittals will not be reviewed if Contractor has not reviewed and stamped the data for approval.
- B. Verify:
  - 1. Field measurements.
- 2. Field Construction criteria.
  - 3. Catalog numbers and similar data.
- C. Coordinate each submittal with requirements of Work and Contract Documents.
- D. Contractor's responsibility for errors and omissions in submittals is not relieved by Architect's review.
- E. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Architect's review of submittals.
- F. Notify the Owner and Architect, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
- G. Begin no work which requires submittals until return of submittals with Architect's stamp and initials or signature indicating review.
- H. After Architect's review, distribute copies.

1.10 SUBMITTAL REQUIREMENTS

- A. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for review, for securing necessary approvals, for possible revision and resubmittals and for placing orders and securing delivery. Submission of all shop drawings shall be through the Contractor.
- B. Unless otherwise specifically permitted by the Architect, make all submittals in groups containing all associated items. Partial submittals will be rejected, unless prior accommodations have been made.
- C. Accompany submittals with transmittal letter, in duplicate, containing:
  - 1. Date
  - 2. Project title and number
  - 3. Contractor's name and address
- 4. The specification section number of each shop drawing, product data and sample submitted.
  - 5. Notification of deviations from Contract Documents.
- D. Submittals shall include a separate cover sheet attached to each copy containing the following information:
  - 1. Date and revision dates
  - 2. Project title and number
  - 3. The name of:

SECTION 01 3300  
SHOP DRAWINGS, PRODUCT DATA AND SUBMITTALS

Bid Set  
September 11, 2023

- a. Architect
      - b. Contractor
      - c. Subcontractor
      - d. Supplier
      - e. Manufacturer
      - f. Separate detailer when pertinent
    4. Identification of product or material
    5. Relation to adjacent structure or materials
    6. Field dimensions, clearly identified as such
    7. Specifications section number
    8. Applicable standards, such as ASTM number or Federal Specification
    9. A blank space, for Architect review stamp
  10. Identification of deviations from Contract Documents
    11. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.
- 1.11 RESUBMITTAL REQUIREMENTS
- A. Shop Drawings:
1. Revise initial drawings as required and resubmit as specified for initial submittal.
  2. Indicate on drawings any changes which have been made other than those requested by Architect.
  3. Product data and samples: Submit new data and samples as required for initial submittal.
- 1.12 ARCHITECT'S DUTIES
- A. Review submittals with reasonable promptness as mutually agreeable among the various parties.
- B. Review for:
1. Design concept of project.
  2. Information given in Contract Documents.
- C. Review of separate item does not constitute review of an assembly in which item functions.
- D. Affix stamp and initials or signatures certifying the review of submittal.
- E. Return submittals to Contractor for distribution.
- F. Send copy of reviewed item, to the Owner
- G. The Architect or Owner may immediately reject any item without further review if it is not:
1. Accompanied by a transmittal letter containing the required information.
    2. Stamped "approved" by the Contractor.
- H. The review will be for conformance to the design concept and compliance with information given in the Contract Documents. The Architect will make notations directly on the electronic submittal.
- I. The review is intended to foresee unacceptable products and to avoid the possibility of their rejection at the site. The review shall not be construed as:
1. Permitting a departure from the Contract Documents, unless specifically so noted.
  2. Relieving the Contractor of the responsibility for errors or omissions.
  3. Acceptance of an assembly in which an approved item is a part.
  4. Approval of variations from previously approved items.
  5. Approval of dimensions.
- J. The Architect will review all samples. Such review will be for appearance only. Compliance with all other requirements is the responsibility of the Contractor.



SECTION 01 3300  
SHOP DRAWINGS, PRODUCT DATA AND SUBMITTALS

Bid Set  
September 11, 2023

- K. Where the Contract Documents require the design of structural, mechanical or electrical systems or components of systems by a supplier, or where a Contractor initiates a change in the design of a system or component thereof, such systems or components shall be designed by a registered professional engineer and all calculations submitted to the Architect for his records, prior to starting fabrication or installation of the Work. The Architect will not be responsible for the designs of such other professional engineers.

1.13 VARIATIONS FROM CONTRACT DOCUMENTS

- A. If the Architect determines a variation from the Contract Documents is in the best interest of the Owner, and it does not involve change in the Contract price or item, the Architect with the Owner's concurrence, may permit such variation.
- B. Unless the Architect receives immediate written notification, he will assume the Contractor approves any variation shown.
- C. If the Contractor fails to mention variations from the Contract Documents, he will not be relieved of the responsibility for executing the Work in accordance with the Contract Documents.
- D. When a variation from the Contract Documents is permitted and such variation involves corresponding adjustment in an adjacent or related item, the responsibility for making and paying all costs for such adjustment rests with the Contractor requesting the original variation.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01 4000  
QUALITY CONTROL

Bid Set  
September 11, 2023

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Quality assurance and control of installation.
2. References.
3. Field samples.
4. Mock-up.
5. Inspection and testing laboratory services.
6. Contractor's inspection and testing responsibilities.
7. Testing laboratory responsibility.
8. Owner's responsibility.
9. Manufacturers' field services and reports.

1.02 RELATED SECTIONS:

- A. Section 01 3000: Electronic Management Procedures.
- B. Section 01 3300 - Submittals: Submission of Manufacturers' Instructions and Certificates.
- C. Section 01 6600 - Delivery, Storage and Handling.

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturer's instructions, including each step in sequence.
- C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.04 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, request clarification for Architect before proceeding.
- D. Contractual relationship of parties to Contract shall not be altered from Contract Documents by mention or inference otherwise in any reference document.

1.05 FIELD SAMPLES

- A. Install field samples at site as required by individual specifications Sections for review.
- B. Acceptable samples represent acceptable quality level for Work.
- C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by Architect.

1.06 MOCK-UP

- A. Contractor to construct a building mock-up large enough to provide and show all of the systems required as noted in individual sections.
    - 1.
      - a. Roofing – valleys, eaves, fascia, gutters, downspouts and all associated flashings.
      - b. Windows and Storefronts – attachment methods, sill pans with end dams, flashings.
      - c. Weather Resistive Barriers – weather resistant barrier attachments, layering, fenestration flashing wraps.
  - B. Wood and Sheet Metal siding and trim.
  - C. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.
  - D. Accepted mock-ups establish the standard of quality the Architect will use to judge the Work.
  - E. Room Mock-ups: Coordinate installation of materials, products, and assemblies as required in Specification Sections; finish according to requirements. Provide required lighting and any supplemental lighting where required to enable Architect to evaluate quality of the mock-up.
- Notify Architect fifteen (15) working days in advance of dates and times when mock-ups will be constructed.
- F. Tests will be performed under provisions identified in this section and individual product sections.
  - G. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, finishes.
  - H. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by Architect unless directed otherwise.

1.07 INSPECTION AND TESTING LABORATORY SERVICES

- A. Owner will appoint, employ, and pay for services of independent firm to perform inspection and testing.

1.08 CONTRACTOR'S INSPECTION AND TESTING RESPONSIBILITIES

- A. Cooperate with independent firm:
  - 1. Furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
  - 2. Provide access to work and manufacturer's operations.
  - 3. Notify Architect and independent firm 24 hours prior to expected time for operations requiring services.
  - 4. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
  - 5. Furnish copies of mill test reports.
  - 6. Furnish casual labor and facilities.
    - a. To provide access to work to be tested.
    - b. To obtain and handle samples at site.
    - c. To facilitate inspections and tests.
    - d. For laboratory's exclusive use for storage and curing of test samples.
  - 7. Arrange with laboratory and pay for additional samples and tests required for Contractor's convenience.
- A. Re-testing:

1. BRe-testing required because of nonconformance to specified requirements shall be performed by same independent firm on instructions by Architect.
- B. Should initial tests indicate non-compliance with Contract Documents, costs for both initial tests and subsequent re-testing occasioned by non-compliance, and all other related costs, including additional Architect's services made necessary by such failure will be charged to Contractor by deducting such costs from Contract Sum/Price.
- C. Notification: Contractor shall notify Testing Lab, Owner and Architect a minimum of 24 hours in advance of any operations scheduled for inspection and/or testing specified herein, to allow for laboratory assignment of personnel and scheduling of test. Work requiring inspections and testing by testing laboratory will not be performed without their qualified technician on the job site. If, after giving notice to the testing lab, the work requiring inspection and/or testing is not performed and the testing lab must make a second trip to the job site, the Contractor shall reimburse Owner for technician's time and travel expense. Where tests are required prior to Contractor starting work, Contractor shall arrange for testing far enough in advance so as not to delay the project or cause inconvenience to the testing lab.
- D. Contractor's Responsibility: The testing laboratory service provided by the Owner shall not relieve the Contractor of his responsibility for compliance with the requirements of the Contract Documents. Testing laboratory services are provided for the sole and exclusive benefit of the Owner in monitoring the quality and performance of the Contractor's work. Results of tests made by the Owner's testing laboratory will be made available to the Contractor and shall be a basis for rejection of non-conforming or defective work. Additional tests/inspections required by the Owner shall not be the basis for any claim by the Contractor for additional compensation.

1.09 TESTING LABORATORY RESPONSIBILITY

- A. General: Testing laboratory shall inspect, test and document work performed on this project as described hereinbefore.
- B. Test Reports: Promptly furnish test reports, via email, of materials and work tested to the Owner, Architect, Contractor, and Building Department. Test reports shall include the name of the project, General Contractor, applicable Subcontractor, and Testing Laboratory, the locations, dates, and time samples were taken and tested, type of test, identification of sample, location in which the work sample was taken, record of weather conditions, evaluation of test results, conformance or non-conformance of test results with Contract Documents, name and signature of technician taking sample and performing tests, and any other information required by Architect.
- C. Inspection Reports: Furnish inspection reports for each site visit documenting activities, observations, and inspections of work; include observations on weather conditions, time and date, conditions and/or status of the work being inspected, actions taken, and recommendations or evaluation of the work. In addition to written reports, immediately notify Architect and Contractor of any portions of the work found to be in nonconformance with the Contract Documents.
- D. Codes: Conform to the requirements of the Oregon Structural Specialty Code (latest edition), Section 306 and other applicable sections and the Oregon Structural Specialty Code standards, and any special requirements of the local Authority Having Jurisdiction (AHJ).
- E. Limits of Authority: Testing laboratory is not authorized to:
  1. Release, revoke, alter or enlarge on requirements of the Contract Documents.
  2. Approve or accept any portion of the work (as relates to the Contractor's obligation to conform to the Contract Documents.)
  3. Perform any duties of the Contractor.

1.10 OWNER'S RESPONSIBILITY:

The Owner shall not be held liable for the actions (or lack of action) of the testing laboratory(s). The commencement of work by the Contractor shall indicate his understanding and agreement that all disputes or claims which may develop between the Owner's testing laboratory(s) and the contractor will be resolved directly between those two parties without involvement or responsibility on the part of the Owner, unless prior agreement is made in writing. Contractor shall advise the Owner of faulty inspections or tests performed by the testing laboratory but Owner shall not be held responsible for problems, damages, delays, replacement of defective work, etc. which may occur as result of the testing laboratory(s) faulty work in which case the Contractor's sole recourse shall be against the testing laboratory or other party at fault, but not against the Owner. Nothing in these specifications shall be construed as preventing the Contractor from hiring a separate testing laboratory to perform testing laboratory services, however, the Owner's testing laboratory inspections and tests shall be the basis for acceptance or rejection of the work by the Owner unless such inspection or tests are proven to be in error.

1.11 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. Submit qualifications of observer to Architect 30 days in advance of required observations. Observer subject to approval of Architect and Owner.
- B. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment as applicable, and to initiate instructions when necessary.
- C. Observers shall report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Submit report within 30 days of observation to Architect for review.

PART 2 – PRODUCT

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01 4200  
ABBREVIATIONS AND DEFINITIONS

Bid Set  
September 11, 2023

PART 1 – GENERAL

1.01 ABBREVIATIONS:

Not Used.

1.02 DEFINITIONS:

A. Certain terms used generally throughout the specifications (and drawings) are hereby defined as follows:

1. Indicated: A cross reference to details, notes or schedules on the drawings, other paragraphs or schedules in the specifications, and similar means of recording requirements in the Contract Documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used in lieu of "indicated", it is for the purpose of helping the reader accomplish the cross reference, and no limitation of location is intended except as specifically noted.

2. Directed, Requested, etc.: Unless otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed by the Architect", "requested by the Architect", etc. However, no such implied meaning will be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.

3. Installer: The person or entity engaged by the Contractor or his Subcontractor or Sub subcontractor for the performance of a particular unit of work at the project site, including installation, erection, application, and similar required operations. It is a general requirement that Installers be recognized experts in the work they are engaged to perform-.

4. Approve: Where used in conjunction with the Architect's or Engineer's response to requests, applications, inquiries, reports, and claims by the Contractor, the meaning of the term "approved" will be held to the limitations of the Architect's responsibilities and duties as specified in the General and Supplementary Conditions. In no case will "approval" by the Architect be interpreted as an assurance to the Contractor that the requirements of the Contract Documents have been fulfilled.

5. Furnish: Except as otherwise defined in greater detail, the term "furnish" is used to mean "...supply and deliver to the project site, ready for unpacking, assembly and installation...".

6. Provide: Except to the extent further defined, the term "provide" means to furnish and install, complete and ready for the intended use.

7. Guarantee and Warranty: "Warranty" is generally used in conjunction with products manufactured or fabricated away from the project site, and "guarantee" is generally used in conjunction with units of work which require both products and substantial amounts of labor at the project site. The resulting difference is that warranties are frequently issued by manufacturers and frequently supported (partially) by product guarantees from manufacturers.

1.03 DRAWINGS, DIMENSION, AND MEASUREMENTS:

A. Where on any of the drawings a portion of the work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other portions of the work.

B. Wherever a detail is referenced and developed for a specific condition, same or similar detail shall apply to identical or similar conditions elsewhere on project even though not specifically referenced.

C. Where the word "similar" occurs on the drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection with other parts of the work.

D. The figured dimensions on the drawings or noted indicating dimensions shall be used instead of measurements of the drawings by scale, and shall be strictly complied with.

SECTION 01 4200  
ABBREVIATIONS AND DEFINITIONS

Bid Set  
September 11, 2023

- E. No scale measurements shall be used as a dimension to work with except on "full size" drawings not dimensioned.

1.04 SPECIFICATION EXPLANATION:

- A. The specifications are divided into Divisions and Sections for the convenience of writing and using. The titles of these are not intended to imply a particular meaning nor to fully describe the work of each division or section, and are not an integral part of the text which specifies the requirements. The Architect is not bound to define the limits of any subcontract, and will not enter into disputes between the Contractor and his employees, including subcontractors.
- B. These specifications are of the abbreviated, or "streamlined" type, and include incomplete sentences.
- C. Omissions of words or phrases such as "the Contractor shall" "in conformity therewith", "shall be", "as noted on the drawings", "according to the plans", "a", "an", "the", and "all" are intentional.
- D. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the drawings.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

PART 1 – GENERAL

1.01 PRELIMINARY WORK

- A. Prior to the start of and during the course of the Work (above and below ground) the Contractor shall make a thorough survey of the entire work site to determine all potential hazards. Workmen shall be made aware of those hazards and shall be instructed in procedures and the use of equipment for their protection. The Contractor shall verify the location and condition ("live" or "dead") of all utilities on and near the work site and take precautions to protect his employees, the general public, and the property.

1.02 IMMINENT DANGER

- A. The Contractor shall be wholly responsible for any accidents (including death) occurring at any time during the progress of the work and until the final acceptance of the work by the Owner which may happen to any of his workmen or those of any Subcontractor employed on the building or the Owner, Architect and their representatives, or for any damage or injuries (including death) which his work and operations may cause to the work being constructed, or to existing buildings, or to any tenants and occupants of the property, or of the adjoining properties, or to the public or to any public or private property.

1.03 SAFETY

- A. The Contractor shall ensure that all employees, visitors, subcontractor's employees, and suppliers' employees, while on the work site, comply with the requirements of OSHA, these requirements and the safety precautions contained in the several Specifications Sections. The Contractor shall promptly and fully comply with, execute and , without separate charge thereof to the Owner, shall enforce compliance with the Occupational Safety and Health Act requirements.
- B. The Contractor shall immediately advise the Owner of inspections conducted by OSHA, at the work site, and shall transmit copies of citations and violations to the Owner and Architect.

1.04 SAFETY RESPONSIBILITIES

- A. Contractor shall be responsible to:
  - 1. Ensure compliance with these requirements, OSHA requirements, and other safety requirements.
  - 2. Authorize immediate action to correct substandard safety conditions.
  - 3. Review and act to ensure compliance with safety procedures with his supervisors, subcontractors, and suppliers.
  - 4. Make through daily safety inspections of the work site and immediately act to eliminate unsafe acts and unsafe conditions.
  - 5. Investigate work-site accidents and recommend immediate corrective action.
  - 6. Assist in the preparation of accident investigation and reporting procedures.
  - 7. Be responsible for the control, availability, and use of safety equipment, including employee personal protective equipment.

1.05 REQUEST FOR VARIANCES

- A. Requests for variances to deviate from OSHA requirements must follow the current established procedures by that Agency.

1.06 FAILURE TO COMPLY

- A. If the project is shut down due to the Contractor's failure to comply with the requirements of OSHA or other applicable safety requirements, no part of the time loss due to any such suspension of operations or stop orders shall be made the subject of a claim for extension of time or for increased cost or damage by the Contractor.

PART 2 – PRODUCTS



SECTION 01 4510  
SAFETY

Bid Set  
September 11, 2023

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01 5000  
CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

Bid Set  
September 11, 2023

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water and sanitary facilities.
2. Temporary Controls: Barriers, enclosures and fencing, protection of the Work and water control.
3. Construction Facilities: Access roads, parking, progress cleaning, and temporary buildings.
4. Removal: Utilities, facilities, and controls.

1.02 RELATED SECTIONS:

- A. Section 01 5526: Traffic Control.
- B. Section 01 7413: Final Cleaning.

1.03 TEMPORARY UTILITIES

A. Temporary Electricity:

1. Owner will provide electrical services from existing facilities OR Contractor will provide and pay for all required temporary power.
2. Furnish and install as necessary temporary wiring, associated equipment and special power needs. Upon completion of the work, remove all temporary wiring and equipment.
3. Furnish and install additional power distribution cords, area distribution boxes so located that the individual trades may use their own construction-type cords to obtain power and provide artificial lighting at all points where required by inspectors and for safety.
4. Ascertain where electrical service is available; provide required connections and extend system to work area as required.
5. Periodic lack of electrical power to all or portions of the building shall not be an allowable reason for schedule delay.

B. Temporary Lighting:

1. Provide and maintain lighting for construction operations to achieve minimum lighting level of 15-foot candles. Provide additional lighting for finish work where and when needed, or as required by the Contract Documents.
2. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails and lamps as required.
3. Maintain lighting and provide routine repairs.

C. Temporary Heat:

1. Provide and pay for heat devices and heat as required to maintain specified conditions for construction operations. Comply with codes, agencies, and regulations regarding usage of temporary space heaters.
2. Use of temporary individual propane heaters are not allowed to dry out or heat the building.

D. Temporary Ventilation:

1. Ventilate enclosed areas to:
  - a. Assist cure of materials.
  - b. Dissipate humidity.
  - c. Prevent accumulation of dust, fumes, vapors, or gases.

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- d. Provide local exhaust ventilation to prevent harmful dispersal of hazardous substances into atmosphere at all times.
  - E. Temporary Telephone Service:
    - 1. Provide telephone service to field office at time of project mobilization.
    - 2. Maintain services from start of work through building occupancy.
  - F. Temporary Water Service:
    - 1. Water service will be available for contractor's use at the building site OR Contractor will provide temporary water service on site. Contractor shall be prudent about use and coordinate with building managers. Contractors are required to provide their own means of water distribution to suit their requirements.
    - 2. Do not allow existing or new drains to become clogged with construction debris, plaster, paint, glues or other substances – either during the demolition phase or the new construction phase.
    - 3. Contractor to provide water and water truck for dust control.
  - G. Temporary Sanitary Facilities:
    - 1. Provide and maintain adequate number of required facilities and enclosures for use of all persons and trades employed on Work during construction period.
      - a. Toilet facilities.
      - b. Washing facilities.
  - H. Temporary First Aid Facilities: Provide adequate first aid facilities for construction personnel.
  - I. Temporary Fire Protection:
    - 1. Take all precautions to prevent possibility of fire resulting from construction operations. Particularly avoid hazardous accumulations of rubbish and unsecured flammable materials.
    - 2. Provide emergency fire extinguishing equipment of adequate type and quantity, readily available and properly maintained.
    - 3. Keep local Fire Department's telephone number prominently displayed near telephone.
- 1.04 TEMPORARY CONTROLS
- A. Barriers and Fencing
    - 1. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
    - 2. Provide barricades and covered walkways required by governing authorities for public rights-of-way.
    - 3. Protect nonowned- vehicular traffic, stored materials, site and structures from damage.
    - 4. Provide temporary commercial grade chain link fencing at the limits of construction for the duration of the project, until Project has been accepted or occupied by Owner. Maintain site fencing as needed and equip with vehicular gates with locks.
  - B. Water Control:
    - 1. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
    - 2. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
    - 3. Exercise care in cleaning out equipment, etc., so as to prevent materials from clogging catch basins and yard drains.

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4. Maintain during construction and leave all drainage items clean and in proper working condition.
5. Maintain public streets daily. Clean and remove any dirt, mud or debris.

C. Pollution Control:

1. Burning or burying of rubbish and waste materials on Site is prohibited. Provide dump box for collection of waste materials.
2. Disposal of volatile fluid wastes (such as mineral spirits, oil or paint thinner) in storm or sanitary sewer systems is prohibited.
3. Keep Site and surrounding areas clear of accumulations of waste material and rubbish resulting from operations under this Contract. Remove waste from Site immediately upon completion of Work. Do not allow any debris or rubbish to drift on to play fields or neighboring properties.

D. Construction Waste Management

1. Prior to the start of construction, submit to the Owner a Construction Waste Management Plan (CWMP) that includes at a minimum:
  1. A listing of materials or material categories that will be generated during demolition and construction and whether materials will be salvaged, recycled, or landfilled.
  2. The processes and procedures that the Contractor will implement to ensure construction waste will be diverted from the landfill to sources for reuse or recycling according to the CWMP.
  3. The records that will be kept tracking quantities by weight of material that is landfilled, salvaged, or recycled.
2. The Owner has established that this Project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.
3. Of the waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills or incinerators shall be minimized, thereby reducing disposal costs.
4. Salvage/Recycle Requirements: Salvage and recycle as much non-hazardous demolition and construction waste as possible.

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E. Protection of Installed Work:

1. Protect installed Work and provide special protection where specified in individual specification Sections.
2. Provide temporary and removable protection for installed products. Control activity in immediate work area to minimize damage.
3. Provide and maintain temporary shoring and lateral bracing of structure during erection to resist all loads including:
  - a. Wind
  - b. Seismic
  - c. Construction
  - d. Materials
  - e. Moving equipment
4. Do not remove temporary bracing and shoring until adequate permanent connections or structural elements are in final position and positively anchored.
5. Provide protective coverings at walls, projections, jambs, sills and soffits of openings
6. Protect finished floors, stairs and other surfaces from traffic, dirt, wear, damage or movement of heavy objects, by protecting with durable sheet materials such as Tyvek.
7. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
8. Prohibit traffic from landscaped areas.

F. Vegetation Damage Control:

1. Protect all existing trees and vegetation to remain on site from foliage, trunk, and root damage.
2. Provide barricades and maintain same around all trees, shrubs or other landscaped areas adjacent to work of this Contract to protect such areas from damage of any nature caused by construction operations.
3. Replace any plantings damaged or destroyed with plants of equivalent size, type and nature as approved by Architect.

G. Exterior Enclosures:

1. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection of Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification Sections, and to prevent entry of unauthorized persons.
2. Provide access doors with self-closing hardware and locks.
3. Provide temporary roofing as required.

H. Interior Enclosures:

1. Provide temporary partitions and ceilings as required to separate work areas from owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.
2. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces in accordance with ASTM E90 (maximum Flame Spread Rating of 75) and in accordance with ASTM E84.
- I. Security:
  1. Provide security and facilities to protect Work from unauthorized entry, vandalism or theft.
  2. Provide temporary locks at all exterior doors after building is enclosed.
  3. Coordinate with Owner's Security program.

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CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

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1.05 CONSTRUCTION FACILITIES

A. Access Roads

1. Construct and maintain temporary access to public thoroughfares to serve construction area.
2. Relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
3. Provide and maintain access to fire hydrants, free of obstructions.
4. Provide means of removing mud from vehicle wheels before entering streets. Any dirt, mud or other debris tracked onto streets must be removed immediately.
5. Provide barricades, warning signs, flagmen or other traffic regulators which may become necessary for protection of public, construction personnel and property.

B. Parking:

1. Arrange for temporary parking areas to accommodate construction personnel, project visitors and Owner's Employees.
2. When site space is not adequate, provide additional off-site parking as allowed by the local jurisdiction.
3. Do not allow construction personnel vehicle or equipment parking on existing pavement.
4. Designate adequate parking spaces for the Owner and Architect and their representatives during on-site visits.

C. Project Identification:

1. Provide one 4 x 8 foot project sign of MDO exterior grade plywood and wood frame construction, painted with exhibit lettering by professional sign painter to Architect's design and colors. Design supports, framing and surfaces to resist a minimum of 50 mph wind velocity.
2. List title of project and logo, names of Owner, Architect, and Contractor as defined by the Architect's design.
3. Erect on the site at location established by the Construction Program Manager.
  - a. Comply with requirements of authorities having jurisdiction.
  - b. Obtain and pay for any required permits.
4. No other signs will be allowed without the Owner's permission except those signs required by law.

D. Field Offices and Sheds:

1. General: Furnish and install field office building(s) adequate in size and accommodation for all Contractor's offices, job site meetings, superintendent's office, supply room and tool room.
2. The Contractor will provide a conference room (200 square feet minimum) in Contractor's trailer or in a separate job site trailer for use by the Architect and Owner and may be used to conduct job meetings.  
For the duration of the project construction (Substantial Completion), provide this office and conference space with:
  - a. Adequate light, heating, air conditioning, ventilation and 110V electrical service.
  - b. A conference room table with 12 chairs, one 4' x 8' white marker board.
  - c. Weekly clean trailer.
  - d. Contractor's copy machine.
3. The above referenced facilities shall be completed in total and fully operational for use not later than ten (10) days after mobilization by the Contractor.
4. Sheds: Provide the following facilities in temporary buildings used for material and equipment storage:
  - a. Ventilation: Where required for materials being stored.
  - b. Fire Extinguisher: One ABC type portable fire extinguisher.
  - c. Temperatures: As required for materials being stored.

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CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

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E. Temporary Vertical Transportation:

1. Provide and maintain all essential temporary vertical transportation for use of all persons and trades employed on Work during construction. Be responsible for all costs incurred.

1.06 AIR QUALITY DURING CONSTRUCTION

A. HVAC Protection

1. Protect all air handling and distribution equipment, and air supply and return ducting during construction.
2. Adequately cover and protect all exposed air inlets and outlets openings, grilled, ducts, plenums, etc. to prevent water, moisture, dust, and other contaminate intrusion.
3. Apply protection immediately after installation of equipment and ducting.
4. Ducting runs that require more than a single day to install be protected at the end of each day's work.

B. Source Control

1. Protect stored on-site or installed absorptive or porous materials such as batt insulation and drywall from exposure to moisture.
2. Provide adequate ventilation of packaged dry products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues. Do not ventilate within limits of Work unless otherwise approved by the Architect.

C. Housekeeping

1. Minimize accumulation of dust, fumes, vapors, or gases in the building.
2. Suppress dust with wetting agents or sweeping compounds.
3. Clean-up dust using a wet rag or damp mop.
4. Increase the cleaning frequency when dust build-up is noted.
5. Remove spills or excess applications of solvent-containing products as soon as possible. Remove accumulated water and keep work areas as dry as possible.
6. Vacuum using HEPA filtered vacuum cleaners.
7. Store volatile liquids, including fuels and solvents, in closed containers and outside of the building when not in use.
8. Keep volatile liquid containers closed when the container is inside the building and not in use.

1.07 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore Owner's property, and adjacent private and public property damages or used during construction, to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

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CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

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END OF SECTION



PART 1 - GENERAL

1.01 DESCRIPTION OF THE WORK

- A. The Contractor shall retain the responsibility for the traffic operations. The Contractor shall cooperate with the Owner so that traffic flow is least impeded by the execution of the work under this Contract. In the event of conflict, the Owner shall be the sole judge of the adequacy of the Contractor's protective measures to assure the flow of traffic.
- B. The Contractor understands the special requirement of maintaining the Site and surrounding Facilities in full operation concurrent with the construction activity, and shall provide continuous and safe access by the Owner to all areas of the site not specifically designated for work by the contractor. The Contractor's access shall be limited to the work, staging, delivery and parking areas indicated on the drawings unless otherwise authorized by the Owner.
- C. Whenever the contractor's activity affects vehicular or pedestrian traffic the Contractor shall install and maintain lighted barriers, signals, separators, etc. for the safety of the public.

1.02 SUBMITTALS

- A. Prior to starting any work the contractor shall submit to the Owner and Architect a detailed plan of his proposed method for controlling traffic. The proposed traffic control plan shall show and describe the proposed locations and time durations covering the following:
  - 1. Vehicular traffic routing.
  - 2. Traffic blockage anticipated to be caused by the work under this Contract.

1.03 TRAFFIC MAINTENANCE FACILITIES

- A. Other than as shown on the approved traffic control plans, at no time shall the contractor's operations interfere with the safe and orderly operation of Owner-occupied areas of the facility or the neighborhood. Encroachment by the Contractor's operations will not be permitted.
- B. For the duration of the Contract, the Contractor shall immediately repair or replace any and all appurtenances damaged or destroyed in the performance of work included herein.
- C. Upon completion of the work, temporary traffic maintenance items furnished by the contractor shall remain his property and shall be removed from the site by the Contractor.
- D. The Contractor shall utilize water application or other methods approved by the Oregon Department of Environmental Quality to control dust on access streets and the project site to the satisfaction of the Owner and Architect. Power sweepers shall be used to clean streets of dirt along haul routes.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used.

END OF SECTION

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Provide for expeditious transportation and delivery of products to project site undamaged, on a schedule to avoid delay of the work.
- B. Provide equipment and personnel at the site to unload and handle products in a manner to avoid damage to products.
- C. Provide secure storage and protection for products to be incorporated into the work, and maintenance and protection for products after installation and until completion of the work.

1.02 ENERGY & ENVIRONMENTALLY SENSITIVE PRODUCTS

- A. Prior to installation, Contractor shall submit MSDS (Material Safety Data Sheets) for all Paint, Adhesive, Sealant, Plywood, Particle Board, Carpet and other products which could negatively impact the Project environment. Only those products that satisfy the Sustainable Design Requirements may be used in the Project Work.

1.03 DELIVERY

- A. Arrange deliveries of products in accord with construction schedules and in ample time to facilitate inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with work and conditions at site.
  - 1. Work of other contractors, or Owner.
  - 2. Limitations of storage space.
  - 3. Availability of equipment and personnel for handling products.
- C. Deliver products in undamaged condition in original containers or packaging, with identifying labels intact and legible.
- D. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.
- E. Immediately upon delivery, inspect shipment to assure:
  - 1. Product complies with requirements of Contract Documents and reviewed submittals.
  - 2. Quantities are correct.
  - 3. Containers and packages are intact, labels are legible.
  - 4. Products are properly protected and undamaged. Minor damages may be repaired, provided the finish items are equal in all respects to new work.

1.04 PRODUCT HANDLING

- A. Provide equipment and personnel necessary to handle products, including those provided by Owner, by methods to prevent soiling or damage to products or packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring, or otherwise damaging products or surrounding surfaces.
- C. Handle products by methods to prevent bending or overstressing.
- D. Lift heavy components only at designated lifting points.

1.05 STORAGE

- A. Store products immediately on delivery, and protect until installed in the work. Store in accord with manufacturer's instructions, with seals and labels intact and legible.
- B. Store products subject to damage by elements in substantial weather-tight enclosures.

1. Maintain temperatures within ranges required by manufacturer's instructions.
  2. Provide humidity control for sensitive products, as required by manufacturer's instructions.
  3. Store unpacked products on shelves, in bins, or in neat piles, accessible for inspection.
- C. Exterior Storage:
1. Provide substantial platforms blocking, or skids to support fabricated products 4" above ground, prevent soiling or staining.
  2. Cover products, subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Avoid use of non-vented plastic or canvas shelters that could create humidity chambers. Provide adequate ventilation to avoid condensation.
  3. Store loose granular materials on solid surfaces such as paved areas, or provide plywood or sheet materials to prevent mixing with foreign matter.
    - a. Provide surface drainage to prevent flow or ponding of rainwater.
    - b. Prevent mixing of refuse or chemically injurious materials or liquids.
- D. Arrange storage in manner to provide easy access for inspection.
- 1.06 MAINTENANCE OF STORAGE
- A. Maintain periodic system of inspection of stored products on schedules basis to assure that:
1. State of storage facilities is adequate to provide required conditions.
  2. Required environmental conditions are maintained on continuing basis.
  3. Surfaces of products exposed to elements are not adversely affected. Any weathering of products, coatings, and finishes is not acceptable under requirement of Contract Documents.
- 1.07 PROTECTION AFTER INSTALLATION
- A. Provide protection of installed products to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.
- B. Control traffic to prevent damage to equipment and surfaces.
- C. Provide coverings to protect finished surfaces from damage.
- 1.08 DAMAGED PRODUCTS
- A. Damaged or deteriorated materials shall be removed from the premises. Replace materials that have been damaged.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 7123  
CONSTRUCTION STAKING

01 7123-1

PART 1 GENERAL

1.01 CONTRACT CONDITIONS

- A. Work of this Section is bound by the General Conditions, Supplementary Conditions, and Division 1 bound herewith in addition to this Specification and accompanying Drawings.

1.02 WORK INCLUDED

- A. Provide survey work by an Oregon State registered land surveyor for the execution of Project.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01 7839, Project Record Documents.

1.04 QUALITY CONTROL

- A. Before starting work, the Contractor shall locate all general reference points. The Contractor shall employ a registered surveyor (licensed by the State of Oregon) to perform such work. The Contractor shall take such steps as are necessary to prevent the dislocation or destruction of the reference points, and shall be responsible for the accuracy of the site and building layout and elevations for the work.

1.05 SURVEY REFERENCE POINTS

- A. Existing Points: See Drawings.
- B. Locate existing points prior to starting site work, and preserve during construction.
- C. Make no Changes to existing points without Owner and Architect approval.
- D. Notify Owner and Architect when any point is lost, destroyed or requires relocation.

1.06 PROJECT LAYOUT

- A. Establish existing control points.
- B. Record benchmark locations with horizontal and vertical dimensions on Project Record Drawings.
- C. Using survey instruments, establish lines and levels for the following:
  - 1. Stakes for grading, fill, and all earthwork.
  - 2. Building foundation, floor elevations and similar elements.
- D. Re-establish control points as required due to construction activity.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

PART 1 – GENERAL

1.01 DEFINITION

- A. "Cutting and Patching" is defined to include the cutting and patching of nominally completed concrete, steel, wood and miscellaneous metal structures; piping and pavement, in order to accommodate the coordination of WORK, or the installation of other facilities or structures or to uncover other facilities and structures for access or inspection, or to obtain samples for testing, or for similar purposes.
- B. SECTION INCLUDES
  - 1. Provide cutting, fitting and patching. The following are included:
    - a. Make component parts fit together.
    - b. Uncover work to provide for installation of out-of-sequence work.
    - c. Remove and replace new work not conforming to Project requirements.
    - d. Provide penetrations of nonstructural surfaces for installation of electrical conduits, plumbing, ductwork and other penetrations.
    - e. Restore the integrity of fire rated construction at cutting and patching work.

1.02 RELATED SECTIONS

- A. Section 01 1000: Summary of Work
- B. Individual Specifications Sections:
  - 1. Cutting and patching incidental to work of the Section.
  - 2. Advance notification to other Sections of openings required in work of those Sections.
  - 3. Limitations on cutting structural members.

1.03 SUBMITTALS

- A. Submit written request for cutting approval to Architect well in advance of any cutting which affects:
  - 1. Work of Owner or any separate Contractor.
  - 2. Structural value or integrity of any completed or existing work.
  - 3. Waterproof value or integrity of any weather-exposed or moisture resistant work.
  - 4. Efficiency, operational life, maintenance, or safety of any completed or existing work.
  - 5. Visual qualities of any sight-exposed work.
- B. Request shall include:
  - 1. Project identification.
  - 2. Location and Description of affected work.
    - 3. Necessity for cutting, alteration, or excavation.
    - 4. Effect on Owner's or separate Contractor's work.
    - 5. Effect on structural or weatherproof integrity on completed or existing work.
    - 6. Description of proposed work including:
      - a. Extent of cutting, patching, alteration, or excavation.
      - b. Trades who will execute work.
      - c. Products proposed for use.
      - d. Extent of required refinishing.
    - 7. Alternative to cutting and patching.
    - 8. Cost proposal, when applicable.
- C. Submit written notice to Owner and Architect designating date and time work will be performed.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Products similar to those specified elsewhere in this Project Manual:

- 1. Follow those Specifications.
- B. Other Products:
  - 1. Follow Architect's instructions.
- C. Change in Materials:
  - 1. For any change in materials, submit request for substitution under provisions of Section 01 2500.

### PART 3 – EXECUTION

#### 3.01 EXTENT OF WORK

- A. Perform all cutting, fitting, and patching, including attendant excavation and backfill, required to complete work or to:
  - 1. Make work fit properly together.
  - 2. Uncover work for installation of ill-timed work.
  - 3. Remove and replace defective work and work not conforming to Contract Documents.
  - 4. Remove samples of installed work for testing.
  - 5. Provide penetrations through non-structural surfaces for mechanical and electrical work.

#### 3.02 EXISTING CONDITIONS

- A. Inspect existing conditions and identify work subject to damage or movement caused by proposed cutting and patching.
- B. After uncovering work, inspect conditions affecting products installation or performance.
- C. Report unsatisfactory and questionable conditions to the Owner and Architect in writing; do not proceed with work until Architect provides further instructions.
- D. Beginning of cutting and patching implies acceptance of existing conditions.

#### 3.03 PREPARATION

- A. Maintain adequate temporary support necessary to assure structural integrity of affected work; provide devices and methods to protect other portions of project from damage.
- B. Protect work exposed by cutting against damage and discoloration.
- C. Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

#### 3.04 PERFORMANCE

- A. Provide proper surfaces for repairs.
- B. Employ qualified installer or fabricator to perform cutting and patching of:
  - 1. Weather-exposed or moisture-resistant surfaces.
  - 2. Sight-exposed finished surfaces.
- C. Restore cut or removed work with new products to provide work complete in accordance with Contract Documents. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire-rated material, full thickness of the construction element. Provide required fire-resistant rating.
- D. Fit work air-tight to pipes, sleeves, ducts, conduits, and other surface penetrations.
- E. Where patching occurs, refinish entire surface to provide even finish to match adjacent work as follows:
  - 1. Continuous surfaces: refinish to nearest intersection.
  - 2. Assemblies: refinish entire un

SECTION 01 7329  
CUTTING & PATCHING

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3.05 CUTTING STRUCTURAL FRAMING

- A. Exposed members, including any columns and posts:
  - 1. Not permitted, unless shown on Drawings or otherwise approved.

3.06 CLEANING AND REPAIRING

- A. Including work of other Sections, clean, repair, and touchup, or replace when directed, products which have been soiled, discolored, or damaged by work of this Section.
- B. Remove debris from Project Site upon work completion or sooner, if required by Owner.

END OF SECTION

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

- A. Work included: Throughout the construction period, maintain the project site where work is carried out in a standard of cleanliness as described in this section.
- B. Related work described elsewhere: In addition to standards described in this Section, comply with all requirements for cleaning as described in other various Sections of these Specifications.

1.02 QUALITY ASSURANCE

- A. Inspection: Conduct daily inspection, and more often if necessary, to verify that requirements of cleanliness are being met.
- B. Codes and Standards: In addition to the standard described in this section, comply with all pertinent requirements of governmental agencies having jurisdiction.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS AND EQUIPMENT

- A. Provide all required personnel, equipment, and materials needed to maintain specified standard of cleanliness.

PART 3 EXECUTION

3.01 PROGRESS CLEANING

- A. General:
  - 1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
  - 2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
  - 3. Provide adequate storage for all items, awaiting removal from the job site, observing all requirements for fire prevention and protection of the ecology.
  - 4. Comply with the cleaning requirements of other sections in the Project Manual.
  - 5. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed and remote spaces prior to enclosing the space.
  - 6. Broom and vacuum clean interior areas prior to the start of surface finishing and continue cleaning to maintain a dust-free space during the finishing operations.
  - 7. Prior to painting, remove all dust accumulation on walls.
- B. Site:
  - 1. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site; restack, tidy, or otherwise service. All arrangements to meet the requirements of paragraph 3.01, A.1. above.
  - 2. Maintain the site in a neat and orderly condition at all times to the satisfaction of the Construction Program Manager.
  - 3. Remove waste materials, debris, and rubbish from site periodically and dispose off-site.

3.02 DUST CONTROL

- A. Maintain continuous cleaning and wetting procedures to control dust pollution at project site and haul routes as required by governing authorities and the Contract Documents. Use power sweepers for street cleaning as necessary. Maintain dust control operations to prevent flying dust from leaving the project site.
- B. Schedule cleaning so that resultant dust and contaminants will not fall on wet or newly coated surfaces.



- C. Erect dust proof barriers at the interior of building to control the spreading of construction generated dust and debris to areas of the building not affected by renovation work.
- D. Provide dampened or tacky walk-off mats at dust proof barriers that are also used to access other areas of the building to prevent tracking of dust and debris to areas of the building not affected by renovation work. Provide progress cleaning as required.

3.03 CLOSEOUT CLEANING

- A. Closeout cleaning shall be limited to those areas in which construction occurred and also the on-site sanitary facilities used by the contractor.
- B. Provide final cleaning of Work prior to Substantial Completion and Architect's "Punch List." Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to condition expected from normal commercial building cleaning and maintenance program. Comply with manufacturer's recommendations. Complete following cleaning operations before requesting Owner review for Certification of Substantial Completion:
  - 1. Clean equipment and fixtures to sanitary condition.
  - 2. Replace filters of operating equipment.
  - 3. Clean debris from roofs, gutters, downspouts, and drainage systems.
  - 4. Clean mechanical and electrical equipment and spaces, including tops of pipes, ducts, equipment, etc.
  - 5. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels and other foreign matter from sight exposed interior and exterior surfaces.
  - 6. Hose-clean exterior paved surfaces, rake clean other surfaces of grounds.
  - 7. For all new exterior construction, power wash entire exterior of building to remove all dirt and dust - care shall be taken around new landscaping.
  - 8. Final clean all glazing. Exterior glazing to be cleaned after building is power washed.
  - 9. Re-clean areas or equipment, after final inspection, if dirtied as result of Contractor's work in preparing for final inspection or completion of punch list.
  - 10. Restore landscape damaged as a result of construction of this project including removal of ruts caused by vehicle traffic, removal of construction debris, replacement of damaged or contaminated soils and mulches, reseeding of damaged lawns, restoration of sidewalks or pathways damaged during construction and other landscaping repairs required as a result of construction activity as directed by the Owner's Representative.
- B. Removal of protection: Except as otherwise indicated or requested by Owner, remove temporary protection devices and facilities which were installed during course of Work to protect previously completed Work during remainder of construction period or to protect public.
- C. Compliance:
  - 1. Comply with safety standards and governing regulations for cleaning operations.
  - 2. Do not burn waste materials at Site.
  - 3. Do not bury debris or excess materials on Owner's property.
  - 4. Do not discharge volatile or other harmful or dangerous materials into drainage systems.
  - 5. Remove waste materials from Site and dispose of in lawful manner.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
  - 1. Description of Requirements.
  - 2. Closeout Procedures.
  - 3. Record Document Submittals.
  - 4. Closeout Cleaning.
  - 5. Testing.
  - 6. Operation & Maintenance Instructions.
  - 7. Prerequisites to Substantial Completion.
  - 8. Final Acceptance.
  - 9. Evidence of Payments and Release of Liens.
  - 10. Final Adjustment of Accounts.
  - 11. Submittal of Statement of Compliance.
  - 12. Submittal of Certification of No Asbestos.

1.02 RELATED SECTIONS

- A. Section 01 1000 - Summary of Work.

1.03 DESCRIPTION OF REQUIREMENTS

- A. Definitions: Project Closeout is the terminology used to describe certain collective project requirements, indicating completion of Work, that shall be fulfilled near end of Contract time in preparation for Final Acceptance and occupancy of Work by the Owner, as well as final payment to Contractor and normal termination of Contract.
- B. Time of Contract Closeout is directly related to "Substantial Completion"; therefore, time of closeout may be either single time period for entire Work or series of time periods for individual elements of Work that have been certified as substantially complete at different dates. This time variation, if any, shall be applicable to other provisions of this Section.

1.04 CLOSEOUT PROCEDURES

- A. Contractor will initiate the close-out period by providing a written statement to the Owner and Architect stating that the Contract Documents have been reviewed, Work has been inspected and approved by the Contractor, and that Work is complete in accordance with Contract Documents and ready for Architect's review.
- B. Provide submittals to Architect that are required by governing or other authorities indicating that all work has been inspected and approved by the appropriate authorities.
- C. Submit written request for Final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.05 RECORD DOCUMENT SUBMITTALS

- A. Submit Record Documents in accordance with Specification Section 01 7839.

1.06 CLOSEOUT CLEANING

- A. Complete closeout cleaning in accordance with Specification Section 01 7413.

1.07 TESTING – Unless specified elsewhere in these specifications, the following testing procedures will be followed:

- A. Operating equipment and systems shall be tested in presence of Owner to demonstrate compliance with specified requirements.
  - 1. Notify Owner, in writing, seven (7) days prior to tests scheduled under requirements of this Section.

2. Testing shall be conducted under specified design operating conditions as recommended or approved by Owner and Owner's Representative.
  3. Provide copies of all test reports and records to Owner.
- B. All elements of systems shall be tested to demonstrate that total systems satisfy all requirements of these Specifications. Testing shall be accomplished on hierarchical basis. Test each piece of equipment for proper operation, followed by each subsystem, followed by entire system, followed by inter-ties to other major systems.
- C. All special testing materials and equipment shall be provided by Contractor.
- D. Owner-Witnessed Contractor's Tests:
1. System shall be checked for proper installation, shall be adjusted, and shall be calibrated to verify that it is ready to function as specified.
  2. All system elements shall be checked to verify that they have been installed properly and that all connections have been made correctly.
  3. All discrete elements and sub-systems shall be adjusted and shall be checked for proper operation.
  4. Operational Tests shall be complete prior to starting Functional Acceptance Tests.
  5. Provide copies of all test reports and records to Owner.
- E. Owner-Witnessed Functional Tests:
1. Objective of these tests is to demonstrate that system is operating and complying with specified performance requirements.
  2. Owner-witnessed Functional Acceptance Test shall be performed on complete system. Each function shall be demonstrated to satisfaction of Owner on paragraph-by-paragraph basis of Contractor's written test procedure, developed to demonstrate conformance to requirements of Contract Specifications.
  3. Functional acceptance test shall be witnessed and signed off by Owner upon satisfactory completion.
  4. Actual testing program shall be conducted in accordance with prior approved procedures and shall be documented as required hereinafter.
  5. Notify Owner at least two weeks prior to date of Functional Acceptance Test.
  6. Test systems independent of, and prior to, tie into off-site systems.
- F. Performance Period:
1. Upon successful completion of Owner-Witnessed Functional Test, Performance Period (30 consecutive calendar days) shall commence on first day following performance test. This period shall be completed prior to final acceptance of the project. The commencement of the warranty period is scheduled from the beginning date of the performance period which has been successfully completed. In event of failure to meet standard of performance during any initiated performance period, it is not required that one 30-calendar day period expire in order for another performance period to begin.
  2. If equipment or system operates so as to demonstrate continuing compliance with specified requirements for period of 30 consecutive calendars days from commencement date of performance period, it shall be deemed to have met standard of performance. In addition, equipment or systems shall operate in conformance with all Contract Specifications and with Contractor's bid and published Specifications in effect on date Contract is executed, provided such specifications are equal to or better than specifications submitted with Contractor's bid.
  3. Equipment shall not be accepted by Owner, and final payment shall not be made by Owner, until standard of performance is met.
  4. Systems shall be first tested as independent building systems to meet the building substantial completion requirements followed by successful tests of systems tied into Owner's systems which include but are not limited to, one off-site security/alarm monitoring agency.

G. Test Procedure Development and Test Documentation:

1. Within thirty (30) days after Award of Contract, Contractor shall prepare and submit to Owner's Representative and to Owner for review, detailed descriptions of tests procedures which Contractor proposed to perform to demonstrate conformance of completed systems of instrumentation and controls to these Specifications.
2. Decision of Owner's Representative upon acceptability of test procedures shall be final.
3. Equipment shall not be accepted by Owner, and final payments shall not be made by Owner until standard of performance is met.

H. Operational Tests:

1. Contractor shall prepare checkoff sheet(s) for each system. These checkoff and data sheets shall form basis for these operational tests and this documentation.
2. Each checkoff sheet shall cite following information and shall provide spaces for signoff on individual items and on completed systems by Owner and Owner's Representative.
  - a. Project name.
  - b. For each element: tag number, description, manufacturer and model number, installation bulletin, and specification sheet number.
3. Each Instrument Calibration sheet shall provide adequate information and space for signoff on individual items and on completed units by Contractor.

1.08 OPERATION & MAINTENANCE INSTRUCTIONS

A. INSTRUCTION OF OWNER'S PERSONNEL

1. After Substantial Completion and prior to Final Inspection or Full Acceptance of the Project, Contractor shall provide qualified personnel for conducting full operation and maintenance training and instructions in the operation, adjustment and maintenance of all operating equipment and systems to Owner's designated personnel; include all general, mechanical and electrical operating systems and equipment. Provide a minimum of 40 hours of such training and instructions, conducted to Owner's satisfaction.
2. Except as otherwise specified, arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures.
3. Use operating and maintenance manuals as the basis for instruction. Review contents of Manual with personnel in full detail to explain all aspect of operations and maintenance; include as a minimum record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and renewal of finishes, and similar procedures and facilities.
4. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds and similar continuing commitments.
5. All equipment operation and maintenance instructions and training shall be video taped by the Contractor and the edited film delivered to the Owner.
6. For additional requirements for operations instruction, see respective Specification Sections.

1.09 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. Complete following before requesting Architect's review for certification of Substantial Completion, either for entire Work or for portions of Work. List known exceptions in request.

1. In progress payment request that coincides with, or is first request following date Substantial Completion is claimed, show either 100% completion for portion of Work

- claimed as "substantially complete", or list incomplete items, value of incomplete Work, and reason for Work being incomplete.
  2. Include supporting documentation for completing Work noted as incomplete as indicated in these Contract Documents.
  3. Submit statement showing accounting of changes to Contract Sum.
  4. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
  5. Deliver tools, spare parts, extra stock of material and similar physical items to Owner.
  6. Complete start-up testing of systems, Performance Periods, and instruction to Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools and facilities mock-ups and similar elements.
  7. Complete final cleanup requirements, including touch-up painting of blemished surfaces.
  8. Test fire and life safety systems in presence of Owner, Architect and City/County/State officials.
  9. Obtain Approvals as required from Authorities Having Jurisdiction.
  10. Complete major punchlist items.
  11. Contractor shall submit copy of Contractor's Punchlist to Architect, clearly stating that building is ready for review with exception of items noted in Contractor's Punchlist.
- B. Review procedure: Upon receipt of Contractor's request for review, Architect will either proceed with review or advise Contractor of unfulfilled prerequisites.
- C. Following initial review, Architect will either prepare Certificate of Substantial Completion or will advise Contractor of Work that must be performed before Certificate will be issued.
- D. Results of completed review will form initial "punchlist" for final acceptance.
- 1.10 FINAL INSPECTION
- A. When Contractor considers Work complete, he shall submit written certification that:
1. Contract Documents have been reviewed.
  2. Contractor has inspected Work for compliance with Contract Documents.
  3. Work has been completed in accordance with Contract Documents.
  4. The Project, properties, and streets are finally cleaned of debris and dirt caused by Contractor operations.
  5. Work is complete and ready for final inspection.
- B. Architect will inspect Work to verify completion status as soon as possible after receipt of Contractor's certification.
- C. Should Architect consider Work incomplete or defective:
1. Architect will promptly notify Contractor and Owner in writing, listing incomplete or defective work.
  2. Contractor shall immediately remedy deficiencies, and send second written certification to Architect that Work is complete.
  3. Architect will reinspect Work.
- D. When Architect and Owner find Work acceptable under Contract Documents, they will jointly request Contractor to make closeout submittals.
- 1.11 REINSPECTION FEES
- A. Should Architect or Engineer be required to make more than two Substantial inspections or one Final inspection due to Contractor's failure to correct specified deficiencies, the Contractor shall bear all costs (including compensation for the Architect's, Engineer's, and Construction Program Manager's additional services) made necessary thereby.

1.12 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- A. Contractor shall submit to the Owner the following:
  - 1. Contractor's Affidavit of Payment of Debt and Claims (AIA Documents G706, or similar form approved by the Owner).
  - 2. Contractor's Affidavit of Release of Liens (AIA Documents G706A or similar form approved by the Owner) including the following:
    - a. Contractor's Release or Waiver of Liens.
    - b. Separate releases or Waivers of Lien for each Subcontractor, supplier, and others with lien rights against Owner's property, together with list of those parties.
  - 3. Consent of Surety to Final Payment. Contractor to provide AIA Document G707 or similar form.
- B. Duly sign and execute all submittals, before delivery to Owner.

1.13 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit final statement of accounting to the Owner, including the following:
  - 1. Original Contract Sum.
  - 2. Additions and deductions resulting from:
    - a. Previous Change Orders.
    - b. Deductions for incomplete Work. (if any)
    - c. Deductions for Liquidated Damages. (if any)
    - d. Deductions for Reinspection Payments (if any)
  - 3. Total Contract Sum, as adjusted.
  - 4. Previous Payments
  - 5. Sum remaining due.
- B. The Owner will prepare and issue final Change Order, reflecting approved adjustments to Contract Sum not previously made by Change Orders.

1.14 SUBMITTAL OF STATEMENT OF COMPLIANCE

- A. Contractor shall complete and submit the Statement of Compliance form bound herein, prior to Final Payment.

1.14 SUBMITTAL OF CERTIFICATION OF NO ASBESTOS

- A. Contractor shall complete and submit the Certification of No Asbestos form bound herein, prior to Final Payment.

1.15 FINAL APPLICATION FOR PAYMENT

- A. Follow procedures specified in General and Supplementary General Conditions.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

**STATEMENT OF COMPLIANCE**

No payment shall not be made until the Contractor shall file with the Owner, prior to acceptance of the Work, a notarized Certification of Compliance in the following form:

\* \* \* \* \*

The Contractor does hereby certify that all work has been performed and materials supplied in accordance with the drawings, specifications and Contract Documents for the above Work, and that:

No less than the prevailing rates of wages as ascertained by the governing body of the Contracting agency has been paid to laborers, workmen and mechanics employed on this Work;

There have been no unauthorized substitutes of Subcontractors; nor have any subcontractors been entered into without the names of the Subcontractors having been submitted to the Owner prior to the start of such subcontracted work;

No subcontract was assigned or transferred or performed by any Subcontractor other than the original Subcontractor, without prior notice having been submitted to the Owner together with the names of all Subcontractors;

All claims for material and labor and other service performed in connection with these specifications have been paid;

All monies due the State Industrial Accident Fund, the State Unemployment Compensation Trust Fund, the State Tax Commission, Hospital Associates and/or others have been paid.

In WITNESS WHEREOF, the undersigned has signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20XX.

Firm Name \_\_\_\_\_

Signature \_\_\_\_\_

Title \_\_\_\_\_

(Attest) \_\_\_\_\_  
(SEAL IF BIDDER IS A CORPORATION)

As determined necessary, evidence of compliance may be required to be submitted with and made a part of this Certificate of Compliance.

**CERTIFICATION OF NO ASBESTOS**

Final payment shall not be made until the Contractor shall file with the Owner, prior to acceptance of the Work, a notarized Certification of Compliance in the following form:

\*\*\*\*\*

"TO THE BEST OF MY KNOWLEDGE NO ASBESTOS CONTAINING MATERIAL WAS USED IN THE CONSTRUCTION OF THIS PROJECT. MATERIAL SAFETY DATA SHEETS WILL BE PROVIDED AS REQUESTED BY THE OWNER FOR ALL MATERIALS WHICH MAY BE QUESTIONED IN THE FUTURE."

In WITNESS WHEREOF, the undersigned has signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20XX.

Firm Name \_\_\_\_\_

Signature \_\_\_\_\_

Title \_\_\_\_\_

(Attest) \_\_\_\_\_

(SEAL IF BIDDER IS A CORPORATION)

As determined necessary, evidence of compliance may be required to be submitted with and made a part of this Certificate.

END OF SECTION



SECTION 01 78 39  
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - 1. Record Drawings.
  - 2. Record specifications.
  - 3. Record Product Data.
  - 4. Miscellaneous record submittals.
- B. Related Requirements:
  - 1. Division 01 Section "Execution" for final property survey.
  - 2. Division 01 Section "Closeout Procedures" for general closeout procedures.
  - 3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.02 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit copies of Record Drawings as follows:
    - a. Initial Submittal:
      - 1) Submit PDF electronic files of scanned record prints and one set(s) of file prints.
      - 2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
    - b. Final Submittal:
      - 1) Submit PDF electronic files of scanned Record Prints and three set(s) of file prints.
      - 2) Print each drawing, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
  - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

1.03 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
  - 1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide

- information for preparation of corresponding marked-up record prints.
- a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
- b. Accurately record information in an acceptable drawing technique.
- c. Record data as soon as possible after obtaining it.
- d. Record and check the markup before enclosing concealed installations.
- e. Cross-reference record prints to corresponding photographic documentation.
- 2. Content: Types of items requiring marking include, but are not limited to, the following:
  - a. Dimensional changes to Drawings.
  - b. Revisions to details shown on Drawings.
  - c. Depths of foundations.
  - d. Locations and depths of underground utilities.
  - e. Revisions to routing of piping and conduits.
  - f. Revisions to electrical circuitry.
  - g. Actual equipment locations.
  - h. Duct size and routing.
  - i. Locations of concealed internal utilities.
  - j. Changes made by Change Order or Change Directive.
  - k. Changes made following Architect's written orders.
  - l. Details not on the original Contract Drawings.
  - m. Field records for variable and concealed conditions.
  - n. Record information on the Work that is shown only schematically.
- 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
- 4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
- 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
- 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
  - 1. Format: Same digital data software program, version, and operating system as for the original Contract Drawings.
  - 2. Format: Annotated PDF electronic file with comment function enabled.
  - 3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
  - 4. Refer instances of uncertainty to Architect for resolution.
  - 5. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.
    - a. See Division 01 Section "Project Management and Coordination" for requirements related to use of Architect's digital data files.
    - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:
  - a. Project name.
  - b. Date.
  - c. Designation "PROJECT RECORD DRAWINGS."
  - d. Name of Architect.
  - e. Name of Contractor.

#### 1.04 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.
  1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
  5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- B. Format: Submit record specifications as annotated PDF electronic file.

#### 1.05 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
- C. Format: Submit Record Product Data as annotated PDF electronic file.
  1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.06 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file.
  - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.07 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 78 39

## SECTION 01 91 13 - GENERAL COMMISSIONING REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section describes work associated with commissioning of selected systems including commissioning meetings, construction checks, equipment start-up, functional testing, operations and maintenance manuals, and operator training.
- B. Work Provided Under Separate Contract: Owner's Commissioning Provider (CxP) will supervise commissioning activities and provide the following commissioning services:
  - 1. Develop commissioning plan.
  - 2. Assist Contractor to incorporate commissioning activities into Project Construction Schedule.
  - 3. Conduct commissioning meetings.
  - 4. Review project submittals.
  - 5. Develop Construction Checklists and Functional Test Plans.
  - 6. Observe Construction checks and start-up of selected equipment.
  - 7. Perform testing, adjusting, and balancing (TAB).
  - 8. Supervise and document functional testing.
  - 9. Prepare final commissioning report.
- C. Contractor shall provide the following services:
  - 1. Assign individuals representing Contractor and mechanical, electrical, controls, and low-voltage subcontractors as members of Commissioning Team.
  - 2. Incorporate commissioning activities in Contractor's construction schedule.
  - 3. Assist CxP in development of Construction Checklists.
  - 4. Execute Construction Checklists using Online Commissioning System.
  - 5. Perform Equipment Start-up.
  - 6. Perform contractor-directed verification of automatic controls, communications, and fire and life safety systems and provide required verification documentation.
  - 7. Assist CxP in development of Functional Test Plans.
  - 8. Assist CxP with Functional Testing.
  - 9. Provide submittals, product data, shop drawings, controls sequences, points list, wiring diagrams, schematics, and design documents to assist in commissioning documentation development.
- D. Contractor shall provide related services as directed, including, but not limited to:
  - 1. Access to the Work
  - 2. Incidental labor, facilities, and equipment to assist CxP in conducting commissioning activities.
  - 3. Completion of required submittals.
  - 4. Coordination of Work with activities of CxP.

#### 1.2 RELATED SECTIONS

- A. 22 08 00 – Commissioning of Plumbing
- B. 23 05 93 – Testing, Adjusting, and Balancing of HVAC Systems

- C. 23 08 00 – Commissioning of HVAC
- D. 26 08 00 – Commissioning of Electrical

### 1.3 DEFINITIONS

- A. CxP: Commissioning Provider (CxP) is the Individual responsible for supervising commissioning work.
- B. Construction Phase Commissioning Plan: Document prepared by the CxP that guides commissioning work through construction, verification, and warranty periods. The plan will include a listing of commissioning team members, systems to be commissioned, narrative description of the commissioning tasks and responsibilities, and a draft copy of the commissioning forms to be executed by the Contractor.
- C. Construction Phase: Phase of the project during which the facility is constructed and equipment is installed and started. During the Construction Phase, the Contractor completes construction checklists, performs equipment start-up, performs TAB work, submits O&M manuals, and performs control system verification. The Construction Phase generally ends at Substantial Completion.
- D. Verification Phase: Phase of the project during which functional testing and operator training is performed. The Verification Phase generally begins at Substantial Completion and ends at Final Completion.
- E. Online Commissioning System: The CxP will maintain an online commissioning system, which serves as a central location for accessing and executing commissioning documents such as the Owner's Project Requirements, Commissioning Plan, status reports, design reviews, submittal reviews, schedules, and Issues Log. The Construction Checklists and Controls Verification Reports will be housed on this site. The online system provides current project information to authorized project team members through general internet access. The site URL is <https://www.swecx.com>. The Issues Log portion of the site allows for the Owner's Construction Manager, Architect, and General Contractor to provide comments, document actions, and indicate resolutions.

### 1.4 SUBMITTALS

- A. Designated Commissioning Team Representatives: Submit list of names and contact information for individuals representing Contractor and Subcontractor as members of Commissioning Team.
- B. Construction Schedule: Submit updated project construction schedule to CxP monthly. Incorporate time and duration of Commissioning activities, as provided by CxP, into the construction schedule.
- C. Construction Submittals and Shop Drawings: Provide as required to perform commissioning work.
  - 1. Contractor to provide CxP a copy of the submittal log. CxP will review the log and identify submittals that are associated with equipment and systems being commissioned and required to be submitted to the CxP.
  - 2. Contractor to provide an electronic copy of each submittal or shop drawing to the Owner's Representative, including all resubmissions, required by the CxP at the same time submittals are provided to the Design Team. CxP will review submittals concurrently with the Design Team and provide review comments to the Design Team. The Design Team will consolidate review comments into a single submittal review response to be provided to the Contractor.
  - 3. Contractor to provide a copy of Design Team submittal review comments to the CxP.

- D. Engineering Data: Provide shop drawings, product data, performance data, engineering data, installation and start-up data, operation and maintenance information, schematics, wiring diagrams, programming manuals, and similar information as necessary for completion of the Work of the Section in accordance with Commissioning Schedule.
- E. Construction Checklists: Complete and submit to CxP for certification. Attach copies of all manufacturers' field or factory performance and start-up test documentation provided for associated equipment or systems.
- F. Control Verification Reports: The Contractor shall provide complete Control Verification Reports to the CxP.
  - 1. Complete reports developed by CxP and submit to CxP for certification.
  - 2. Contractor to provide the CxP with sample point-to-point verification forms that the Contractor will use during initial start-up and verification of systems. The CxP will review the forms and provide comments as necessary to the Contractor.
- G. Systems Ready to Balance Checklist: Complete and submit to CxP to demonstrate that systems are ready to be balanced.

#### 1.5 QUALITY ASSURANCE

- A. Provide qualified mechanics and technicians to provide required commissioning services. Technicians shall have knowledge of the Work and experience with installation and operation of the general systems and components involved to assist in commissioning activities. Individuals shall be adequately equipped to effectively assist the CxP as necessary. Upon request, submit names and qualifications of technicians to CxP for approval.
- B. Provide qualified instructors to perform operator training. Instructor shall be knowledgeable in the specific equipment and systems involved. Upon request submit names and qualifications of technicians to CxP for approval.
- C. Commissioning work shall be provided as set forth by ASHRAE Guideline 0-2019

#### 1.6 SEQUENCING

- A. Schedule adequate time as determined by CxP for execution of Commissioning Plan.
- B. CxP will conduct a Commissioning Process Meeting approximately 30 days after Contractor received Notice-to-Proceed and after all subcontractors are identified.
- C. CxP will prepare a Construction Phase Commissioning Plan approximately 30 days after Commissioning Process Meeting.
- D. Provide construction submittals and shop drawings to CxP as described above in SUBMITTALS.
- E. Provide engineering data as required by CxP to prepare Construction Checklists within four weeks after date of approved submittal.
- F. CxP will conduct an initial commissioning coordination meeting approximately 30 days before equipment begins to arrive at the project site to coordinate commissioning activities and execution of construction checklists. Additional commissioning coordination meetings will be scheduled as necessary throughout the process to discuss commissioning schedule and coordination among trades.

- G. Perform Construction Checks as equipment is received, installed, and placed in operation. Construction checks shall be performed as work is completed. For example, equipment inspection shall be performed upon receipt of equipment on site, installation inspection shall be performed when equipment is set in place and anchored, and so on.
- H. Testing, adjusting, and balancing of HVAC systems will begin after construction checks and equipment start-up are complete and Systems Ready to Balance Checklist forms have been executed and submitted to the CxP.
- I. Submit control verification reports three weeks after Substantial Completion.
- J. Functional testing will be scheduled after construction checklists; testing, adjusting, and balancing report; and control verification reports have been submitted and accepted. Contractor shall provide written notice that systems are completely operational and ready for functional testing. Functional testing may proceed prior to acceptance if the CxP and Owner's Authorized Representative determines that deficiencies will not significantly affect system performance and timing is critical. The CxP will provide notification to Contractor, Architect, and Owner's Authorized Representative a minimum of one week prior to performing functional testing.
- K. Troubleshooting, corrections, and retesting shall be completed within three months of Substantial Completion.

## 1.7 SYSTEMS TO BE COMMISSIONED

- A. Commissioning of a system or systems specified for this project is part of the construction process. Documentation and testing of these systems, as well as training of the operation and maintenance personnel, is required in cooperation with the CxP.
- B. The following systems will be commissioned as part of this project:
  - 1. Heating, ventilation and air-conditioning systems
    - a. Packaged Rooftop Units
    - b. Gas Furnaces
    - c. Makeup Air Unit
    - d. Existing Exhaust Fans
    - e. Ductwork
    - f. Building Automation Control System
    - g. Packaged Control Systems
  - 2. Plumbing Systems
    - a. Natural gas connections to commissioned mechanical equipment
  - 3. Electrical systems
    - a. Electrical connections to commissioned mechanical equipment

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Provide specialized test equipment including manufacturer's proprietary test equipment, as necessary for commissioning of mechanical, plumbing and electrical systems and components. Comply with requirements of individual technical Sections of Division 22, 23, and 26. Common test equipment such as temperature, pressure, speed, and electrical power measuring devices shall be provided by CxP.



## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Commissioning Meetings: Commissioning Team shall attend meetings as required by CxP including Commissioning Process Meeting, submittal review meetings, and coordination meetings prior to construction checks; adjusting and balancing; and functional testing. Commissioning team shall attend troubleshooting meetings as required to resolve issues identified in submittal reviews and commissioning reports.
- B. Construction Checklists:
1. Provide equipment installation, start-up, and operating information requested by the CxP as required to develop Construction checklists.
  2. Perform construction checks for all equipment being commissioned as described in Construction Checklists prior to equipment start-up. The Contractor shall designate responsibility for completing construction checks among subcontractors. The designated subcontractor shall execute the checklists on the Online Commissioning System. The Contractor shall complete and submit executed forms to CxP for certification. All items listed in the Construction Checklists shall be complete prior to certification unless the incomplete item does not affect safe and reliable equipment operation. If such an item is identified, a description of the incomplete work must be attached to submitted to the CxP. Equipment requiring construction checkout shall not be started until the Construction Checklists are fully executed by the Contractor.
  3. Contractor shall maintain "Cx Submittal Status Report." CxP will furnish Excel status report spreadsheet that will be used to monitor completion of construction checklists.
  4. Contractor shall startup equipment as described in construction checklists. Where required, provide manufacturer's agent to perform start-up as specified in Divisions 22, 23, and 26.
  5. Fully executed Construction Checklists shall be submitted via the Online Commissioning System to the CxP for certification.
  6. CxP will document unresolved issues in a project Issues Log. The Issues Log documents status, responsibility, and required action for each unresolved issue.
  7. CxP shall perform a recheck of selected equipment. If minor discrepancies are identified, Contractor shall recheck all similar systems and resubmit Construction Check forms for certification. If major discrepancies are identified, CxP shall perform Construction Checks, and Contractor shall compensate Owner for additional commissioning costs by Contract modification.
- C. Testing, Adjusting, and Balancing:
1. Facilitate pre-balancing coordination meeting.
  2. Provide notification to CxP 4 weeks prior to initial equipment start-up.
  3. Coordinate sequence of work with CxP to provide sufficient time to complete TAB work.
  4. Assist CxP's TAB subcontractor as required.
- D. Control Verification Reports:
1. Perform control system verification and prepare verification reports as specified in Division 23. Verification shall be performed by manufacturer's authorized installation contractor. Verification report shall include a description of the incomplete work.
  2. Submit completed Control Verification Reports to the CxP for acceptance.
  3. CxP will document unresolved issues in a project Issues Log. The Issues Log documents status, responsibility, and required action for each unresolved issue.

E. Functional Tests:

1. Assist CxP in performing Functional Tests, which shall generally include operating equipment and systems as necessary for testing. The CxP will record test measurements and documentation of results.
2. CxP will document all unresolved issues in a project Issues Log. The Issues Log documents status, responsibility, and required action for each unresolved issue.
3. CxP shall retest selected systems once to verify that corrective work is complete. Retests will be performed after notification from the Contractor that work is complete. If corrective work is not complete and additional retesting is required, Contractor shall compensate Owner for costs of additional CxP testing sessions by Contract modification.

F. Issues Resolution: Unresolved issues will be listed in the project online Issues Log. Refer to Online Commissioning System in Article 1.03, Definitions above. Each issue will be identified with an identification number. The Issues Log will include a description of the unresolved condition, identify the responsible individual(s), and describe suggested corrective action. The Contractor will periodically access the On-line Commissioning System to monitor the status of commissioning issues, and shall diligently complete all tasks that are identified as the responsibility of the Contractor. The Contractor shall modify on-line issue status when each item is completed and provide a description of corrective action performed. Contractor and related subcontractors shall attend commissioning meetings to review the Issues Log and coordinate resolution of issues as required by the CxP.

3.2 QUALITY CONTROL

- A. Provide mechanics that are experienced with the Work and installed components of each system to assist in completion of the commissioning activities.
1. Work necessary to provide systems complying with performance requirements of the contracts is the Contractor's responsibility.
- B. Manufacturer's Field Services: Provide manufacturer's representatives with expertise in components and systems. Where required, manufacturer's representative shall perform start-up, testing, and maintenance training of Owner's facilities staff including classroom and onsite instruction.

3.3 ACCESS TO WORK

- A. Contractor shall provide facilities and access for CxP to perform work including but not limited to:
1. Keys, security passes, passwords, codes, etc.
  2. Ladders.
  3. Lifts where work is more than 12 feet above floor level.
  4. Removal of ceiling tiles, partitions, panels, or other fixed construction necessary for completion of work.
  5. Proprietary programming and metering equipment.

END OF SECTION

SECTION 02 41 19  
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
  - 1. Demolish and remove components and assemblies as indicated on Drawings.
  - 2. Demolition and removal of selected site elements, as indicated on Drawings.
  - 3. Salvage of existing items to be reused or recycled.
- B. Related Sections:
  - 1. Division 01 Section "Summary of the Work" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.

1.02 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.
- C. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.03 MATERIALS OWNERSHIP

- A. Except as otherwise specified or indicated on Drawings, demolition waste becomes property of Contractor.

1.04 PRE-DEMOLITION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 4. Review areas where existing construction is to remain and requires protection.
  - 5. Review items to be salvaged and reinstalled.

1.05 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report that indicates the measures proposed for protecting individuals and property. Indicate proposed locations and construction of barriers.

- B. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
- C. Predemolition Photographs and/or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit before Work begins.

#### 1.06 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.

#### 1.07 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - 1. Before selective demolition, verify Owner has removed personal items.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. Hazardous materials will be removed by Owner before start of the Work.
  - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

### PART 2 - PRODUCTS

#### 2.01 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.
- C. Catalog and document: waste stream of materials, separated by type and materials recycled that are diverted from waste stream.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- B. Verify that hazardous materials have been remediated before proceeding with building demolition operations.
- C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.
  - 1. Comply with requirements specified in Division 01 Section "Photographic Documentation."

### 3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
  - 2. Arrange to shut off utilities with utility companies.
  - 3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    - d. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    - e. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    - f. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

### 3.03 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Construction Facilities and Temporary Controls."

- B. Remove temporary barricades and protections where hazards no longer exist.

### 3.04 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
  2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  3. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  4. Dispose of demolished items and materials promptly. Recycle to the greatest extent possible.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

### 3.05 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
- B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.
- C. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Division 07 Section "Polyvinyl-Chloride (PVC) Roofing (Fully Adhered)" for new roofing requirements.
1. Remove existing roof membrane, flashings, copings, and roof accessories.
  2. Remove existing roofing system down to substrate.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and recycle or dispose of them according to related Division 01 Sections.
  - 1. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 3. Debris may be removed from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
  - 4. Comply with requirements specified in Division 01 Section "Construction Facilities and Temporary Controls.
- B. Burning: Do not burn demolished materials.

3.07 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.08 SELECTIVE DEMOLITION NOTES

- A. Refer to Architectural demolition Drawings for demolition notes.

END OF SECTION 02 41 19

SECTION 03 10 00  
CONCRETE FORMING AND ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
  - 1. Form-facing material for cast-in-place concrete.
  - 2. Shoring, bracing, and anchoring.
- B. Related Requirements:
  - 1. Division 03 Section "Concrete Reinforcing."
  - 2. Division 03 Section "Cast-In-Place Concrete."
  - 3. Division 32 Section "Concrete Paving" for formwork related to concrete pavement and walks.

1.02 DEFINITIONS

- A. Form-Facing Material: Temporary structure or mold for the support of concrete while the concrete is setting and gaining sufficient strength to be self-supporting.
- B. Formwork: The total system of support of freshly placed concrete, including the mold or sheathing that contacts the concrete, as well as supporting members, hardware, and necessary bracing.

1.03 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review the following:
    - a. Special inspection and testing and inspecting agency procedures for field quality control.
    - b. Construction, movement, contraction, and isolation joints
    - c. Forms and form-removal limitations.
    - d. Shoring and reshoring procedures.
    - e. Anchor rod and anchorage device installation tolerances.

1.04 QUALITY ASSURANCE

- A. Testing and Inspection Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.



## PART 2 - PRODUCTS

### 2.01 PERFORMANCE REQUIREMENTS

- A. Concrete Formwork: Design, engineer, erect, shore, brace, and maintain formwork, shores, and reshores in accordance with ACI 301 (ACI 301M), to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.
  - 1. Design wood panel forms in accordance with APA's "Concrete Forming Design/Construction Guide."
  - 2. Design formwork to limit deflection of form-facing material to 1/240 of center-to-center spacing of supports.

### 2.02 FORM-FACING MATERIALS

- A. As-Cast Surface Form-Facing Material:
  - 1. Provide continuous, true, and smooth concrete surfaces.
  - 2. Furnish in largest practicable sizes to minimize number of joints.
  - 3. Acceptable Materials: As required to comply with Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete", and as follows:
    - a. Plywood, metal, or other approved panel materials.
    - b. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
      - 1) APA HDO (high-density overlay).
      - 2) APA MDO (medium-density overlay); mill-release agent treated and edge sealed.
      - 3) APA Structural 1 Plyform, B-B or better; mill oiled and edge sealed.
      - 4) APA Plyform Class I, B-B or better; mill oiled and edge sealed.
- B. Concealed Surface Form-Facing Material: Lumber, plywood, metal, plastic, or another approved material.
  - 1. Provide lumber dressed on at least two edges and one side for tight fit.

### 2.03 RELATED MATERIALS

- A. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- B. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- E. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.
  - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

- F. Form Ties: Factory-fabricated, removable or snap-off, glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  - 1. Furnish units that leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
  - 2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.
  - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION OF FORMWORK

- A. Comply with ACI 301 (ACI 301M).
- B. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 (ACI 117M) and to comply with the Surface Finish designations specified in Division 03 Section "Cast-In-Place Concrete" for as-cast finishes.
- C. Limit concrete surface irregularities as follows:
  - 1. Surface Finish-1.0: ACI 117 Class D, 1 inch.
  - 2. Surface Finish-2.0: ACI 117 Class B, 1/4 inch.
  - 3. Surface Finish-3.0: ACI 117 Class A, 1/8 inch.
- D. Construct forms tight enough to prevent loss of concrete mortar.
  - 1. Minimize joints.
  - 2. Exposed Concrete: Symmetrically align joints in forms.
- E. Construct removable forms for easy removal without hammering or prying against concrete surfaces.
  - 1. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces.
  - 2. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  - 3. Install keyways, reglets, recesses, and other accessories, for easy removal.
- F. Do not use rust-stained, steel, form-facing material.
- G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces.
  - 1. Provide and secure units to support screed strips
  - 2. Use strike-off templates or compacting-type screeds.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. At construction joints, overlap forms onto previously placed concrete not less than 12 inches.
- J. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.
  - 1. Determine sizes and locations from trades providing such items.
  - 2. Obtain written approval of Architect prior to forming openings not indicated on Drawings.

- K. Construction and Movement Joints:
  - 1. Construct joints true to line with faces perpendicular to surface plane of concrete.
  - 2. Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
  - 3. Place joints perpendicular to main reinforcement.
  - 4. Locate joints for beams, slabs, joists, and girders in the middle third of spans.
    - a. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
  - 5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  - 6. Space vertical joints in walls.
    - a. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
- L. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.
  - 1. Locate ports and openings in bottom of vertical forms, in inconspicuous location, to allow flushing water to drain.
  - 2. Close temporary ports and openings with tight-fitting panels, flush with inside face of form, and neatly fitted, so joints will not be apparent in exposed concrete surfaces.
- M. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- N. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- O. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.02 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.
  - 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
  - 3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
  - 4. Install dovetail anchor slots in concrete structures, as indicated on Drawings.
  - 5. Clean embedded items immediately prior to concrete placement.

### 3.03 REMOVING AND REUSING FORMS

- A. Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved its 28-day design compressive strength.
2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work.
  1. Split, frayed, delaminated, or otherwise damaged form-facing material are unacceptable for exposed surfaces.
  2. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.
  1. Align and secure joints to avoid offsets.
  2. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

#### 3.04 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- B. Inspections:
  1. Inspect formwork for shape, location, and dimensions of the concrete member being formed.

END OF SECTION 03 10 00

SECTION 03 20 00  
CONCRETE REINFORCING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
  - 1. Steel reinforcement bars.
- B. Related Requirements:
  - 1. Division 03 Section "Concrete Forming and Accessories."
  - 2. Division 03 Section "Cast-In-Place Concrete."
  - 3. Division 03 Section "Concrete Paving" for reinforcing related to concrete pavement and walks.

1.02 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review the following:
    - a. Special inspection and testing and inspecting agency procedures for field quality control.
    - b. Construction contraction and isolation joints.
    - c. Steel-reinforcement installation.

1.03 ACTION SUBMITTALS

- A. Construction Joint Layout: Indicate proposed construction joints required to build the structure.
  - 1. Location of construction joints is subject to approval of the Architect.

1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Statements: For testing and inspection agency.
- B. Welding certificates.
  - 1. Reinforcement To Be Welded: Welding procedure specification in accordance with AWS D1.4/D1.4M
- C. Material Test Reports: For the following, from a qualified testing agency:
  - 1. Steel Reinforcement:
    - a. For reinforcement to be welded, mill test analysis for chemical composition and carbon equivalent of the steel in accordance with ASTM A706/A706M.
  - 2. Mechanical splice couplers.
- D. Field quality-control reports.

1.05 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
- B. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.4/D 1.4M.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.
  - 1. Store reinforcement to avoid contact with earth.
  - 2. Do not allow dual-coated reinforcement to be stored outdoors for more than 60 days without being stored under an opaque covering.
  - 3. Do not allow stainless steel reinforcement to come into contact with uncoated reinforcement.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Seismic Performance:
  - 1. Component Importance Factor: 1.25.

2.02 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A615/A615M, Grade 60 (Grade 420), deformed.
- B. Low-Alloy Steel Reinforcing Bars: ASTM A706/A706M, deformed.
- C. Headed-Steel Reinforcing Bars: ASTM A970/A970M.
- D. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, plain, fabricated from as-drawn steel wire into flat sheets.

2.03 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A615/A615M, Grade 60 (Grade 420), plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place.
  - 1. Manufacture bar supports from steel wire, plastic, or precast concrete in accordance with CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
    - a. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire, all-plastic bar supports, or CRSI Class 2 stainless steel bar supports.

- C. Mechanical Splice Couplers: ACI 318 (ACI 318M) Type 1, same material of reinforcing bar being spliced; mechanical-lap type.
- D. Steel Tie Wire: ASTM A1064/A1064M, annealed steel, not less than 0.0508 inch in diameter.
  - 1. Finish: Plain.

## 2.04 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Protection of In-Place Conditions:
  - 1. Do not cut or puncture vapor retarder.
  - 2. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

### 3.02 INSTALLATION OF STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.
- B. Accurately position, support, and secure reinforcement against displacement.
  - 1. Locate and support reinforcement with bar supports to maintain minimum concrete cover.
  - 2. Do not tack weld crossing reinforcing bars.
- C. Preserve clearance between bars of not less than 1 inch, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.
- D. Provide concrete coverage in accordance with ACI 318 (ACI 318M).
- E. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- F. Splices: Lap splices as indicated on Drawings.
  - 1. Bars indicated to be continuous, and all vertical bars shall be lapped not less than 36 bar diameters at splices, or 24 inches, whichever is greater.
  - 2. Stagger splices in accordance with ACI 318 (ACI 318M).
  - 3. Mechanical Splice Couplers: Install in accordance with manufacturer's instructions.
  - 4. Weld reinforcing bars in accordance with AWS D1.4/D 1.4M, where indicated on Drawings.

### 3.03 JOINTS

- A. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
  - 1. Place joints perpendicular to main reinforcement.
  - 2. Continue reinforcement across construction joints unless otherwise indicated.
  - 3. Do not continue reinforcement through sides of strip placements of floors and slabs.

- B. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length, to prevent concrete bonding to one side of joint.

3.04 INSTALLATION TOLERANCES

- A. Comply with ACI 117 (ACI 117M).

3.05 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- B. Inspections:
  - 1. Steel-reinforcement placement.
  - 2. Steel-reinforcement welding.

END OF SECTION 03 20 00



SECTION 03 30 00  
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
  - 1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.
- B. Related Requirements:
  - 1. Division 03 Section "Concrete Forming and Accessories" for form-facing materials, and waterstops.
  - 2. Division 03 Section "Concrete Reinforcing" for steel reinforcing bars and welded-wire reinforcement.
  - 3. Division 03 Section "Ground and Polished Concrete" for concrete floors scheduled to receive a polished or burnished concrete finish.
  - 4. Division 07 Section "Vapor Retarders" for underslab vapor barrier.
  - 5. Division 09 Section "Vapor Control for Flooring" for fluid applied concrete floor sealer for control of moisture vapor transmission and alkalinity.
  - 6. Division 31 Section "Earth Moving" for drainage course under slabs-on-grade.
  - 7. Division 32 Section "Concrete Paving" for concrete pavement and walks.

1.02 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.03 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review the following:
    - a. Special inspection and testing and inspecting agency procedures for field quality control.
    - b. Construction joints, control joints, isolation joints, and joint-filler strips.
    - c. Semirigid joint fillers.
    - d. Vapor-retarder installation.
    - e. Anchor rod and anchorage device installation tolerances.
    - f. Cold and hot weather concreting procedures.
    - g. Concrete finishes and finishing.
    - h. Curing procedures.
    - i. Forms and form-removal limitations.
    - j. Methods for achieving specified floor and slab flatness and levelness.
    - k. Floor and slab flatness and levelness measurements.

- l. Concrete repair procedures.
- m. Concrete protection.
- n. Initial curing and field curing of field test cylinders (ASTM C31/C31M.)
- o. Protection of field cured field test cylinders.

#### 1.04 ACTION SUBMITTALS

- A. Product Data: For each of the following.
  1. Portland cement.
  2. Fly ash.
  3. Aggregates.
  4. Admixtures:
    - a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
  5. Fiber reinforcement.
  6. Sub-slab membrane/vapor retarders.
  7. Liquid floor treatments.
  8. Curing materials.
  9. Joint fillers.
  10. Repair materials.
- B. Design Mixtures: For each concrete mixture, include the following:
  1. Mixture identification.
  2. Minimum 28-day compressive strength.
  3. Durability exposure class.
  4. Maximum w/cm.
  5. Calculated equilibrium unit weight.
  6. Slump limit.
  7. Air content.
  8. Nominal maximum aggregate size.
  9. Synthetic micro-fiber content.
  10. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
  11. Intended placement method.
  12. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Shop Drawings:
  1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
    - a. Location of construction joints is subject to approval of the Architect.

#### 1.05 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each of the following, signed by manufacturers:
  1. Cementitious materials.
  2. Admixtures.
  3. Fiber reinforcement.

4. Curing compounds.
  5. Bonding agents.
  6. Adhesives.
  7. Sub-slab membrane/vapor retarders.
  8. Semirigid joint filler.
  9. Joint-filler strips.
  10. Repair materials.
- B. Floor surface flatness and levelness measurements report, indicating compliance with specified tolerances.
- C. Minutes of preinstallation conference.

#### 1.06 QUALITY ASSURANCE

- A. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
- B. Field Quality Control Testing Agency Qualifications: An independent agency, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
- C. Slab Moisture Content: Meet relative humidity (RH) maximum of 75% per ASTM F2170. Note that this RH threshold may be exceeded only if permitted and approved in writing by manufacturer of flooring adhesive used in Division 9 floor covering specifications. Verify and comply with RH requirements of all flooring covering types of Division 9.
1. Conduct slab pre-installation meeting to review procedures to minimize slab moisture problems. Do so prior to slab installation.
  2. Assume full responsibility to ensure that concrete slabs are sufficiently dry to the criterion specified herein. Do so by managing the concrete floor slab installation within the minimum standards of these specifications and by augmenting these minimum standards with additional measures as needed. If needed to meet the 75% RH cap, such additional measures shall include, but are not limited to:
    - a. Minimizing slump and water/cement ratio to reduce initial moisture content of slabs.
    - b. Introducing super-plasticizers in slabs in lieu of water to minimize initial moisture content.
    - c. Protecting slab substrate from precipitation or other moisture sources prior to slab pour. (This measure has its acknowledged practical limitations, and there is no requirement to keep this substrate absolutely dry. Instead this is a recommendation to avoid pouring slabs on wet substrate when obvious adverse conditions exist—such as after a heavy downpour of rain, or with significant standing water or for other reasons—but defer to the contractor's judgment about means and methods and ultimately rely on the contractor's discretion as to the most cost-effective way to achieve the end result.)
    - d. Protecting slabs from water spills, clean-up water, rainwater, and other precipitation to avoid resaturation of slabs. (This measure has its acknowledged practical limitations, and there is no requirement to keep the slab absolutely dry. Instead this is a recommendation to minimize post-curing moisture to the greatest practical extent, but defer to the contractor's judgment about means and methods and ultimately rely on the contractor's discretion as to the most cost-effective way to achieve the end result.)

- e. Providing heat mats, dehumidifiers, and other mechanical means to ensure bake-out of slab moisture. Do not use unvented propane heaters which increase relative humidity.
  - f. Where feasible under carpeting, do not hard trowel the floor as smooth as would be required for resilient flooring. This recognizes that hard troweling tends to seal in moisture. But it also requires that the carpet substrate be sufficiently smooth so as not to telegraph any irregularities through to the carpet surface.
  - g. Other means acceptable within the bounds of this specification's minimum standards or other proposed alternative means not contemplated within these specifications provided that the Owner is notified of such other proposed alternative means and the Owner takes no exception to same.
- 3. Commence dry-out management efforts after initial wet cure procedures are complete, and after the risk of adverse effects from too hasty curing has expired.
  - 4. During the course of the project, regularly monitor slab moisture content and chart the moisture trends at least a monthly interval after initial slab cure. Report the findings of same to the Owner. If slab moisture content trends suggest excessive moisture that will jeopardize timely installation of floor covering, increase the monitoring interval to at least every two weeks and remediate the situation with mechanical means as needed (including heat mats, dehumidifiers, and other such means).

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with ASTM C94/C94M and ACI 301.

#### 1.08 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.
  - 1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  - 2. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  - 3. Do not use frozen materials or materials containing ice or snow.
  - 4. Do not place concrete in contact with surfaces less than 35 deg F, other than reinforcing steel.
  - 5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:
  - 1. Maintain concrete temperature at time of discharge to not exceed 95 deg F.
  - 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

### PART 2 - PRODUCTS

#### 2.01 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

## 2.02 CONCRETE MATERIALS

- A. Source Limitations:
  - 1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
  - 2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
  - 3. Obtain aggregate from single source.
  - 4. Obtain each type of admixture from single source from single manufacturer.
- B. Cementitious Materials:
  - 1. Portland Cement: ASTM C150/C150M, Type I or II, gray.
  - 2. Fly Ash: ASTM C618, Class C or F.
- C. Normal-Weight Aggregates: ASTM C33/C33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
  - 1. Maximum Coarse-Aggregate Size: 1 inch nominal unless noted otherwise on the structural Drawings or schedule of concrete mixtures in this Section.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Air-Entraining Admixture: ASTM C260/C260M.
- E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
  - 2. Crack-Reducing Admixture: ASTM C494/C494M, Type S, producing a 10-fold reduction in incidence and size of cracks compared to plain concrete or conventional shrinkage-reducing admixtures, when tested in accordance with ASTM C 1581.
    - a. Basis of Design Product: Subject to compliance with requirements, provide BASF Corporation MasterLife CRA 007 or comparable product by another manufacturer.
- F. Synthetic Fiber: Polyolefin micro- and macro-fibers engineered and designed for use in concrete, complying with ASTM C1116/C1116M, Type III, up to 2 inches long. Invisible in final condition using finish method specified.
  - 1. Basis of Design Product: Subject to compliance with requirements, provide BASF Corporation MasterFiber MAC 360 FF or comparable product by another manufacturer.
    - a. Hybrid fiber blend of synthetic micro- and macro-fibers.
- G. Water and Water Used to Make Ice: ASTM C94/C94M, potable complying with ASTM C1602/C1602M, including all limits listed in Table 2 and the requirements of paragraph 5.4.

## 2.03 VAPOR RETARDERS

- A. Sheet Vapor Retarder, Class A: ASTM E1745, Class A, except with maximum water-vapor permeance of 0.01; not less than 15 mils thick.
  - 1. Include manufacturer's recommended accessories, including but not limited to:
    - a. Adhesive or pressure-sensitive tape.
    - b. Mastic.
    - c. Perimeter or edge seal.
    - d. Double-sided adhesive strip or termination bar.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Fortifiber Building Systems Group.
  - b. Raven Industries, Inc.
  - c. Stego Industries, LLC.
  - d. W.R. Meadows, Inc.
3. Refer to Division 07 Section "Vapor Retarders" for underslab vapor barrier.

## 2.04 LIQUID FLOOR TREATMENTS

- A. Concrete Sealer Hardener (SH) for for Exposed Concrete Slabs to be Sealed:
  1. Liquid Densifier and Sealer for Concrete: Clear, chemically reactive, waterborne solution of inorganic non-yellowing silicate or silicate materials and proprietary components; odorless; colorless; that penetrates, hardens, densifies, and seals concrete surfaces. The compound must contain a minimum solids content of 20% of which 50% is silicate.
    - a. Basis of Design Product: Euclid Chemical Company (The); Euco Diamond Hard, Liquid Densifier and Sealer for Concrete, or comparable product such as one of the following:
      - 1) Burke by Edoco; Titan Hard.
      - 2) ChemMasters; Chemisil Plus.
      - 3) Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior company; Intraseal.
      - 4) Curecrete Distribution Inc.; Ashford Formula.
      - 5) L&M Construction Chemicals, Inc.; Seal Hard.
      - 6) Meadows, W.R., Inc; Liqui-Hard.
      - 7) Nox-Crete Products Group, Kinsman Corporation; Duranox.
- B. For Concrete Slabs To Receive Finish Flooring: Refer to Division 09 Section "Vapor Control for Flooring" for fluid applied concrete floor sealer for control of moisture vapor transmission and alkalinity.

## 2.05 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.
  1. Color:
    - a. Ambient Temperature Below 50 deg F: Black.
    - b. Ambient Temperature between 50 deg F and 85 deg F: Any color.
    - c. Ambient Temperature Above 85 deg F: White.
- B. Water: Potable or complying with ASTM C1602/C1602M.
- C. Clear, Waterborne, Membrane-Forming, Dissipating Curing Compound: ASTM C309, Type 1, Class B.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. ChemMasters, Inc.
    - b. Dayton Superior.
    - c. Euclid Chemical Company (The); an RPM company.
    - d. Laticrete International, Inc.
    - e. W.R. Meadows, Inc.

2.06 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 in accordance with ASTM D2240.
- C. Bonding Agent: ASTM C1059/C1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.
- D. Floor Slab Protective Covering: Eight-feet- wide cellulose fabric.
- E. Non-Shrink Grout: CRD-C 621, non-metallic, factory pre-mixed grout; minimum compressive strength of 7,000 psi at 28 days.

2.07 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M Portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand, as recommended by underlayment manufacturer.
  - 4. Compressive Strength: Not less than 4100 psi at 28 days when tested in accordance with ASTM C109/C109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
  - 4. Compressive Strength: Not less than 5000 psi at 28 days when tested in accordance with ASTM C109/C109M.

2.08 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.
  - 1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.
  - 2. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and

accepted by Architect before using in work

- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. Fly Ash or Other Pozzolans: 25 percent by mass.
  2. Slag Cement: 50 percent by mass.
  3. Silica Fume: 10 percent by mass.
  4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
  5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
- C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.
1. Use high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
  2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  3. Use water-reducing admixture in pumped concrete, and concrete with a w/cm below 0.50.
  4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

## 2.09 CONCRETE MIXTURES

- A. Class C: Normal-weight concrete used for interior slabs-on-grade.
1. Exposure Class: ACI 318 F0.
  2. Minimum Compressive Strength: Comply with general notes on structural Drawings.
  3. Maximum w/cm: As required to meet the strength and durability requirements indicated.
  4. Slump Limit: Comply with general notes on structural Drawings.
  5. Air Content: Comply with general notes on structural Drawings.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 0.10 percent by weight of cement.
  7. Synthetic Fiber: For all slabs-on-grade to receive ground and polished finish, uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than a rate of 3 lbs / cu yd. Fiber is in addition to, not in place of, any other reinforcing indicated on structural drawings.
  8. Crack-Reducing Admixture: For all slabs-on-grade to receive polished or burnished finish, add crack-reducing admixture to concrete mixture at manufacturer's recommended rate, reducing the quantity of water in the mix at a rate equal to the quantity of admixture added. For basis-of-design product, use a minimum of 1 gallon per yard, and do not exceed 260 lbs of water per yard.
- B. Class J: Normal-weight concrete used for exterior site and retaining walls.
1. Exposure Class: ACI 318 F2 S0.
  2. Minimum Compressive Strength: Comply with general notes on structural Drawings.
  3. Maximum w/cm: As required to meet the strength and durability requirements indicated.
  4. Slump Limit: Comply with general notes on structural Drawings.
  5. Air Content: Comply with general notes on structural Drawings.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 0.10 percent by weight of cement.



## 2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M, and furnish batch ticket information.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Verification of Conditions:
  - 1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
  - 2. Do not proceed until unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:
  - 1. Daily access to the Work.
  - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
  - 3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
  - 4. Security and protection for test samples and for testing and inspection equipment at Project site.

### 3.03 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.
  - 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
  - 3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

### 3.04 INSTALLATION OF SUBSLAB MEMBRANE / VAPOR RETARDER

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.
  - 1. Install vapor retarder with longest dimension parallel with direction of concrete pour.
  - 2. Face laps away from exposed direction of concrete pour.
  - 3. Lap vapor retarder over footings and grade beams not less than 6 inches (150 mm), sealing vapor retarder to concrete.
  - 4. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

5. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps.
6. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
7. Protect vapor retarder during placement of reinforcement and concrete.
  - a. Repair damaged areas by patching with vapor retarder material, overlapping damages area by 6 inches (150 mm) on all sides, and sealing to vapor retarder.

### 3.05 JOINTS

- A. Construct joints true to line, with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
  1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Architect.
  2. Place joints perpendicular to main reinforcement.
    - a. Continue reinforcement across construction joints unless otherwise indicated.
    - b. Do not continue reinforcement through sides of strip placements of floors and slabs.
  3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
  4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  5. Space vertical joints in walls as indicated on Drawings. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
  6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
  7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Control Joints in Slabs-on-Grade: Form weakened-plane control joints, sectioning concrete into areas as indicated. See Floor Pattern Plans for joints at exposed-to-view slabs. If joint pattern is not shown, provide expansion joints not exceeding 15' in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third-bays). Avoid joint patterns that create re-entrant corners. Limit panel length-to-width ratio to 1.2:1.0. Construct control joints for a depth equal to at least one-fourth of concrete thickness.
  1. Exception(s):
    - a. In an effort to minimize slab curl, do not install control joints in slabs under wood athletic flooring; just pour slab monolithically and let the shrinkage cracks happen wherever they occur (eventually covered by wood flooring).
  2. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate grooved tool marks on concrete surfaces.
  3. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface; does not dislodge aggregate, and before concrete develops random cracks.
  4. Early-Entry Dry Sawn Joints: Contraction joints formed with power saws equipped with shatterproof abrasive or diamond-rimmed blades designed to saw shrinkage control joints within 2-6 hours of slab set.
    - a. Manufacturer: Soff-Cut International, follow manufacturer's recommendations for cutting and maintenance of cutting equipment. Cut 1/8-inch wide joints into

- concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- b. Provide a number of Soff-Cut machines with operators, available to keep up with the demand of the concrete curing, so cuts are within time required by concrete cure and Soff-Cut manufacturer's recommendations.
- c. Cut set concrete within a 2-6 hour period, and saw when concrete no-longer ravel under blade cut.
- d. Concrete slabs cut late are grounds for Architect's rejection of the slab and Contractor will be required to remove and replace concrete slab at his own expense.

D. Doweled Joints:

- 1. Install dowel bars and support assemblies at joints where indicated on Drawings.
- 2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.

3.06 CONCRETE PLACEMENT

- A. Before placing concrete verify that installation of formwork, reinforcement and embedded item installation is complete and that required inspections are completed.
  - 1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
  - 2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.
- B. Notify Architect and testing and inspection agencies at least 24 hours prior to commencement of concrete placement.
- C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect in writing, but not to exceed the amount indicated on the concrete delivery ticket.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- E. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
  - 1. If a section cannot be placed continuously, provide construction joints as indicated.
  - 2. Deposit concrete to avoid segregation.
  - 3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
  - 4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.
    - a. Do not use vibrators to transport concrete inside forms.
    - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
    - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.

- d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Do not place concrete floors and slabs in a checkerboard sequence.
  2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  3. Maintain reinforcement in position on chairs during concrete placement.
  4. Screed slab surfaces with a straightedge and strike off to correct elevations.
  5. Level concrete, cut high areas, and fill low areas.
  6. Slope surfaces uniformly to drains where required.
  7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
  8. Do not further disturb slab surfaces before starting finishing operations.

### 3.07 FINISHING FORMED SURFACES

- A. As-Cast Surface Finishes:
1. ACI 301 Surface Finish SF-3.0:
    - a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.
    - b. Remove projections larger than 1/8 inch.
    - c. Patch tie holes.
    - d. Surface Tolerance: ACI 117 Class A.
    - e. Locations: Apply to concrete surfaces exposed to public view, to receive a rubbed finish.
- B. Rubbed Finish: Apply the following to as cast surface finishes where the finished condition will be exposed to view:
1. Grout-Cleaned Rubbed Finish:
    - a. Clean concrete surfaces after contiguous surfaces are completed and accessible.
    - b. Do not clean concrete surfaces as Work progresses.
    - c. Mix 1 part Portland cement to 1-1/2 parts fine sand, complying with ASTM C144 or ASTM C404, by volume, with sufficient water to produce a mixture with the consistency of thick paint. Add white Portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces.
    - d. Wet concrete surfaces.
    - e. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap, and keep surface damp by fog spray for at least 36 hours.
    - f. Maintain required patterns or variances as shown on Drawings or to match mockups.
- C. Related Unformed Surfaces:
1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a color and texture matching adjacent formed surfaces.
  2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

### 3.08 FINISHING FLOORS AND SLABS

- A. Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish:
  - 1. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied.
  - 2. Use stiff brushes, brooms, or rakes to produce a profile depth of 1/4 inch in one direction.
  - 3. Apply scratch finish to surfaces to receive concrete floor toppings to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish:
  - 1. When bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operation of specific float apparatus, consolidate concrete surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats.
  - 2. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture and complies with ACI 117 tolerances for conventional concrete.
  - 3. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing.
  - 4. For slabs to receive polished or burnished finish, allow concrete to set to a point where a 200 lbs load over a 0.5 square foot area (roughly equivalent to a footprint) leaves a 1/8 inch depression, before proceeding with troweling.
- D. Trowel Finish:
  - 1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.
  - 2. Continue troweling passes and restraighen until surface is free of trowel marks and uniform in texture and appearance.
  - 3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
  - 4. Do not add water to concrete surface.
  - 5. Do not apply hard-troweled finish to concrete, which has a total air content greater than 3 percent.
  - 6. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
  - 7. For slabs to receive polished or burnished finish, power trowel with pans until machine is working hard, and switch to finish blades on the final pass, to ensure fibers are buried in the cement paste.
  - 8. Finish surfaces to the following tolerances, in accordance with ASTM E1155, for a randomly trafficked floor surface:
    - a. Slabs on Grade:
    - b. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.
      - 1) Typical Slabs to Receive Finish Flooring: Specified overall values of flatness, FF 35; and of levelness, FL 25; with minimum local values of flatness, FF 24; and of levelness, FL 17.

- 2) Slabs to Receive Polished or Burnished Finish: Specified Overall Value (SOV): FF 50 and FL 30 with minimum local value (MLV): FF 35 and FL 20.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thinset method. While concrete is still plastic, slightly scarify surface with a fine broom perpendicular to main traffic route.
  1. Coordinate required final finish with Architect before application.
  2. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.
  1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
  2. Coordinate required final finish with Architect before application.

### 3.09 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

- A. Filling In:
  1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
  2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
  3. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

### 3.10 CONCRETE CURING

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
  1. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.
  2. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.
  3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h before and during finishing operations.
- B. Curing Formed Surfaces: Comply with ACI 308.1 as follows:
  1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
  2. If forms remain during curing period, moist cure after loosening forms.
  3. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:
    - a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
    - b. Continuous Sprinkling: Maintain concrete surface continuously wet.
    - c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
    - d. Water-Retention Sheeting Materials: Cover exposed concrete surfaces with sheeting material, taping, or lapping seams.

- e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
  - 1) Recoat areas subject to heavy rainfall within three hours after initial application.
  - 2) Maintain continuity of coating and repair damage during curing period.
- C. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:
  - 1. Begin curing immediately after finishing concrete.
  - 2. Interior Concrete Floors:
    - a. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:
      - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
        - a) Lap edges and ends of absorptive cover not less than 12-inches.
        - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
      - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
        - a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
        - b) Cure for not less than seven days.
      - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
        - a) Water.
        - b) Continuous water-fog spray.
    - b. Floors to Receive Polished or Burnished Finish: Contractor has option of the following:
      - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
        - a) Lap edges and ends of absorptive cover not less than 12 inches.
        - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
      - 2) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
        - a) Water.
        - b) Continuous water-fog spray.
    - c. Floors to Receive Curing Compound:
      - 1) Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
      - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
      - 3) Maintain continuity of coating, and repair damage during curing period.
      - 4) Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

3.11 TOLERANCES

- A. Conform to ACI 117.

3.12 APPLICATION OF LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment (Sealer): Apply to slabs indicated to receive sealer in Drawings.
  - 1. Prepare, apply, and finish penetrating liquid floor treatment in accordance with manufacturer's written instructions.
    - a. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
    - b. Do not apply to concrete that is less than seven days' old.
    - c. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing.
    - d. Rinse with water; remove excess material until surface is dry.
    - e. Apply a second coat in a similar manner if surface is rough or porous.

3.13 JOINT FILLING

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
  - 1. Defer joint filling until concrete has aged at least one month(s).
  - 2. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- D. Overfill joint, and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS

- A. Defective Concrete:
  - 1. Repair and patch defective areas when approved by Architect.
  - 2. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
    - a. Limit cut depth to 3/4 inch.
    - b. Make edges of cuts perpendicular to concrete surface.
    - c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
    - d. Fill and compact with patching mortar before bonding agent has dried.



- e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement, so that, when dry, patching mortar matches surrounding color.
    - a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
    - b. Compact mortar in place and strike off slightly higher than surrounding surface.
  3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces:
  1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.
    - a. Correct low and high areas.
    - b. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
  2. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
  3. After concrete has cured at least 14 days, correct high areas by grinding.
  4. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.
    - a. Finish repaired areas to blend into adjacent concrete.
  5. Correct other low areas scheduled to receive floor coverings with a repair underlayment.
    - a. Prepare, mix, and apply repair underlayment and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
    - b. Feather edges to match adjacent floor elevations.
  6. Correct other low areas scheduled to remain exposed with repair topping.
    - a. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations.
    - b. Prepare, mix, and apply repair topping and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  7. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete.
    - a. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch clearance all around.
    - b. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
    - c. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
    - d. Place, compact, and finish to blend with adjacent finished concrete.
    - e. Cure in same manner as adjacent concrete.
  8. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.
    - a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
    - b. Dampen cleaned concrete surfaces and apply bonding agent.
    - c. Place patching mortar before bonding agent has dried.
    - d. Compact patching mortar and finish to match adjacent concrete.

- e. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

### 3.15 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.
- B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
  - 1. Testing agency shall be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.
  - 2. Testing agency shall immediately report to Architect, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
  - 3. Testing agency shall report results of tests and inspections, in writing, to Owner, Architect, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
    - a. Test reports shall include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
      - 1) Project name.
      - 2) Name of testing agency.
      - 3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
      - 4) Name of concrete manufacturer.
      - 5) Date and time of inspection, sampling, and field testing.
      - 6) Date and time of concrete placement.
      - 7) Location in Work of concrete represented by samples.
      - 8) Date and time sample was obtained.
      - 9) Truck and batch ticket numbers.
      - 10) Design compressive strength at 28 days.
      - 11) Concrete mixture designation, proportions, and materials.
      - 12) Field test results.
      - 13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
      - 14) Type of fracture and compressive break strengths at seven days and 28 days.
- C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.
- D. Inspections:
  - 1. Headed bolts and studs.
  - 2. Verification of use of required design mixture.
  - 3. Concrete placement, including conveying and depositing.

4. Curing procedures and maintenance of curing temperature.
  5. Verification of concrete strength before removal of shores and forms from beams and slabs.
  6. Batch Plant Inspections: On a random basis, as determined by Architect.
- E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M shall be performed in accordance with the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
    - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  2. Slump: ASTM C143/C143M:
    - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
    - b. Perform additional tests when concrete consistency appears to change.
  3. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete; .
    - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  4. Concrete Temperature: ASTM C1064/C1064M:
    - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
  5. Unit Weight: ASTM C567/C567M fresh unit weight of structural lightweight concrete.
    - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  6. Compression Test Specimens: ASTM C31/C31M:
    - a. Cast and laboratory cure two sets of two 6-inch by 12-inch or three 4-inch by 8-inch cylinder specimens for each composite sample.
    - b. Cast, initial cure, and field cure two sets of two three standard cylinder specimens for each composite sample.
  7. Compressive-Strength Tests: ASTM C39/C39M.
    - a. Test one set of two three laboratory-cured specimens at seven days and one set of two specimens at 28 days.
    - b. Test one set of two three field-cured specimens at seven days and one set of two specimens at 28 days.
    - c. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
  8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi.
  10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
  11. Additional Tests:

- a. Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
- b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.
  - 1) Acceptance criteria for concrete strength shall be in accordance with ACI 301 section 1.6.6.3.
- 12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- 13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- F. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 48 hours of completion of floor finishing and promptly report test results to Architect.

### 3.16 PROTECTION

- A. Protect concrete surfaces as follows:
  - 1. Protect from petroleum stains.
  - 2. Diaper hydraulic equipment used over concrete surfaces.
  - 3. Prohibit vehicles from interior concrete slabs.
  - 4. Prohibit use of pipe-cutting machinery over concrete surfaces.
  - 5. Prohibit placement of steel items on concrete surfaces.
  - 6. Prohibit use of acids or acidic detergents over concrete surfaces.
  - 7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.
  - 8. Protect concrete surfaces scheduled to receive surface hardener or polished or burnished concrete finish using Floor Slab Protective Covering.

END OF SECTION 03 30 00

SECTION 03 36 00  
GROUND AND POLISHED CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
  - 1. Concrete curing.
  - 2. Grinding and polishing concrete surfaces.
  - 3. Sealing concrete surfaces.
- B. Related Sections:
  - 1. Division 03 Section "Cast-In-Place Concrete" for general applications of concrete and coordination of sample submittal and color selection, as well as special requirements for ground and polished concrete slabs, including flatness tolerances, mixtures, placement, curing, finishing and joints.
  - 2. Division 07 Section "Joint Sealants" for colored sealant for joints.

1.02 REFERENCES

- A. American Concrete Institute (ACI):
  - 1. ACI 301 "Specification for Structural Concrete for Buildings."
  - 2. ACI 302 IR "Recommended Practice for Concrete Floor and Slab Construction."
  - 3. ACI 303.1 "Standard Specification for Cast-In-Place Architectural Concrete."
  - 4. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing of Concrete."
  - 5. ACI 305R "Recommended Practice for Hot Weather Concreting."
  - 6. ACI 306R "Recommended Practice for Cold Weather Concreting."
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM C 309 "Liquid Membrane-Forming Compounds for Curing Concrete."
  - 2. ASTM C 494 "Standard Specification for Chemical Admixtures for Concrete."
  - 3. ASTM C 779 "Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces."
  - 4. ASTM E 430 "Standard Test Method for Measurement of Gloss of High-Gloss Surfaces by Abridged Goniophotometry."
  - 5. ASTM E 1155 "Standard Test Method for Determining Floor Flatness and of Levelness Using the F Number System."

1.03 DEFINITIONS

- A. Cut and Shine Levels:
  - 1. Aggregate Exposure Class:
    - a. Class A - cream finish.
  - 2. Gloss Level:
    - a. Level 2 - medium gloss.

#### 1.04 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with polished concrete to attend, including the following:
    - a. Contractor's superintendent.
    - b. Independent testing agency responsible for concrete design mixtures.
    - c. Ready-mix concrete manufacturer.
    - d. Cast-in-place concrete subcontractor.
    - e. Polished concrete finishing Subcontractor.

#### 1.05 SUBMITTALS

- A. Product Data: Submit manufacturer's complete technical data sheets for the following:
  - 1. Curing compound.
  - 2. Densifier.
  - 3. Penetrating sealer.
  - 4. Pigment.
  - 5. Guards.
  - 6. Grinding machine, including all types of grinding heads, dust extraction system, joint filler, and any other chemicals used in the process.
- B. Samples for Verification: For each type of exposed finish.
- C. Qualification Data: For firms indicated in "Quality Assurance" Article.
  - 1. Manufacturer's Certification: Provide a letter of acknowledgement from both the equipment and chemical manufacturer stating that the installer is a trained applicator and is familiar with proper procedures and installation requirements recommended by the manufacturer.
  - 2. Installer's Experience: Provide project names, addresses, contact names, phone numbers of at least three (3) projects of similar scope completed by the installer.
  - 3. Installer's Certification: Provide certification from finish equipment manufacturer and L.M. Scofield Company (manufacturer of densifier and guard).
- D. Material Certificates: For each of the following, signed by manufacturers:
  - 1. Repair materials.
  - 2. Liquid floor treatments.
- E. Polishing Schedule: Submit plan showing polished concrete surfaces and schedule of polishing operations for each area of polished concrete before start of polishing operations. Include locations of all joints, including construction joints.

#### 1.06 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Polished concrete slip resistance testing agency shall demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Manufacturer Qualifications: Manufacturer with experience in the production of specified products.

- C. Installer Qualifications: An installer with 5-years experience with work of similar scope and quality.
  - 1. Installer/Applicator shall be certified by concrete finish equipment and chemical manufacturer and shall provide adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.
- D. Comply with the requirements of ACI 301.
- E. Notify manufacturer's authorized representative at least one (1) week before start of Work.
- F. Protect surface before and after processing or polishing installation, including but not limited to the following:
  - 1. Diaper all equipment.
  - 2. Vehicles are not permitted on surface.
  - 3. Do not allow acids to contact surface.
  - 4. Do not place any material onto surface that may cause staining, etching or scratching.
  - 5. Remind all trades they are working on a surface that is to become a finished surface.

#### 1.07 PROJECT CONDITIONS

- A. Environmental Requirements:
  - 1. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation and other conditions affecting chemical performance.
  - 2. Schedule placement to minimize exposure to wind and hot sun before curing material is applied.
  - 3. Avoid placing concrete if rain, snow, or frost is forecast within 24-hours. Protect fresh concrete from moisture and freezing.
  - 4. Comply with professional practices described in ACI 305R and ACI 306R.
- B. Schedule delivery of concrete to provide consistent mix times from batching until discharge. Mix times shall meet manufacturer's written recommendations.
- C. Curing: Cure finish concrete a minimum of 28 days, or for length of time required to avoid displacement of aggregate under weight of equipment placed on slab.

### PART 2 - PRODUCTS

#### 2.01 ACCEPTABLE MANUFACTURER

- A. Basis of Design Manufacturers: Subject to compliance with requirements, provide products specified below manufactured by L.M. Scofield Company, or comparable products by Solomon Colors, Inc.
- B. Source Limitations: Obtain each component required for ground and polished concrete from single source from single manufacturer to ensure compatibility of materials with each other.

#### 2.02 MATERIALS

- A. General: Materials include separate products which are formulated to work together:
  - 1. Lithium-based densifier to improve concrete strength and minimize dusting.

2. Finishing guard product to protect against staining and enhance the shine, where indicated.
- B. Acceptable Products, Unless Otherwise Noted:
  1. Basis of Design Products:
    - a. Densifier: L.M. Scofield Company; Formula One™ Lithium Densifier MP.
    - b. Guard: L.M. Scofield Company; Guard-W Concentrate.
- C. Curing Compounds:
  1. Basis of Design Product for Polished Concrete: L.M. Scofield Company; Lithochrome® Colorwax™. Use to cure all flatwork that will be polished.
- D. Equipment:
  1. 3-head or 4-head counter rotating variable speed floor grinding machine with at least 600 pounds down pressure.
  2. Dust extraction system, pre-separator, and squeegee attachments with minimum flow rating of 322 cubic feet per minute.
  3. Grinding heads:
    - a. Metal bonded 16, 25, 40, 60, 80, 150 and 300 grits.
  4. Grinding pads for edges:
    - a. 40, 60, 100 and 120 grits.
  5. Hand grinder with dust extraction equipment and pads.
- E. Substitutions: The use of products other than those specified will be considered providing that the Contractor requests their use in writing within the time allowed during the bidding period (refer to Division 00 and 01 requirements). Submit the following with formal request:
  1. A certificate of compliance from material manufacturer stating that proposed products meet or exceed requirements of this Section, including standards ACI 303.1, ASTM C 979, ASTM C 494 and AASHTO M194.
  2. Documented proof that proposed materials have a 10-year proven record of performance, confirmed by at least 5 local projects that the Architect can examine.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Verification: Confirm slab requirements as specified here and in Division 03 Section "Cast-in-Place Concrete" through the use of a third party testing company.
  1. Cure concrete a minimum of 28 days to achieve a minimum compressive strength of 3,500 to 5,000 psi.
  2. Confirm minimum floor flatness rating of 50.
  3. Confirm minimum floor levelness rating of 30.
  4. Power troweled, not burned and no hand finishing.
  5. If fine aggregate finish with minimum aggregate has been specified, confirm concrete was vibrated and was thoroughly floated and tamped.
- B. Immediately notify Architect of unsatisfactory conditions. Do not proceed until surface is in compliance with specified and installer's recommendations, or unless otherwise in writing agreed upon between Installer and Architect.
- C. Identify and rectify any conditions and/or concerns that will affect final finish. Do not begin installation until substrates have been properly prepared unless otherwise in writing agreed upon



between Installer and Architect.

### 3.02 POLISHED CONCRETE APPLICATION

- A. Apply finish system a minimum of 21 days prior to fixture and trim installation and/or Substantial Completion.
- B. Finish Requirements: Provide the following finish grade and class per the Concrete Polishing Council:
  - 1. Provide Class A aggregate exposure - cream cut level finish.
  - 2. Provide Level 2 gloss level - 800 grit - medium gloss shine level finish.
- C. Applicator shall examine the areas and conditions under which work of this Section will be provided and the Contractor shall correct conditions detrimental to the timely and proper completion of the work and the Applicator shall not proceed until unsatisfactory conditions are resolved.
- D. Grind the concrete floor to within 2 - 3 inches of walls with 16, 25, 40, 60, 80 and/or 150 grit removing construction debris, floor slab imperfections and until there is a uniform scratch pattern and desired concrete aggregate exposure.
- E. Apply material approved by Architect for color effects in accordance with the architectural Drawings and the manufacturer's recommended guidelines.
- F. Fill construction joints and cracks with filler products as specified in accordance with manufacturer's instructions colored to match (or contrast) with concrete color as specified by Architect.
- G. Dilute densifier 1:1 with fresh water then apply using a pump sprayer at a rate of 200 - 400 square feet per gallon. Use a stiff, long bristled broom work the material in to the slab. If any material collects in low spots, use the broom to push it out and spread it around. Cover the entire area liberally and keep wet with densifier for 20 to 30 minutes. During this time-frame, retreat any areas that dry out. After 30 minutes, rinse and squeegee excess material off the floor. An autoscruber works well for this application. Allow 12 to 24 hours for full cure.
- H. Grind the floor to within 2 - 3 inches of walls with metal bonded diamond grits of 150 and 300-grinding 90 degrees from each previous grind and removing all the scratches from the previous grit. Vacuum the floor thoroughly after each grind using a squeegee vacuum attachment.
- I. Grind the edges with 40, 60, 120 and 220 grit grinding pads removing all of the scratches from the previous grit. Vacuum the floor thoroughly after each grind using a squeegee vacuum attachment.
- J. Polish the floor, to desired sheen level, with phenolic resin bonded diamond grits of 100, 200, 400, and 800 - first polishing the edges (if specified) with pads of the same grit and then the field of the floor removing all scratches from the previous grit. After each polish, clean the floor thoroughly using clean water and an auto scrubber or a mop and a wet vacuum.
- K. Apply diluted densifier at a rate of 400 square feet per gallon. Using a broom, work the material into the floor for a minimum of 10 minutes. Tight squeegee the remaining material from the floor without leaving squeegee marks or puddles. Allow to cure for 12 - 24 hours.
- L. Polish with 800-resin bond diamonds to final shine level classification.

- M. Apply guard product at 1500 to 2000 square feet per gallon using a pump sprayer and a low-nap micro-fiber cloth to “stretch” the material as far as possible.
- N. Using a high speed (1500 to 2000 rpm) burnishing machine and a hogs hair or 3000 grit diamond impregnated burnishing pad, buff the surface to a high shine in two passes running 90 degrees from one another.

### 3.03 PROTECTION

- A. Use temporary floor protection throughout the course of the Project to safeguard the surface quality of concrete slabs before and after application of decorative finishes or installations of other materials. The concrete slab must be treated as a finished floor at all times during construction.
- B. Temporary Floor Protection will be removed only while finish work to the concrete is being performed and will be replaced after the final finish has cured sufficiently.
- C. Temporary Floor Protection:
  - 1. Basis of Design Product: Proguard Duracover as manufactured by L. M. Scofield Company. Seaming of the temporary floor protection will be performed with Scofield Proguard Heavy Duty Seaming Tape. Install both products following the manufacturer’s written installation procedures.
  - 2. Temporary floor protection is required between curing and polishing work to protect the floor from damage, and again after the polish work to protect the finished floor from additional damage during the finishing operations.
- D. Do not apply heavy duty seaming tape to bare or finished floors or wall surfaces at any time.

### 3.04 CLEANING

- A. The work area shall be kept clean and free of debris at all times.
- B. Remove slurry and dust from adjoining surfaces as necessary.
- C. Dispose of material containers in accordance with local regulations.
- D. Protect finished work until fully cured per manufacturer’s recommendations.

END OF SECTION 03 36 00

SECTION 05 52 13  
PIPE AND TUBE RAILINGS

PART 2 PRODUCTS

1.01 RAILINGS - GENERAL REQUIREMENTS

- A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of applicable local code.
- B. Allow for expansion and contraction of members and building movement without damage to connections or members.
- C. Dimensions: See drawings for configurations and heights.
- D. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
- E. Provide slip-on non-weld mechanical fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

1.02 STEEL RAILING SYSTEM

- A. Steel Tube: ASTM A500/A500M Grade B cold-formed structural tubing.
- B. Non-Weld Mechanical Fittings: Slip-on, galvanized malleable iron castings, for Schedule 40 pipe, with flush setscrews for tightening by standard hex wrench, no bolts or screw fasteners.
- C. Exposed Fasteners: No exposed bolts or screws.
- D. Galvanizing: In accordance with requirements of ASTM A123/A123M.
  - 1. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20 Type I - Inorganic.

1.03 FABRICATION

- A. Accurately form components to suit specific project conditions and for proper connection to building structure.
- B. Fit and shop assemble components in largest practical sizes for delivery to site.
- C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
- D. Welded Joints:
  - 1. Exterior Components: Continuously seal joined pieces by intermittent welds and plastic filler. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
  - 2. Interior Components: Continuously seal joined pieces by intermittent welds and plastic filler.

3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

### PART 3 EXECUTION

#### 2.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

#### 2.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.
- C. Apply one coat of bituminous paint to concealed aluminum surfaces that will be in contact with cementitious or dissimilar materials.

#### 2.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
- C. Install railings in compliance with ADA Standards for accessible design at applicable locations.
- D. Anchor railings securely to structure.
- E. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

#### 2.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per floor level, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).
- C. Maximum Out-of-Position: 1/4 inch (6 mm).

END OF SECTION

SECTION 06 10 00  
ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
  - 1. Framing with dimension lumber.
  - 2. Rooftop equipment bases and support curbs.
  - 3. Wood blocking, shims, cants, and nailers.
- B. Related Sections:
  - 1. Division 06 Section "Sheathing."

1.02 REFERENCES

- A. Lumber Standards: Comply with PS 20 and with applicable rules of respective grading and inspecting agencies for species and products indicated. Comply with AWPA C20 for fire-retardant (exterior and interior exposure) treated lumber, and C2 for preservative pressure treated lumber.
- B. Plywood Product Standards: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard for type of panel indicated. Comply with AWPA C27 for fire-retardant treated plywood.
- C. Erection Standards: Comply with latest non-conflicting rules for framing and fastening requirements of "National Design Specifications for Wood Construction" of AFPA. Comply with applicable guidelines for installation of sheathing per APA "E30M, Design/Construction Guide, Residential & Commercial."

1.03 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Timber: Lumber of 5 inches nominal or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 2. NLGA: National Lumber Grades Authority.
  - 3. SPIB: The Southern Pine Inspection Bureau.
  - 4. WCLIB: West Coast Lumber Inspection Bureau.
  - 5. WWPA: Western Wood Products Association.

#### 1.04 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
  - 1. Wood-preservative-treated wood.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

#### 1.06 PROJECT CONDITIONS

- A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.

### PART 2 - PRODUCTS

#### 2.01 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.

#### 2.02 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP C2.
  - 1. Preservative Chemicals: ACQ Preserve by Chemical Specialties, Inc., or approved; non-arsenic, non-chromium type and acceptable to authorities having jurisdiction.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings, and the following where applicable:
  - 1. Wood cants, roof frame details and masonry cavity surrounds at openings, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with

- roofing, flashing, vapor barriers, and waterproofing.
- 2. Wood sills, and window surrounds, sleepers, blocking, furring, shims, and similar concealed members in contact with masonry or concrete.
- 3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.

## 2.03 DIMENSION LUMBER FRAMING

- A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade or as otherwise indicated.
  - 1. Species:
    - a. Hem-fir (north); NLGA.
    - b. Southern pine or mixed southern pine; SPIB.
    - c. Spruce-pine-fir; NLGA.
    - d. Hem-fir; WCLIB, or WWP.
    - e. Spruce-pine-fir (south); NeLMA, WCLIB, or WWP.
    - f. Northern species; NLGA.
    - g. Eastern softwoods; NeLMA.
    - h. Western woods; WCLIB or WWP.
    - i. Douglas fir-larch (north); NLGA.

## 2.04 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Blocking.
  - 2. Nailers.
  - 3. Rooftop equipment bases and support curbs.
  - 4. Cants.
  - 5. Furring.
  - 6. Grounds.
- B. For items of dimension lumber size, provide Construction or No. 2 Standard, Stud, or No. 3 grade lumber with 19 percent maximum moisture content and the following species:
  - 1. Hem-fir (north); NLGA.
  - 2. Hem-fir; WCLIB, or WWP.
  - 3. Douglas fir-larch (north); NLGA.
- C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
  - 1. Western woods, Construction or No. 2 Common grade; WCLIB or WWP.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

## 2.05 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.
- D. Do not splice structural members between supports, unless otherwise indicated.
- E. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- F. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
  1. Use inorganic boron for items that are continuously protected from liquid water.
  2. Use copper naphthenate for items not continuously protected from liquid water.
- G. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  1. NES NER-272 for power-driven fasteners.
  2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
- H. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.



3.02 WOOD, GROUND, BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding, shimming or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
  - 1. Provide blocking at all locations such as handrails, cabinets, partitions, mirrors, toilet room accessories, visual display boards, projection screens, wall mounted door bumpers, and as indicated or specified in other sections.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.03 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 10 00

SECTION 06 16 00  
SHEATHING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
  - 1. Roof sheathing.
  - 2. Parapet sheathing.
  - 3. Sheathing joint-and-penetration treatment.
  - 4. Flexible flashings.

1.02 ACTION SUBMITTALS

1.03 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For following products, from ICC-ES:
  - 1. Air-barrier and water-resistant glass-mat gypsum sheathing.

1.04 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory." GA-600 or "Fire Resistance Design Manual."

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.01 GLASS MAT GYPSUM WALL SHEATHING (GMS)

- A. Glass-Mat Gypsum Wall Sheathing (GMS) : ASTM C 1177, paperless, silicone-treated core panel with inorganic, and glass mat facings.
  - 1. Acceptable Products: Subject to compliance with requirements, provide DensGlass, by Georgia-Pacific Gypsum LLC, or comparable product by one of the following:
    - a. USG Securock by United States Gypsum Company.
    - b. eXP Sheathing by National Gypsum Company.
    - c. Or approved equal.
  - 2. Type and Thickness: Type X, as indicated on drawings.
    - a. Type X for Fire Rated Wall Assemblies.

3. Size: 48 by 96 inches or 48 by 108 inches or 48 by 120 inches for vertical installation.

## 2.02 PLYWOOD SHEATHING

- A. Plywood Wall and Roof Sheathing: Exterior, Structural I sheathing. CDX.
  1. Span Rating: Not less than 32/16.
  2. Nominal Thickness: Not less than 1/2 inch, unless noted otherwise.
  3. Refer to structural notes and drawings.

## 2.03 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

## 2.04 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

- A. Sealant for Paper-Surfaced or Glass-Mat Gypsum Sheathing: Elastomeric, medium-modulus, neutral-curing silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other materials, recommended by sheathing manufacturer for application indicated and complying with requirements for elastomeric sealants specified in Division 07 Section "Joint Sealants."
  1. Sheathing Tape for Glass-Mat Gypsum Sheathing Board: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10 or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing board and with a history of successful in-service use.
- B. Sheathing Tape for Foam-Plastic Sheathing: Pressure-sensitive plastic tape recommended by sheathing manufacturer for sealing joints and penetrations in sheathing.

## 2.05 MISCELLANEOUS MATERIALS

- A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.025 inch.
  1. Products: Subject to compliance with requirements, provide one of the following:
    - a. GCP Applied Technologies; Vycor plus Self-Adhered Flashing.
    - b. Fortifiber "Fortiflash".
    - c. International Building Components "Waterblock Flashing Membrane".
    - d. Or approved.
- B. Primer for Flexible Flashing: Product recommended by manufacturer of flexible flashing for substrate.
- C. Premanufactured Corner Dams: Factory premanufactured corner dams by manufacturers of Flexible Flashing systems. Use to flash corners in opening assemblies by receiving wall assembly membranes. Provide corner dams by the same manufacturer of flexible flashing.
  1. Manufacturers:
    - a. GCP Applied Technologies "Vycorner".
    - b. Fortifiber "Moistop Corner Shield".
    - c. International Building Components "Waterblock Flashing Membrane".
    - d. Or approved.

## PART 3 - EXECUTION

### 3.01 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
  - 1. NES NER-272 for power-driven fasteners.
  - 2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
- D. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
- E. Coordinate wall and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

### 3.02 SHEATHING JOINT-AND-PENETRATION TREATMENT

- A. Seal sheathing joints according to sheathing manufacturer's written instructions.
  - 1. Apply elastomeric sealant to joints and fasteners and trowel flat. Apply sufficient quantity of sealant to completely cover joints and fasteners after troweling. Seal other penetrations and openings.
  - 2. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing board joints, and apply and trowel silicone emulsion sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.
  - 3. Apply sheathing tape to joints between foam-plastic sheathing panels and at items penetrating sheathing. Apply at upstanding flashing to overlap both flashing and sheathing.

### 3.03 FLEXIBLE FLASHING INSTALLATION

- A. Apply flexible flashing as indicated to comply with manufacturers written instructions.
  - 1. Prime substrates as recommended by flashing manufacturer.
  - 2. Lap seams and junctures with other materials at least 4 inches, except that at flashing flanges of other construction, laps need not exceed flange width.

3. Lap flashing over weather-resistant building paper at bottom and sides of openings. Shingle flexible flashing to the weather. Coordinate sequence with Division 07 Section "Structural Insulated Sheathing with Membrane Coating."
4. Lap weather-resistant building paper over flashing at heads of openings.
5. After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.
6. Apply flexible flashings at all windows, louvers, wall penetrations and door openings.

#### 3.04 PREMANUFACTURED CORNER DAM INSTALLATION

- A. Install in compliance with manufacturer's instructions. Mechanically or adhesively install flanges of dams tight to opening members, allowing no gap between dam and opening construction. Lap membrane over flanges of dam.

END OF SECTION 06 16 00

SECTION 06 20 23  
INTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes the following:
  - 1. Hardwood Lumber Trim.
  - 2. Hardwood Lumber wainscoting to match existing.
  - 3. Wood furring, blocking, shims, and hanging strips for installing architectural cabinets unless concealed within other construction before cabinet installation.
  - 4. Shop finishing of interior woodwork.
- B. Related Sections include the following:
  - 1. Division 06 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.
  - 2. Division 09 Section "Interior Painting."
  - 3. Division 09 Section "Staining and Transparent Finishing."

1.02 DEFINITIONS

- A. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. CCP: Certified Compliance Program.
  - 2. NAAWS: North American Architectural Woodwork Standards.
  - 3. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 4. NHLA: National Hardwood Lumber Association.
  - 5. NLGA: National Lumber Grades Authority.
  - 6. WCLIB: West Coast Lumber Inspection Bureau.
  - 7. WI: Woodwork Institute [www.woodworkinstitute.com](http://www.woodworkinstitute.com); 916-372-9943.
  - 8. WWPA: Western Wood Products Association.
- B. Paneling: Paneling includes wood furring, blocking, and shims for installing paneling, unless concealed within other construction before paneling installation.

1.03 SUBMITTALS

- A. General: Submit in conformance with NAAWS (latest edition) Section 1 "Submittals."
- B. Product Data: For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.
  - 1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
  - 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
  1. For certified shops; apply WI-Certified Compliance Label to first page of shop drawings.
  2. Show on a minimum of 11 by 17 inch sheet, reference plan location of each item in minimum 1/4 inch = 1 foot scale, dimensioned plans and elevations in minimum 3/8 inch = 1 foot scale, detailed section views in minimum 1-1/2 inch = 1 foot scale, large-scale details, attachment devices, and other components as needed to clearly indicate what is provided, its method(s) of construction and attachment, and include:
    - a. A cover or title sheet.
    - b. A table of contents.
    - c. An itemized material list.
  3. Show details full size of all trim profiles
  4. Show centerline locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
- D. Samples for Initial Selection:
  1. Two sets of samples of each trim profile used.
- E. Samples for Verification:
  1. Lumber for transparent finish, not less than 6 inches long, for each species and cut, finished on 1 side and 1 edge.
  2. Lumber for shop-applied opaque finish, 50 sq. in. for lumber and 8 by 10 inches for panels, for each finish system and color, with 1/2 of exposed surface finished.
- F. Product Certificates: For each type of product, signed by product manufacturer.
- G. Qualification Data: For Installer.

#### 1.04 QUALITY ASSURANCE

- A. Quality Standard: Unless otherwise indicated, comply with NAAWS for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
- B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program; or certified participant in WI's Certified Compliance Program (AMC - Accredited Millwork Companies); or a non-certified shop that is able to fabricate to WI's Certified Compliance Program requirements per the NAAWS.
- C. Installer Qualifications: Certified participant in AWI's Quality Certification Program; or a certified participant of WI's Certified Compliance Program; or a non-certified installer that is able to install to WI's Certified Compliance Program requirements per the NAAWS.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  1. Provide wainscot mock-ups for review.
  2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Architect in writing.

3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials against weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation within and around stacks and under temporary coverings.
- B. Deliver interior finish carpentry materials only when environmental conditions meet requirements specified for installation areas. If interior finish carpentry materials must be stored in other than installation areas, store only where environmental conditions meet requirements specified for installation areas.
- C. Do not deliver paneling until painting and similar operations that could damage paneling have been completed in installation areas. If paneling must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

#### 1.06 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.
  1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.
- C. Field Measurements: Where woodwork and paneling is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  1. Locate concealed framing, blocking, and reinforcements that support woodwork and paneling by field measurements before being enclosed, and indicate measurements on Shop Drawings.
  2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork and paneling without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

#### 1.07 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.



## PART 2 - PRODUCTS

### 2.01 WOODWORK FABRICATORS

- A. Available Fabricators: Subject to compliance with requirements, fabricators offering interior architectural woodwork that may be incorporated into the Work include the following:
  - 1. Qualified firms, including but not limited to the following shops, that are certified participants in AWI's Quality Certification Program or WI's Certified Compliance Program, or a non-certified shop that can to fabricate to WI's Certified Compliance Program requirements per the NAAWS:
    - a. Advanced Custom Cabinets (Coeur d'Alene, ID).
    - b. Cascade Casework (Lebanon, OR).
    - c. Central Cabinet Systems (Tacoma, WA).
    - d. Genothern (Tumwater, WA).

### 2.02 MATERIALS, GENERAL

- A. General: Provide materials that comply with requirements of NAAWS quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Species and Cut for stain and transparent finish: Match existing wood trim and wainscot.
- C. Wood Products: Comply with the following:
  - 1. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.
    - a. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
    - b. For exposed lumber, mark grade stamp on end or back of each piece.

### 2.03 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this Article that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified.
  - 1. Do not use treated materials that do not comply with requirements of referenced woodworking standard or that are warped, discolored, or otherwise defective.
  - 2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
  - 3. Identify fire-retardant-treated materials with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with performance requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Use the following treatment type:
  - 1. Interior Type A: Low-hygroscopic formulation.
  - 2. Mill lumber after treatment within limits set for wood removal that do not affect listed fire-test-response characteristics, using a woodworking plant certified by testing and inspecting agency.

3. Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.
4. Kiln-dry materials before and after treatment to levels required for untreated materials.

## 2.04 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
  1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Where galvanized finish is indicated, provide fasteners and anchorages with hot-dip galvanized coating complying with ASTM A 153/A 153M.
  2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- C. Adhesives, General: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer for general carpentry use.
  1. Do not use adhesives that contain urea formaldehyde.
  2. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement or Resorcinol.
  3. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.
  4. Multipurpose Construction Adhesive: Formulation complying with ASTM D 3498 that is recommended for indicated use by adhesive manufacturer.
  5. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. Wood Glues: Use wood glue that has a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
    - b. Multipurpose Construction Adhesive: Use adhesive that has a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
    - c. Contact Adhesive: Use contact adhesive that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

## 2.05 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Premium-grade interior woodwork complying with referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

## 2.06 HARDWOOD LUMBER TRIM (HLT)

- A. Grade: Premium.

- B. Hardwood Lumber Trim for Transparent Finish (Stain or Clear Finish): Match species and cut indicated for other types of transparent-finished architectural woodwork located in same area of building, unless otherwise indicated.
  - 1. Wood Species: Match existing.
  - 2. Maximum Moisture Content: 10 percent.
  - 3. Finger Jointing: Not allowed.
  - 4. Gluing for Width: Use for lumber trim wider than 6 inches.
  - 5. Veneered Material: Use for lumber trim wider than 6 inches.
  - 6. Face Surface: Surfaced (smooth).
  - 7. Finish: Refer to Finish Schedule on Drawings and Division 09 Section "Staining and Transparent Finishing."
- C. For trim items wider than available lumber, use veneered construction. Do not glue for width.
- D. For rails wider or thicker than available lumber, use veneered construction. Do not glue for width or thickness.
- E. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- F. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- G. Assemble moldings in plant to maximum extent possible. Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.

## 2.07 SHOP FINISHING

- A. General: Finish architectural woodwork at fabrication shop to the greatest extent possible.
  - 1. See Division 09 Section "Staining and Transparent Finishing" for more information.
- B. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
  - 1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.
- C. Transparent Finish:
  - 1. NAAWS Finish System 12: Polyurethane, Water-based.
  - 2. Back-Seal: Seal back of finished paneling prior to installation of metal edge trim to prevent moisture absorption. Not necessary to back seal plywood wainscoting.
  - 3. Edge-Seal: Seal edges of finished paneling prior to installation of metal edge trim to prevent moisture absorption.
  - 4. Wash Coat for Stained Finish: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
  - 5. Staining: Match Architect's sample.
  - 6. Sheen: Satin, 31-45 .

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours unless longer conditioning is recommended by manufacturer.
- B. Before installing interior finish carpentry, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.
- C. Coordinate prior to erection of wall sheathing materials the location of all wood paneling edge framing, blocking and strapping members to allow fasteners of adjacent paneling members to be placed allowing panel edge setback of fasteners for all paneling. Provide sufficient surface area of edge framing, blocking and strapping allowing equal set back of fasteners from panel edges on adjacent panels.
- D. Clean substrates of projections and substances detrimental to application.

### 3.03 INSTALLATION, GENERAL

- A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
- B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- C. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
  - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- D. Install interior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
  - 1. Scribe and cut interior finish carpentry to fit adjoining work. Refinish cut surfaces, and repair damaged finish at cuts.
  - 2. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
  - 3. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining interior finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch

- maximum offset for reveal installation.
- 4. Coordinate interior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate interior finish carpentry.

### 3.04 HARDWOOD LUMBER TRIM INSTALLATION

- A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches long, except where necessary. Stagger joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints where necessary for alignment. Anchor woodwork to anchors or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork, and matching final finish where transparent finish is indicated.
  - 1. Match color and grain pattern of trim for transparent finish (stain or clear finish) across joints.
  - 2. Install trim after gypsum board joint finishing operations are completed.
  - 3. Drill pilot holes in hardwood before fastening to prevent splitting. Fasten to prevent movement or warping. Countersink fastener heads on exposed carpentry work and fill holes.

### 3.05 ADJUSTING AND CLEANING

- A. Replace interior finish carpentry that is damaged or does not comply with requirements. Interior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.
- B. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

### 3.06 PROTECTION

- A. Protect installed products from damage from weather and other causes during remainder of the construction period.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
  - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 06 20 23

SECTION 07 26 00  
VAPOR RETARDERS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
  - 1. Under-slab vapor barriers.
  - 2. Accessories for under-slab vapor barriers:
    - a. Seaming and repair tape.
    - b. Terminating edge sealing tapes.
    - c. Sealant (mastic).
    - d. Pipe boots.
    - e. Fasteners as recommended by vapor barrier manufacturer.
    - f. Concrete screed.
- B. Related Sections:
  - 1. Division 03 Section "Cast-in-Place Concrete."

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions and accessories.
- B. Manufacturer's certification of testing on a single roll of production material per paragraph 8.1 of ASTM E1745.
- C. Manufacturer's installation instructions for placement, seaming and penetration repair instructions.
- D. Warranty Documentation.

1.03 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard 2-year performance warranty, stating the following:
  - 1. Manufacturer warrants that its products are in compliance with their published specifications and are free from defects in materials and workmanship for a period of two years from the date of purchase.
  - 2. Warranty does not apply to loss due to abuse.
  - 3. Material found to be defective will be replaced at no charge by manufacturer but in no event shall manufacturer be liable for any other costs or damages, including any labor costs.

## PART 2 - PRODUCTS

### 2.01 UNDER-SLAB VAPOR BARRIERS (VR)

- A. General: Under Slab Vapor barrier shall have all of the following qualities:
  - 1. Maintain permeance of less than 0.01 Perms as tested after conditioning tests per ASTM E 1745 Section 7.1.
  - 2. Other performance criteria:
    - a. Strength: ASTM E 1745 Class A.
    - b. Thickness: 15 mils minimum.
- B. Polyethylene (Polyolefin-Based Resin) Sheet Vapor Barrier, Minimum 15-mil: ASTM E 1745, Class A, as follows:
  - 1. Perm Rating: 0.01, maximum per ASTM E 154, Section 7 and ASTM F1249.
  - 2. Tensile Strength: 45 lbs/in, minimum per ASTM E 154 Section 9.
  - 3. Puncture Resistance: 2200 grams, minimum per ASTM D 1709 Method B.
- C. Basis-of-Design Product: Subject to compliance with requirements, provide Stego Wrap Vapor Barrier (15-mil) by Stego Industries LLC, (877-464-7834; [www.stegoindustries.com](http://www.stegoindustries.com)) or comparable product by one of the following:
  - 1. Fortifiber Corporation; Moistop Ultra 15.
  - 2. Raven Industries, Inc.; VaporBlock VBLP15.
  - 3. W.R. Meadows, Inc.; Perminator 15 mil.
- D. Capillary Break Course: See civil drawings for Drainage Course and Geotextile fabric under slab areas.

### 2.02 ACCESSORIES

- A. Accessories for Under-Slab Vapor Barriers:
  - 1. Vapor Retarder Seaming and Repair Tape: For seams and other conditions as recommended by manufacturer:
    - a. Manufacturer's recommended Tape with Pressure Sensitive Adhesive. Minimum width 3.75 - inches.
      - 1) Basis of Design Product: Stego Tape by Stego Industries LLC, (877-464-7834; [www.stegoindustries.com](http://www.stegoindustries.com)).
  - 2. Vapor Retarder Terminating Edge Sealing Tapes (VRT): For sealing terminating edges and seams of vapor retarder and for sealing perimeter of vapor retarder over edge of grade beams as recommended by manufacturer.
    - a. Double-sided tape comprised of polyethylene substrate with polyolefin apertured film and pressure-sensitive adhesion or synthetic rubber/resin blend.
      - 1) Basis of Design Product: Stego Crete Claw Tape or StegoTack Tape by Stego Industries LLC, (877-464-7834; [www.stegoindustries.com](http://www.stegoindustries.com)).
        - a) Use 6-inch roll for fully bonding vapor barrier to underside of slab, applying tape along seams and terminating edges vapor retarder.
        - b) Use 3-inch roll for fully bonding vapor barrier to underside of slab at perimeter, over edge of grade beams.
  - 3. Vapor Retarder Sealant (Mastic): For penetrations and other conditions as recommended by manufacturer.

- a. Flexible, vapor resistant, medium-viscosity, water-based, polymer-modified anionic bituminous/ asphalt emulsion.
  - 1) Basis of Design Product: Stego Mastic by Stego Industries LLC, (877-464-7834; [www.stegoindustries.com](http://www.stegoindustries.com)).
4. Pipe Penetration Boots:
  - a. Pre-fabricated boots for pipe penetration as recommended by vapor barrier sheet manufacturer.
    - 1) Basis of Design Product: Stego Pre-cut Pipe Boots by Stego Industries LLC, (877-464-7834; [www.stegoindustries.com](http://www.stegoindustries.com)).
5. Vapor Retarder Fastener:
  - a. Semiflexible plastic termination bar for mechanically securing vapor retarder to substrate.
    - 1) Basis of Design: Stego Term Bar by Stego Industries LLC, (877-464-7834; [www.stegoindustries.com](http://www.stegoindustries.com)).
6. Concrete Screed:
  - a. Fixed-elevation, point-to-point guide screed system with peel-and-stick adhesive base, eliminating the need to puncture the vapor barrier.
    - 1) Basis of Design: Beast Screed, including base with adhesive, screed post, and adjustable screed cap by Stego Industries LLC, (877-464-7834; [www.stegoindustries.com](http://www.stegoindustries.com)).

## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Ensure that subsoil is approved by Architect or Geotechnical Engineer.
  1. Level and compact base material.
- B. Clean substrates of substances that are harmful to vapor retarders, including removing projections capable of puncturing vapor retarders.

### 3.02 INSTALLATION OF UNDER-SLAB VAPOR BARRIERS

- A. Capillary Break Course: Provide capillary break course consisting of fine-graded granular material under Vapor Barrier. See Civil drawings for capillary break Drainage Course and Geotextile fabric under slab areas.
- B. Vapor Barrier: Installation shall be in accordance with ACI 302.1R-04, Soils Report, ASTM E 1643 and per manufacturer's printed instructions.
  1. Install vapor barrier over capillary break with longest dimension parallel to concrete pour and pull open all folds.
  2. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement and face laps away from the expected direction of the placement whenever possible.
  3. Lap seams 6-inches minimum and seal with continuous tape or adhesive.
  4. Extend and seal vapor barrier over footings and grade beams to a distance acceptable to the structural engineer or stop at impediments such as dowels and waterstops.
  5. Perimeter/Edge Seal Options:
    - a. Seal all seams between sheets of vapor barrier and apply over perimeter of vapor barrier areas using Stego Crete Claw.
      - 1) Lap vapor barrier over grade beams as indicated on Drawings.



- 2) Do not overlap ends of tape to provide for expansion per manufacturer's instructions.
  - b. Seal vapor barrier to foundation wall or footing/grade beam with StegoTack Tape, Stego Term Bar, or a combination of both.
6. Seal all penetrations, including pipes, per manufacturer's instructions.
7. Seal to pipes and other permanent penetrations with seam tape or sealant (mastic). Utilize patch/boots as needed to minimize void space between vapor barrier membrane and the base of the permanent penetrations.
8. For interior forming applications and screeding, avoid the use of non-permanent stakes driven through vapor barrier.
  - a. Basis of Design Screed Installation:
    - 1) Attach screed base by applying downward pressure for a minimum of 5-10 seconds.
    - 2) Cut the Screed Posts on the kerf line best suited for the designed depth of the slab.
    - 3) Attach adjustable screed cap to screed post and insert screed post into press-fit center hub of screed base.
    - 4) Using a laser level and check rod or grade rod, rotate the Beast Screed Adjustable Cap up or down to the proper elevation.
    - 5) Once concrete is placed around Screed, hand float a level pad around and at the same elevation as Screed, using the pad as the elevation guide, or screed directly over the top of the Adjustable Cap.
    - 6) Following the final screed pass, remove the Adjustable Screed Cap and Screed Post.
9. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
10. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area six (6) inches and taping all sides with tape.
- C. Do not start installation of rebar or pouring of concrete until vapor barrier's manufacturer's representative has reviewed the vapor barrier installation.
  1. Repair all damage or replace defective vapor barrier per manufacturer's recommendations prior to covering by other materials

### 3.03 PROTECTION

- A. Protect vapor retarders from damage until concealed by permanent construction.

END OF SECTION 07 26 00

SECTION 07 27 27  
SELF-ADHERING VAPOR-PERMEABLE AIR-BARRIER MEMBRANE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
  - 1. Self-adhered water resistive air barrier membrane system.
- B. Related Sections:
  - 1. Division 01 Section "Air Barrier System Quality Control Requirements."
  - 2. Division 06 Section "Sheathing."
  - 3. Division 07 Section "Sheet Metal Flashing and Trim."
  - 4. Division 07 Section "Joint Sealants."
  - 5. Division 08 Section "Hollow Metal Doors and Frames" for exterior hollow metal door and window openings.

1.02 REFERENCE STANDARDS

- A. Air Barrier Association of America.
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM D 5034 - Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).
  - 2. ASTM E 96 - Test Methods for Water Vapor Transmission of Materials; Desiccant method, (Procedure A) and Water method (Procedure B).
  - 3. ASTM E398 Standard Test Method for Water Vapor Transmission Rate of Sheet Materials Using Dynamic Relative Humidity Measurement.
  - 4. ASTM E 2178 - Standard Test Method for Air Permeance of Building Materials.
  - 5. ASTM E 2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.
  - 6. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
  - 7. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.
- C. American Association of Textile Chemists and Colorists (AATCC): ATCC 127 - Test Method for Water Resistance: Hydrostatic Pressure Test.
- D. International Code Council Evaluation Service, Inc. (ICC-ES): ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers.

1.03 SUBMITTALS

- A. Product Data: Submit material Manufacturer's Product Data, material manufacturer's instructions for evaluating, preparing, and treating substrate, temperature and other limitations of installation conditions, Technical Data, and tested physical and performance properties.

1. Submit letter from primary air barrier material manufacturer indicating approval of materials that are proposed to be used that are not currently listed in the accessories section of this specification for that manufacturer's material.
  2. Include statement from the primary air barrier material manufacturer that the materials used in their air barrier assembly which will be used to adhere to the underlying substrate are chemically compatible to the substrate material.
- B. Submit samples of the following:
1. Manufacturer's sample warranty.
  2. Water-resistive vapor permeable air barrier sheet, minimum 8 by 10 inches.
  3. Components, minimum 12 inch lengths.
  4. Membrane flashings.
  5. Fasteners, clips, strapping, cladding attachment fasteners and masonry ties.
  6. Sealants.
- C. Shop Drawings: Submit Shop Drawings showing locations and extent of air barrier assemblies and details of all typical conditions, intersections with other envelope assemblies and materials, membrane counter-flashings, and details showing how gaps in the construction will be bridged, how inside and outside corners are negotiated, how materials that cover the materials are secured with air-tight condition maintained, and how miscellaneous penetrations such as conduits, pipes, electric boxes and similar items are sealed.
1. Include statement that materials are compatible with adjacent materials proposed for use.
  2. Include required values for field adhesion test on each substrate.

#### 1.04 QUALITY ASSURANCE

- A. Single Source: Self-adhered water-resistive vapor permeable air barrier membrane components and accessories must be obtained as a single-source membrane system to ensure total system compatibility and integrity.
- B. Manufacturer Qualifications
1. Manufacturer of specified products listed in this Section to have minimum 10 years of continued experience in the manufacture and supply of highly vapor permeable water resistive air barrier products successfully installed in similar project applications.
  2. Manufacturer of specified products listed in this Section to have experienced in-house technical and field observation personnel qualified to provide expert technical support.
- C. Installer Qualifications
1. Installer Qualifications: A firm that is acceptable to the self-adhering water resistive air barrier membrane manufacturer for installation of products required for this Project with a minimum of five (5) years experience. Firm with not less than five (5) projects similar to requirements for this Project with satisfactory in-service performance.
- D. Mock-Up
1. Provide mock-up of specified water-resistive vapor permeable air barrier materials under provisions of Division 01 Section "Shop Drawings, Product Data, Samples."
  2. Where directed by Architect, construct typical exterior wall panel, 6 foot long by 6 foot wide incorporating the sheathing board or substrate, window rough opening preparation or flashing method, window frame and attachment method, clips, or cladding attachment components, attachment of insulation and detailing of water-resistive vapor permeable air barrier membrane application and lap seams.

3. Allow 48 hours for inspection of mock-up by Architect before proceeding with water-resistive vapor permeable air barrier work.
4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.05 PRE-INSTALLATION CONFERENCE

- A. Contractor shall convene one week prior to commencing work of this section, under provisions of Division 01 Section "Administrative Requirements."
- B. Ensure all contractors responsible for creating a continuous plane of water and air tightness are present.

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Refer to current Product Installation Instructions and SDS at [www.vaproshield.com](http://www.vaproshield.com) for proper storage and handling.
- B. Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer and product.
- C. Store roll materials on end in original packaging. Protect rolls from direct sunlight and inclement weather until ready for use.
- D. Waste Management and Disposal
  1. Separate and recycle waste materials in accordance with Waste Management and Disposal Plan, and with the Waste Reduction Work Plan.

#### 1.07 COORDINATION

- A. Ensure continuity of the fully self-adhered water-resistive vapor permeable air barrier system throughout the scope of this section.
  1. Air barrier vapor permeable membrane to include self-adhered air barrier, transition membranes and sealants at penetrations.
  2. Drainage plane to include drainage cavity, water resistive barrier and flashings to the exterior.

#### 1.08 WARRANTY

- A. Provide manufacturer's standard material warranty in which manufacturer agrees to provide replacement material for the fully self-adhered water-resistive vapor permeable air barrier sheets installed in accordance with manufacturer's instructions that fail due to material defects within 20 years of the date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.01 PERFORMANCE REQUIREMENTS

- A. Material Performance: Provide air barrier materials which have an air permeance not to exceed 0.004 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.004 cfm/ft<sup>2</sup> @ 1.57 psf) when tested in accordance with ASTM E2178.
- B. The water vapor permeance Desiccant method, (Procedure A) and Water method (Procedure B) shall be determined in accordance with ASTM E96 and shall be declared by the material manufacturer.
- C. Assembly Performance: Provide a continuous air barrier in the form of an assembly that has an air leakage not to exceed 0.04 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.04 cfm/ft<sup>2</sup> @ 1.57 psf) when tested in accordance with ASTM E2357. The assembly shall accommodate movements of building materials by providing expansion and control joints as required. Expansion / control joints, changes in substrate and perimeter conditions shall have appropriate accessory materials at such locations.
  - 1. The air barrier assembly shall be capable of withstanding combined design wind, fan and stack pressures, both positive and negative on the envelope without damage or displacement, and shall transfer the load to the structure.
  - 2. Materials of the air barrier assembly shall not displace adjacent materials in the assembly under full load.
  - 3. The air barrier assembly shall be joined in an airtight and flexible manner to the air barrier materials of adjacent assemblies, allowing for the relative movement of assemblies due to thermal and moisture variations, creep, and anticipated seismic movement.
- D. Fire Performance Characteristics: Provide water-resistive barrier meeting the following fire-test characteristics.
  - 1. Surface-Burning Characteristics (ASTM E 84):
    - a. Flame spread index: 5 or less.
    - b. Smoke developed index: 15 or less.

### 2.02 MANUFACTURERS

- A. Source Limitations: Obtain primary air-barrier materials and air-barrier accessories from single source from single manufacturer.
- B. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Henry Company; Blueskin VP160 system.
  - 2. Soprema; Sopraseal Stick VP system.
  - 3. VaproShield LLC; Wrapshield SA system.

### 2.03 AIR BARRIER MATERIALS

- A. Primary fully self-adhered water-resistive vapor permeable air barrier membrane components and accessories must be obtained from a single-source manufacture to ensure total system compatibility and integrity.

- B. Self-Adhered Sheet Air Barrier: Self-adhered membrane composed of flexible facing material coated completely and uniformly on one side with adhesive material, formed into uniform, flexible sheets, interleaved with disposable release liner that is removed prior to installation. Use regular, high temperature or low-temperature formulation depending on site conditions, within temperature ranges specified by material manufacturer.
- C. Basis-of-Design Products: Subject to compliance with requirements, provide the following products from Henry Company, or comparable products from one of the manufacturers listed above:
1. BlueskinVP 160 Self-adhered Vapor Permeable Water & Air Barrier by Henry, El Segundo, CA (800-486-1278, [www.henry.com](http://www.henry.com)).
    - a. Air Leakage of Air Barrier Assemblies (ASTM E2357): Pass. Air Permeance (ASTM E2178): Pass.
    - b. Water Vapor Permeance (ASTM E96): 29 perms.
    - c. Physical Dimensions: 23 mils (0.58 mm).
    - d. Air Barrier Accessory Materials:
      - 1) Liquid Flashing: Henry Air-Bloc LF Liquid-Applied Flashing; Moisture-curing single component elastomeric liquid-applied flashing using a highly advanced Silyl-Terminated Polyether (STPE) polymer curing to a monolithic membrane; having the following typical physical properties:
        - a) Air Permeance (ASTM E2178): Pass. Air Leakage of Air Barrier Assemblies (ASTM E2357): Pass.
        - b) Water Vapor Permeance (ASTM E96): 21.8 perms @ 25 mils. Water Resistance (AC212/ASTM D2247): Pass.
        - c) Nail Sealability (AAMA 711): Pass.
      - 2) Rough-Opening Flashing (ROF): Henry® Metal Clad® Self-Adhered Water Resistive Air Barrier. Non-vapor permeable, self-adhered water resistive air and vapor barrier consisting of an SBS rubberized asphalt compound integrally laminated to a high strength polyethylene with surface layer of metallic aluminum film; having the following typical physical properties:
        - a) Thickness: 45 mils (1.14 mm).
        - b) Water Vapor Permeance (ASTM E96): 0.014 perms.
        - c) Nail Sealability (ASTM D1970): Pass.
      - 3) Through-Wall Flashing: Henry Blueskin TWF Thru-Wall Flashing. a. Non-vapor permeable self-adhered through-wall flashing consisting of an SBS rubberized asphalt compound integrally laminated to a yellow engineered thermoplastic film surface; having the following typical physical properties:
        - a) Thickness: 40 mils (1.0 mm).
        - b) Water Vapor Permeance (ASTM E96): 0.03 perms.
      - 4) Sealants:
        - a) Building Envelope Sealant: Henry 925 BES Sealant; Moisture cure, medium modulus polymer modified sealing compound.
        - b) Termination Sealant: Henry 212 All Purpose Crystal Clear Sealant; One-part high performance synthetic rubber sealant.
    - e. Henry Butyl Based Flashing used at roof transitions.
    - f. Henry PE200HT at parapet caps and other areas where exposed to high-temp sheet metal from Sun Baking,

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Verify that surfaces and conditions are ready to accept the work of this section. Ensure that penetrating work by other trades is in place and complete. Notify Architect in writing of any discrepancies. Commencement of the work or any parts thereof shall mean acceptance of the prepared substrates.
- B. All surfaces must be dry, sound, clean, free of oil, grease, dirt, excess mortar or other contaminants detrimental to the adhesion of the water resistive air barrier membrane and flashings. Fill voids and gaps in substrate greater than 7/8 inch in width to provide an even surface. Strike masonry joints full-flush. Prepare surfaces by brushing, scrubbing, scraping, grinding or compressed air to remove loose mortar, dust, oil, grease, oxidation, mill scale and other contaminants which will affect adhesion of the self-adhered sheet air barrier. Wipe down metal surfaces to remove release agents or other non-compatible coatings using clean sponges or with a material chemically compatible with the primary air material.
- C. Minimum application temperature of fully self-adhered membrane and flashings to be above 20 °F.
- D. Mechanical fasteners used to secure sheathing surfaces or penetrate sheathing surfaces shall be set flush with sheathing, fastened into solid backing and covered with the upper overlapping membrane. If exposed fasteners are present on the surface of the membrane, cover and seal with liquid flashing.

### 3.02 COORDINATION OF SELF-ADHERED VAPOR PERMEABLE AIR BARRIER MEMBRANE INSTALLATION

- A. Self-Adhering Sheet Air Barrier: Install air barrier accessory materials and self-adhered sheet air barrier to provide continuity throughout the building envelope in a shingle fashion. Install materials in accordance with manufacturer's recommendations and as follows (unless manufacturer recommends other procedures in writing based on project conditions or particular requirements of their recommended materials).
- B. Installation Summary:
  - 1. Self-adhered vapor permeable air barrier sheets may be installed vertically or horizontally over the outside face of exterior sheathing board or other approved substrates.
  - 2. Complete detail work at; wall openings, building transitions and penetrations prior to field applications. Provide connections to prevent air leakage at the following locations:
    - a. Foundation and walls, including penetrations, ties and anchors.
    - b. Walls, windows, curtain walls, storefronts, louvers and doors.
    - c. Different assemblies and fixed openings within those assemblies.
    - d. Wall and roof connections.
    - e. Walls across construction, control and expansion joints.
    - f. Walls to utility, pipe and duct penetrations.
    - g. Seismic and expansion joints.
    - h. All other potential air leakage pathways in the building envelope.
  - 3. Install fully self-adhered vapor permeable air barrier sheet over the outside face of exterior sheathing board or substrate, properly shingled, measure and pre-cut into

- manageable sized sheets to suit the application conditions.
- 4. Install fully self-adhered vapor permeable air barrier sheet complete and continuous to substrate in a sequential minimal 3 inch overlapping weatherboard.
- 5. Stagger all end lap seams.
- 6. Roll installed membrane with roller to ensure positive contact and adhesion with substrate immediately.

### 3.03 BUILDING TRANSITION CONDITIONS

- A. See drawings for details.
- B. Tie-in to structural beams, columns, floor slabs and intermittent floors, parapet curbs, foundation walls, roofing systems and at the interface of dissimilar materials with self-adhering air barrier transition and flashing membrane.
- C. Align and position fully self-adhered air barrier transition and flashing membrane, remove protective film and press firmly into place. Provide minimum 3 inch lap on to substrates.
- D. Ensure minimum 3 inch overlap at side and end laps of membrane and 6 inch at inside and outside corners, if joints occur at corner locations.
- E. Roll membrane and lap seams with roller to ensure positive contact and adhesion, immediately.

### 3.04 MECHANICAL EQUIPMENT PENETRATIONS

- A. Mechanical pipe, electrical conduit and/or duct work must be secured solid into position prior to installation of fully self-adhered vapor permeable air barrier membrane.
- B. Electrical services penetrating the wall assembly and fully self-adhered vapor permeable air barrier membrane must be placed in appropriate conduit and secured solid into position.
- C. Install manufactured flanged penetration sleeves as recommended by sleeve manufacturer.
- D. For straight sided penetrations, cut and fit fully self-adhered vapor permeable air barrier to accommodate sleeve, install liquid flashing to seal the air barrier membrane to ductwork or preformed flange sleeve.
- E. For pipe penetrations, refer to manufacturer's standard details.

### 3.05 WINDOW, DOOR AND OTHER WALL OPENINGS

- A. See drawings for details.
- B. Install vapor impermeable flashings around window or wall openings subject to the opening size and installation of window, door or louver type. Install vapor impermeable flashing membrane into rough wall openings for the sill, jambs and head, to the distance specified by the manufacturer.
- C. Remove release film, align flashing membrane and apply pressure to ensure positive contact. Roll Lap seams to ensure adhesion. Provide lap seams in singled fashion, to shed water.
- D. VAPOR PERMEABLE WATER RESISTIVE LIQUID FLASHING FOR ROUGH OPENINGS
  - 1. Obtain and follow manufacturer's installation instructions.



2. Apply liquid flashing coating of the required wet mil thickness onto the installed flashing, 1 inch onto the face continuing into the rough opening, covering the installed flashing and the exposed rough opening surface.

E. THROUGH-WALL FLASHING MEMBRANE

1. Obtain and follow manufacturer's installation instructions.
2. Apply through-wall self-adhered flashing membrane along the base of masonry veneer walls and over shelf angles as detailed by designer.
  - a. Press membrane firmly into place, overlap minimum 3 inches at all laps. Promptly roll all surfaces using a hand roller to ensure good adhesion.
  - b. Applications shall form a continuous flashing membrane and shall extend up a minimum of 8 inches up the back-up wall.
  - c. Seal the top edge of the membrane where it meets the substrate. Trowel-apply a feathered edge to seal termination to shed water or install termination bar and penetration sealant at the top edge.
  - d. Install through-wall flashing membrane ½ inch from outside edge of veneer. Provide "end dam" flashing as detailed by designer.

3.06 VERTICAL APPLICATIONS SUMMARY

- A. Obtain and follow manufacturer's installation instructions.
- B. For vertical applications, align sheets with an 'inside' or 'outside' corner to avoid wrinkles and misalignment of subsequent applications.
- C. Measure and pre-cut into manageable sized fully self-adhered sheets to suit the application conditions.
- D. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- E. Roll up pre-cut material lengths with release paper facing OUTWARD.
- F. Starting at a corner of the roll, peel back approx. 6" of release film from across the width of the pre-cut material roll.
- G. Using hand pressure, lightly apply the exposed adhesive surface to the substrate.
- H. Allow the rolled up material to drop down the wall, with the remainder of the release film still attached (facing the wall), and extend down to lowest point of wall, checking for proper alignment, repositioning as necessary.
- I. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- J. Align and position fully self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at side and end laps of membrane.
- K. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.
- L. Install subsequent sheets of fully self-adhered vapor permeable air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lap seams with two handed roller to ensure contact and adhesion.

- M. Refer to manufacturer's instructions for the most current and complete installation instructions.

### 3.07 HORIZONTAL APPLICATIONS

- A. For horizontal applications, align sheets and begin installation of water-resistive weather barrier at bottom or lowest point of wall.
- B. To avoid wrinkles and misalignment of subsequent applications, it is recommended to pre-mark or "Snap" a level line to work from.
- C. Measure and pre-cut into manageable sized sheets to suit the application conditions.
- D. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- E. Align and position fully self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at all side and end laps of membrane. Roll membrane and lapped seams with a two handed roller to ensure contact and adhesion.
- F. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.
- G. Install subsequent sheets of fully self-adhered vapor permeable air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lapped seams with a two handed roller to ensure contact and adhesion.
- H. Refer to manufacturer's instructions for the most current and complete installation instructions.

### 3.08 FIELD QUALITY CONTROL

- A. Make notification when sections of work are complete to allow review prior to covering fully self-adhered water-resistive vapor permeable air barrier system.

### 3.09 PROTECTION

- A. Protect wall areas covered with self-adhered water-resistive vapor permeable air barrier from damage due to construction activities, high wind conditions, and extended exposure to inclement weather.
- B. Review condition of fully self-adhered water-resistive vapor permeable air barrier prior to installation of cladding. Repair, or remove and replace damaged sections with new membrane.
- C. Recommend to cap and protect exposed back-up walls against wet weather conditions during and after application of membrane, including wall openings and construction activity above completed fully self-adhered water-resistive vapor permeable air barrier installations.
- D. Remove and replace water-resistive weather barrier membrane affected by chemical spills or surfactants.

### 3.10 KEYNOTE SCHEDULE

- A. Products in this Specification Section are cited in the Drawings as KEYNOTES. See PART 2 - PRODUCTS for information on the following keynotes:

END OF SECTION 07 27 27

SECTION 07 62 00  
SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
  - 1. Formed Products:
    - a. Formed wall sheet metal fabrications.

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.
- B. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, and keyed details. Distinguish between shop- and field-assembled works. Details and drawings are to be drafted using CAD or Revit drafting. Include the following:
  - 1. Identification of material, thickness, weight, and finish for each item and location in Project.
  - 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
  - 3. Details of edge conditions, including eaves, rakes, crickets, and flashings as applicable.
  - 4. Detail formed flashing and trim at a scale of not less than 1-1/2 inches per 12 inches.
- C. Samples for Initial Selection: For each type of sheet metal flashing, trim, and accessory indicated with factory-applied color finishes involving color selection.
- D. Qualification Data: For qualified fabricator.
- E. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance manuals.
- F. Warranty: Sample of special warranty.

1.03 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
- B. Sheet Metal flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
  - 1. NRCA - Latest Edition of the NRCA Roofing and Waterproofing Manual.

#### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation.

#### 1.05 WARRANTY

- A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Finish Warranty Period: 10 years from date of Substantial Completion.
- B. Special Warranty for Installation: Installer agrees to repair or replace components of sheet metal flashing and trim that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures, including, but not limited to, rupturing or cracking.
    - b. Wrinkling or buckling.
    - c. Loose parts.
    - d. Failure to remain weathertight, including uncontrolled water leakage.
    - e. Deterioration of metals, metal finishes, and other materials beyond normal weathering, including nonuniformity of color or finish.
    - f. Galvanic action between sheet metal roofing and dissimilar materials.
  - 2. Warranty Period: Two years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.01 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies as indicated shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Fabricate and install roof edge flashing and copings capable of resisting the following forces according to recommendations in:
  - 1. Refer to local building codes for wind up-lift tables.
- C. Thermal Movements: Provide sheet metal flashing and trim that allows for thermal movements from ambient and surface temperature changes.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

## 2.02 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.
  - 1. Surface: Smooth, flat.
  - 2. Exposed Coil-Coated Finishes:
    - a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  - 3. Colors: As selected by Architect to match existing building(s).
  - 4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

## 2.03 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

## 2.04 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
  - 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
  - 2. Obtain field measurements for accurate fit before shop fabrication.
  - 3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
  - 4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.
- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- C. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant.
- D. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant

concealed within joints.

- E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- F. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" for application, but not less than thickness of metal being secured.
- G. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- H. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
- I. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.
- J. Do not use graphite pencils to mark metal surfaces.

## 2.05 WALL SHEET METAL FABRICATIONS

- A. Opening Flashings in Frame Construction: Fabricate head, sill, jamb, and similar flashings to extend 6-inches beyond wall openings. Form head and sill flashing with 2-inch high, end dams. Fabricate from the following materials:
  - 1. Zinc Galvanized Steel: 0.022 inch thick.
  - 2. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch thick.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.
  - 1. Verify compliance with requirements for installation tolerances of substrates.
  - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  - 1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
  - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

3. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
  4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
  5. Install sealant tape where indicated.
  6. Torch cutting of sheet metal flashing and trim is not permitted.
  7. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
1. Coat back side of sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
  2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate metal decking not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal joints as shown and as required for watertight construction.
1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
  2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."
- F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches, except reduce pre-tinning where pre-tinned surface would show in completed Work.
1. Do not solder metallic-coated steel and aluminum sheet.
  2. Pre-tinning is not required for zinc-tin alloy-coated stainless steel.
  3. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
  4. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
- G. Rivets: Rivet joints in matching colored metal where indicated and where necessary for strength.



3.03 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

3.04 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

3.05 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturers written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.
- E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 62 00

SECTION 07 92 00  
JOINT SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:
  - a. Construction joints in cast-in-place concrete.
  - b. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
  - c. Other joints as indicated.
2. Exterior joints in the following horizontal traffic surfaces:
  - a. Isolation and contraction joints in cast-in-place concrete slabs.
  - b. Other joints as indicated.
3. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
  - a. Control and expansion joints on exposed interior surfaces of exterior walls.
  - b. Perimeter joints of exterior openings where indicated.
  - c. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
  - d. Joints between plumbing fixtures and adjoining walls, floors, and counters.
  - e. Other joints as indicated.
4. Interior joints in the following horizontal traffic surfaces:
  - a. Isolation joints in cast-in-place concrete slabs.
  - b. Other joints as indicated.
  - c. Repair joints in concrete slab by sealant application at random cracks, isolation joints and penetrations.

1.02 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product indicated
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.03 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- B. Qualification Data: For Installer.
- C. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
- D. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
  2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- E. Field Test Report Log: For each elastomeric sealant application.
- F. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

#### 1.04 CLOSEOUT SUBMITTALS

- A. Warranties: Special warranties specified in this Section.

#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
1. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
  2. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
- D. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:
1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
  2. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

#### 1.06 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
  2. When joint substrates are wet.
  3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## 1.07 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: 5 years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: 5 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.01 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

### 2.02 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

### 2.03 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Sealants: 250 g/L.
  - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
  - 3. Sealant Primers for Porous Substrates: 775 g/L.
- C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

### 2.04 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

- B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Suitability for Immersion in Liquids. Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.
- D. Single-Component Nonsag Polysulfide Sealant:
  - 1. Products:
    - a. Pacific Polymers, Inc.; Elastoseal 230 Type I (Gun Grade).
    - b. Polymeric Systems Inc.; PSI-7000.
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 25.
  - 4. Use Related to Exposure: NT (nontraffic).
  - 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
    - a. Use O Joint Substrates: Coated glass; color anodic aluminum; aluminum coated with a high-performance coating; galvanized steel; brick; ceramic tile; and wood.
- E. Single-Component-Neutral-Curing Silicone Sealant:
  - 1. Products:
    - a. Dowsil; 795, or other equivalent product.
    - b. GE Silicones; SilPruf LM SCS2700.
    - c. Tremco; Spectrem 1 (Basic).
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 100/50.
  - 4. Use Related to Exposure: NT (nontraffic).
  - 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
    - a. Use O Joint Substrates: Coated glass; aluminum coated with a high-performance coating; galvanized steel; brick; ceramic tile; and wood.
  - 6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.
- F. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant:
  - 1. Products:
    - a. Dowsil; 818 High Performance Mold Resistant Sealant.
    - b. Pecora Corporation; 898 NST.
    - c. Tremco; Tremsil 600 White.
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 50.
  - 4. Use Related to Exposure: NT (nontraffic).
  - 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
- G. Urethane Joint Sealant:
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to,

the following:

- a. BASF Corporation.
  - b. Bostik, Inc.
  - c. Lymtal, International, Inc.
  - d. May National Associates, Inc.
  - e. Pacific Polymers International, Inc.
  - f. Pecora Corporation.
  - g. Polymeric Systems, Inc.
  - h. Schnee-Morehead, Inc.
  - i. Sika Corporation; Construction Products Division.
  - j. Tremco Incorporated.
2. Type: Single component (S) or multicomponent (M).
  3. Grade: Pourable (P) or nonsag (NS).
  4. Class: 25.
  5. Uses Related to Exposure: Traffic (T).

## 2.05 LATEX JOINT SEALANTS

- A. Latex Sealant: Comply with ASTM C 834, Type OP; Grade, minus 18 deg C.; Class 25 per ASTM C920.
- B. Products:
  1. BASF Corporation; MasterSeal NP 520 Siliconized Acrylic Sealant.
  2. Bostik Findley; Bosti-Flex Plus Multi-Purpose Siliconized Acrylic Sealant.
  3. Pecora Corporation; AC-20+.
  4. Schnee-Morehead, Inc.; Acryl-R SM8200.
  5. Tremco; Tremflex 834 Siliconized Acrylic Sealant.

## 2.06 PREFORMED JOINT SEALANTS

- A. Preformed Silicone-Sealant System: Manufacturer's standard system consisting of precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.
  1. Products:
    - a. Dowsil; 123 Silicone Seal.
    - b. GE Silicones; UltraSpan US1100.
    - c. Pecora Corporation; Sil-Span.
    - d. Tremco; Spectrem Ez Seal.
- B. Preformed Foam Sealant: Manufacturer's standard preformed, precompressed, open-cell foam sealant that is manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent; is factory produced in precompressed sizes in roll or stick form to fit joint widths indicated; is coated on one side with a pressure-sensitive adhesive and covered with protective wrapping; develops a watertight and airtight seal when compressed to the degree specified by manufacturer; and complies with the following:
  1. Products:
    - a. EMSEAL Joint Systems, Ltd.; Emseal Backerseal.
    - b. illbruck Sealant Systems, Inc.; Wilseal 600.
    - c. Polytite Manufacturing Corporation; Polytite B.
    - d. Sandell Manufacturing Co., Inc.; Polyseal.

2. Properties: Permanently elastic, mildew resistant, nonmigratory, nonstaining, and compatible with joint substrates and other joint sealants.

## 2.07 PREFORMED TAPE SEALANTS

- A. Back-Bedding Mastic Tape Sealant: Preformed, butyl-based elastomeric tape sealant with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
  1. AAMA 804.3 tape, where indicated.
  2. AAMA 806.3 tape, for applications in which tape is subject to continuous pressure.
  3. AAMA 807.3 tape, for applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Tape Sealant: Closed-cell, PVC foam tape sealant; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
  1. Type 1, for applications in which tape acts as the primary sealant.
  2. Type 2, for applications in which tape is used in combination with a full bead of liquid sealant.

## 2.08 JOINT-SEALANT BACKING (JSB)

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

## 2.09 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
    - a. Concrete.
    - b. Masonry.
  - 3. Remove laitance and form-release agents from concrete.
  - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
    - c. Porcelain enamel.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

#### 3.03 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.



- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
  - 4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.
  - 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.
    - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
- G. Installation of Preformed Tapes: Install according to manufacturer's written instructions.
- H. Installation of Preformed Silicone-Sealant System: Comply with the following requirements:
  - 1. Apply masking tape to each side of joint, outside of area to be covered by sealant system.
  - 2. Apply silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's written instructions and covering a bonding area of not less than 3/8 inch. Hold edge of sealant bead 1/4 inch inside masking tape.
  - 3. Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.
  - 4. Complete installation of sealant system in horizontal joints before installing in vertical joints. Lap vertical joints over horizontal joints. At ends of joints, cut silicone extrusion with a razor knife.
- I. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal

continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

### 3.04 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
1. Extent of Testing: Test completed elastomeric sealant joints as follows:
    - a. Perform 10 tests for the first 1000 feet of joint length for each type of elastomeric sealant and joint substrate.
    - b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.
  2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab in Appendix X1 in ASTM C 1193, as appropriate for type of joint-sealant application indicated.
    - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
  3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
  4. Inspect tested joints and report on the following:
    - a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
    - b. Whether sealants filled joint cavities and are free of voids.
    - c. Whether sealant dimensions and configurations comply with specified requirements.
  5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
  6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

### 3.05 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.06 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 92 00



**BID SET**



# **ROOF SPECIFICATION**

## **SINGLE-PLY REROOF**

*(TPO – Fleeceback – Salvage & Recover)*

**Jefferson County School District (509J)**  
Madras, Oregon

*Facility:*

## **MADRAS ELEMENTARY SCHOOL IMPROVEMENTS**

*(Roofs D, E, F, G, H, K, M, N, O, P, Q, & R)*

**3215 SE 10<sup>th</sup> Street**  
**Madras, Oregon**

*SAJ Project Number: 22140B*

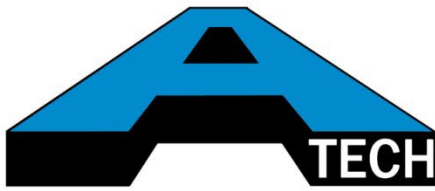
*A-Tech Project Number: 23027*

*September 11, 2023*

*Project Roof Consultants:*

**A-TECH/NORTHWEST, INC.**  
**503-628-2882**





**TECH/NORTHWEST, INC.**

ROOF CONSULTING, MOISTURE TESTING & ANALYSIS

# **ROOF SPECIFICATION**

## **SINGLE-PLY REROOF**

*(TPO – Fleeceback – Salvage & Recover)*

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**503-628-2882**

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## Section 07 00 00

### BID / PROJECT INFORMATION

*(Summary information material)*

The following information applies to the project defined within these specifications. If you have any questions, you are urged to contact A-Tech/Northwest, Inc. Addenda will be issued when questions asked are applicable to all bidders or the project scope, costs, etc. and are not already included within the specification and/or any previous Addenda. The project will be reviewed during the pre-bid, with the intent of that on-site meeting, to discuss the overall scope and items unique to this particular project.

A. OWNER:

1. **JEFFERSON COUNTY SCHOOL DISTRICT**  
445 Southeast Buff Street  
Madras, OR 97741

B. BUILDING / FACILITY:

1. **MADRAS ELEMENTARY SCHOOL**  
**Roofs D, E, F, G, H, K, M, N, O, P, Q & R**  
215 SE 10<sup>th</sup> Street  
Madras, OR

C. ROOF CONSULTANT / PROJECT MANAGER:

1. A-Tech/Northwest, Inc.
2. Project Contact: David Anderson

D. PROJECT BID NUMBER: ..... 23027

E. MANDATORY PRE-BID MEETING:

1. Date: ..... **Wednesday, September 27, 2023**
2. Time: ..... **1:00 p.m.**
3. Location: ..... **Jefferson County School District – Administration Building**

F. START DATE: ..... 2024

G. SUBSTANTIAL COMPLETION DATE: ..... **August 23, 2024** *(weather permitting)*

H. FINAL COMPLETION DATE: ..... **September 9, 2024** *(weather permitting)*

**- END OF SECTION -**

**Section 07 01 00**  
**GENERAL DESCRIPTION**

**PART 1 - GENERAL**

**1.01 GENERAL DESCRIPTION**

- A. Project Name:
1. This project shall be known as the:  
**JEFFERSON COUNTY SCHOOL DISTRICT, Madras Oregon**  
**- MADRAS ELEMENTARY SCHOOL IMPROVEMENTS -- Single-Ply Reroof Project - Multiple Roofs**  
**- Project Number: 23027**
- B. Project Type:
1. Public
  2. Prevailing Wage project.
- C. Related Documents:
1. All sections within specification document.
  2. Addenda as may be applicable during bid process.

**1.02 QUALITY ASSURANCE**

- A. Bid Instructions:
1. Bids shall be submitted thru the General Contractor to the Owner.
  2. Compliance with all Owner's (*Jefferson County School District*) requirements is considered a baseline requirement of this project.
- B. Performance Specification:
1. Special Note: This specification is a "Performance Specification" and is based on a defined manufacturer's system for establishment of the baseline standard only. There are equal systems available and additional manufacturers are listed within the document. The products listed are the minimum standard upon which a manufacturer's system will be approved as long as all other aspects of the specification are complied with.
    - a. Only the listed manufacturers will be accepted for this project, without exception.
  2. There are multiple manufacturers listed with equal systems and the listed manufacturers herein are listed for the bidder's convenience, but it is the bidder's responsibility to make sure that the system that they are quoting in compliance with the specified system requirements.
  3. The term "System" refers to all components that comprise the roof assembly including but not limited to the roof insulation, adhesives, fasteners, flashing materials, membrane, etc.



**1.03 GENERAL SCOPE** - (by bid requirements)

A. The following is a general review of the scope of work as it applies to the required quotes.

1. Salvage & Recover:

a. All roofs that are included within this project.

2. General Scope: -

**NOTE:** Refer to other sections of the speciation documents for specific and general system requirements by roof defined Building/Roof(s).

a. **Salvage & Recover --- Multiple Roofs – D, E, F, G, H, K, M, N, O, P, Q & R:**

(1) Single-Ply System - (new): Preparation of the existing roof assembly including but not limited to the removal and proper disposal of all base-flashing and flashing membrane, damaged membrane, sheet metal and all incidentals down to the salvaged field single-ply membrane which will be salvaged, prepared and be the substrate for the new roof specified roof assembly. Clean and prepare substrate for the new specified roof system without damage or allowing water into the salvaged assembly-components. Fully adhere with specified adhesive at specified application rates, the new 60-mil (*membrane*) fleece-back TPO membrane system including all perimeter and penetration flashing membrane; walk-pads, termination bar as required by mfg. and as noted at all perimeters; wrap membrane up and over all vertical surfaces and perimeters per details, perimeter flashing metal, counter-flashing metal, drip edge metal, new clad metal, scuppers, pre-painted perimeter standing seam coping metal, fall protection warning line; raising of roof-mounted equipment and penetrations to meet minimum 8" height requirements; rebuilding internal drains and scuppers, pre-painted continuous gutter and downspouts system and all incidentals, to complete the specified warranted system/assembly.

b. Alternates: No membrane type and/or system or manufacturer alternates will be accepted for this project. Material alternates that meet the requirements of the defined system and are approved by the membrane system manufacturer for their warranted assembly will be reviewed. All Owner's decisions are final.

c. Additional General Information - (*All Quotes / All work on this project*):

- (1) Crickets: Install crickets at upslope side of all equipment and in valleys between drains to achieve positive drainage (*all roofs*).
- (2) New wood nailers to raise perimeter height.
- (3) Raise all equipment, vents, etc. as may be required to meet the minimum 8" clearance height above the finished roof surface.
- (4) Fall protection warning line system (*permanent/heat welded*).
- (5) Incidentals: All incidentals to complete the system to a warrantable level.
- (6) New pre-painted gutters.
- (7) New pre-painted leaderheads, downspouts and splash pads.

d. All trades to complete the work shall be included within cost/quote via the General Contractor.

e. Sub-contractors will be discussed at mandatory pre-bid meeting.

B. General Project/Scope Information:

1. Comply with written specifications and roof system manufacturer's printed requirements and Owner's requirements on this project for the specified warrantable system.
  - a. Strictest document shall apply at all times if a conflict arises or is noted.
2. Contractor must comply with all Owner's requirements throughout the course of this project, without exception.
3. Incidentals: All incidentals to complete the system to the specified warrantable level.
4. Liquidated/Stipulated damages are an Owner's option for this project and would be requested by the School District during the pre-bid and contract process.

C. Alternates:

1. No additional manufacturer's systems other than those listed/ identified herein as approved manufacturers.
2. No alternates will be accepted without pre-approval.
3. No system alternates (*i.e. built-up for single-ply or PVC or EPDM for specified TPO*) will be accepted on this project.

**1.04 GENERAL SCOPE SUMMARY (*items included in project*)**

A. Membrane System:

1. 60-mil TPO (*membrane minimum thickness*) Fleeceback adhered assembly including all manufacturer approved/specified system components.
  - a. Attachment: foam adhesive with 6" (*maximum*) ribbon spacing.

B. Insulation & tapered insulation board– General as applicable to specific roof area(s):

1. Insulation replacement if necessary due to wet and/or damaged condition.
2. Tapered insulation at areas where insulation is currently installed and requires new tapered insulation at the drain sumps.
3. Insulation General:
  - a. Submittals on this project shall include attachment pattern layout for perimeter, field corners, etc. (*systems rating is applicable*).
    - (1) Attachment shall be minimum FM 1-90 (*or equivalent*).
  - b. Staggering of the insulation is required a minimum of 24" on ends and 12" on the sides (*all layers*).
  - c. Comply with published standards and specification with strictest requirements in effect.

4. Underlayment Sheet: (*as applicable*)

- a. Ice & Watershield type High Temp, fully adhered synthetic membrane.

C. Crickets – Insulation:

1. As applicable: Refer to drawings for cricket design requirements for each roof area.
2. Crickets at the up-slope side of all equipment, curbs (*large or small*), etc.
3. Crickets required between the drains/scuppers.
4. Crickets must be installed within insulation assembly and under coverboard.
5. To be reviewed at the pre-bid meeting.

D. Parapets & Vertical Walls - *(as applicable)*:

1. Removal of all existing membrane on perimeters, parapets, equipment is required.
2. ¼" DensDeck Prime shall be mechanically attached at all vertical surfaces prior to installation of fully adhered membrane.
3. Additional wood nailers are required to meet insulation height/clearance requirements.
4. New beveled cedar siding required at top of parapets to establish slope to roof side of parapet.
5. New fully adhered membrane is required at all parapets and shall be up and over the top of the parapet and brought down the outside (*opposite edge*) a minimum of 1 ½".
  - a. Membrane must be brought down outside perimeter a full ¼" below the perimeter wood nailers.

E. Sheet Metal:

1. New perimeter metal to match the existing style (*coping, low profile, light metal edge, surface mounted reglet, etc.*) and as noted on drawings, but shall meet the requirements of the new insulation thickness and perimeter nailers, etc.
2. Perimeter: New - (*Replace existing with new*)
3. Equipment (*as required*):
  - a. Raise all equipment as necessary to meet 8" height requirements above finished roof field.
  - b. Install new counter-flashing of all equipment and proper flashing of base flashing membrane.
  - c. Curbs: New metal and counter-flash if possible.
  - d. Remove any equipment noted for removal by Owner's representative during bidding process and include in base bid. Removal includes deck repair/patch using a metal plate adhered to concrete decks and mechanically attached to metal decks.
4. Scuppers: Metal / New replacement - See Sec 1.04; F-4 for further information within this Section.
5. Leaderhead and downspouts: Replace with new pre-painted to match existing as applicable at each roof area.
6. Color and style to match the existing (*removed and/or salvaged*).
  - a. This issue shall be discussed at the pre-job meeting.
7. All new sheet metal shall be installed to SMACNA standards when conflict occurs and finished assembly shall match the assembly removed.
  - a. Metal shall be galvanized or stainless steel only, with scupper being only stainless steel.
8. Refer to Section 07 54 23 for further information.
9. Attachment of the sheet metal shall meet and/or exceed all current SMACNA published guidelines.
  - a. Nails are not an acceptable attachment method. Screws, with appropriate (*specified*) washers, are required.
10. A shop drawing approved by consultant, including gauge, style, color, and fastener pattern is required prior to the project start.
11. All fabricated sheet metal work necessary to complete the project and not defined as salvage (*removed and reinstalled*) shall receive standing seams and shall employ double breaks with no exposed sharp edges.

F. Deck – Existing roof deck/substrate system repairs:

1. Inspect deck and repair as required at complete tear-off and replacement areas in preparation for the installation of the new recover system components.
2. At equipment removal areas, new framing and deck installation is required and shall comply with all current building code. Deck shall be same dimension as existing.

3. All major deck/substrate repairs, other than at defined equipment removal areas, shall be considered a cost-plus item.
    - a. Immediate notification of deck problems to Owner's representative is required in order to process any applicable cost-plus billing.
    - b. Violation of this instruction and failure to submit a fully executed change order within twenty-four hours (*workdays*) of the notification shall result in possible loss of and/or non-payment of any applicable repairs.
  4. Scupper – Metal:
    - a. Installation of new sheet metal scupper insert or overall re-working of scuppers to provide a positive long-term seal of the assembly in compliance with membrane manufacturer's requirements for an approved system and as approved by Owner's representative.
    - b. Scupper shall be installed in such a manner (*sloped slightly to building interior*) so as to not result in condensation and incidental moisture (*rain, etc.*) from running/dripping to the exterior of the building.
    - c. Exterior of scupper shall be caulked and finished to match the building exterior.
  5. See Single-ply Roof Section 07 54 23 for further information.
- G. Penetrations:
1. Penetrations shall be detailed based on manufacturer's most recent printed instructions and/or the specification documents.
  2. General Notes / As approved by Manufacturer:
    - a. New flashing of all other roof penetrations including conduct, pipes, etc. to meet manufacturer's requirements.
- H. Pre-Fabricated Pipe Supports:
1. Project requires removal and disposal of all existing pipe and conduit supports and replacement with new prefabricated units a maximum of eight (8) foot on center spacing and in compliance with current Code for spacing which varies by pipe size.
  2. Type: Pre-manufactured pipe support blocking with recycled materials and clamping assembly; H-Block mini; mfg. by Haydon; Roof Top Support System; (*or equivalent*) with unistrut and adjustable support depending on height of the pipe/conduit.
  3. Approval: Approved for use on particular roof system applicable to this project. Refer to roof system sections for further information.
- I. Fall Protection:
1. Single-ply system: Fall Protection line installation at six feet (6') in from outboard perimeter at all perimeters with edges below forty-two inches (42").
    - a. TPO Fully Adhered system: Heat Welded.
    - b. Painted is only acceptable with prior approval and only if adhered system is not available.
  2. No attachment (*davit, etc.*) included within the scope of this project unless addressed under other sections of this project.

- J. Asbestos Management:
1. Refer to Lab results if included within the document.
  2. ACRM – asbestos containing roofing materials.
  3. As applicable, the project has areas of ACRM that require removal and areas where the ACRM will remain and has been inventoried and identified as such within these documents.
  4. Contractor shall meet and comply with all ACRM instructions as well as current Code, Laws, and other requirements for the handling and/or removal of ACRM materials.
- K. Miscellaneous - General:
1. Removal of any obsolete equipment.
    - a. Equipment noted on drawings and on the roof.
    - b. Equipment noted and discussed during the pre-job meeting.
  2. Raise all roof mounted equipment to meet minimum 8" height requirement above finished roof surface including crickets.
  3. New roofing shall not be installed over dirty or otherwise unacceptable substrate including equipment, moisture, debris, etc.
  4. Electrical Conduit at Parapets:
    - a. Carefully remove/support assembly; install roofing and reattach the electrical.
    - b. All electrical work shall be included within bids submitted thru the General Contractor.
  5. Cable/Wire support at Parapet: *(as applicable)*
    - a. Carefully secure the existing cable/wire support and complete specified roofing and then reinstall the tie-off support assembly in such a manner that it will be secured and meet the roof system membrane manufacturers for a warranted assembly.
  6. Electrical conduit:
    - a. Any electrical conduit at parapets and walls shall be attached at the base of coping metal or at base of wall so as to minimize penetration of the roof membrane system/assembly.
    - b. Cost for all electrical work shall be included within quoted price submitted thru the General Contractor.
  7. Contractors moving forward with installation is an acceptance of the substrate by the applicator/contractor. Notify project manager of any unacceptable conditions before proceeding.
  8. Protect the existing and new roof system at all times during the course of the project.
  9. All existing sleepers shall be replaced with new roofed in curb and/or platform detail.
  10. Any wood replacement that may be necessary shall standard or better dimensional lumber except when in contact with concrete where the use of treated wood shall be required.
  11. All Incidentals to complete the project to a warrantable level based on these specifications and the manufacturer's printed instructions.
    - a. Whenever a conflict occurs, the strictest interpretation shall be utilized.

### **1.05 SQUARE FOOTAGE**

- A. The roofs within the scope of this project include an approximate total.
  - 1. Contractor is responsible for verification of all square footage. Owner and/or Roof Consultant shall not be responsible for the accuracy of any square footage information provided within this specification or mistakes and/or errors by the bidder and/or contractor.
- B. For individual square footage, please refer to drawings and “Roof Construction Data” section within specification and “Detail & Insulation Rebuild Callout Sheet” drawings.
- C. **NOTE:** The noted figures herein are approximate square footage only. Contractor is responsible for the verification of all square footage and components.

### **1.06 QUOTING PROCESS**

- A. General Instructions:
  - 1. All instructions with specification documents and addenda apply to this process unless specifically deleted or modified by Roof Consultant.
  - 2. Contractor is requested to submit an individual quote thru the General Contractor for the work that they can do within the defined time period.
- B. Additional Owner's Instructions:
  - 1. All submitted documents become the property of Jefferson County School District and are subject to disclosure pursuant to applicable law.
  - 2. Should a contract be awarded, it shall be with the proposer whose proposal is determined by Jefferson County School District to best serve its interests, taking into account price as well as other considerations identified in DCC 2.37.090c.
  - 3. All Owner's instructions listed within specification documents or via addenda are considered a part of the specification documents unless specifically deleted or modified by Roof Consultant.
- C. Pre-Bid Meeting:
  - 1. A pre-bid meeting (*conference*) is scheduled on this project. This meeting is mandatory for the General Contractors bidding the project.
    - a. Refer to Section 07 00 00 “Bid/Project Information” for further information.
  - 2. Roof Consultant and/or Owner reserve the right to waive and/or modify this requirement without consequence.
  - 3. Follow-up Access during Bid Process:
    - a. Refer to “Part 2; 2.02 Inspections” within Section 07 01 00 “General Description” for further information.
- D. Bid Dates, Location, etc.:
  - 1. Refer to Owner's Advertisement for Bids for Bid Form submittal requirements.
  - 2. Bidder is solely responsible for all costs associated with the development and submittal of bid on this project.
    - a. Absolutely no costs associated with the development of a bid/quote (*even if not submitted*) are considered recoverable to the successful and/or unsuccessful bidder on this project.
- E. Pre-Job Meeting (*mandatory*):
  - 1. A pre-job (*pre-construction*) meeting will be conducted at the job site prior to start up. The Selected Roofing Contractor shall notify all parties involved with project including sub-contractors, Owner's representative, and Roof Consultant a minimum of eight (8) working days prior to the scheduled meeting.
  - 2. Meeting will not be conducted until all applicable submittal requirements are met and approved.



## **PART 2 - PROJECT REQUIREMENTS & NOTES**

### **2.01 COORDINATION**

**A. Contractor** (*Prime contractor*):

1. The work on this project is considered a “Turn-key” project with the Roofing Contractor and the General Contractor coordinating all trades necessary to complete the project in its entirety, unless specifically noted during pre-bid and indicated in formal addenda during quoting process.
2. Coordination with designated Owner’s representative is a requirement of this project.

**B. Coordination Statement:**

1. Coordination with Owner’s defined representative(s) for location of roof access, staging, etc., is required during the course of the project.
  - a. Coordination shall be discussed at pre-bid and pre-job meetings.
  - b. Deviation from the approved plan (*as agreed upon at pre-job meeting*) is not acceptable and may result in project delays at contractor’s expense.
  - c. Contractor will be directed to minimize contact with JCSD personnel unless specifically instructed. All coordination must include defined Owner’s representative (*Roof Consultant*) and project manager if additional is indicated.

**C. Manufacturer’s Participation:**

1. This project required participation by the prime Manufacturer’s local representative.
  - a. This participation includes being available on an “as-required” basis to provide technical assistance. In addition, the Final Inspection shall require manufacturer’s participation if so requested by the Roof Consultant and/or Owner.

**D. Other Trades:**

1. Contractor (*prime*) shall coordinate all trades to complete this project unless noted at the mandatory pre-bid meeting.
  - a. Costs for other trades shall be included within the Bid for all items noted and discussed at the mandatory pre-bid meeting and as noted via addenda prior to the bid date.
  - b. Costs that are not directly noted within the Specifications, but are required to complete the project, shall be billed after approval for the work has been issued by the Owner’s representative in writing.

**E. Owner’s Representatives:**

1. The project Owner’s representative will be indicated at the pre-job meeting including but not limited to contact information (*if necessary*) as well as the Owner’s project management structure, etc.

**F. Roof Consultant:**

1. The project consultant firm on this project is:
  - a. **A-TECH/NORTHWEST, INC.**  
**Mailing Address:** 2501 NW Gerke Rd., Prineville, OR 97754  
**Phone:** 503-628-2882  
**Fax:** 541-447-9833
  - b. Project Representative:
    - (1) David Anderson.
    - (2) Please direct all questions to his attention and reference specific facility name and project number to avoid confusion with other projects.

## **2.02     INSPECTIONS**

### **A.    Bid/Quote Process:**

1.    Inspection of the work area may be obtained by authorized Bidder's representatives during quoting process, after (*not before*) the mandatory pre-bid meeting.
2.    Notification to Owner as noted during pre-bid meeting is required before accessing roof.
  - a.    Do not access roof without checking in with the designated on-site building representative, as the building is a secured facility.
  - b.    Access procedures will be discussed at the pre-job meeting and included in the Addenda issues based on that meeting.

### **B.    Work-in-Progress Inspections: (*during work*)**

1.    Project is subject to periodic and possibly full-time inspections by Owner's representative(s) and Roof Consultant during the course of the project.
2.    Supplemental as required during course of project.

### **C.    Close-out:**

1.    Substantial Completion Inspection(s).
2.    Final Inspection.
3.    Manufacturer's Warranty Inspection(s).
4.    Any additional inspections that Owner or Project Representative (*Roof Consultant*) requires in order for project to be accepted as completed.

## **2.03     LICENSES – REGULATORY REQUIREMENTS**

### **A.    Contractor's responsibility:**

1.    Contractor is responsible for any and all permits and their fees necessary to complete this project and shall have copies on the job site at all times during the project, including sub-contractors.
  - a.    Refer to other sections of this document for further information.
2.    Prime contractor is responsible for all fines, or other ramifications for not complying with this instruction.
3.    **SPECIAL NOTE:** Project will not be closed out and final payment will not be released until contractor provides proof that the entity issuing the permit has accepted the work and all fees are paid.

## **2.04     SCHEDULE**

### **A.    A written schedule is required to be submitted and approved before project start-up.**

1.    Refer to submittal requirements within this document.

### **B.    Completion of work is required based on approved schedule.**

1.    Refer to 2.08 "Weather..." for further information.
  - a.    Schedule must include not only start and finish dates, but work patterns, staging areas, etc.
2.    Once contractor starts the work on this project, they are required to stay on the project until completion other than normal non-workdays (*holidays, weekends, etc.*) as identified within the approved schedule.
  - a.    Failure to comply with this instruction will possibly remove contractor from Owner's pre-approved and invited bidder's list for future projects.

### **C.    Completion of the work, in its entirety, by the date indicated within the "Bid/Project Information" and applicable contract documents are considered mandatory on this project.**

1.    Coordination with Roof Consultant on schedule, delays, etc. is required during the entire course of this project.



## **2.05 FACILITY OPERATIONS - and - SCHEDULING**

- A. The contractor shall comply with all special requirements as noted at pre-bid meeting with regard to this public school facility.
  - 1. Storage on-site is available during the project including the parking area.
    - a. Final decisions on area(s) will be made during the pre-construction meeting.
  - 2. Building access locations will be identified and approved during the pre-construction meeting and must be via ladder.
    - a. Refer to special security requirements within this specification document - (*refer to 2.12 Security*).
- B. The contractor shall be required to meet all Owners' requirements for set up and storage of materials and work noise, etc.
  - 1. Blockage of building access doors and/or adjacent traffic areas is not acceptable without prior written approval. Inside access during the project is restricted to designated path/patterns, unless otherwise pre-approved by Owner's representative.
    - a. Contractor is responsible for any damage associated with inside access (*i.e. stains on floor, etc.*)
  - 2. Contractor shall comply with all odor and low odor adhesive requirements on this project.
  - 3. To be reviewed at pre-bid meeting and again in more detail during pre-job meeting.
- C. This project is to be conducted while the normal day-to-day operations of the facility are being conducted. Contractor is required to take care to make as little interruption and disruption as possible of the day-to-day activities.
  - 1. Early and/or late hours as well as weekends are acceptable, within compliance with City and County regulation applicable to work locations, but the contractor shall be required to notify Owner's representative and Roof Consultant of work area and schedule at least two (2) working days prior to work on a specific area.
  - 2. There is a possibility of a few non-workdays due to special activities within the facility will be reviewed during the pre-bid meeting.
  - 3. Schedule must comply with local zoning laws and requirements for noise, etc.
  - 4. Prior schedule approval, including non-acceptable workdays (*periods*) is required by Owner and Owner's representative prior to project start.

## **2.06 BUILDING ACCESS; STAGING & LOADING**

- A. No building access is available to roofing crew other than that which is necessary to complete the project as specified and reviewed/noted during pre-bid meeting.
  - 1. Coordination with Owner's representative (*Consultant and on-site*) is required applicable to any work that is necessary on the inside of the building.
  - 2. This is a secured building and all Owner's security requirements must be complied with at all times.
- B. Roof access to be reviewed at pre-bid meeting.
- C. Contractor to work from sides and back of building whenever possible and under no circumstances shall the Main (*Front*) Entry(s), loading dock or other restricted areas be blocked.
  - 1. Under certain circumstances, other building access or work areas may be blocked with prior approval by the Owner's representative. Approval is required a minimum of two (2) working days prior to work at requested area.

- D. Location of access, staging, crane, drop box, etc. shall be discussed at the mandatory pre-bid meeting and confirmed during pre-construction meeting.
  - 1. Notification of selected applicable locations shall be provided to the Owner's representative and Consultant prior to start up.
- E. Materials movement on ground:
  - 1. Contractor is responsible for the safety of anyone and/or property while moving materials on ground at any time, associated with the project.
  - 2. A ground spotter with safety vest and warning flags is required at all times when moving a fork-lift or other equipment while on-site, during the course of the project.
- F. Damage:
  - 1. Contractor is responsible for any and all damage to building and/or grounds. Contractor shall take all precautions to protect all areas during the course of the project.

## **2.07 ENVIRONMENTAL**

- A. The contractor is responsible for maintaining the quality of the environment within and around the building, at all times, during this project.
  - 1. Notify Owner of any situation that may be considered unhealthy to building inhabitants.
  - 2. Special conditions applicable to air intakes are the contractor's responsibility during the project. These may include shut down of equipment during work at or adjacent to intake areas, etc.
    - a. To be discussed at pre-bid meeting.
- B. Equipment Shutdown:
  - 1. If the contractor requires shut down of equipment, prior scheduling of a minimum of twenty-four (24) hours is required.
    - a. Violation of this instruction will render contractor responsible for any damage to products, etc. due to the action (*i.e. loss of freezer, cooling, etc.*)

## **2.08 WEATHER RELATED REQUIREMENTS**

- A. Weather:
  - 1. This project is located in a region where weather is a very high consideration.
  - 2. Contractor is responsible for monitoring weather conditions and adjusting their project activities, coordination, and protection accordingly.
  - 3. All precautions and protections of building, building components/occupants, new roofing, storage, and work areas are required during the project due to any inclement weather conditions.
  - 4. Contractor is responsible for all damage/costs associated with moisture and weather affecting the roof system (*new or existing*) as well as new roofing materials and any interior damage.

## **2.09 CREW SIZE REQUIREMENTS**

- A. Contractor shall provide a crew large enough to complete the project in a timely manner and stay within submitted and approved schedule.
  - 1. Once the project starts, the contractor is required to provide adequate crew size to complete work within the defined/approved schedule.

- B. The Owner reserves the right to disqualify any member of the contractor or sub-contractor from working on the project without cause.
  - 1. Contractor will be notified in written form (*electronic or hard copy*) of the disqualification and the contractor must remove that/those individual(s) immediately from the job site and replace with an experienced crew member so as not to jeopardize the project schedule.
- C. Crew shall comply with all Owner's requirements at all times.

## **2.10 MISCELLANEOUS**

- A. SANITARY CONTROL:
  - 1. Contractor shall supply portable restroom facilities and maintain in a clean and secure manner during the course of the project. (*No building access allowed.*)
    - a. Unit shall be immediately removed upon completion of the project.
    - b. If unit shall not be mounted on roof, it shall be located only on the ground at a location that is agreeable to the Owner.
- B. POWER & WATER:
  - 1. Contractor shall supply own power and water unless prior written approval by Owner is received.
    - a. If approval is provided, a written correspondence from the Consultant to the Contractor will be provided.
    - b. Contractor is responsible for all problems, damage, etc. that may result from the use of the Owner's power and water should permission be granted.
- C. Damage to Building & Surrounding Area/Grounds:
  - 1. Contractor is responsible for any and all damage to building and grounds and shall return the applicable area or structure to its original condition prior to finishing the project.

## **2.11 SAFETY**

- A. General:
  - 1. Safety is a priority on this project including but not limited to the roofing crew, building occupants, pedestrians and anyone that may venture into the work area.
  - 2. Contractor shall:
    - a. Be responsible for safety at site during the duration of the project and must comply with Owner requirements and requests.
    - b. Be responsible for the security of all applicable equipment and materials during the course of the project.
    - c. Comply with all applicable Codes and Standards with regard to safety and health issues and assume all responsibility for compliance, at all times.
      - (1) Applicable to, but not limited to, all Federal, State, and Local laws, standards, and regulations.
    - d. Meet all Owner's safety requirements as defined within their company policy or directed by Owner's representative and/or Roof Consultant.
    - e. Comply with all industry standards, as well as any additional Owner and/or Owner's representative requests, at all times during the course of the project.
    - f. Maintain a safe work site including not only persons working on project but also building occupants and/or persons that may be in the area.
    - g. Comply with all Owner's safety requirements during the course of the project.

3. Fall protection requirements shall be adhered to at all times during the project and is the contractor's responsibility.
4. Special Note: A ground spotter with safety vest and warning flags is required when moving a fork-lift or other equipment while on-site, during the course of the project.
5. The Owner shall not be responsible for any problems, damage or loss associated with this instruction without additional cost to Owner.

## **2.12 SECURITY**

### **A. General:**

1. Contractor shall:
  - a. Maintain a secured site during the course of the project.
  - b. Comply with Owner's security requirements at all times.

### **B. Specific:**

1. During Bidding:
  - a. Roof Access for follow-up to pre-bid inspection is acceptable, but only after attending pre-bid meeting.
  - b. No access prior to pre-bid and will only be available for those firms that attended the pre-bid meeting and signed in.
  - c. Comply with directions for access given at pre-bid meeting if different than the following.
  - d. Check-in at the front desk and identify yourself as a bidder on the reroof project and that you need to access the roof.
  - e. After checking in, you can access the roof with your own ladder at the front of the building only.
    - (1) The ladder must be placed at the front of the building only.
    - (2) Ladder must be attended at all times. If you are the only person, it is acceptable to use your ladder while on the roof, but it must be taken down and put back on your vehicle immediately upon finishing your inspection.
    - (3) When your ladder is properly secured then proceed into the building to check out.
      - (a) Do not leave the ladder unattended at any time.
2. During Roof Project:
  - a. Access will be via ladders, supplied by contractor, at designated (*approved during the pre-construction meeting*) location(s).
  - b. Ladders will be taken down when the roof is not attended (*at any instance*) including lunch breaks or when the roofing crew leaves the site. No Exceptions.
  - c. An Emergency Contact List will be supplied by contractor to the roof consultant prior to the project start and updated as contractor's personnel change.
    - (1) Roofing contractor shall be required to keep the list current at all times during the course of the project.
    - (2) Any changes must be emailed to roof consultant immediately after a change is made.

## **2.13 LIQUIDATED EXPENSES (*Liquidated /Stipulated Damages*)**

### **A. Liquidated Damages may be applicable to this project.**

1. This is an Owner's option.

## **2.14 BONDS**

- A. Bid Security Bond:
  - 1. Refer to Owner's / General Contractor's instructions if required..
- B. Performance / Payment / Public Works Bonds:
  - 1. Contractor shall obtain (*if required*) a Performance Bond and Payment Bond each in the amount of One Hundred Percent (100%) of the applicable Contract Sum. Contractor shall deliver its required bonds not later than the date of execution of the Agreement, or if the Work is commenced prior thereto in response to a Notice to Proceed, Contractor shall, prior to commencement of the Work, submit evidence satisfactory to Owner that such bonds will be issued. The bonds shall be in form approved by Owner.
  - 2. Contractor and subcontractors performing work that exceeds \$100,000 in contract price shall file with the Construction Contractors Board a public works bond with a corporate surety authorized to do business in this state in the amount of \$30,000 and must be in compliance with all requirements of ORS 279C.836, "Public works bonds; rules." The purpose of this bond is to ensure payment of claims ordered by the Bureau of Labor and Industries. Exemptions to this bonding requirement are contained in ORS 279C.836.

## **2.15 ASBESTOS**

- A. RESULTS: Refer to Asbestos Analysis if included herein.
- B. As applicable, Contractor must comply with all local state and federal requirements for asbestos removal within the scope of a roof project.
  - 1. If, during the course of the project, asbestos conditions are identified that were not previously noted, the Contractor shall immediately notify the Roof Consultant and Owner's representative, IN WRITING, of the conditions.
  - 2. At that time, the Owner and Roof Consultant shall determine the best course of action and will notify the Contractor in a timely manner.
  - 3. At all times, the Contractor is required to meet minimum standards with regard to asbestos as it relates to roofing and retrofit roofing projects.
  - 4. The Owner reserves the right to contract with an Asbestos Abatement Contractor for removal and any and all asbestos if the successful bidder (*Contractor*) and Owner are unable to agree on a cost for such related work.
- C. Contractor shall submit their asbestos abatement plan prior to project start-up (*as applicable*). Refer to Submittals section within this specification document.
- D. Under no circumstances shall any materials containing asbestos be allowed with the scope of this project. This includes all mastics, plies, coatings, etc.
  - 1. Contractor shall be responsible for all costs, fines, labor, etc., as may be applicable for removal, via approved asbestos removal methods, for any materials installed in violation of this instruction.

## **PART 3 - SUBMITTALS**

### **3.01 SUBMITTALS**

#### **A. DOCUMENTS:**

1. Submittals shall be as defined elsewhere within this document as a full and complete package.
  - a. Electronic submittals are accepted for this project.
  - b. Submittals go directly to Roof Consultant unless otherwise directed during pre-bid meeting.
2. Submittals shall be submitted as a complete document applicable to the required submittal time.
  - a. If the submittal is not complete and/or is submitted in pieces at different times, it will be subject to rejection of the entire submittal package by the Consultant and/or Owner's representative.

#### **B. PRIOR TO BID: (To Consultant)**

1. Substitution Request within five (5) working days of bid date.
2. Refer to other sections of this document for substitution requirements and limitations.

#### **C. PRIOR TO COMMENCEMENT: (Minimum 5 working days prior to mobilization; submitted to Consultant)** -- Submittal Package --

##### **1. INSURANCE:**

- a. Contractor will provide a dated Certificate of Insurance showing the amounts, the name, telephone number, expiration date, and agent issuing the Certificate as well as the name and address of the company writing the surety.
- b. Comply with the Owner's requirements for insurance coverage.

##### **2. LICENSES:**

- a. Contractor is to provide a copy of their current Contractor's License as issued by the State and City (as may be applicable), where the work is located, and will provide the same for any sub-contractors before work begins.

##### **3. PERMITS:**

- a. Provide copy of applicable building permits specific to this project.
- b. NOTE: Final Payment on this project will not be made until all Permits are properly closed out including formal documentation.

##### **4. MANUFACTURER'S LITERATURE:**

- a. Submit most recent copies of Manufacturer's Printed Literature and Specifications applicable to all products, materials, and specifications proposed for use within the scope of this project.
- b. Literature from all applicable products is to be utilized within the scope of this project.

##### **5. SHOP DRAWINGS:**

- a. Submit applicable shop drawings for items not detailed or changes not supplied by specifier and not modified by applicable addenda.
- b. Drawings are required for all details that are not specifically included within this document but will be installed during the course of work for this project.
- c. Insulation fastener layout pattern is required on this project including perimeter, field, and corners.

##### **6. APPLICATION TOLERANCES:**

- a. Submit Manufacturer's application tolerances for all products and applications applicable to this project.



7. **SAFETY DATA SHEETS:**
    - a. Submit SDS information as applicable for all materials utilized within roof assembly.
    - b. **NOTE:** Contractor shall have a full set of approved Material SDS sheets on-site during the entire project.
  8. **SCHEDULE:**
    - a. Submit estimated work schedule including start date and estimated completion date. Schedule shall include marked up as-built reference of staging, access, loading, areas, etc.
  9. **PERFORMANCE / PAYMENT BONDS:**
    - a. Performance / Payment bonds as required by Owner / General Contractor.
  10. **SAFETY PROGRAM:**
    - a. Copy of Contractor's written Safety Program.
    - b. **NOTE:** Additional copy of Contractor's Safety Program shall be kept at the job site.
  11. **ASBESTOS ABATEMENT PLAN:**
    - a. Submit written asbestos abatement procedures as applicable to the project.
  12. **CONTRACT DOCUMENTS:**
    - a. Fully executed Owner's Contract documents as required by Owner / General Contractor.
  13. **BACKGROUND CHECKS:**
    - a. To be eligible to work in all Jefferson County School District buildings, a background check is required if school is in session and MAY BE required by the JCSD upon notification to the contractor.
      - (1) Work on the roof may or may not require a background check and will be reviewed during the pre-bid meeting.
      - (2) Background checks typically take up to five (5) working days for completion (as applicable).
  14. **MANUFACTURER'S WARRANTY:**
    - a. Submit a sample of the Standard and Extended manufacturer's published warranty documents.
  15. **FACTORY MUTUAL SUBMITTAL REQUIREMENTS:** **NOT APPLICABLE THIS PROJECT.**

*(Including the following, as applicable, as a summary to indicate that proposed roof system components comprise a Factory Mutual listed assembly as specified herein.)*

    - a. Factory Mutual Reference information;
      - (1) Copy of current listing information.
    - b. Manufacturer, type, and size of roof insulation;
    - c. Manufacturer, type, and size of roof decks;
    - d. Manufacturer, type, and specifications of the roof covering materials;
    - e. Manufacturer, type, and size of the insulation fasteners and plates;
    - f. Layout of the fasteners per board for the typical bay, perimeter bay, and in the corners;
    - g. Sectional view of the roof components;
    - h. Details of perimeter flashing;
    - i. Roof drain sizes.
- D. **UPON COMPLETION:** *(To Consultant for review within 5 days of Final Inspection)*
1. **GUARANTEE(S) / WARRANTIES:**
    - a. **CONTRACTOR'S WORKMANSHIP GUARANTEE:** Submit fully executed copy of the Contractor's Guarantee of workmanship.
    - b. **MANUFACTURER'S WARRANTY:** Submit fully executed copy of any applicable Manufacturer's Warranty (as applicable and if purchased by Owner) to the Owner with a copy to Consultant for review.

2. REFUSE RECEIPTS: Copies of all refuse and dumping receipts as proof of legal disposal of all materials associated with this project.
3. ASBESTOS RELATED DOCUMENTS: All asbestos related records as may be applicable for asbestos related removal within the scope of this project.
4. PERMIT CLOSE-OUT: All closeout documents and inspection reports are required at the close of the project by the permitting body.
  - a. Note: Final payment will not be released until all permit requirements are met and documented.
5. NOTE: ALL of the above items are required and must be approved prior to and in order to process any final billing requests.

#### **PART 4 - CONTRACT DOCUMENTS - and - ADMINISTRATIVE REQUIREMENTS**

##### **4.01 AIA DOCUMENT NOTIFICATION / CLARIFICATION**

###### **A. Disclaimer:**

1. All references to “Architect” in AIA forms, or any other documents within this specification, are generic and do not imply that Owner or Roof Consultant is acting as or claiming to be an architect within the scope of this project’s “General Description”.

##### **4.02 STANDARD CONTRACT**

- A. Contractor shall review, sign, and return the original contract documents provided by the Owner’s representative / General Contractor during contract process .
- B. Comply with all other requirements noted within the specifications and Owner’s / General Contractor’s general requirements.

##### **4.03 CHANGE ORDERS **NOT APPLICABLE THIS PROJECT – Refer to Owner’s / General Contractor’s Instructions****

- A. Shall be executed on Change Order form included within the specification documents.
  1. Coordinate with Roof Consultant for development of the document and submittal procedures.
- B. Complete form to include new Contract Sum and new Date of Completion as applicable. The Change Order shall be completed as follows:
  1. Written description of requested change and show as an addition or deduction to the Contract.
  2. Prior change order amounts and latest contract sum must be shown in summary section.
  3. All requested items filled out with no blank lines on form.
- C. Submit to Roof Consultant for review. Roof Consultant will forward to Owner after his review.
  1. Change Order is not formally approved until all signatures are obtained.
- D. Cost breakdown shall meet requirements developed and submitted on the Bid Form.

##### **4.04 APPLICATION FOR PAYMENT**

###### **NOT APPLICABLE THIS PROJECT – Refer to Owner’s / General Contractor’s Instructions**

- A. Execute a copy of AIA Document G702 “APPLICATION AND CERTIFICATE FOR PAYMENT” along with AIA Document G702A “Continuation Sheet” or equivalent forms.
  1. Document must be fully executed and signed with all change order documentation, etc.
  2. Include Company Invoice for each billing with fully executed application for payment.
    - a. Billing will not be processed without the required Company Invoice for each billing.



3. Retainage of 5% per billing is required on this project and shall be properly indicated on both the application for payment documents and the required Company Invoice.
- B. Submit original on a monthly basis to Roof Consultant for review and processing.
  1. Roof Consultant will forward approved documents to Owner after the review or contact Contractor if a problem occurs.
  2. Do not submit billing directly to Owner.
    - a. This will slow payment considerably.
- C. Final payment will be made upon receipt by Owner of fully executed AIA Document G706, "CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS" and AIA Document G706A, "CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS" and if P/P bonded, AIA Document G707, "CONSENT OF SURETY TO FINAL PAYMENT" or equivalent forms.
  1. Under no circumstances will final payment be released until receipt and acceptance of all project documents by Owner.
  2. Final payment shall not be approved until all punch list items are completed and roof project has been completely accepted by Roof Consultant and Owner.

#### **4.05 OCCUPATIONAL SAFETY AND HEALTH ACT REQUIREMENTS**

- A. It shall be the sole responsibility of the Contractor to assess the job conditions and to comply with all applicable safety precautions to insure that the Owner's personnel, agents, invitees, business associates, and workers, engaged in project or not, are protected from injury during the time of the contract, and all activities associated with this project.
- B. The Contractor and applicable sub-contractors shall indemnify and hold the Owner and the Owner's agent(s) harmless from any and all expenses incurred as a result of legal action(s) resulting from injury to any party during the time of the contract.
  1. This instruction applies to anyone whether they are a part of the project or not.
- C. The Contractor shall comply fully with the provisions of the "Occupational Safety and Health Act" of 1970 (*or most recent as applies*) applicable to the work of this project.
  1. Contractor shall indemnify and hold the Owner and Owner's agent(s) and Consultant harmless of and from any and all penalties, fines, or expenses which may occur by reason of violation by the Contractor and/or their sub-contractor(s) of any of the terms and provisions of said act or standards.

**- END OF SECTION -**

## **SECTION 07 54 23**

### **SINGLE-PLY ROOFING *and* ROOF INSULATION**

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION**

A. **SPECIAL NOTE:** Performance Specification Statement.

1. This specification is a "Performance Specification" and is based on a defined manufacturer's system for establishment of the baseline standard. The products listed are the minimum standard upon which a manufacturer's system will be approved as long as all other aspects of the specification are complied with.

B. **Description:** Salvage & Recover Project

1. Provide all labor and materials including but not limited to cleaning and preparing existing roof system for new 60-mil (*membrane minimum thickness*) TPO-fleece-back (*100 mil thickness*) adhered membrane system, adhesives, flashing membrane, flashings; counter-flashing metal; perimeter nailer and coping metal; walk pads, fall protection warning line and all incidentals to complete the specified and warrantable level.
  - a. Crickets - No new crickets will be required other than at up-slope side of equipment.

C. **Work Included - General:**

1. Specification Documents and Membrane System manufacturer's documents are considered a part of the formal specification as well as the specification document provided herein.
  - a. Strictest document applies if a conflict arises.
    - (1) TPO fleeceback warranted membrane system.
  - b. Accessory roofing materials.
  - c. Walk-pads.
  - d. Fall protection Warning Line – permanent.
2. **Substrate Preparation:**
  - a. Salvage & Recover Project -- Inspection and preparation of existing salvaged single-ply membrane with complete removal of all flashing membrane, sheet metal and incidentals. Existing single-ply membrane field shall be cleaned, prepared, and salvaged as the substrate for the new specified TPO fleeceback adhered assembly.
  - b. Inspection of deck at any removal areas that exposes the wood deck and notification to project manager if conditions do not meet substrate requirements.
    - (1) Deck repairs are a "cost-plus" billing item and are not included within main scope of work of this project.
3. Removal of any obsolete equipment as indicated on drawings and directed by Owner and/or Owner's representative.
  - a. As reviewed at pre-bid meeting and via applicable addenda issued on this project.
4. **Equipment (*roof mounted*):**
  - a. Raising of all roof-mounted equipment and penetrations (*pipes, vents, etc.*) that do not meet the 8" minimum height requirement above the finished roof surface.

- b. Install new counter-flashing at all units that cannot be lifted and re-installed during the course of the project.
  - (1) All existing counter-flashing is to be removed and replaced with new as a course of the project.
- c. General:
  - (1) See other sections of this document.
  - (2) Sheet metal work shall be discussed at the pre-job meeting.
- 5. Scope of work includes disassembly and rebuilding of all internal drains.
  - a. All drains shall be disassembled and reassembled / rebuilt in a sumped configuration.
  - b. All drains shall include new stainless-steel bolts and nuts in the base bid.
  - c. Include cost to replace any plastic or broken screen/strainers with new metal screen/strainers in each Quote.
  - d. Broken and/or non-salvageable parts to be replaced as a cost-plus item during project other than drain screens which must be metal upon completion of the project.
    - (1) Verification by Owner's representative of affected parts is required prior to billing.
- 6. Walk pads at the service perimeter of all large HVAC units, hatch and door openings and ladder access areas.
  - a. All walk pads must be fully adhered.
- 7. Roofing accessories and incidentals to complete the project.
- 8. Refer to "General Description" section of this document for additional details and information.
- 9. Torch Work:
  - a. NO torch work of any kind is acceptable on this project without prior written approval by Owner Representative and Roof Consultant if different.
- D. Related Work Specified Elsewhere:
  - a. Related Work: The work includes but is not limited to the installation of:
    - a. Substrate Preparation -Cleaning and repair.
    - b. New 15/32" plywood (CDX) sheathing per Engineers details, drawings, and specifications.
    - c. Insulation – New, new additional and new crickets
    - d. Roof Membrane – Fully adhered 60-mil TPO-fleece back membrane
    - e. Membrane Attachment: Fully adhered
    - f. Fasteners (*insulation & sheet metal*)
    - g. Adhesives for Roof System and Flashings
    - h. Roof Membrane Flashings
    - i. Walkpads at defined areas
    - j. Metal Flashings
    - k. Sealants
    - l. Sheet Metal Flashing
    - m. Raising of equipment to meet height requirements
    - n. Fall protection warning line.
  - 2. Upon successful completion of work the following warranties may be obtained:
    - a. Contractor's 2-year Workmanship Guarantee.
    - b. Membrane Manufacturer's Twenty (20) Year NDL System Warranty.

3. Sheet Metal (Section 07 60 00)
  - a. All Manufacturer's requirements including, but not necessarily limited to, pertinent portions of their Specifications and General Requirements and recommendations apply to the work of this section as fully as though repeated herein.
- E. All primary roof membrane manufacturer's requirements including, but not necessarily limited to, pertinent portions of their Specifications and General Requirements and recommendations apply to the work of this section as fully as though repeated herein based on their most recent printed literature Related Work Specified Elsewhere:
  4. Sheet Metal (Section 07 60 00)
  5. All Manufacturer's requirements including, but not necessarily limited to, pertinent portions of their Specifications and General Requirements and recommendations apply to the work of this section as fully as though repeated herein.

#### **1.02 SUBMITTALS (After bid process and award of contract)**

- A. Refer to "General Description" section within this document for primary submittal requirements.
  1. Submittals shall be submitted electronically, in a full and complete package; however, one (1) full set of printed hard copies are required after approval of the electronic documents.
    - a. Electronic submittals are a requirement of this project.
  2. Manufacturer Reports:
    - a. Roof system manufacturer's pre-installation notice.
    - b. Roof system manufacturer's review of specification documents and written acceptance of application for warranty.
    - c. Roof System Manufacturer's Inspection Reports:
 

NOTE: - Electronic copy of each report shall be submitted to Roof Consultant within 5 days of applicable inspection.

      - (1) At the completion of each inspection, two (2) copies of manufacturer's field quality control reports of field inspections, with one copy submitted within 3-days to Roof Consultant (electronically via e-mail).
      - (2) Manufacturer's warranty shop drawings.
      - (3) Manufacturer's final inspection punch list.

#### **1.03 QUALITY ASSURANCE**

- A. Acceptable Roofing Materials Manufacturer shall be:
  1. Versico Roofing System – (VersiFleece) - VersiWeld TPO - (Baseline standards listed for this Performance Specification)
  2. Carlisle Roof Systems
  3. Firestone Roofing Systems.

Special Note:

This is a Performance Based Roof System specification with the Sika-Sarnafil fully adhered system listed herein as the base-line standard. Refer to other portions of this document for further requirements applicable to approved equals.

While the manufacturers are listed for the bidder's convenience, the system bid/quote must comply with building Code and other listed requirements as specified within this document. In addition, the Siplast assembly/system listed within this document shall be considered the base/standard upon which any alternates shall be reviewed. The term "system" refers to all components that comprise the roof assembly including insulation, adhesive, fasteners, membrane, base flashing, etc. to comply with warranted system specifications.

**B. PRODUCT APPROVALS**

1. All system components must be supplied and/or approved by membrane system manufacturer for use within their warranted roof system.

**C. APPROVED EQUALS:**

– (If agreed by Owner to review – currently *ONLY* the listed mfg's will be accepted on this project)

1. All approved equals shall be based on the submittals submitted and shall be judged based on all material compliance with specification and Factory Mutual requirements, performance and net life cycle cost savings as can be demonstrated to the Owner in written form.
2. Submit requests for substitution on format per attached form. Requests not submitted on attached form are unacceptable.
3. Product may be approved provided all provisions of the Specifications are complied with and submittals are made and approved five (5) days prior to bid date.
4. Approved products shall have a minimum 5-year record of similar projects within the Northwest Region of the United States.
5. Any approved substitutions will be identified via Addenda.
6. No unlisted product nor membrane manufacturer approved substitutions are acceptable without compliance with the approval process.
7. Substitution for material components with similar components that comprise an approved system will be reviewed; however, changes in system from the single-ply roof assembly specified herein to a modified, built-up, etc. will not be reviewed.
8. All OWNER's, and their Representative's, decisions are final.

**D. GENERAL:**

1. Whenever specification items found herein are less stringent than Manufacturer's General Requirements, manufacturer's requirements shall be followed, including but not limited to, compliance with any and all guarantee requirements.
2. Meet all Owner's requirements as may be dictated and/or defined within their contract documents and/or printed instructions.
3. Contractor shall comply with Local, State and Federal Regulations, Safety Standards and Codes.
  - a. Use the strictest document when a conflict arises.
4. Contractor shall be responsible for meeting all fire regulations. A certified fire extinguisher of adequate size shall be located at the asphalt kettle and elsewhere as required.
  - a. A mandatory three-hour fire watch is required after all torch work is completed.
  - b. Torch work IS NOT acceptable unless prior pre-approved by Roof Consultant.
5. Adhesive and Fastener spacing shall conform to specifications, applicable Manufacturer's Requirements, Uniform Building Code, Factory Mutual, and/or wind uplift requirements for area where building is located and as indicated within these specifications.
  - a. Strictest document shall apply in all cases.
6. Special precautions are necessary when installing the roof system at temperatures below 45° F to insure satisfactory application and performance.
  - a. Meet and/or exceed all manufacturer's requirements and printed instructions.
  - b. Contractor to notify Owner and Roof Consultant if there is a potential for cold weather applications.

**E. CONTRACTOR:**

1. The Contractor selected for this work must be capable of submitting to the Owner the Manufacturer's Unlimited Penal Sum Guarantee (20-year NDL), upon completion and acceptance of installation by Owner's representative.
  - a. Refer to Guarantee and Warranty sections within this document for further information.
  - b. Contractor must be an "approved applicator" by roof primary roof system manufacturer.
2. Contractor shall be a single applicator (*not a sub-contractor to roofing contractor*) with a minimum of five (5) years previous successful experience in the installation of similar systems with a minimum two (2) years' experience seaming the specified system.
3. Contractor Superintendent or Foreman Requirements:
  - a. Shall have a copy of these Specifications on the job site at all times during application and shall refer to it for proper application methods.
  - b. Shall be present at jobsite at all times when work is being performed.
  - c. Shall supervise all workers on project, including sub-contractors to the project, as required to ascertain workmanship, progress and adherence with specifications and project details.
  - d. Report to Owner as defined within specification documents and discussed at mandatory pre-bid meeting.
  - e. Coordinate and manage schedule and overall project coordination/flow.
  - f. Shall have the authority to make binding commitments for Contractor with Owner's representative (*Roof Consultant*) at the project site.
4. Contractor shall immediately notify the Owner's representative (*Roof Consultant*) of any change in Project Superintendent and/or Foreman.
5. Contractor shall be responsible for the proper installation of all components of the roofing system and repairs included within the scope of this project, including sub-contractors under their control.
6. The Contractor shall inform the Owner's representative (*Roof Consultant*), via voice communication and immediately followed up in writing and submitted electronically, of any conditions detrimental to the quality of construction or long-term performance of the roofing system and shall not proceed with the work until the conditions are corrected to the satisfaction of the Owner's representative / General Contractor.

**F. ENVIRONMENTAL:**

1. Contractor shall be responsible for all environmental control during course of project. This includes but is not limited to:
  - a. Coordination of all air handling equipment approved shut down or air blockage/restrictions into the building interior.
    - (1) All equipment shall be returned to normal operations at the end of the work period for that day and sooner if at all possible.
    - (2) Comply with all Owner's requirements with regard to air handling equipment.
    - (3) Special note: Contractor is responsible for any/all damage caused as a result of non-compliance with this instruction.
  - b. Post copies of Material SDS information at site and notify Owner's representative of location.
    - (1) Provide Material SDS to Owner and/or site manager upon request during the project.
    - (2) This is the Contractor's responsibility entirely.
  - c. Notify Owner's representative in writing, with copy to Roof Consultant, of any potential danger to building and/or occupants, including process, procedures, or materials prior to starting.
  - d. Notify Owner's representative, in writing, with copy to Roof Consultant, of methods of controlling entry of fumes into building interior.



#### 1.04 FIELD QUALITY CONTROL

A. PROJECT CONTRACT: **NOT APPLICABLE THIS PROJECT – Refer to Owner's / General Contractor's Instructions**

1. The project is a formal Contract between Owner and the Roofing Contractor.
2. Roofing Contractor is responsible for the coordination of all sub-contractors on this project.

B. PROJECT COORDINATION/CONSULTANT:

1. The project shall be coordinated by Owner with the Roof Consultant (*A-Tech/Northwest, Inc.*) serving as the Owner's advocate.
2. The project is subject to inspection by the Roof Consultant's representative and any additional Owner's representative they may choose.
3. The Roof Consultant's responsibility shall include enforcement of Specified Requirements and the General Requirements of the Specifications stated herein, as well as documentation of deficient conditions, installation conditions, etc.
4. The Roof Consultant's representative shall have the authority to recommend, to the Owner, discontinuance of work in the event that requirements are not complied with and/or deviations or significant problems are not immediately resolved to the Consultant and/or Owner's satisfaction and as directed within the specifications.
  - a. The Roof Consultant shall have the authority to stop the project at any time that they find that the project is not in compliance with the specifications, is a danger to the building or occupants or other unforeseen circumstances that may have a significant impact on the outcome of the project.
5. The Roof Consultant's representative is to serve as the primary source of information gathering and conduit for both the Contractor and Owner.
  - a. The Contractor is to work through the Roof Consultant at all times in order to avoid time delays, etc.
  - b. This is intended to help provide an easy flow of information between the Contractor and the Owner and also provide a source to obtain answers to questions that may develop as the project moves along.
6. The Roof Consultant, as the Owner's representative, will make the final determination as to the final project acceptance.
  - a. Project shall not be accepted and final payment made until all punch list and/or supplementary items are completed to the Roof Consultant's satisfaction on this specific roof project.
7. The Roof Consultant shall have the authority as the Owner's representative to make binding decisions applicable to the roof project.
8. Contractor shall submit to Roof Consultant for review, approval and forwarding to Owner the Two (2) Year Workmanship Guarantee, included within specification documents, upon final acceptance of project; See 1.08.

C. ROOF SYSTEM MANUFACTURER:

1. Roofing manufacturer must provide the Manufacturer's NDL System Limited Guarantee that warrants Owner with a watertight condition of roof system and components thereof.
  - a. Warranty shall cover workmanship and materials required to maintain a watertight condition and roof system free of defects.
2. Roof system manufacturer shall provide technical assistance during the entire project on an as required basis to both the Roofing Contractor and Roof Consultant.
3. Manufacturer representative will be making periodic work-in-progress inspections with reports (*copy to Roof Consultant*) during the entire course of the project.
  - a. A copy of all manufacturer reports shall be submitted electronically to Roof Consultant for review and inclusion within final Project Manual documents.
4. Roof system manufacturer shall conduct their final warranty inspection(s) which may or may not be considered the final project inspection/acceptance by Owner.

**D. PRE-BID MEETING:**

1. A pre-bid meeting (*conference*) is scheduled on this project. This is mandatory for the General Contractors submitting bids.
  - a. Refer to “Bid / Project Information” documents for further information.
  - b. Owner and Roof Consultant reserve the right to modify the Pre-Bid meeting and/or requirements as circumstances dictate.
2. Information generated at this meeting will be issued to the attendees by Roof Consultant and shall be identified as Addendum number 1.
  - a. Additional Addenda may be issued at the sole discretion of the Roof Consultant based on the relevance to the overall project and the bidders need to know and ability to bid the project in a competitive manner.
  - b. All Owner’s and Roof Consultant’s decisions shall be final.

**E. PRE-JOB MEETING:** (*aka: pre-construction and/or pre-application*)

1. Prior to beginning work, a Pre-Job Meeting will be held at the job site. Those present will be: the Roofing Contractor’s manager in charge of project, the Roofing Foreman, the Roof System Manufacturer’s field representative, the Sheet Metal and other applicable Sub-contractors, Roof Consultant, General Contractor and Owner’s representative.
  - a. Contractor will coordinate the date of the Pre-Job Meeting with the Consultant so that all required parties are in attendance.
2. Attendees shall review the facility and all pertinent details and Specifications, noting any potential problems and making any changes, deletions, or additions as deemed necessary.
  - a. Also included in the discussion will be the following: Nature and availability of roofing materials, guarantee and submittal requirements, sub-contractors and their specific procedures and project requirements, scheduling and forecast of weather conditions, regulatory requirements, protection of building, building components, and completed roof system, proposed installation procedures, and any additional items related to the total roof system.
3. Attendees shall tour representative areas of roofing project and discuss substrate construction and general conditions, including slope, expansion joints, curb and penetration installation, drains, and drain locations, perimeter wall details and material compatibility, etc.
4. Discussion will be recorded. The Owner’s Roof Consultant will furnish a copy of recorded discussions to all attendees.
5. No roofing work shall commence nor materials shall be delivered to the job site until after the Pre-Job Meeting, unless previously approved, in writing, by Owner and/or Roof Consultant.
  - a. This instruction may be waived upon award of the contract in order to expedite the delivery of materials to the job site on this project by Roof Consultant and contractor will be notified in writing if this waiver is granted.

**F. WORK-IN-PROGRESS INSPECTIONS:**

1. Project shall be subject to periodic inspection by Roof Consultant and Owner’s representative on an as-required basis during the course of the project. (*Full-time to part-time scheduling.*)
  - a. Roof Consultant’s inspector will develop a written report of the inspection for the Project Manual and Owner.



**G. SUBSTANTIAL COMPLETION INSPECTION(s):**

1. Prior to completion, Contractor shall schedule a Substantial Completion inspection with the Roof Consultant for potential punch list development.
  - a. Inspection is intended as a pre-acceptance inspection to be conducted when Contractor feels project is substantially completed. A “punch list” of all unfinished or unsatisfactory work will be noted.  
***NOTE: This is not intended as a way for the Contractor to see what Owner wants but to render the project complete with only potentially minor details remaining.***

**H. FINAL INSPECTION:**

1. Upon completion of all specified work items, a Final roof inspection shall be performed by a Manufacturer's representative and the Roof Consultant and, if they wish, the Owner's representative.
  - a. The Roofing Contractor will be notified of the date and time and may attend if they wish.
  - b. Any discrepancies or incomplete work shall be documented in a “punch list” which will be issued to the Contractor.
  - c. The Manufacturer's Guarantee (*as applicable*) will not be issued until completion and confirmation of all punch list items as well as all other guarantee requirements.
  - d. The Roof Consultant shall be the final determiner of the acceptance of the total project on the Owner's behalf including all parts of the project.

**I. MANUFACTURER'S WARRANTY INSPECTION:**

1. The roofing contractor shall schedule an inspection of the completed/installed and guaranteed roof system to be conducted by the Manufacturer's technical representative. At this time, any defects noted shall be documented.
  - a. Coordination is required to include the Manufacturer's technical representative and Roof Consultant at the meeting. All must agree to a time/date in order for this inspection to be conducted.
2. Any defects falling within the Contractor's Workmanship Guarantee liability shall be repaired by him prior to expiration of that Guarantee. Failure to make proper repairs within the guarantee period shall result in extension of the Contractor's Guarantee until acceptable completion of all applicable repair items.

**J. ROOF SAMPLES – TEST CUTS**

1. The Owner and/or Owner's representative reserve the right, at any time during the installation of the membrane roofing or thereafter, to order a sample or samples to be cut at random from the roof membrane.
  - a. Samples will be examined and evaluated as to standard ASTM testing criteria for material quality, lap adhesion, etc., utilizing manufacturer's nominal standards criteria per submittal requirements noted herein.
2. Test cuts, if required, shall be approximately 12" x 12", cut at right angles to the direction of the membrane and through (*across*) the field laps.
3. If the sample is immediately approved by the Owner and/or Owner's representative, Roofing Contractor shall patch the area(s) of such test cuts to whatever size and dimension as needed to properly ensure the specified longevity of the roof and comply with Manufacturer's requirements.
4. If for any reason the sample is not immediately approved by the Owner and/or Owner's representative, Roofing Contractor shall install all temporary protection necessary to prevent penetration of water through the roof membrane and into the roofing components until final repairs (*patches*) or new roofs are installed, and upon the decision of the Owner and/or Owner's representative, make all required patches and repairs/replacement.
5. All laboratory testing will be done by either an independent laboratory based upon the Owner and/or Owner's representative's directions. Copies of the lab results will be forwarded to Owner, Roofing Contractor, Owner's representative, General Contractor and Manufacturer's representative (*as applicable*).

6. If the samples meet the Manufacturer's Published General Requirements, the expense of cutting, patching, and testing, will be borne by the Owner. If the cuts fail to meet Manufacturer's Published General Requirements, the application shall be deemed defective and shall be removed, replaced, or corrected in a manner acceptable to the Owner, Owner's representative and the Manufacturer. Roofing Contractor will bear entire cost of such removal, replacement, repair, and cost of test cuts and testing. Repairs and/or replacements shall be done as per Manufacturer's Pre-published Specification and General Requirements.
7. Cut areas shall be replaced to avoid depression in the membrane. Patch shall be brought out onto field area a minimum of four inches (4") beyond edge of cut or as Manufacturer's published instructions dictate. Four inches (4") is the Owner's minimum lap for repair areas on this project.
8. Contractor is responsible for making repairs to any and all test cuts taken and for performing any recommended corrective work required by Manufacturer for issuance of his Guarantee, at no additional charge to Owner.
9. REPAIR REQUIREMENTS:
  - a. Cut areas shall be replaced to avoid depression in the membrane.
  - b. Repair shall comply with manufacturer's most recent published instructions for repair of applicable membrane.
  - c. Contractor is responsible for making repairs to any and all test cuts that may have been taken and for performing any recommended corrective work as required by these Specifications and/or any applicable Manufacturer for issuance of a Guarantee, at no additional charge to Owner.

#### 1.05 REFERENCES

- A. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.
  1. ASTM C 1177/C 1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2006.
  2. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2013.
  3. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.
  4. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2013a.
  5. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.
  6. FM 1-28 - Design Wind Loads; Factory Mutual System; 2007.
  7. FM 1-29 - Roof Deck Securement and Above Deck Roof Components; Factory Mutual System; 2006.
  8. FM 4470 - Approval Standard - Class I Roof Covers; current version.
  9. PS 1 - Construction and Industrial Plywood; 2009.
  10. PS 20 - American Softwood Lumber Standard; 2010.
  11. SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems; 2007. (ANSI/SPRI ES-1).
- B. Underwriters Laboratories (U.L.):
  1. ASTM E-108 / UL 790 Class A
- C. Factory Mutual:
  1. Current system approval data.
    - a. FM 1-90 or the equivalent - minimum standard with approved manufactures exceptions and modifications based on manufacturer's attachment requirements noted within these specification documents.
    - b. Refer to specific requirements within specification.
- D. Manufacturer's Specifications Catalog:
  1. TPO Single-ply roofing system most recent literature and system instructions.

#### **1.06 PRODUCT HANDLING - Delivery and Storage**

- A. Wet materials shall not be applied nor shall roofing application proceed during wet weather or when moisture is present on roof deck.
- B. Deliver materials to jobsite on pallets in original, unopened packaging with legible labels. Package labels shall indicate material name, products date, and product code.
- C. Store materials in dry, protected areas in an upright position. When stored outdoors, store on pallets above ground and cover with suitable protective sheet or tarpaulin. Shrink-wrap packaging is not intended for long-term jobsite storage and shall be removed upon arrival at jobsite and replaced with a watertight breathable covering.
  - 1. Roofing Contractor to meet or exceed all manufacturers' minimum standards for materials storage and handling at all times.
- D. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/supplier.
- E. Store curable materials (*adhesives, sealants, etc.*) between 60 °F and 80 °F, in dry areas protected from water and direct sunlight.
  - 1. If exposed to lower temperature, restore to 60 °F minimum temperature before using.
- F. Adhesives: As a general rule all adhesives shall be stored at temperatures between 40 degree F (*5 degree C*) and 80 degree F (*27 degree C*).
  - 1. Read instructions contained on adhesive canister or manufacturer's printed instructions for specific storage instructions.
- G. Membrane rolls shall be stored lying down on pallets and fully protected from the weather with clean canvas tarpaulins. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions that may affect the ease of membrane weldability.
- H. If membrane is exposed to the elements (*unwrapped*) to the elements for approximately seven (7) days must be prepared with applicable membrane cleaner prior to hot air welding.
- I. Select and handle materials and equipment in such a way as to avoid damage to materials, existing construction, or applied roofing.
  - 1. Refer to Specifications and all materials manufacturer's published material for guidelines and standards.
- J. Do not load or permit any part of structure to be loaded with a weight that will endanger its safety or cause damage. Confine equipment, storage of materials, and debris and the operations and movements of workmen within any limits as indicated or as directed by the Owner and/or Owner's representative.
- K. Any materials which the Roof Consultant and/or Manufacturer's representative determines to be damaged are to be removed from the job site and replaced at no cost to the Owner.
- L. Contractor must take every precaution to prevent interior leakage, materials falling into the interior, or other such occurrences. Installation of materials shall be conducted and accomplished in such a manner that drippage or falling objects does not occur at any time.
  - 1. Contractor is responsible for all damage and associated liabilities caused by any material entering the building during the course of the project.
- M. Any wet, damaged, or defective material will be marked and removed from the jobsite by Roofing Contractor that same day.
  - 1. This material will promptly be replaced at no cost to Owner.

- N. Temporary waterstops shall be installed at the end of each day's work and shall be removed before proceeding with the next day's work.
  - 1. Waterstops shall be compatible with all materials and shall not emit dangerous or incompatible fumes.
  - 2. Waterstops shall be completely removed as roofing installation proceeds. Under no circumstances shall a waterstops remain in place and be "roofed over".
- O. Environmental Controls:
  - 1. Contractor is responsible for coordination with Owner's representative of shut down of any air handling equipment and/or passive source of building air infiltration as necessary to prevent odors and fumes from entering building.
  - 2. Building Occupant (*as well as surrounding areas*) safety shall be taken into consideration at all times.
  - 3. Contractor assumes all responsibility for environmental control during the course of this project.

#### **1.07 JOB CONDITIONS - General**

- A. Roofing materials may be installed under certain adverse weather conditions but only after consultation with Roof Consultant and Manufacturer's representative, as installation time and system integrity may be affected.
- B. Only as much of the new roofing as can be made weathertight each day, including all flashing and detail work, shall be installed. All seams shall be heat welded before leaving the job site that day.
- C. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all risks.
- D. Comply with all manufacturer's printed instructions and specification documents at all times during this project.
- E. Contractor is ultimately responsible for the safety and management of the roof project and assumes all risk and responsibility for proper safe completion of the specified project.

#### **1.08 GUARANTEE AND WARRANTY**

- A. CONTRACTOR'S WORKMANSHIP GUARANTEE AGREEMENT:
  - 1. For a two (2) year period from the date of completion and Owner's written acceptance, Roofing Contractor agrees to inspect and make necessary repairs to defects of leaks in the roof and flashings.  
*-- 5-year requirement if Performance & Payment Bond Requirements are NOT exercised on this project.*
    - a. Leakage will be attended to within twenty-four (24) hours from receipt of notice of problem from Owner.
    - b. As soon as weather permits, Contractor will restore affected areas to standards of this contract without voiding the Manufacturer's Guarantee and repair any damages from these leaks without cost to Owner, except for leaks caused by abuse to roof by others or by abnormal weather conditions such as lightning, severe hail, or other unusual climatic phenomena.
    - c. This Guarantee must be submitted to the Owner in writing before final payment is released for the project.
      - (1) Refer to "Roofing System Contractor's Guarantee" included within this document.
      - (2) Form included within this document must be utilized (*fully filled out and submitted*).
- B. MANUFACTURER'S NDL ROOF SYSTEM WARRANTY:
  - 1. This project requires that the quoted system include the Manufacturer's NDL (20-yr) roof system warranty.

2. Submit to the Owner a Manufacturer's unlimited penal sum Guarantee covering any and all repairs and/or replacements to keep the roof, including the field and flashing, watertight for a period of 20-years (*as defined within Specifications*) beginning at the time of the Owner's (*via Roof Consultant*) acceptance of final installed roof system/product including ALL parts of the specified project. Cost of this Guarantee to be borne by the Owner and included in each Quote. (*Refer to 1.02 SUBMITTALS for further discussion.*)
3. The Guarantee shall be executed by Manufacturer to cover any and all costs for repairs necessary to stop leaks which occur resultant of, but not limited to, the following:
  - a. Deterioration of the roofing membrane and/or base flashing and detail system resulting from ordinary wear and tear by the elements.
  - b. Workmanship on the part of the Approved Roofing Contractor in application of the roofing membrane, base flashing and/or detail system.
  - c. Blisters/delamination, fishmouths, bare spots, ridges and/or wrinkles in the components associated with the roof system.
  - d. Splits or cracks in the roofing membrane not caused by structural movement.
  - e. Seaming failure; Slippage of the roofing membrane or base flashing.
4. If, twenty-four (24) hours after notification of roof leakage Contractor has not responded, Owner shall have the right, without invalidating any Guarantees and at the expense of the Contractor, to make any emergency temporary repairs that are required in order to protect the building and its contents from damage due to roof leakage.

## **1.09 MISCELLANEOUS**

### **A. SANITARY CONTROL:**

1. Contractor shall supply portable restroom facilities and maintain in a clean and secure manner during the course of the project. (*No building access allowed.*)
  - a. Unit shall be immediately removed upon completion of the project.
  - b. If unit shall not be mounted on roof, it shall be located only on the ground at a location that is agreeable to the Owner.

### **B. POWER & WATER:**

1. Contractor shall supply own power and water unless prior written approval by Owner is received.
  - a. If approval is provided, a written correspondence from the Consultant to the Contractor will be provided.
  - b. Contractor is responsible for all problems, damage, etc. that may result from the use of the Owner's power and water should permission be granted.

### **C. BUILDING ACCESS; STAGING & LOADING:**

1. Roof access via ladder(s) is required.
2. Location of access, staging, drop box, etc. shall be discussed at the mandatory pre-bid meeting and confirmed during the mandatory pre-job meeting.
  - a. Notification of selected applicable locations shall be provided to Owner's representative and Consultant prior to start up.

### **D. SECURITY:**

1. Contractor shall be responsible for the security of all applicable equipment and materials during the course of the project.
  - a. The Owner shall not be responsible for any problems, damage or loss associated with this instruction without additional cost to Owner.

2. Contractor shall maintain a secured site during the entire course of the project.
3. Contractor shall comply with Owner's security requirements at all times.
  - a. To be discussed at the pre-bid and pre-job meetings.

## **PART 2 - PRODUCTS**

### **2.01 MANUFACTURER**

- A. Source Limitations: Obtain components including roof insulation and fasteners for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

### **2.02 MATERIALS**

- A. ROOFING MEMBRANE SYSTEM:
  1. Fleece backed TPO membrane system
    - a. Membrane minimum: 60- mil (*minimum*)
    - b. Combined total defined as 115 mil (*minimum*)
  2. No others will be considered.
  3. Roof system includes all components and shall be considered a "single-source" rated and warranted assembly.

### **2.03 MANUFACTURER MATERIALS**

-- (*See special notes with regard to approved membrane types*)

- A. Acceptable TPO Materials Manufacturer shall be:
  1. Versico Roofing Systems
  2. Carlisle Syntec Roofing Corporation
  3. Firestone Roof Systems Company
- B. Roofing systems manufactured by above approved listed manufactures are the only manufacturers that will be considered for this project.

### **2.04 SUMMARY OF MATERIALS -- ROOFING SYSTEM DESCRIPTION:**

1. Roofing System: 115 mil –TPO Fleece-back Single-Ply System - Adhered – mfg. approved adhesive.
  - a. Refer to Bid Form and other sections within specification documents.
2. UL: Class A assembly - (*carries same classification as system be covered*)
3. Substrate: Approved by manufacturer for installation of new assembly.
  - a. Refer to "General Description" section of this specification.
4. New Insulation: As required to replace wet and or damaged.
  - a. Mechanically attached polyisocyanurate.
  - b. Meet a listed specifications requirements and minimum FM 1-90 standard/rating with manufacturer's notes addressed/added to approvals.
5. Comply with applicable local building code requirements.



**C. SUMMARY OF MATERIALS:**

<u>Description</u>	<u>Weight</u>
TPO Fleece-back adhered assembly:.....	.45 lbs psf
Existing Single-ply membrane (salvaged): .....	.33 lbs psf
3" Polyisocyanurate Insulation (varies – where present):.....	.61 lbs psf
Deck - (Wood):.....	- lbs psf -
Total completed weight:.....	1.39 lbs psf approx.

**2.05 PERFORMANCE REQUIREMENTS:**

- A. Installed roofing and components shall be in accordance with the Roof Manufacturer's current published application procedures, the general recommendation of the NRCA, and FM Global requirements, for the specific and building height, building location and substrate type.
- B. Installed roof system must comply with all codes and regulations of authorities having jurisdiction including but not limited to wind uplift, flame spread, and hail resistance.
- C. FM Global Listing:
  - 1. Attachment of all roofing components must meet or exceed the uplift criteria on the 2009 FM Global Wind Design Data Sheets. Minimum FM Global Fire/Windstorm Classification shall be Class 1A-90.
- D. Exterior Fire-Test Exposure:
  - 1. ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

**2.06 TPO MEMBRANE MATERIALS**

**A. Roofing and Flashing Membrane:**

Reinforced 60-mil TPO membrane laminated to 55-mil thick non—woven polyester fleece-backing resulting in a total finished sheet thickness of 100 mills:

- 1. Membrane type: TPO
- 2. Membrane thickness: 60 mil --- (0.060 inch) - minimum
- 3. Combined total with fleece backing: 0.110 inch minimum
- 4. Sheet Width: Provide the widest available sheets to minimize field seaming.
- 5. Acceptable Product: Membrane mfg. approved only for specified roof system.

**B. Membrane Attachment: Adhesive adhered – Membrane manufacture approved -- (FM-1-90 minimum).**

**C. Flashing Membrane: Membrane system manufacture approved for specified system and meeting fully adhered requirements of specification documents.**

- 1. Color: Same as field membrane (Black).
- 2. Acceptable Product: As approved by membrane mfg. for use within the specified warranted assembly.

**D. Membrane Adhesive:**

- 1. Membrane Manufacture approved adhesive.
- 2. Spray foam type adhesive applied in ribbon pattern per FM-Global listed requirements (approved system).
- 3. Membrane manufacturer approved.

## **2.07 ADDITIONAL MFG. ROOF SYSTEM ACCESSORIES:**

- A. Accessory materials recommended and/or required by roofing system manufacturer for intended use and compatible with other roofing components.
  - 1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: 60-mil (1.5-mm-) thick TPO.
- C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- D. Bonding Adhesive: Manufacturer's standard
  - 1. Membrane manufacturer approved for specified system.
- E. Low-Rise, Urethane, Fabric-Backed Membrane Adhesive: Roof system manufacturer's standard spray-applied, low-rise, two-component urethane adhesive formulated for compatibility and use with fabric-backed membrane roofing.
  - 1. Basis of Design – Membrane manufacturer approved.
- F. Seaming Material: Factory-applied seam tape, width as recommended by manufacturer.
- G. Lap Sealant: Manufacturer's standard, single-component sealant, colored to match membrane roofing.
- H. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- I. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- J. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer.
- G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced TPO securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.
- H. Roof Walkway Pads: TPO compatible – membrane manufacturer supplied and approved – fully adhered.
- I. Yellow Safety Strip: To designate areas of caution on the roof or around rooftop objects. 5.5 inches wide (140 mm) by 100 feet long (30 m) strip and nominal 30 mil (0.76 mm) thick yellow TPO membrane. Compatible with TPO; adhered/heat welded – permanent Yellow Safety Strip. Installed at 5' in from outboard edge of roof assembly.

## **2.08 AUXILIARY MATERIALS**

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
- B. Sheet Flashing: Manufacturer's standard unreinforced thermoplastic polyolefin sheet flashing, 60 mils thick, minimum, of same color as sheet membrane.
- C. Coated Metal: G90 galvanized steel as provided by mfg. on one-side, color to match roofing membrane, as supplied by the roof system manufacturer, minimum 24 gauge, 0.028-inch (0.711-mm) for flashed metal details.
- D. Adhesive:
  - 1. Membrane Bonding Adhesive: Roofing membrane manufacturer's standard TPO bonding adhesive.
  - 2. Insulation Bonding Adhesive: Roofing membrane manufacturer's approved adhesive.
  - 3. Other: Roofing membrane manufacturer's approved adhesive.



- E. Other miscellaneous materials shall be manufacturer's best grade available and approved in writing by the roof system manufacturer for the specific application.
- F. Sealants & Specialty Items:
  - 1. General Construction Sealants: One-part non-priming gun-grade urethane sealant as specified in Division 07 Section "Joint Sealants".
  - 2. Roofing Sealants: Sealants used in contact with roofing system shall be roofing membrane manufacturer's approved sealant used to seal penetrations through the membrane system or miscellaneous sealant applications that come in contact with roofing system.
  - 3. Backer Rod:
    - a. Required at all joints in vertical walls and parapets wider than 3/8".
  - 4. Coned pipe/stack penetration boots, with foam insulation filler.

## **2.09 ROOF INSULATION AND COVER BOARDS**

**As Required to replace damaged existing --- no other insulation is specified within this project**

### **A. POLYISOCYANURATE FOAM INSULATION:**

- 1. Polyisocyanurate Board Insulation: Rigid closed cell polyisocyanurate foam ASTM C 1289, Type II, glass-fiber mat facer on both major surfaces. Manufactured or approved by membrane roofing manufacturer. See Drawings for total insulation thickness.
  - a. Products:
    - (1) Membrane Manufacturer Approved for full system warranty inclusion - ISO 95+.
    - (2) No substitutions allowed.
  - b. Compressive Strength: ASTM D 1621, minimum 20 psi (138 kPa).
  - c. Density: Minimum 20 lbs/pcf - (138 kg/m<sup>3</sup>).
  - d. Attachment: Mechanical – Meet and/or exceed FM-Global 1-90 minimums
    - (1) 12" max spacing with extra at perimeters and corners per FM-Global requirements (12/6/4).
  - e. Cover Board: - *Not Applicable this Project*
  - f. Tapered insulation where indicated on roof plan and up-slope side of all roof mounted equipment with a base wider than 24".
    - (1) Minimum thickness 1/2-inch (13 mm), factory sloped at 2 times the roof slope.

## **2.10 VAPOR RETARDER:**

- A. Not Applicable for this project.

## **2.11 OTHER LISTED ITEMS:**

### **A. PIPE/CONDUIT SUPPORTS** *(to replace any/all existing wood supports)*

- 1. Pre-manufactured support specifically manufactured for roof applications.
- 2. Approval: Approved for use on single-ply roof system.
- 3. Separator sheet *(single-ply membrane)* slightly larger than the base of the support shall be spot adhered to bottom of support at all supports.
- 4. Maximum spacing of 6' between each support with extra required at corners.

### **B. WOOD NAILERS:**

- 1. Material: Wood nailers shall be new material.
- 2. Grade: #2 or better
- 3. Attachment Standards: Conform to Factory Mutual's loss prevention data 1-49.

- C. ROOFED IN CURB:
    - 1. Material: Pressure Treated lumber
    - 2. Grade: Construction Grade / Straight and True.
  - D. PLYWOOD:
    - 1. Material: Size to match existing as applicable or as specified elsewhere.
    - 2. Grade: CDX minimum; Smooth surfaced exterior grade for use within new construction.
  - E. SPLASH PANS:
    - 1. Prefabricated splash pan if/where utilized shall be installed with protective separator sheet.
  - F. FALL PROTECTION WARNING LINE *(as applicable)*:
    - 1. Permanently installed fall protection line system – Permanent – OSHA Safety warning line.
      - a. Required when any perimeter system (*parapet, wall, etc.*) is less the 40" high from top of roof surface to top of perimeter assembly.
    - 2. Location: 6' feet in from all perimeters less than 40" high.
      - a. Measure for outboard edge if drip edge to outboard edge of warning line.
      - b. Measure in from inboard side of parapet and/or cur or light metal edge detail to outboard edge of line.
    - 3. Width: Four-inch (4") minimum.
    - 4. Color: Yellow – OSHA standard color.
    - 5. Application: Membrane manufacturer approved for permanent installation.
- 2.12 WALKWAYS / PADS**
- A. Flexible Walkways: Minimum of 30-inches (762-mm) by 30-inches (762-mm) factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, approximately 3/16 inch (5 mm) thick as furnished by roofing system manufacturer.
    - 1. Attachment: Fully adhered
    - 2. Note: Allow drainage between individual pads of approximately 1½" and keep back from base of roof mounted units a minimum of 4".
    - 3. Pre-bid meeting will review solar panel system walk/protection pad requirements, type, square footage, etc.

### **PART 3 - EXECUTION**

#### **3.01 PREPARATION FOR RE-ROOFING**

- A. Comply with manufacturer's requirements for the specified warranted assembly/system.
- B. Prepare Substrate to meet all manufacturers most recent published requirements.
  - 1. Salvage of main field of existing single-ply membrane system.
  - 2. Cleaning (*pressure washing*) of roof surface.
  - 3. After washing of the existing roof surface, scope requires complete removal of all existing flashing, sheet-metal, perimeter metal, etc. with proper disposal.
    - a. Do not remove more roofing in one work period that can be successfully rendered watertight during that work period.
  - 4. After proper cleaning a complete examination of the salvage membrane is required including localized repair to render substrate acceptable for the specified new roof assembly.
  - 5. All for drying of the deck at areas where excessive moisture has been present.

- C. Contractor must keep building watertight during the course of the project and be sealed at the end of each work period.
- D. Tear-off shall be limited to the amount of area that can be successfully recovered in the event of unexpected rain during the project. Refer to other portions of the specification for further discussion and responsibilities as they apply to this project.
  - 1. Substrate preparation, as applicable, shall meet and/or exceed manufacturer's requirements for an acceptable substrate upon which the new system is installed.
    - a. Strictest document applies when a conflict occurs.
  - 2. All tear-off materials shall be removed from the roof on a daily basis and disposed of in accordance with applicable codes and ordinances.
    - a. Contractor shall comply with all current asbestos removal and disposal laws as they apply to roof system removal.
  - 3. Contractor shall not remove more in one day than can be covered during that same workday (*work period*) or that can be protected from unforeseen rainstorms.
    - a. Contractor is responsible for all damage caused as a result of violating this instruction.
- E. As applicable -- Structural Deck: Inspection and repair of the structural deck is required at all "complete tear-off" areas where the structural deck is exposed, or as may be directed by Owner's representative.
  - 1. Repair of this type of damage shall be considered a "Cost-Plus" item within the scope of work of this project.
    - a. Exception: Deck replacement at equipment removal areas shall be included in the base bid/scope of work.
    - b. Deck preparation shall meet and/or exceed manufacturer's requirements for an acceptable substrate upon which the new system is installed.
      - (1) Strictest document applies when a conflict occurs.
    - c. Verification of the damage by Roof Consultant and/or designated Owner's representative is required in order to obtain approval for additional billing/repairs.
- F. Damaged Structural Deck Criteria and Procedures:
  - 1. If during the course of the project damaged or deteriorated decking and/or applicable substrate is identified, Contractor shall notify Owner's representative and/or Consultant immediately before proceeding.
  - 2. Whenever deteriorated deck and/or substrate conditions are found or suspected, and as directed by Owner's representative and/or Roof Consultant, it shall be repaired or replaced with new, similar (*like*) material installed in accordance with the requirements for new construction.
    - a. Deck and/or substrate replacement and/or repairs billed based on the "Cost-Plus" portion of the Bid Form.
- G. Any obsolete equipment no longer required on the roof shall be removed and the deck installed level and smooth with the adjacent deck.
  - 1. Refer to drawings for verification of equipment to be removed.
  - 2. Any item not noted previous to and/or at the pre-job meeting and added for removal after the project has been bid will be invoiced under the "Cost-Plus" portion of the quote.
- H. After removal of the existing membrane (*at work area*), the entire surface of the work area to be re-roofed, during that time period, shall be swept free of all dust, dirt, grime, debris, or other foreign material before installation of any component of the assembly.
  - 1. Roof project shall be kept in a neat and orderly condition during the entire scope of the project.
- I. Refer to and meet all Manufacturers' General Requirements for appropriate substrate requirements.

### 3.02 GENERAL APPLICATION REQUIREMENTS

#### A. GENERAL:

1. Roofing work shall not be conducted when water in any form is present on deck, such as rain, dew, ice, frost, or snow.
2. Water should be limited to containers for human consumption.
3. Precautions shall be taken to keep materials clean, dry, free of damage and protected from applicable cold and heat at all times during the project.
  - a. Contractor shall replace any damaged or wet materials at no additional cost to Owner.
4. Do not start application of more materials each day than can be completed within the same day's work period or protected from unexpected inclement weather, etc.
5. Start roofing work in dry weather only and without threat of immediate inclement weather (*preferably 3-hr window*).
  - a. Keep the roofed area of the building watertight each day as the work progresses.
6. Water-cutoff: At the end of the workday, edge-seal the finished portion of the roofing system completed that day with a membrane manufacturer approved water cut-off detail in order to keep the roof system (*new and/or existing*) watertight at the end of the work period. Completely remove edge seals prior to the start of the next day's work.
7. Any obsolete equipment no longer required on the roof shall be removed and the deck installed level and smooth with the adjacent deck.
  - a. Refer to drawings for verification of equipment to be removed.
  - b. Any item not noted previous to and/or at the pre-job meeting and added for removal after the project has been bid will be invoiced only after the change order process is completed.
8. All areas of opened roof system must be covered with the completed roof membrane system (*except surfacing*) at the end of each day's work. In addition, all roof terminations and openings shall be made waterproof at the end of each day's work.
  - a. Perimeter of newly installed system must be sealed at the end of each work period.
  - b. All edge seals shall be completely removed before installation of finished roof assembly components.
9. Coordinate installation of specified roof assembly so as not to interfere with the day-to-day operations of the building and building occupants.
10. Use only materials and procedures that are proper and suitable for the slopes and for the underlying materials to which they are attached. All materials are to be manufactured by or approved by Prime Membrane Manufacturer.
  - a. All substitutions must be approved, in writing, by Roof Consultant prior to the installation of the materials.
11. Thoroughly clean and re-seal all exposed metal joints and penetrations to result in a watertight seal.
12. Approved and operable fire extinguishers will be on hand at all times on the roof.
  - a. All additional requirements of OSHA Safety Regulations will be followed.
13. Existing rooftop equipment shall:
  - a. Be raised to meet specified 8" minimum height requirements.
  - b. Be temporarily raised (*if adequate finished height requirements are met*) as needed to accommodate proper installation of new roofing and flashing materials. Resecurement of units through horizontal metal flashing surfaces shall utilize ¼" solid neoprene gaskets. Resecurement through vertical surfaces shall utilize appropriate screws through steel/neoprene washers placed at a maximum twelve inches (12") o.c. or a minimum of two (2) per side.
14. All existing equipment curbs, support sleepers, etc. shall be extended as needed to achieve a minimum eight-inch (8") height above the roof deck for curbs and six inches (6") minimum for enclosed sleepers and platforms.

15. CRICKETS:

- a. Crickets shall be installed at the upslope side of all HVAC and roof-mounted units, curbs, etc. to provide positive surface water flow around unit as well as noted on drawings and shall not be installed over existing membrane.
  - (1) Remove existing membrane at any location that new cricket shall be installed.

16. All existing flanged components, which were incorporated into the membrane system, shall be replaced with new and comply with membrane system manufacturer's requirements for installation in new specified system.

**3.03 EXAMINATION**

- A. Inspect and correct all deficiencies as noted and within the scope of the work necessary to comply with the manufacturer's requirements for the specified warranted single-ply roof system.
- B. As Applicable -- Examine roof areas for conditions that would prevent the proper application of new roofing and verify the following.
  1. Decking, curbing, renovation, and wall substrate preparation has been completed.
  2. Deck and/or substrates are clean, smooth and free from depressions, waves, projections, defects and damage.
  3. Wood nailers are properly installed to receive roofing system.
  4. Surfaces in contact with any single ply material are free from bitumen, grease, oil, or other foreign material.
  5. Surfaces in contact with roofing membrane are free from sharp edges, fins or projections.
  6. Materials are completely dry and free from ice and snow, including substrate, deck, insulation, and roofing membrane as applicable. Confirm dryness by moisture meter and demonstrate to Owner.
  7. Roof equipment, openings, curbs, pipes, sleeves, ducts, vents and blocking members are solidly and properly set.
  8. Work has been completed where possible for other trades that require work or traffic on the roofing area.
- C. Correct or complete any conditions requiring correction or completion prior to the installation of the roofing system.
  1. Notify the Owner's representative (*Roof Consultant*) in writing of any unacceptable conditions.
- D. Verify the location of interior ducts, electrical lines, piping, conduit, and/or similar obstructions. Perform work to avoid contact with the above-mentioned items.
  1. Conduit locations shall be discussed at mandatory pre-bid meeting.
  2. Do not force fasteners during installation project so as to run screws into/thru electrical conduit. Care is necessary to control this condition.
  3. Immediately notify Owner's representative (*Roof Consultant*) of any adverse or dangerous conditions and to obtain further instructions.
- E. Verify existing conditions that may cause moisture penetration.
  1. Notify the Owner's representative (*Roof Consultant*) in writing prior to beginning construction.
- F. Start of Work constitutes acceptance of deck substrate and site conditions.

**3.04 PREPARATION**

- A. Broom clean roof surface immediately prior to installing new roofing/application after the initial power-washing process.
  1. Any debris under roof membrane is unacceptable.
  2. Roof surface must be clean and dry before proceeding with specified installation.

### 3.05 ROOF VAPOR RETARDER, INSULATION & HD COVER BOARD

#### A. GENERAL: *(As applicable to Scope)*

1. Install Vapor Retarder over clean dry substrate.
  - a. Install VR so that it is fully adhered without ridges, air gaps and other deficiencies.
  - b. Protect VR and repair as necessary and damage until the next layer of roofing material is correctly installed.
2. Insulation shall be laid with edges parallel to the roof edges.
  - a. Field insulation must be installed to meet Prime Membrane Manufacturer's tested and approved system.
    - (1) Adhesive shall meet manufacturer's special project requirements as well as FM 1-90 configuration including perimeter, field, and corners.
  - b. Crickets shall be installed with approved adhesive (*no mechanical fasteners*) per manufacturer's printed requirements for particular system (*as applicable*).
    - (1) Crickets required at all upslope sides of roof-mounted equipment.
    - (2) Crickets may not be installed over HD Iso-Guard (*top layer*). It must be installed as part of the insulation system.
3. Insulation boards shall be laid in an ashlar (*cross*) pattern (*joints staggered at end and side*) with the joints between the long dimensions of the boards continuous.
  - a. Minimum 12" offset from ends and sides is required at all times.
  - b. Joints must be broken between lower and upper levels where multiple levels of insulation occur (*either direction*).
  - c. **SPECIAL NOTE:**
    - (1) Do not install edges of new insulation so that they line up (*directly above*) the existing membrane fastener strips that are allowed to remain. Offset a minimum of 12" from this material.
    - (2) In addition, as a preparation for the new roof system, any areas where the existing insulation is cupped, shall receive appropriate fasteners prior to the installation of the new recover system.
4. Space roof insulation 1/4" maximum from all vertical flashings and between boards, edges, etc.
5. Stagger the end joints of the primary insulating layer; stagger joints top to bottom on multiple layer applications.
6. Butt joints tight allowing no more than 1/4-inch (6-mm) wide gap between units.
  - a. Fill any gaps larger than 1/4-inch (6-mm).
7. Insulation shall be neatly cut and fit around all through-roof projections.
8. No more insulation shall be laid than can be completely covered in a day's work.
9. Provide tapered roof insulation around roof drains and at cricket locations to provide positive drainage.
10. No insulation material shall bridge expansion joints.
11. Remove and replace all insulation that gets wet during the application process. Roofing shall not be applied over wet insulation at any time.
12. Subsequent layers of materials shall not be applied over insulation joints in excess of 1/4" width.

#### B. SPECIFIC:

1. Adhesive Requirements:
  - a. Primary roof membrane system manufacturer shall review and define the requirements for adhesive patterns for insulation attachment for the warranted assembly and document shall be included in submittal package.
  - b. Information shall define adhesive pattern including field, perimeter, and corners.



2. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.
3. Adhesive-adhere the insulation to the substrate in accordance with Factory Mutual requirements as determined by FM1-90 data sheet criteria for wind uplift.
4. Install roof insulation directly over the substrate except where otherwise indicated.
5. Do not rupture or deform the surface, facer, or structure of the insulation by handling.
6. Do not use warped or bent insulation boards.
7. Cut and fit insulation neatly at roof perimeter and roof penetrations to reduce openings to a minimum. Fill all openings 1/4-inch (6-mm) or larger with insulation.
8. Prior to application of membrane, secure loose areas so that no board movement or warpage exists.
9. Prior to application of membrane, remove foreign matter, gravel, etc. from the substrate. Gravel or debris between the substrate and the roof membrane is not acceptable.
10. Install temporary water cut off at completion of each day's work and remove upon resumption of work.
11. Tapered Insulation
  - a. Install tapered insulation as required or shown on Drawings at sumps and at up-slope side of all roof mounted equipment.
  - b. Notify Consultant of any areas that do not have adequate slope prior to proceeding so that a decision as to adding slope via tapered insulation or other methods can be made prior to the installation process.
  - c. Install additional insulation as outlined above.
  - d. Taper insulation a minimum of 24-inches (610-mm) in each direction around scuppers and drains to provide for proper drainage.

### **3.06 TPO SINGLE-PLY MEMBRANE INSTALLATION:**

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.
- D. Install membrane adhered to the substrate, with edge securement as specified.
  1. Adhered Membrane: Fully Bond membrane sheet to substrate using membrane manufacturer's recommended bonding material, application rate, and procedures (*FM-Global requirements are the minimum standard*).
- E. Edge Securement: Comply with manufacturer's requirements.

### **3.07 FLASHING and ACCESSORIES INSTALLATION.**

- A. Perimeter wood nailers – (As Required to meet height requirements):
  1. New Pressure Treated wood nailers are a requirement of this project.
  2. Mechanically attach nails to FM 1-47 minimum standards.
    - a. Do not install in such a way as to spall out or damage existing concrete curbs.
    - b. Follow roofing manufacturer's instructions.
  3. Remove protective plastic surface film immediately before installation.
- B. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.

- C. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.
  - 4. Follow roofing manufacturer's instructions.
  - 5. Remove protective plastic surface film immediately before installation.
  - 6. Install water block sealant under the membrane anchorage leg.
  - 7. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
  - 8. Where a single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
  - 9. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.
  - 10. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.
- D. Scuppers: Set in sealant and secure to structure; flash as recommended by manufacturer.
- E. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8 inches (200 mm) high above membrane surface.
  - 1. Use the longest practical flashing pieces.
  - 2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
  - 3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
  - 4. Provide termination directly to the vertical substrate as shown on roof drawings.
- F. Roof Drains:
  - 1. Taper insulation around drain to provide smooth transition from roof surface to drain. Use specified pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope; slope not to exceed manufacturer's recommendations.
  - 2. Position membrane, then cut a hole for roof drain to allow 1/2 to 3/4 inch (12 to 19 mm) of membrane to extend inside clamping ring past drain bolts.
  - 3. Make round holes in membrane to align with clamping bolts; do not cut membrane back to bolt holes.
  - 4. Apply sealant on top of drain bowl where clamping ring seats below the membrane.
  - 5. Install roof drain clamping ring and clamping bolts; tighten clamping bolts to achieve constant compression.
- G. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
  - 1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.
  - 2. Pipe Clusters and Unusual Shaped Penetrations: Provide penetration pocket at least 2 inches (50 mm) deep, with at least 1 inch (25 mm) clearance from penetration, sloped to shed water.
  - 3. Structural Steel Tubing: If corner radii are greater than 1/4 inch (6 mm) and longest side of tube does not exceed 12 inches (305 mm), flash as for pipes; otherwise, provide a standard curb with flashing.
  - 4. Flexible and Moving Penetrations: Provide weathertight gooseneck set in sealant and secured to deck, flashed as recommended by manufacturer.



### **3.08 FINISHING AND WALKWAY INSTALLATION**

- A. Install walkways at access points to the roof, around rooftop equipment that may require maintenance, and where indicated on the drawings.
  - 1. Use specified walkway pads unless otherwise indicated.
- B. Walkway Pads: Fully Adhere to the roofing membrane, spacing each pad at minimum of 1.0 inch (25 mm) and maximum of 3.0 inches (75 mm) from each other to allow for drainage.
  - 1. If installation of walkway pads over field fabricated splices or within 6 inches (150 mm) of a splice edge cannot be avoided, adhere another layer of flashing over the splice and extending beyond the walkway pad a minimum of 6 inches (150 mm) on either side.
  - 2. Prime the membrane, remove the release paper on the pad, press in place, and walk on pad to ensure proper adhesion.

### **3.09 WATER CUT-OFF**

- A. At the end of each day's work, Contractor shall provide temporary water cut-offs at the edge of the membrane installation to render the installation watertight.
- B. Comply with manufacturer's requirements.
- C. Water cut-offs shall be sealed so that the detail cannot be blown loose with windy conditions.
- D. Remove water cut-offs before proceeding with work. (*Mandatory*)

### **3.10 CURBS and PLATFORMS:**

- A. GENERAL:
  - 1. Provide new roofed in curbs and/or platforms at designated locations.
    - a. Curbs shall have new standing seam cap metal.
    - b. Platforms shall have:
      - (1) CDX plywood tops with a minimum  $\frac{3}{4}$ " CDX thickness.
      - (2) Top of platform shall have a dry sheet and then standing seam metal cap.

### **3.11 ROOF DRAINS:**

- A. GENERAL:
  - 1. Provide gradual taper to roof drains by the use of tapered insulation.
    - a. Sump area (*with taper*) shall extend a minimum of 24" out from the center of the drain outlet pipe in all directions.
  - 2. Comply with manufacturer's published requirements for extra fully adhered ply within sump assembly for the specified warranted system.
- B. SPECIFIC:
  - 1. The drain ring shall be cleaned and securely tightened. Metal Strainer dome shall be reinstalled over roof drains and new metal strainers shall be considered a part of the base bid if missing or currently plastic.
  - 2. Remove and replace all plastic and/or damaged metal drain strainer screens.
    - a. All drain strainer/screens shall be metal when project is completed. Plastic is not acceptable.
    - b. Include cost within base bid.
  - 3. Replace or repair any and all missing, broken, or damaged drain parts to result in a functioning assembly.
    - a. Cost of drain repair parts (*other than item b. below*) will be a Cost-Plus item. Submit quote based on assumption that drain parts (*other than lead*) are salvageable.

- b. Base bid shall include replacement, with new stainless steel, all existing bolts and nuts and replacement of any non-metal or missing metal strainers.
4. After complete installation of the roofing system, all roof drains should be inspected and tested to assure that no clogging of the drainage system is present. In addition, the roof drain leader should be in such condition that the full diameter of the drain leader is clear and that no leak or seepage is present.

### **3.12 MISCELLANEOUS WORK ITEMS**

#### **A. FALL PROTECTION WARNING LINE SYSTEM**

1. Install permanent fall protection warning line in compliance with all membrane manufacturers published requirements.
2. Painting of line is not acceptable. This must be a yellow color membrane that is approved by roof system manufacturer.
3. Install, straight and true with the outboard edge 6' from the perimeter edge.

#### **B. PIPE & CONDUIT SUPPORTS:**

1. Provide pre-manufactured pipe/conduit supports with separator sheet as noted within specifications spot adhered to the underside of the all supports.
2. Secure pipes to supports using oversized galvanized clamps secured on both sides of pipe.
3. Adjust height of supports to provide a straight and true transitional run of the pipe.
  - a. Use adjustable pipes supports as required to accommodate elevated pipes, substrate slope, etc.
4. Supports shall be spaced no more than six feet (6') apart and installed so as not to impede water flow.

### **3.13 CLEAN UP**

#### **A. Contractor shall:**

1. Remove all markings from finished surfaces that are directly related to the installation of the specified roof system.
2. Keep the roof and premises clean and free from accumulations of waste materials and rubbish at all times.
  - a. Remove all debris, scrap, and rubbish from the work area daily.
  - b. Contractor is responsible for any material blown off the roof and shall correct the situation immediately.
  - c. Surplus materials and all equipment shall be promptly removed from the site upon completion of work.
3. Contractor shall not store materials of any type on finished newly installed roof system.
4. If Contractor fails to keep premises clean of debris, Owner reserves the right to contract for clean-up of the premises and charge the Contractor for the direct cost of this work.
  - a. Owner shall notify Contractor, in writing, of the intent to hire an independent clean-up firm or crew if a problem and/or situation develops.
  - b. Contractor has twenty-four (24) hours to rectify the condition before the Owner will proceed.
5. Prior to final acceptance, the Contractor shall restore all areas affected by his work to their original state of cleanliness and repair all damage done to the premises, by his workmen and equipment.
6. Contractor is responsible for any and all damage to building or surrounding area during the course of the project, NO EXCEPTIONS.

**-- END OF SECTION 07 54 23 ---**

23027-S Spec-07 54 23 - TPO Fleeceback - JCSD-Madras Elem -RR-CDEF -SalRec-Fleece-60 mil TPO -Perf Fleece spec section

**SECTION 07 60 00**  
**FLASHING & SHEET METAL**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

**A. Work Included:**

1. Supplemental to Standing Seam Section and as applicable to the Single-ply Section and Metal Standing Seam Panels Section. Provide Flashing and Sheet Metal not specifically described in other sections of these specifications and details but is required to prevent penetration of water through the exterior shell of the building as it applies to the roof and parapet areas supplemental to the standing seam metal roof system.
2. Additional Work under Separate Section:
  - a. Section: 07 54 23 – Single-ply Roofing & Roof Insulation.
3. GENERAL REVIEW:
  - a. New:
    - (1) Pre-painted perimeter metal - Standing Seam --- pre-painted Kynar finish.
    - (2) Manufacturer's clad metal as required for warranted system.
    - (3) Perimeter; Surface Mounted Reglet.
    - (4) Counter-flashing at all equipment, hatches, penetrations, equipment curb with metal cover, etc. and where it cannot be carefully salvaged at perimeter. (*Galvanized metal is acceptable rather than pre-painted for this item.*)
    - (5) New Pre-painted continuous Gutters, Leaderheads, and Downspouts to match existing (*w/overflow outlets added*). (*Where any existing are in place/exist. – They will be replaced*)
    - (6) New continuous gutters – pre-painted 5" K-line with matching downspouts.
    - (7) Mfg. requirements; Termination bar, clad-metal, etc.
    - (8) New Pre-painted K-Style 6" gutter and downspout.
4. WALL METAL:
  - a. No wall metal this project.
5. PERIMETER METAL: - (*As applicable to the existing conditions*)
  - a. Surface Mounted Reglets.
  - b. Saw Cut Reglets – (*masonry walls with irregular surfaced CMU*)
  - c. Salvaged and adapted reglets and venting assemblies
  - d. Match existing style with new.
  - e. Perimeter fascia, gutter, and venting system.
  - f. Parapet: Prepainted standing seam cap/coping metal.
6. CAP METAL – Roofed-in Curbs:
  - a. New cap metal at all roofed in curbs.

7. OTHER METAL:
  - a. Remove, properly dispose of and replaced with new unless specifically identified within the specification documents or during the pre-job meeting.
  - b. Section: 07 54 23 – Single-ply Roofing & Roof Insulation, within specification documents.
  - c. Counter-flashing is required at all equipment.
    - (1) *Exception:* Not necessary at units that can be raised and roofed around and/or a part of the Ventilation Equipment rework portion of the project.
  - d. Fabricate and install new stainless-steel scupper(s) to replace existing.
8. General Work Summary on this project shall include the following:
  - a. Installation of new manufacturer requires clad metal.
  - b. Installation of new standing seam coping metal at all roof perimeters to match existing color/style.
  - c. Equipment counter-flashing/skirting.
  - d. Curb/Platform sheet metal caps.
  - e. Miscellaneous details to meet the manufacturer's and "good roofing" practices for entire completed roof system.
9. Roofing accessories and incidentals, as may be required during the project.
10. All painted metal surfaces which must be removed to properly complete the project, shall be carefully removed, examined, cleaned, primed, painted and replaced to match existing colors as applicable and discussed at pre-job meeting.
  - a. Color shall match the existing perimeter metal where replacement requires painted metal.
  - b. Color shall be standard manufacturer's color. No special order color required on this project.

## **1.02 SYSTEM DESCRIPTION**

- A. Work within this Section is to physically protect membrane roofing, base flashing, etc. from damage that would permit moisture entry into the building interior.

## **1.03 QUALITY ASSURANCE**

- A. In addition to complying with pertinent codes and regulations, all work shall comply with pertinent recommendations contained in current edition of "Architectural Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
- B. Standard commercial items may be utilized for flashing trim, reglets and similar purposes provided such items meet or exceed the quality standards specified herein.
- C. All metal shall meet and/or exceed compliance with membrane manufacturer's warrantable system.
  1. Utilize membrane manufacturer's specific product with any specific application where the metal is considered a warrantable item under the manufacturer's warrantable system.

## **1.04 SUBMITTALS**

- A. Submit shop drawings to describe all detail installations and compliance with scope of these Specifications and General Requirements where no detail drawing currently exists. This includes any proposed changes to detail drawings herein.
  1. The scope of the shop drawing details will be reviewed at the mandatory pre-job meeting.

### **1.05 REFERENCES**

- A. American Society for Testing and Materials (ASTM) A525-Steel Sheet, Zinc Coated (*Galvanized*) by the Hot-Dip Process.
- B. SMACNA – Architectural Sheet Metal Manual.

### **1.06 PRODUCT HANDLING**

- A. Store products under applicable provisions of Section 07 54 23.
- B. Stack pre-formed material to prevent twisting, bending, or abrasion.
- C. Prevent contact with materials during storage, which may cause discoloration, staining or damage.
- D. Any material to be removed and replaced shall be marked for identification and carefully removed and stored until re-installation is completed.
  - 1. Items that cannot be removed and replaced without damage must be discussed and approved prior to the work at this area or the contractor shall be responsible for replacement of materials damaged during their operations.

### **1.07 PROTECTION**

- A. Exercise care when working on or about roof surface to avoid damaging or puncturing membrane or other components.
- B. Immediately remove any screws, fasteners, trim, etc. from roof surface.
- C. All open roof areas exposed by the sheet metal removal shall be in a waterproof condition at the end of each day's work.
- D. Immediately notify Roofing Contractor (*if sheet metal contractor is a sub-contractor*) of any damage or punctures to newly installed or existing membrane waterproofing.

### **1.08 WARRANTY**

- A. Work of this section shall be covered under Contractor's Warranty as specified in Section 07 54 23.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS AND GAUGE**

- A. Where sheet metal is required, and no material or gauge is indicated on the drawings and details, provide the highest quality and gauge commensurate with the standards associated with this Specification with a minimum gauge of twenty-four (24).
- B. Utilize specified roofing system manufacturer's products as a first priority.
- C. Galvanized Steel: ASTM A-525, G-90; 24 gauge minimum.
- D. Pre-painted metal: Factory finish; 24 gauge minimum.
- E. Sheet Lead Flashing: Hard type conforming to Federal Specification QQ-L-201; 4 lbs per square foot for drain flashing and pipe sleeves requiring field soldering, 2 ½ lbs minimum per square foot for pre-fabricated pipe sleeves.

### **2.02 ACCESSORIES**

- A. Fasteners: Galvanized steel with steel neoprene washers at exposed fasteners and other appropriate products in other unspecified locations.
- B. Metal Primer: ASTM D-41

- C. Sealant: 1 part polyurethane  
*(As approved by prime membrane manufacturer for use and compatibility with specified assembly.)*
- D. Plastic Cement: ASTM D-4586, Type I
- E. Solder: FS QQ-S-571; ANST/ANTM B3; 50/50 type
- F. Flux: FS O-F-506
- G. Pitch Pan Sealant: ASTM C-920, Type S, Grade P, Class 25  
*(As approved by prime membrane manufacturer for use and compatibility with specified assembly.)*

## **2.03 FABRICATION**

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest practical lengths.
- C. Hem exposed edges on underside  $\frac{1}{2}$ "; miter and seam corners.
- D. Form material with flat lock seam, unless otherwise specified or detailed.
- E. Solder and seal metal joints. After soldering, remove flux. Wipe and wash solder joints clean.
- F. Fabricate corners from one piece with minimum 18" seam or solder for rigidity, seal with sealant.
- G. Fabricate vertical faces with bottom edge formed outward  $\frac{1}{4}$ " (6mm) and hemmed to form drip.
- H. Fabricate flanged flashings (*pitch pans*) to allow flanges to extend at least four inches (4") – (50mm) over roofing.
  - 1. Provide full soldered corners.
- I. All fabricated sheet metal work necessary to complete the project shall receive standing seams and shall employ double breaks with no exposed sharp edges.

## **2.04 FINISH**

- A. Shop prepare and prime exposed ferrous metal surfaces.
- B. Back paint flashings with bituminous paint where expected to be in contact with cementitious materials or dissimilar metals.

# **PART 3 - EXECUTION**

## **3.01 SURFACE CONDITIONS**

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
- B. Refer to details and drawings for specific direction on various types of equipment.
- C. Coordinate with Roofing Contractor (*if sub-contractor to roofing contractor*) so that sheet metal work is completed in a timely manner following installation of roof membrane waterproofing systems. Roof shall remain watertight at all times.
  - 1. Do not install sheet metal until all roofing work is completed to an acceptable level at the area where sheet metal work is to proceed.
- D. Verify roof openings, curbs pipes, sleeves, ducts, or vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.
- E. Verify membrane termination and roof system primary and base flashings sheets are in place, sealed, and secure.
- F. Beginning of installation of flashing metals means acceptance of existing conditions by the Sheet Metal Contractor (*if other than Roofing Contractor*).

### **3.02 WORKMANSHIP**

#### **A. GENERAL METAL FABRICATION:**

1. Shop-fabricate work to greatest extent possible.
2. Comply with details shown and with applicable requirement of SMACNA “Architectural Sheet Metal Manual” and other industry recognized practices.
3. Fabricate for waterproof and weather-resistant performance with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work.
4. Angle bottom edges of exposed vertical surfaces to form drips.
5. Fabricate to profiles and sizes as to match existing installations.
6. Form work to fit all substrates.
7. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and level indicated, with exposed edges folded back to form hems.

#### **B. Form, fabricate and install sheet metal so as to adequately provide for expansion and contraction in the finished work.**

#### **C. Installation process and finished work shall be installed in a manner that will not damage the surrounding surfaces and or waterproofing.**

1. Contractor shall repair and/or correct the defective workmanship at no additional cost to Owner.

### **3.03 INSTALLATION**

#### **A. Embed metal in contact with roof assembly in a solid bed of sealant, using materials and methods approved by the prime roofing system Manufacturer as applicable and compatible with specified and/or installed system.**

#### **B. Conform to standard Prime Manufacturer’s and/or SMACNA details as applicable for the successful completion of project.**

#### **C. Pipe Flashing:**

1. Open vent stacks shall be sealed using lead sleeves with the tip edge crimped carefully back down into the pipe at least one inch. Replace existing damaged lead flashings with two-piece fabrication to prevent future damage from building settlement and/or movement.

*(Prime Manufacturer’s pre-formed sleeves are acceptable as approved for use within specified system and applicable to existing conditions.)*

2. At electrical lines and pipes which cannot be disassembled, solder lead sleeve and flange together in the field, maintaining minimum six-inch (6”) sleeve height and eight-inch (8”) wherever possible.

*(Prime Manufacturer’s pre-formed sleeves are acceptable as approved for use within specified system and applicable to existing conditions.)*

#### **D. Screw fastened: All fasteners shall comply with current SMACNA published recommendations applicable to size and installation pattern(s).**

1. All fasteners require neoprene washers.

#### **E. Install and seal new metal-flanged sleeve flashing and drain flashing in accordance with Section 07 54 23 and applicable Details.**



### **3.04 SOLDERING**

#### **A. GENERAL:**

1. Thoroughly clean and tin the joint materials prior to soldering.
2. Perform soldering slowly, with a well-heated copper (*or applicable component material*), in order to heat the seams thoroughly and to completely fill them with solder.
3. Perform soldering with a heavy soldering copper of blunt design, properly tinned for use.
4. Make exposed soldering on finished surfaces neat, full flowing and smooth.

#### **B. After soldering, thoroughly wash acid flux with a soda solution.**

#### **C. Safety:**

1. Care shall be taken during any soldering work so as not to damage the roofing membrane system and/or components.

### **3.05 TESTS**

- #### **A. Upon request of the Consultant and/or Owner, demonstrate by hose or running water that the system is completely watertight.**

### **3.06 FINISH**

#### **A. Finish to match existing style and color.**

1. Finish color shall be manufacturer's standard color.
2. Color to be selected by Owner based on submittals provided by contractor after award of contract.
3. Refer to specific instructions within specifications, addenda and/or drawings with regard to specific metal type and color requirements associated with various components.

#### **B. If painting is required, clean, prime and paint per Consultant's and/or Owner's recommendations to match existing color.**

### **3.07 CLEAN UP**

#### **A. Contractor shall:**

1. Remove all excess materials from finished surfaces and keep the roof and premises clean and free from accumulations of waste materials and rubbish at all times.
  - a. Remove all debris, scrap, and rubbish from the work area daily.
  - b. Surplus materials and all equipment shall be promptly removed from the site upon completion of the work.
2. Prior to final acceptance, the Contractor shall restore all areas affected by his work to their original state of cleanliness and repair all damage done to the premises, by his workmen and equipment.

**-- END OF SECTION --**



**Section 07 99 07**

**JEFFERSON COUNTY SCHOOL DISTRICT**

Madras, Oregon

Building:

**Madras Elementary School**

215 SE 10<sup>th</sup> st

Madras, Oregon

**Roof Construction Data**

**Existing – Roof Construction Data**

**Roof - Roof D, E, G, & H:**

ROOF TYPE: .....	White single-ply
MEMEBRANE TYPE & PLIES:...	Single-ply – Mechanically Attached
BITUMEN TYPE: .....	n/a
COVERBOARD: .....	¾" Gypsum Board
INSULATION: .....	None
VAPOR RETARDER: .....	None
DECK: .....	Wood

**Roof - Roof F:**

ROOF TYPE: .....	White single-ply
MEMEBRANE TYPE & PLIES:...	Single-ply – Mechanically Attached
BITUMEN TYPE: .....	n/a
COVERBOARD: .....	¼" Gypsum Board
INSULATION: .....	¾" Fiberboard
VAPOR RETARDER: .....	None
DECK: .....	Wood

**Roof - Roof K:**

ROOF TYPE: .....	White single-ply
MEMEBRANE TYPE & PLIES:...	Single-ply – Mechanically Attached
BITUMEN TYPE: .....	n/a
COVERBOARD: .....	½" Pink Board
INSULATION: .....	None
VAPOR RETARDER: .....	Tar paper
DECK: .....	Wood

**Roof - Roof M:**

ROOF TYPE: .....	White single-ply
MEMEBRANE TYPE & PLIES:...	Single-ply – Mechanically Attached
BITUMEN TYPE: .....	n/a
COVERBOARD: .....	½" Coverboard
INSULATION: .....	None
VAPOR RETARDER: .....	None
DECK: .....	Wood



**JEFFERSON COUNTY SCHOOL DISTRICT**  
**MADRAS ELEMENTARY SCHOOL – Roofs -Multiple**  
*Single-ply – Fleeceback TPO Recover Roof Project*  
**ROOF CONSTRUCTION DATA**  
Project #: 23027

**Roof - Roof N, O, P, Q, & R:**

ROOF TYPE: ..... Built-up Roof System  
MEMBRANE TYPE & PLIES: ... 3 total (2-ply with Mineral Cap sheet) - Surface color - white  
BITUMEN TYPE: ..... Asphalt  
COVERBOARD: ..... ½" Coverboard  
INSULATION: ..... None  
VAPOR RETARDER: ..... None  
DECK: ..... Wood

**NEW ASSEMBLY --- Roof Construction Data**

**Roof - Roof D, E, F, G, H, K, M, N, O, P, Q, & R: -- (Salvage & Recover)**

SCOPE -- GENERAL: ..... Salvage of existing Single-ply roof system (See spec sections for complete information)  
ROOF TYPE: ..... Single-Ply

**-NEW ASSEMBLY:**

MEMBRANE: ..... 60-Mil fleece back TPO Membrane (fully adhered)  
COVERBOARD: ..... None  
INSULATION: ..... None  
VAPOR RETARDER: ..... None  
SALVAGED ASSEMBLY: ..... Existing assembly shall be salvaged with defined removal areas - (See Spec)

**ROOF AREA DATA**

**Single-ply Roof: -- (All are included within this project)**

Roof D: .....	2,657	sq. ft.
Roof E: .....	2,514	sq. ft.
Roof F: .....	1,286	sq. ft.
Roof G: .....	992	sq. ft.
Roof H: .....	4,845	sq. ft.
Roof K: .....	179	sq. ft.
Roof M: .....	59	sq. ft.
Roof N: .....	52	sq. ft.
Roof O: .....	30	sq. ft.
Roof P: .....	51	sq. ft.
Roof Q: .....	81	sq. ft.
Roof R: .....	144	sq. ft.

**Total Roof Area included in this Project:** ..... 12,890 sq. ft. - approx.

**SPECIAL NOTES: ---**

1. All square footage provided within this document or during the bidding process, unless otherwise specifically stated is considered to be provided as a courtesy BUT is an ESTIMATE and Bidder and/or Contractor must verify.

**-- End of Section --**



**Section 07 99 28**

**ROOFING SYSTEM CONTRACTOR'S 2-YR WORKMANSHIP GUARANTEE**

**TPO – Single-Ply Roof System**

DATE ISSUED: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_  
OWNER: \_\_\_\_\_ ADDRESS: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
BLDG NAME: \_\_\_\_\_ ROOF SPEC#: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_ MANUFACTURER: \_\_\_\_\_  
ROOF AREA: \_\_\_\_\_  
COMPLETION DATE: \_\_\_\_\_  
ROOF PROJECT #: \_\_\_\_\_ ACCEPTANCE DATE: \_\_\_\_\_  
MISC COMMENTS: \_\_\_\_\_ MANUFACTURER'S WARRANTY: (y/n) \_\_\_\_\_  
MANUFACTURER'S WARRANTY DATE: \_\_\_\_\_  
MANUFACTURER'S WARRANTY LENGTH: \_\_\_\_\_  
Note: *Attach Applicable Manufacturer's Warranty*

The above named Roofing contractor guarantees the roofing system installed as the above project reference number on the above identified facility for a period of **TWO (2) years** from the Date of Acceptance (*noted above*) and will pay all authorized material and labor costs of repair to the roof system necessary to stop leaks as described within this Guarantee and project Specifications which occur during the guarantee period, as a result of any of the following causes and as noted within the specification documents for this project:

1. Abnormal deterioration of the roofing membrane, seams, base flashing system and/or other integral components of the installed system resulting from ordinary wear and tear by the elements.
2. Workmanship as it applies to the application of the roof system including any and all components.
3. Physical defects such as voids, blisters, fishmouths, bare spots, delaminations, ridges, wrinkles, fastener problems and/or other defects that result in leakage into the roofing system and/or the building interior. (*As applicable to roof system installed.*)
4. Damage to the roof system not caused by structural movement of the building and/or structural deck.

**EXCLUSIONS:**

It is understood that leakage caused by any of the following are excluded from this guarantee:

1. Natural disasters including but not limited to floods, lightening, hail, ice, earthquakes, wind damage exceeding force seven on the Beaufort Scale, etc.
2. Damage to the roof assembly resulting from:
  - a. Traffic and/or damage by Owner or Owner's representative(s).
  - b. Movement and/or deterioration of metal not associated with this specific project and not under the control of the Roofing Contractor during the course of this project.
  - c. Chemical attacks on the roof assembly.
  - d. Changes to building or roof system after acceptance.



**JEFFERSON COUNTY SCHOOL DISTRICT**  
**MADRAS ELEMENTARY SCHOOL – Roofs -Multiple**  
*Single-ply – Fleeceback TPO Recover Roof Project*  
**ROOFING SYSTEM CONTRACTOR'S GUARANTEE**  
**SINGLE-PLY**  
Project #: 23027

**CONTRACTOR'S RESPONSIBILITY:**

1. Roofing Contractor shall respond to leak calls within twenty-four (24) hours of notification by Owner and/or Owner's representative(s).
2. Temporary repairs may be made based on roof system manufacturer's recommendations for temporary repair techniques.
3. Permanent repairs (*restoring the roof to its original condition*) shall be completed within the thirty (30) day period after the first call from Owner and/Owner's representative.
4. Manufacturer's guidelines for repair of all problem(s) shall be strictly adhered to, and all techniques and products utilized during the repair must be approved by manufacturer.

**OWNER'S RESPONSIBILITY:**

In the event of a problem with the Roof System, the Owner's responsibilities under this guarantee are as follows:

1. Owner and/or Owner's representative will notify the Roofing Contractor via telephone followed by a written notification within thirty (30) days of the leak (*problem*).
2. Owner will notify Roofing Contractor in writing of any proposed modification, major repair, and/or addition on or through the roof system for each situation occurring after the "Date of Issue" of this guarantee.
  - a. Applicable drawings and plans showing the location of the proposed changes will be provided as may be available.

**ACCEPTANCE:**

OWNER SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_  
Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_  
ROOFING CONTRACTOR: \_\_\_\_\_ Date: \_\_\_\_\_  
Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

**DISTRIBUTION:**

1. Original to Roof Consultant –to be delivered to Owner
2. Copy to Project Manual

23027-S Sec 07 99 28 - Contr-2-yr SP-Work-Guarantee-JDSD-Madras Elem -RR -FA-60-mil TPO -Perf



– END OF SPECIFICATION –  
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# **ROOF SPECIFICATION**

## **SINGLE-PLY REROOF**

*(TPO – Fleeceback – Salvage & Recover)*

**Jefferson County School District (509J)**  
Madras, Oregon

*Facility:*

## **BUFF ELEMENTARY SCHOOL IMPROVEMENTS**

*(Roofs C, D, E & F)*

**375 SE Buff Street**  
**Madras, Oregon**

*SAJ Project Number: 22140B*

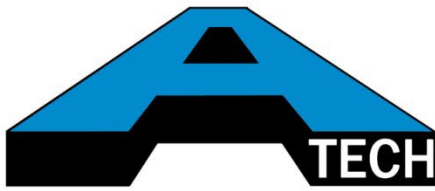
*A-Tech Project Number: 23058*

*September 11, 2023*

*Project Roof Consultants:*

**A-TECH/NORTHWEST, INC.**  
**503-628-2882**





**TECH/NORTHWEST, INC.**

ROOF CONSULTING, MOISTURE TESTING & ANALYSIS

# **ROOF SPECIFICATION**

## **SINGLE-PLY REROOF**

*(TPO – Fleeceback – Salvage & Recover)*

**Jefferson County School District (509J)**

**Madras, Oregon**

*Facility:*

## **BUFF ELEMENTARY SCHOOL IMPROVEMENTS**

*(Roofs C, D, E & F)*

**375 SE Buff Street**

**Madras, Oregon**

*SAJ Project Number: 22140B*

*A-Tech Project Number: 23058*

*September 11, 2023*

*Project Roof Consultants:*

**A-TECH/NORTHWEST, INC.**

**503-628-2882**

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## Section 07 00 00

### BID / PROJECT INFORMATION

*(Summary information material)*

The following information applies to the project defined within these specifications. If you have any questions, you are urged to contact A-Tech/Northwest, Inc. Addenda will be issued when questions asked are applicable to all bidders or the project scope, costs, etc. and are not already included within the specification and/or any previous Addenda. The project will be reviewed during the pre-bid, with the intent of that on-site meeting, to discuss the overall scope and items unique to this particular project.

A. OWNER:

1. **JEFFERSON COUNTY SCHOOL DISTRICT**  
445 Southeast Buff Street  
Madras, OR 97741

B. BUILDING / FACILITY:

1. **BUFF ELEMENTARY SCHOOL**  
**Roofs C, D, E & F**  
375 SE Buff Street  
Madras, OR

C. ROOF CONSULTANT / PROJECT MANAGER:

1. A-Tech/Northwest, Inc.
2. Project Contact: David Anderson

D. PROJECT BID NUMBER: ..... 23058

E. PRE-BID MEETING:

1. Date: ..... **Wednesday, September 27, 2023**
2. Time: ..... **1:00 p.m.**
3. Location: ..... **Jefferson County School District – Administration Building**

F. START DATE: ..... 2024

G. SUBSTANTIAL COMPLETION DATE: ..... **August 23, 2024** *(weather permitting)*

H. FINAL COMPLETION DATE: ..... **September 9, 2024** *(weather permitting)*

**- END OF SECTION -**

**Section 07 01 00**  
**GENERAL DESCRIPTION**

**PART 1 - GENERAL**

**1.01 GENERAL DESCRIPTION**

- A. Project Name:
1. This project shall be known as the:  
**JEFFERSON COUNTY SCHOOL DISTRICT, Madras Oregon**  
**- BUFF ELEMENTARY SCHOOL IMPROVEMENTS -- Single-Ply Reroof Project -- Roofs C, D, E & F**  
**- Project Number: 23058**
- B. Project Type:
1. Public
  2. Prevailing Wage project.
- C. Related Documents:
1. All sections within specification document.
  2. Addenda as may be applicable during bid process.

**1.02 QUALITY ASSURANCE**

- A. Bid Instructions:
1. Bids shall be submitted thru the General Contractor to the Owner.
  2. Compliance with all Owner's (*Jefferson County School District*) requirements is considered a baseline requirement of this project.
- B. Performance Specification:
1. Special Note: This specification is a "Performance Specification" and is based on a defined manufacturer's system for establishment of the baseline standard only. There are equal systems available and additional manufacturers are listed within the document. The products listed are the minimum standard upon which a manufacturer's system will be approved as long as all other aspects of the specification are complied with.
    - a. Only the listed manufacturers will be accepted for this project, without exception.
  2. There are multiple manufacturers listed with equal systems and the listed manufacturers herein are listed for the bidder's convenience, but it is the bidder's responsibility to make sure that the system that they are quoting in compliance with the specified system requirements.
  3. The term "System" refers to all components that comprise the roof assembly including but not limited to the roof insulation, adhesives, fasteners, flashing materials, membrane, etc.

**1.03 GENERAL SCOPE** - (by bid requirements)

A. The following is a general review of the scope of work as it applies to the required quotes.

1. Salvage & Recover:

a. All roofs that are included within this project.

2. General Scope: -

**NOTE:** Refer to other sections of the speciation documents for specific and general system requirements by roof defined Building/Roof(s).

a. **Salvage & Recover --- Roofs C, D, E & F:**

(1) Single-Ply System - (new): Preparation of the existing roof assembly including but not limited to the removal and proper disposal of all base-flashing and flashing membrane, damaged membrane, sheet metal and all incidentals down to the salvaged field single-ply membrane which will be salvaged, prepared and be the substrate for the new roof specified roof assembly. Clean and prepare substrate for the new specified roof system without damage or allowing water into the salvaged assembly-components. Fully adhere with specified adhesive at specified application rates, the new 60-mil (*membrane*) fleece-back TPO membrane system including all perimeter and penetration flashing membrane; walk-pads, termination bar as required by mfg. and as noted at all perimeters; wrap membrane up and over all vertical surfaces and perimeters per details, perimeter flashing metal, counter-flashing metal, drip edge metal, new clad metal, scuppers, pre-painted perimeter standing seam coping metal, fall protection warning line; raising of roof-mounted equipment and penetrations to meet minimum 8" height requirements; rebuilding internal drains and scuppers, pre-painted continuous gutter and downspouts system and all incidentals, to complete the specified warranted system/assembly.

b. Alternates: No membrane type and/or system or manufacturer alternates will be accepted for this project. Material alternates that meet the requirements of the defined system and are approved by the membrane system manufacturer for their warranted assembly will be reviewed. All Owner's decisions are final.

c. Additional General Information:

- (1) Crickets: Install crickets at upslope side of all equipment and in valleys between drains to achieve positive drainage (*all roofs*).
- (2) New wood nailers to raise perimeter height.
- (3) Raise all equipment, vents, etc. as may be required to meet the minimum 8" clearance height above the finished roof surface.
- (4) Fall protection warning line system (*permanent/heat welded*).
- (5) Incidentals: All incidentals to complete the system to a warrantable level.
- (6) New pre-painted gutters.
- (7) New pre-painted leaderheads, downspouts and splash pads.

d. All trades to complete the work shall be included within cost/quote submitted via the General Contractor.

e. Sub-contractors will be discussed at mandatory pre-bid meeting.

B. General Project/Scope Information:

1. Comply with written specifications and roof system manufacturer's printed requirements and Owner's requirements on this project for the specified warrantable system.
  - a. Strictest document shall apply at all times if a conflict arises or is noted.
2. Contractor must comply with all Owner's requirements throughout the course of this project, without exception.
3. Incidentals: All incidentals to complete the system to the specified warrantable level.
4. Liquidated/Stipulated damages are an Owner's option for this project and would be requested by the School District during the pre-bid and contract process.

C. Alternates:

1. No additional manufacturer's systems other than those listed/ identified herein as approved manufacturers.
2. No alternates will be accepted without pre-approval.
3. No system alternates (*i.e. built-up for single-ply or PVC or EPDM for specified TPO*) will be accepted on this project.

**1.04 GENERAL SCOPE SUMMARY (*items included in project*)**

A. Membrane System:

1. 60-mil TPO (*membrane minimum thickness*) Fleeceback adhered assembly including all manufacturer approved/specified system components.

B. Insulation & tapered insulation board– General as applicable to specific roof area:

1. Insulation replacement if necessary due to wet and/or damaged condition.
2. Tapered insulation at areas where insulation is currently installed and requires new tapered insulation at the drain sumps.
3. Insulation General:
  - a. Submittals on this project shall include attachment pattern layout for perimeter, field corners, etc. (*systems rating is applicable*).
    - (1) Attachment shall be minimum FM 1-90 (*or equivalent*).
  - b. Staggering of the insulation is required a minimum of 24" on ends and 12" on the sides (*all layers*).
  - c. Comply with published standards and specification with strictest requirements in effect.
4. Underlayment Sheet: (*as applicable*)
  - a. Ice & Watershield type High Temp, fully adhered synthetic membrane.

C. Crickets – Insulation:

1. As applicable: Refer to drawings for cricket design requirements for each roof area.
2. Crickets at the up-slope side of all equipment, curbs (*large or small*), etc.
3. Crickets required between the drains/scuppers.
4. Crickets must be installed within insulation assembly and under coverboard.
5. To be reviewed at the pre-bid meeting.

D. Parapets & Vertical Walls - *(as applicable)*:

1. Removal of all existing membrane on perimeters, parapets, equipment is required.
2. ¼" DensDeck Prime shall be mechanically attached at all vertical surfaces prior to installation of fully adhered membrane.
3. Additional wood nailers are required to meet insulation height/clearance requirements.
4. New beveled cedar siding required at top of parapets to establish slope to roof side of parapet.
5. New fully adhered membrane is required at all parapets and shall be up and over the top of the parapet and brought down the outside (*opposite edge*) a minimum of 1 ½".
  - a. Membrane must be brought down outside perimeter a full ¼" below the perimeter wood nailers.

E. Sheet Metal:

1. New perimeter metal to match the existing style (*coping, low profile, light metal edge, surface mounted reglet, etc.*) and as noted on drawings, but shall meet the requirements of the new insulation thickness and perimeter nailers, etc.
2. Perimeter: New - (*Replace existing with new*)
3. Equipment (*as required*):
  - a. Raise all equipment as necessary to meet 8" height requirements above finished roof field.
  - b. Install new counter-flashing of all equipment and proper flashing of base flashing membrane.
  - c. Curbs: New metal and counter-flash if possible.
  - d. Remove any equipment noted for removal by Owner's representative during bidding process and include in base bid, submitted thru the General Contractor. Removal includes deck repair/patch using a metal plate adhered to concrete decks and mechanically attached to metal decks.
4. Scuppers: Metal / New replacement - See Sec 1.04; F-4 for further information within this Section.
5. Leaderhead and downspouts: Replace with new pre-painted to match existing as applicable at each roof area.
6. Color and style to match the existing (*removed and/or salvaged*).
  - a. This issue shall be discussed at the pre-job meeting.
7. All new sheet metal shall be installed to SMACNA standards when conflict occurs and finished assembly shall match the assembly removed.
  - a. Metal shall be galvanized or stainless steel only, with scupper being only stainless steel.
8. Refer to Section 07 54 23 for further information.
9. Attachment of the sheet metal shall meet and/or exceed all current SMACNA published guidelines.
  - a. Nails are not an acceptable attachment method. Screws, with appropriate (*specified*) washers, are required.
10. A shop drawing approved by consultant, including gauge, style, color, and fastener pattern is required prior to the project start.
11. All fabricated sheet metal work necessary to complete the project and not defined as salvage (*removed and reinstalled*) shall receive standing seams and shall employ double breaks with no exposed sharp edges.

F. Deck – Existing roof deck/substrate system repairs:

1. Inspect deck and repair as required at complete tear-off and replacement areas in preparation for the installation of the new recover system components.
2. At equipment removal areas, new framing and deck installation is required and shall comply with all current building code. Deck shall be same dimension as existing.

3. All major deck/substrate repairs, other than at defined equipment removal areas, shall be considered a cost-plus item.
    - a. Immediate notification of deck problems to Owner's representative is required in order to process any applicable cost-plus billing.
    - b. Violation of this instruction and failure to submit a fully executed change order within twenty-four hours (*workdays*) of the notification shall result in possible loss of and/or non-payment of any applicable repairs.
  4. Scupper – Metal:
    - a. Installation of new sheet metal scupper insert or overall re-working of scuppers to provide a positive long-term seal of the assembly in compliance with membrane manufacturer's requirements for an approved system and as approved by Owner's representative.
    - b. Scupper shall be installed in such a manner (*sloped slightly to building interior*) so as to not result in condensation and incidental moisture (*rain, etc.*) from running/dripping to the exterior of the building.
    - c. Exterior of scupper shall be caulked and finished to match the building exterior.
  5. See Single-ply Roof Section 07 54 23 for further information.
- G. Penetrations:
1. Penetrations shall be detailed based on manufacturer's most recent printed instructions and/or the specification documents.
  2. General Notes / As approved by Manufacturer:
    - a. New flashing of all other roof penetrations including conduct, pipes, etc. to meet manufacturer's requirements.
- H. Pre-Fabricated Pipe Supports:
1. Project requires removal and disposal of all existing pipe and conduit supports and replacement with new prefabricated units a maximum of eight (8) foot on center spacing and in compliance with current Code for spacing which varies by pipe size.
  2. Type: Pre-manufactured pipe support blocking with recycled materials and clamping assembly; H-Block mini; mfg. by Haydon; Roof Top Support System; (*or equivalent*) with unistrut and adjustable support depending on height of the pipe/conduit.
  3. Approval: Approved for use on particular roof system applicable to this project. Refer to roof system sections for further information.
- I. Fall Protection:
1. Single-ply system: Fall Protection line installation at six feet (6') in from outboard perimeter at all perimeters with edges below forty-two inches (42").
    - a. TPO Fully Adhered system: Heat Welded.
    - b. Painted is only acceptable with prior approval and only if adhered system is not available.
  2. No attachment (*davit, etc.*) included within the scope of this project unless addressed under other sections of this project.

- J. Asbestos Management:
1. Refer to Lab results if included within the document.
  2. ACRM – asbestos containing roofing materials.
  3. As applicable, the project has areas of ACRM that require removal and areas where the ACRM will remain and has been inventoried and identified as such within these documents.
  4. Contractor shall meet and comply with all ACRM instructions as well as current Code, Laws, and other requirements for the handling and/or removal of ACRM materials.
- K. Miscellaneous - General:
1. Removal of any obsolete equipment.
    - a. Equipment noted on drawings and on the roof.
    - b. Equipment noted and discussed during the pre-job meeting.
  2. Raise all roof mounted equipment to meet minimum 8" height requirement above finished roof surface including crickets.
  3. New roofing shall not be installed over dirty or otherwise unacceptable substrate including equipment, moisture, debris, etc.
  4. Electrical Conduit at Parapets:
    - a. Carefully remove/support assembly; install roofing and reattach the electrical.
    - b. All electrical work shall be included within bids submitted thru the General Contractor.
  5. Cable/Wire support at Parapet: *(as applicable)*
    - a. Carefully secure the existing cable/wire support and complete specified roofing and then reinstall the tie-off support assembly in such a manner that it will be secured and meet the roof system membrane manufacturers for a warranted assembly.
  6. Electrical conduit:
    - a. Any electrical conduit at parapets and walls shall be attached at the base of coping metal or at base of wall so as to minimize penetration of the roof membrane system/assembly.
    - b. Cost for all electrical work shall be included within quoted price submitted thru the General Contractor.
  7. Contractors moving forward with installation is an acceptance of the substrate by the applicator/contractor. Notify project manager of any unacceptable conditions before proceeding.
  8. Protect the existing and new roof system at all times during the course of the project.
  9. All existing sleepers shall be replaced with new roofed in curb and/or platform detail.
  10. Any wood replacement that may be necessary shall standard or better dimensional lumber except when in contact with concrete where the use of treated wood shall be required.
  11. All Incidentals to complete the project to a warrantable level based on these specifications and the manufacturer's printed instructions.
    - a. Whenever a conflict occurs, the strictest interpretation shall be utilized.



### **1.05 SQUARE FOOTAGE**

- A. The roofs within the scope of this project include an approximate total.
  - 1. Contractor is responsible for verification of all square footage. Owner and/or Roof Consultant shall not be responsible for the accuracy of any square footage information provided within this specification or mistakes and/or errors by the bidder and/or contractor.
- B. For individual square footage, please refer to drawings and “Roof Construction Data” section within specification and “Detail & Insulation Rebuild Callout Sheet” drawings.
- C. **NOTE:** The noted figures herein are approximate square footage only. Contractor is responsible for the verification of all square footage and components.

### **1.06 QUOTING PROCESS**

- A. General Instructions:
  - 1. All instructions with specification documents and addenda apply to this process unless specifically deleted or modified by Roof Consultant.
  - 2. Contractor is requested to submit an individual quote thru the General Contractor for the work that they can do within the defined time period.
- B. Additional Owner's Instructions:
  - 1. All submitted documents become the property of Jefferson County School District and are subject to disclosure pursuant to applicable law.
  - 2. Should a contract be awarded, it shall be with the proposer whose proposal is determined by Jefferson County School District to best serve its interests, taking into account price as well as other considerations identified in DCC 2.37.090c.
  - 3. All Owner's instructions listed within specification documents or via addenda are considered a part of the specification documents unless specifically deleted or modified by Roof Consultant.
- C. Pre-Bid Meeting:
  - 1. A pre-bid meeting (*conference*) is scheduled on this project. This meeting is mandatory for the General Contractors bidding the project.
    - a. Refer to Section 07 00 00 “Bid/Project Information” for further information.
  - 2. Roof Consultant and/or Owner reserve the right to waive and/or modify this requirement without consequence.
  - 3. Follow-up Access during Bid Process:
    - a. Refer to “Part 2; 2.02 Inspections” within Section 07 01 00 “General Description” for further information.
- D. Bid Dates, Location, etc.:
  - 1. Refer to Owner's Advertisement for Bids for Bid Form submittal requirements.
  - 2. Bidder is solely responsible for all costs associated with the development and submittal of bid on this project.
    - a. Absolutely no costs associated with the development of a bid/quote (*even if not submitted*) are considered recoverable to the successful and/or unsuccessful bidder on this project.
- E. Pre-Job Meeting (*mandatory*):
  - 1. A pre-job (*pre-construction*) meeting will be conducted at the job site prior to start up. The Selected Roofing Contractor shall notify all parties involved with project including sub-contractors, Owner's representative, and Roof Consultant a minimum of eight (8) working days prior to the scheduled meeting.
  - 2. Meeting will not be conducted until all applicable submittal requirements are met and approved.



## **PART 2 - PROJECT REQUIREMENTS & NOTES**

### **2.01 COORDINATION**

**A. Contractor** (*Prime contractor*):

1. The work on this project is considered a “Turn-key” project with the Roofing Contractor and the General Contractor coordinating all trades necessary to complete the project in its entirety, unless specifically noted during pre-bid and indicated in formal addenda during quoting process.
2. Coordination with designated Owner’s representative is a requirement of this project.

**B. Coordination Statement:**

1. Coordination with Owner’s defined representative(s) for location of roof access, staging, etc., is required during the course of the project.
  - a. Coordination shall be discussed at pre-bid and pre-job meetings.
  - b. Deviation from the approved plan (*as agreed upon at pre-job meeting*) is not acceptable and may result in project delays at contractor’s expense.
  - c. Contractor will be directed to minimize contact with JCSD personnel unless specifically instructed. All coordination must include defined Owner’s representative (*Roof Consultant*) and project manager if additional is indicated.

**C. Manufacturer’s Participation:**

1. This project required participation by the prime Manufacturer’s local representative.
  - a. This participation includes being available on an “as-required” basis to provide technical assistance. In addition, the Final Inspection shall require manufacturer’s participation if so requested by the Roof Consultant and/or Owner.

**D. Other Trades:**

1. Contractor (*prime*) shall coordinate all trades to complete the roof project unless noted at the mandatory pre-bid meeting.
  - a. Costs for other trades shall be included within the Bid for all items noted and discussed at the mandatory pre-bid meeting and as noted via addenda prior to the bid date.
  - b. Costs that are not directly noted within the Specifications, but are required to complete the project, shall be billed after approval for the work has been issued by the Owner’s representative in writing.

**E. Owner’s Representatives:**

1. The project Owner’s representative will be indicated at the pre-job meeting including but not limited to contact information (*if necessary*) as well as the Owner’s project management structure, etc.

**F. Roof Consultant:**

1. The project consultant firm on this project is:
  - a. **A-TECH/NORTHWEST, INC.**  
**Mailing Address:** 2501 NW Gerke Rd., Prineville, OR 97754  
**Phone:** 503-628-2882  
**Fax:** 541-447-9833
  - b. Project Representative:
    - (1) David Anderson.
    - (2) Please direct all questions to his attention and reference specific facility name and project number to avoid confusion with other projects.

## **2.02    INSPECTIONS**

### **A.    Bid/Quote Process:**

1.    Inspection of the work area may be obtained by authorized Bidder's representatives during quoting process, after (*not before*) the mandatory pre-bid meeting.
2.    Notification to Owner as noted during pre-bid meeting is required before accessing roof.
  - a.    Do not access roof without checking in with the designated on-site building representative, as the building is a secured facility.
  - b.    Access procedures will be discussed at the pre-job meeting and included in the Addenda issues based on that meeting.

### **B.    Work-in-Progress Inspections: (*during work*)**

1.    Project is subject to periodic and possibly full-time inspections by Owner's representative(s) and Roof Consultant during the course of the project.
2.    Supplemental as required during course of project.

### **C.    Close-out:**

1.    Substantial Completion Inspection(s).
2.    Final Inspection.
3.    Manufacturer's Warranty Inspection(s).
4.    Any additional inspections that Owner or Project Representative (*Roof Consultant*) requires in order for project to be accepted as completed.

## **2.03    LICENSES – REGULATORY REQUIREMENTS**

### **A.    Contractor's responsibility:**

1.    Contractor is responsible for any and all permits and their fees necessary to complete this project and shall have copies on the job site at all times during the project, including sub-contractors.
  - a.    Refer to other sections of this document for further information.
2.    Prime contractor is responsible for all fines, or other ramifications for not complying with this instruction.
3.    **SPECIAL NOTE:** Project will not be closed out and final payment will not be released until contractor provides proof that the entity issuing the permit has accepted the work and all fees are paid.

## **2.04    SCHEDULE**

### **A.    A written schedule is required to be submitted and approved before project start-up.**

1.    Refer to submittal requirements within this document.

### **B.    Completion of work is required based on approved schedule.**

1.    Refer to 2.08 "Weather..." for further information.
  - a.    Schedule must include not only start and finish dates, but work patterns, staging areas, etc.
2.    Once contractor starts the work on this project, they are required to stay on the project until completion other than normal non-workdays (*holidays, weekends, etc.*) as identified within the approved schedule.
  - a.    Failure to comply with this instruction will possibly remove contractor from Owner's pre-approved and invited bidder's list for future projects.

### **C.    Completion of the work, in its entirety, by the date indicated within the "Bid/Project Information" and applicable contract documents are considered mandatory on this project.**

1.    Coordination with Roof Consultant on schedule, delays, etc. is required during the entire course of this project.

## **2.05 FACILITY OPERATIONS - and - SCHEDULING**

- A. The contractor shall comply with all special requirements as noted at pre-bid meeting with regard to this public school facility.
  - 1. Storage on-site is available during the project including the parking area.
    - a. Final decisions on area(s) will be made during the pre-construction meeting.
  - 2. Building access locations will be identified and approved during the pre-construction meeting and must be via ladder.
    - a. Refer to special security requirements within this specification document - (*refer to 2.12 Security*).
- B. The contractor shall be required to meet all Owners' requirements for set up and storage of materials and work noise, etc.
  - 1. Blockage of building access doors and/or adjacent traffic areas is not acceptable without prior written approval. Inside access during the project is restricted to designated path/patterns, unless otherwise pre-approved by Owner's representative.
    - a. Contractor is responsible for any damage associated with inside access (*i.e. stains on floor, etc.*)
  - 2. Contractor shall comply with all odor and low odor adhesive requirements on this project.
  - 3. To be reviewed at pre-bid meeting and again in more detail during pre-job meeting.
- C. This project is to be conducted while the normal day-to-day operations of the facility are being conducted. Contractor is required to take care to make as little interruption and disruption as possible of the day-to-day activities.
  - 1. Early and/or late hours as well as weekends are acceptable, within compliance with City and County regulation applicable to work locations, but the contractor shall be required to notify Owner's representative and Roof Consultant of work area and schedule at least two (2) working days prior to work on a specific area.
  - 2. There is a possibility of a few non-workdays due to special activities within the facility will be reviewed during the pre-bid meeting.
  - 3. Schedule must comply with local zoning laws and requirements for noise, etc.
  - 4. Prior schedule approval, including non-acceptable workdays (*periods*) is required by Owner and Owner's representative prior to project start.

## **2.06 BUILDING ACCESS; STAGING & LOADING**

- A. No building access is available to roofing crew other than that which is necessary to complete the project as specified and reviewed/noted during pre-bid meeting.
  - 1. Coordination with Owner's representative (*Consultant and on-site*) is required applicable to any work that is necessary on the inside of the building.
  - 2. This is a secured building and all Owner's security requirements must be complied with at all times.
- B. Roof access to be reviewed at pre-bid meeting.
- C. Contractor to work from sides and back of building whenever possible and under no circumstances shall the Main (*Front*) Entry(s), loading dock or other restricted areas be blocked.
  - 1. Under certain circumstances, other building access or work areas may be blocked with prior approval by the Owner's representative. Approval is required a minimum of two (2) working days prior to work at requested area.

- D. Location of access, staging, crane, drop box, etc. shall be discussed at the mandatory pre-bid meeting and confirmed during pre-construction meeting.
  - 1. Notification of selected applicable locations shall be provided to the Owner's representative and Consultant prior to start up.
- E. Materials movement on ground:
  - 1. Contractor is responsible for the safety of anyone and/or property while moving materials on ground at any time, associated with the project.
  - 2. A ground spotter with safety vest and warning flags is required at all times when moving a fork-lift or other equipment while on-site, during the course of the project.
- F. Damage:
  - 1. Contractor is responsible for any and all damage to building and/or grounds. Contractor shall take all precautions to protect all areas during the course of the project.

## **2.07 ENVIRONMENTAL**

- A. The contractor is responsible for maintaining the quality of the environment within and around the building, at all times, during this project.
  - 1. Notify Owner of any situation that may be considered unhealthy to building inhabitants.
  - 2. Special conditions applicable to air intakes are the contractor's responsibility during the project. These may include shut down of equipment during work at or adjacent to intake areas, etc.
    - a. To be discussed at pre-bid meeting.
- B. Equipment Shutdown:
  - 1. If the contractor requires shut down of equipment, prior scheduling of a minimum of twenty-four (24) hours is required.
    - a. Violation of this instruction will render contractor responsible for any damage to products, etc. due to the action (*i.e. loss of freezer, cooling, etc.*)

## **2.08 WEATHER RELATED REQUIREMENTS**

- A. Weather:
  - 1. This project is located in a region where weather is a very high consideration.
  - 2. Contractor is responsible for monitoring weather conditions and adjusting their project activities, coordination, and protection accordingly.
  - 3. All precautions and protections of building, building components/occupants, new roofing, storage, and work areas are required during the project due to any inclement weather conditions.
  - 4. Contractor is responsible for all damage/costs associated with moisture and weather affecting the roof system (*new or existing*) as well as new roofing materials and any interior damage.

## **2.09 CREW SIZE REQUIREMENTS**

- A. Contractor shall provide a crew large enough to complete the project in a timely manner and stay within submitted and approved schedule.
  - 1. Once the project starts, the contractor is required to provide adequate crew size to complete work within the defined/approved schedule.

- B. The Owner reserves the right to disqualify any member of the contractor or sub-contractor from working on the project without cause.
  - 1. Contractor will be notified in written form (*electronic or hard copy*) of the disqualification and the contractor must remove that/those individual(s) immediately from the job site and replace with an experienced crew member so as not to jeopardize the project schedule.
- C. Crew shall comply with all Owner's requirements at all times.

## **2.10 MISCELLANEOUS**

- A. SANITARY CONTROL:
  - 1. Contractor shall supply portable restroom facilities and maintain in a clean and secure manner during the course of the project. (*No building access allowed.*)
    - a. Unit shall be immediately removed upon completion of the project.
    - b. If unit shall not be mounted on roof, it shall be located only on the ground at a location that is agreeable to the Owner.
- B. POWER & WATER:
  - 1. Contractor shall supply own power and water unless prior written approval by Owner is received.
    - a. If approval is provided, a written correspondence from the Consultant to the Contractor will be provided.
    - b. Contractor is responsible for all problems, damage, etc. that may result from the use of the Owner's power and water should permission be granted.
- C. Damage to Building & Surrounding Area/Grounds:
  - 1. Contractor is responsible for any and all damage to building and grounds and shall return the applicable area or structure to its original condition prior to finishing the project.

## **2.11 SAFETY**

- A. General:
  - 1. Safety is a priority on this project including but not limited to the roofing crew, building occupants, pedestrians and anyone that may venture into the work area.
  - 2. Contractor shall:
    - a. Be responsible for safety at site during the duration of the project and must comply with Owner requirements and requests.
    - b. Be responsible for the security of all applicable equipment and materials during the course of the project.
    - c. Comply with all applicable Codes and Standards with regard to safety and health issues and assume all responsibility for compliance, at all times.
      - (1) Applicable to, but not limited to, all Federal, State, and Local laws, standards, and regulations.
    - d. Meet all Owner's safety requirements as defined within their company policy or directed by Owner's representative and/or Roof Consultant.
    - e. Comply with all industry standards, as well as any additional Owner and/or Owner's representative requests, at all times during the course of the project.
    - f. Maintain a safe work site including not only persons working on project but also building occupants and/or persons that may be in the area.
    - g. Comply with all Owner's safety requirements during the course of the project.

3. Fall protection requirements shall be adhered to at all times during the project and is the contractor's responsibility.
4. Special Note: A ground spotter with safety vest and warning flags is required when moving a fork-lift or other equipment while on-site, during the course of the project.
5. The Owner shall not be responsible for any problems, damage or loss associated with this instruction without additional cost to Owner.

## **2.12 SECURITY**

### **A. General:**

1. Contractor shall:
  - a. Maintain a secured site during the course of the project.
  - b. Comply with Owner's security requirements at all times.

### **B. Specific:**

1. During Bidding:
  - a. Roof Access for follow-up to pre-bid inspection is acceptable, but only after attending pre-bid meeting.
  - b. No access prior to pre-bid and will only be available for those firms that attended the pre-bid meeting and signed in.
  - c. Comply with directions for access given at pre-bid meeting if different than the following.
  - d. Check-in at the front desk and identify yourself as a bidder on the reroof project and that you need to access the roof.
  - e. After checking in, you can access the roof with your own ladder at the front of the building only.
    - (1) The ladder must be placed at the front of the building only.
    - (2) Ladder must be attended at all times. If you are the only person, it is acceptable to use your ladder while on the roof, but it must be taken down and put back on your vehicle immediately upon finishing your inspection.
    - (3) When your ladder is properly secured then proceed into the building to check out.
      - (a) Do not leave the ladder unattended at any time.
2. During Roof Project:
  - a. Access will be via ladders, supplied by contractor, at designated (*approved during the pre-construction meeting*) location(s).
  - b. Ladders will be taken down when the roof is not attended (*at any instance*) including lunch breaks or when the roofing crew leaves the site. No Exceptions.
  - c. An Emergency Contact List will be supplied by contractor to the roof consultant prior to the project start and updated as contractor's personnel change.
    - (1) Roofing contractor shall be required to keep the list current at all times during the course of the project.
    - (2) Any changes must be emailed to roof consultant immediately after a change is made.

## **2.13 LIQUIDATED EXPENSES (*Liquidated /Stipulated Damages*)**

### **A. Liquidated Damages may be applicable to this project.**

1. This is an Owner's option.

## **2.14 BONDS**

- A. Bid Security Bond:
  - 1. Refer to Owner's / General Contractor's instructions if required.
- B. Performance / Payment / Public Works Bonds:
  - 1. Contractor shall obtain (*if required*) a Performance Bond and Payment Bond each in the amount of One Hundred Percent (100%) of the applicable Contract Sum. Contractor shall deliver its required bonds not later than the date of execution of the Agreement, or if the Work is commenced prior thereto in response to a Notice to Proceed, Contractor shall, prior to commencement of the Work, submit evidence satisfactory to Owner that such bonds will be issued. The bonds shall be in form approved by Owner.
  - 2. Contractor and subcontractors performing work that exceeds \$100,000 in contract price shall file with the Construction Contractors Board a public works bond with a corporate surety authorized to do business in this state in the amount of \$30,000 and must be in compliance with all requirements of ORS 279C.836, "Public works bonds; rules." The purpose of this bond is to ensure payment of claims ordered by the Bureau of Labor and Industries. Exemptions to this bonding requirement are contained in ORS 279C.836.

## **2.15 ASBESTOS**

- A. RESULTS: Refer to Asbestos Analysis if included herein.
- B. As applicable, Contractor must comply with all local state and federal requirements for asbestos removal within the scope of a roof project.
  - 1. If, during the course of the project, asbestos conditions are identified that were not previously noted, the Contractor shall immediately notify the Roof Consultant and Owner's representative, IN WRITING, of the conditions.
  - 2. At that time, the Owner and Roof Consultant shall determine the best course of action and will notify the Contractor in a timely manner.
  - 3. At all times, the Contractor is required to meet minimum standards with regard to asbestos as it relates to roofing and retrofit roofing projects.
  - 4. The Owner reserves the right to contract with an Asbestos Abatement Contractor for removal and any and all asbestos if the successful bidder (*Contractor*) and Owner are unable to agree on a cost for such related work.
- C. Contractor shall submit their asbestos abatement plan prior to project start-up (*as applicable*). Refer to Submittals section within this specification document.
- D. Under no circumstances shall any materials containing asbestos be allowed with the scope of this project. This includes all mastics, plies, coatings, etc.
  - 1. Contractor shall be responsible for all costs, fines, labor, etc., as may be applicable for removal, via approved asbestos removal methods, for any materials installed in violation of this instruction.



## **PART 3 - SUBMITTALS**

### **3.01 SUBMITTALS**

#### **A. DOCUMENTS:**

1. Submittals shall be as defined elsewhere within this document as a full and complete package.
  - a. Electronic submittals are accepted for this project.
  - b. Submittals go directly to Roof Consultant unless otherwise directed during pre-bid meeting.
2. Submittals shall be submitted as a complete document applicable to the required submittal time.
  - a. If the submittal is not complete and/or is submitted in pieces at different times, it will be subject to rejection of the entire submittal package by the Consultant and/or Owner's representative.

#### **B. PRIOR TO BID: (To Consultant)**

1. Substitution Request within five (5) working days of bid date.
2. Refer to other sections of this document for substitution requirements and limitations.

#### **C. PRIOR TO COMMENCEMENT: (Minimum 5 working days prior to mobilization; submitted to Consultant)** -- Submittal Package --

##### **1. INSURANCE:**

- a. Contractor will provide a dated Certificate of Insurance showing the amounts, the name, telephone number, expiration date, and agent issuing the Certificate as well as the name and address of the company writing the surety.
- b. Comply with the Owner's requirements for insurance coverage.

##### **2. LICENSES:**

- a. Contractor is to provide a copy of their current Contractor's License as issued by the State and City (as may be applicable), where the work is located, and will provide the same for any sub-contractors before work begins.

##### **3. PERMITS:**

- a. Provide copy of applicable building permits specific to this project.
- b. NOTE: Final Payment on this project will not be made until all Permits are properly closed out including formal documentation.

##### **4. MANUFACTURER'S LITERATURE:**

- a. Submit most recent copies of Manufacturer's Printed Literature and Specifications applicable to all products, materials, and specifications proposed for use within the scope of this project.
- b. Literature from all applicable products is to be utilized within the scope of this project.

##### **5. SHOP DRAWINGS:**

- a. Submit applicable shop drawings for items not detailed or changes not supplied by specifier and not modified by applicable addenda.
- b. Drawings are required for all details that are not specifically included within this document but will be installed during the course of work for this project.
- c. Insulation fastener layout pattern is required on this project including perimeter, field, and corners.

##### **6. APPLICATION TOLERANCES:**

- a. Submit Manufacturer's application tolerances for all products and applications applicable to this project.



7. **SAFETY DATA SHEETS:**
    - a. Submit SDS information as applicable for all materials utilized within roof assembly.
    - b. **NOTE:** Contractor shall have a full set of approved Material SDS sheets on-site during the entire project.
  8. **SCHEDULE:**
    - a. Submit estimated work schedule including start date and estimated completion date. Schedule shall include marked up as-built reference of staging, access, loading, areas, etc.
  9. **PERFORMANCE / PAYMENT BONDS:**
    - a. Performance / Payment bonds as required by Owner / General Contractor.
  10. **SAFETY PROGRAM:**
    - a. Copy of Contractor's written Safety Program.
    - b. **NOTE:** Additional copy of Contractor's Safety Program shall be kept at the job site.
  11. **ASBESTOS ABATEMENT PLAN:**
    - a. Submit written asbestos abatement procedures as applicable to the project.
  12. **CONTRACT DOCUMENTS:**
    - a. Fully executed Owner's Contract documents as required by Owner / General Contractor.
  13. **BACKGROUND CHECKS:**
    - a. To be eligible to work in all Jefferson County School District buildings, a background check is required if school is in session and MAY BE required by the JCSD upon notification to the contractor.
      - (1) Work on the roof may or may not require a background check and will be reviewed during the pre-bid meeting.
      - (2) Background checks typically take up to five (5) working days for completion (*as applicable*).
  14. **MANUFACTURER'S WARRANTY:**
    - a. Submit a sample of the Standard and Extended manufacturer's published warranty documents.
  15. **FACTORY MUTUAL SUBMITTAL REQUIREMENTS:** **NOT APPLICABLE THIS PROJECT.**

*(Including the following, as applicable, as a summary to indicate that proposed roof system components comprise a Factory Mutual listed assembly as specified herein.)*

    - a. Factory Mutual Reference information;
      - (1) Copy of current listing information.
    - b. Manufacturer, type, and size of roof insulation;
    - c. Manufacturer, type, and size of roof decks;
    - d. Manufacturer, type, and specifications of the roof covering materials;
    - e. Manufacturer, type, and size of the insulation fasteners and plates;
    - f. Layout of the fasteners per board for the typical bay, perimeter bay, and in the corners;
    - g. Sectional view of the roof components;
    - h. Details of perimeter flashing;
    - i. Roof drain sizes.
- D. **UPON COMPLETION:** *(To Consultant for review within 5 days of Final Inspection)*
1. **GUARANTEE(S) / WARRANTIES:**
    - a. **CONTRACTOR'S WORKMANSHIP GUARANTEE:** Submit fully executed copy of the Contractor's Guarantee of workmanship.
    - b. **MANUFACTURER'S WARRANTY:** Submit fully executed copy of any applicable Manufacturer's Warranty (*as applicable and if purchased by Owner*) to the Owner with a copy to Consultant for review.

2. REFUSE RECEIPTS: Copies of all refuse and dumping receipts as proof of legal disposal of all materials associated with this project.
3. ASBESTOS RELATED DOCUMENTS: All asbestos related records as may be applicable for asbestos related removal within the scope of this project.
4. PERMIT CLOSE-OUT: All closeout documents and inspection reports are required at the close of the project by the permitting body.
  - a. Note: Final payment will not be released until all permit requirements are met and documented.
5. NOTE: ALL of the above items are required and must be approved prior to and in order to process any final billing requests.

#### **PART 4 - CONTRACT DOCUMENTS - and - ADMINISTRATIVE REQUIREMENTS**

##### **4.01 AIA DOCUMENT NOTIFICATION / CLARIFICATION**

###### **A. Disclaimer:**

1. All references to “Architect” in AIA forms, or any other documents within this specification, are generic and do not imply that Owner or Roof Consultant is acting as or claiming to be an architect within the scope of this project’s “General Description”.

##### **4.02 STANDARD CONTRACT**

- A. Contractor shall review, sign, and return the original contract documents provided by the Owner’s representative / General Contractor during contract process.
- B. Comply with all other requirements noted within the specifications and Owner’s / General Contractor’s general requirements.

##### **4.03 CHANGE ORDERS **NOT APPLICABLE THIS PROJECT – Refer to Owner’s / General Contractor’s Instructions****

- A. Shall be executed on Change Order form provided included within the specification documents.
  1. Coordinate with Roof Consultant for development of the document and submittal procedures.
- B. Complete form to include new Contract Sum and new Date of Completion as applicable. The Change Order shall be completed as follows:
  1. Written description of requested change and show as an addition or deduction to the Contract.
  2. Prior change order amounts and latest contract sum must be shown in summary section.
  3. All requested items filled out with no blank lines on form.
- C. Submit to Roof Consultant for review. Roof Consultant will forward to Owner after his review.
  1. Change Order is not formally approved until all signatures are obtained.
- D. Cost breakdown shall meet requirements developed and submitted on the Bid Form.

##### **4.04 APPLICATION FOR PAYMENT**

###### **NOT APPLICABLE THIS PROJECT – Refer to Owner’s / General Contractor’s Instructions**

- A. Execute a copy of AIA Document G702 “APPLICATION AND CERTIFICATE FOR PAYMENT” along with AIA Document G702A “Continuation Sheet” or equivalent forms.
  1. Document must be fully executed and signed with all change order documentation, etc.
  2. Include Company Invoice for each billing with fully executed application for payment.
    - a. Billing will not be processed without the required Company Invoice for each billing.

3. Retainage of 5% per billing is required on this project and shall be properly indicated on both the application for payment documents and the required Company Invoice.
- B. Submit original on a monthly basis to Roof Consultant for review and processing.
  1. Roof Consultant will forward approved documents to Owner after the review or contact Contractor if a problem occurs.
  2. Do not submit billing directly to Owner.
    - a. This will slow payment considerably.
- C. Final payment will be made upon receipt by Owner of fully executed AIA Document G706, "CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS" and AIA Document G706A, "CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS" and if P/P bonded, AIA Document G707, "CONSENT OF SURETY TO FINAL PAYMENT" or equivalent forms.
  1. Under no circumstances will final payment be released until receipt and acceptance of all project documents by Owner.
  2. Final payment shall not be approved until all punch list items are completed and roof project has been completely accepted by Roof Consultant and Owner.

#### **4.05 OCCUPATIONAL SAFETY AND HEALTH ACT REQUIREMENTS**

- A. It shall be the sole responsibility of the Contractor to assess the job conditions and to comply with all applicable safety precautions to insure that the Owner's personnel, agents, invitees, business associates, and workers, engaged in project or not, are protected from injury during the time of the contract, and all activities associated with this project.
- B. The Contractor and applicable sub-contractors shall indemnify and hold the Owner and the Owner's agent(s) harmless from any and all expenses incurred as a result of legal action(s) resulting from injury to any party during the time of the contract.
  1. This instruction applies to anyone whether they are a part of the project or not.
- C. The Contractor shall comply fully with the provisions of the "Occupational Safety and Health Act" of 1970 (*or most recent as applies*) applicable to the work of this project.
  1. Contractor shall indemnify and hold the Owner and Owner's agent(s) and Consultant harmless of and from any and all penalties, fines, or expenses which may occur by reason of violation by the Contractor and/or their sub-contractor(s) of any of the terms and provisions of said act or standards.

**- END OF SECTION -**

## SECTION 07 54 23

### SINGLE-PLY ROOFING *and* ROOF INSULATION

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION**

A. **SPECIAL NOTE:** Performance Specification Statement.

1. This specification is a "Performance Specification" and is based on a defined manufacturer's system for establishment of the baseline standard. The products listed are the minimum standard upon which a manufacturer's system will be approved as long as all other aspects of the specification are complied with.

B. Description: Salvage & Recover Project

1. Provide all labor and materials including but not limited to cleaning and preparing existing roof system for new 60-mil (*membrane minimum thickness*) TPO-fleece-back (*100 mil thickness*) adhered membrane system, adhesives, flashing membrane, flashings; counter-flashing metal; perimeter nailer and coping metal; walk pads, fall protection warning line and all incidentals to complete the specified and warrantable level.
  - a. Crickets - No new crickets will be required.

C. Work Included - General:

1. Specification Documents and Membrane System manufacturer's documents are considered a part of the formal specification as well as the specification document provided herein.
  - a. Strictest document applies if a conflict arises.
    - (1) TPO fleeceback warranted membrane system.
  - b. Accessory roofing materials.
  - c. Walk-pads.
  - d. Fall protection Warning Line – permanent.
2. Substrate Preparation:
  - a. Salvage & Recover Project -- Inspection and preparation of existing salvaged single-ply membrane with complete removal of all flashing membrane, sheet metal and incidentals. Existing single-ply membrane field shall be cleaned, prepared, and salvaged as the substrate for the new specified TPO fleeceback adhered assembly.
  - b. Inspection of deck at any removal areas that exposes the wood deck and notification to project manager if conditions do not meet substrate requirements.
    - (1) Deck repairs are a "cost-plus" billing item and are not included within main scope of work of this project.
3. Removal of any obsolete equipment as indicated on drawings and directed by Owner and/or Owner's representative.
  - a. As reviewed at pre-bid meeting and via applicable addenda issued on this project.
4. Equipment (*roof mounted*):
  - a. Raising of all roof-mounted equipment and penetrations (*pipes, vents, etc.*) that do not meet the 8" minimum height requirement above the finished roof surface.

- b. Install new counter-flashing at all units that cannot be lifted and re-installed during the course of the project.
  - (1) All existing counter-flashing is to be removed and replaced with new as a course of the project.
- c. General:
  - (1) See other sections of this document.
  - (2) Sheet metal work shall be discussed at the pre-job meeting.
- 5. Scope of work includes disassembly and rebuilding of all internal drains.
  - a. All drains shall be disassembled and reassembled / rebuilt in a sumped configuration.
  - b. All drains shall include new stainless-steel bolts and nuts in the base bid.
  - c. Include cost to replace any plastic or broken screen/strainers with new metal screen/strainers in each Quote.
  - d. Broken and/or non-salvageable parts to be replaced as a cost-plus item during project other than drain screens which must be metal upon completion of the project.
    - (1) Verification by Owner's representative of affected parts is required prior to billing.
- 6. Walk pads at the service perimeter of all large HVAC units, hatch and door openings and ladder access areas.
  - a. All walk pads must be fully adhered.
- 7. Roofing accessories and incidentals to complete the project.
- 8. Refer to "General Description" section of this document for additional details and information.
- 9. Torch Work:
  - a. NO torch work of any kind is acceptable on this project without prior written approval by Owner Representative and Roof Consultant if different.
- D. Related Work Specified Elsewhere:
  - a. Related Work: The work includes but is not limited to the installation of:
    - a. Substrate Preparation -Cleaning and repair.
    - b. New 15/32" plywood (CDX) sheathing per Engineers details, drawings, and specifications.
    - c. Insulation – New, new additional and new crickets
    - d. Roof Membrane – Fully adhered 60-mil TPO-fleece back membrane
    - e. Membrane Attachment: Fully adhered
    - f. Fasteners (*insulation & sheet metal*)
    - g. Adhesives for Roof System and Flashings
    - h. Roof Membrane Flashings
    - i. Walkpads at defined areas
    - j. Metal Flashings
    - k. Sealants
    - l. Sheet Metal Flashing
    - m. Raising of equipment to meet height requirements
    - n. Fall protection warning line.
  - 2. Upon successful completion of work the following warranties may be obtained:
    - a. Contractor's 2-year Workmanship Guarantee.
    - b. Membrane Manufacturer's Twenty (20) Year NDL System Warranty.

3. Sheet Metal (Section 07 60 00)
  - a. All Manufacturer's requirements including, but not necessarily limited to, pertinent portions of their Specifications and General Requirements and recommendations apply to the work of this section as fully as though repeated herein.
- E. All primary roof membrane manufacturer's requirements including, but not necessarily limited to, pertinent portions of their Specifications and General Requirements and recommendations apply to the work of this section as fully as though repeated herein based on their most recent printed literature Related Work Specified Elsewhere:
  4. Sheet Metal (Section 07 60 00)
  5. All Manufacturer's requirements including, but not necessarily limited to, pertinent portions of their Specifications and General Requirements and recommendations apply to the work of this section as fully as though repeated herein.

#### **1.02 SUBMITTALS (After bid process and award of contract)**

- A. Refer to "General Description" section within this document for primary submittal requirements.
  1. Submittals shall be submitted electronically, in a full and complete package; however, one (1) full set of printed hard copies are required after approval of the electronic documents.
    - a. Electronic submittals are a requirement of this project.
  2. Manufacturer Reports:
    - a. Roof system manufacturer's pre-installation notice.
    - b. Roof system manufacturer's review of specification documents and written acceptance of application for warranty.
    - c. Roof System Manufacturer's Inspection Reports:  
*NOTE: - Electronic copy of each report shall be submitted to Roof Consultant within 5 days of applicable inspection.*
      - (1) At the completion of each inspection, two (2) copies of manufacturer's field quality control reports of field inspections, with one copy submitted within 3-days to Roof Consultant (*electronically via e-mail*).
      - (2) Manufacturer's warranty shop drawings.
      - (3) Manufacturer's final inspection punch list.

#### **1.03 QUALITY ASSURANCE**

- A. Acceptable Roofing Materials Manufacturer shall be:
  1. Versico Roofing System – (VersiFleece) - VersiWeld TPO - (*Baseline standards listed for this Performance Specification*)
  2. Carlisle Roof Systems
  3. Firestone Roofing Systems.

Special Note:

This is a Performance Based Roof System specification with the Sika-Sarnafil fully adhered system listed herein as the base-line standard. Refer to other portions of this document for further requirements applicable to approved equals.

While the manufacturers are listed for the bidder's convenience, the system bid/quote must comply with building Code and other listed requirements as specified within this document. In addition, the Siplast assembly/system listed within this document shall be considered the base/standard upon which any alternates shall be reviewed. The term "system" refers to all components that comprise the roof assembly including insulation, adhesive, fasteners, membrane, base flashing, etc. to comply with warranted system specifications.



**B. PRODUCT APPROVALS**

1. All system components must be supplied and/or approved by membrane system manufacturer for use within their warranted roof system.

**C. APPROVED EQUALS:**

– (If agreed by Owner to review – currently *ONLY* the listed mfg's will be accepted on this project)

1. All approved equals shall be based on the submittals submitted and shall be judged based on all material compliance with specification and Factory Mutual requirements, performance and net life cycle cost savings as can be demonstrated to the Owner in written form.
2. Submit requests for substitution on format per attached form. Requests not submitted on attached form are unacceptable.
3. Product may be approved provided all provisions of the Specifications are complied with and submittals are made and approved five (5) days prior to bid date.
4. Approved products shall have a minimum 5-year record of similar projects within the Northwest Region of the United States.
5. Any approved substitutions will be identified via Addenda.
6. No unlisted product nor membrane manufacturer approved substitutions are acceptable without compliance with the approval process.
7. Substitution for material components with similar components that comprise an approved system will be reviewed; however, changes in system from the single-ply roof assembly specified herein to a modified, built-up, etc. will not be reviewed.
8. All OWNER's, and their Representative's, decisions are final.

**D. GENERAL:**

1. Whenever specification items found herein are less stringent than Manufacturer's General Requirements, manufacturer's requirements shall be followed, including but not limited to, compliance with any and all guarantee requirements.
2. Meet all Owner's requirements as may be dictated and/or defined within their contract documents and/or printed instructions.
3. Contractor shall comply with Local, State and Federal Regulations, Safety Standards and Codes.
  - a. Use the strictest document when a conflict arises.
4. Contractor shall be responsible for meeting all fire regulations. A certified fire extinguisher of adequate size shall be located at the asphalt kettle and elsewhere as required.
  - a. A mandatory three-hour fire watch is required after all torch work is completed.
  - b. Torch work IS NOT acceptable unless prior pre-approved by Roof Consultant.
5. Adhesive and Fastener spacing shall conform to specifications, applicable Manufacturer's Requirements, Uniform Building Code, Factory Mutual, and/or wind uplift requirements for area where building is located and as indicated within these specifications.
  - a. Strictest document shall apply in all cases.
6. Special precautions are necessary when installing the roof system at temperatures below 45° F to insure satisfactory application and performance.
  - a. Meet and/or exceed all manufacturer's requirements and printed instructions.
  - b. Contractor to notify Owner and Roof Consultant if there is a potential for cold weather applications.

**E. CONTRACTOR:**

1. The Contractor selected for this work must be capable of submitting to the Owner the Manufacturer's Unlimited Penal Sum Guarantee (20-year NDL), upon completion and acceptance of installation by Owner's representative.
  - a. Refer to Guarantee and Warranty sections within this document for further information.
  - b. Contractor must be an "approved applicator" by roof primary roof system manufacturer.
2. Contractor shall be a single applicator (*not a sub-contractor to roofing contractor*) with a minimum of five (5) years previous successful experience in the installation of similar systems with a minimum two (2) years' experience seaming the specified system.
3. Contractor Superintendent or Foreman Requirements:
  - a. Shall have a copy of these Specifications on the job site at all times during application and shall refer to it for proper application methods.
  - b. Shall be present at jobsite at all times when work is being performed.
  - c. Shall supervise all workers on project, including sub-contractors to the project, as required to ascertain workmanship, progress and adherence with specifications and project details.
  - d. Report to Owner as defined within specification documents and discussed at the pre-bid meeting.
  - e. Coordinate and manage schedule and overall project coordination/flow.
  - f. Shall have the authority to make binding commitments for Contractor with Owner's representative (*Roof Consultant*) at the project site.
4. Contractor shall immediately notify the Owner's representative (*Roof Consultant*) of any change in Project Superintendent and/or Foreman.
5. Contractor shall be responsible for the proper installation of all components of the roofing system and repairs included within the scope of this project, including sub-contractors under their control.
6. The Contractor shall inform the Owner's representative (*Roof Consultant*), via voice communication and immediately followed up in writing and submitted electronically, of any conditions detrimental to the quality of construction or long-term performance of the roofing system and shall not proceed with the work until the conditions are corrected to the satisfaction of the Owner's representative / General Contractor.

**F. ENVIRONMENTAL:**

1. Contractor shall be responsible for all environmental control during course of project. This includes but is not limited to:
  - a. Coordination of all air handling equipment approved shut down or air blockage/restrictions into the building interior.
    - (1) All equipment shall be returned to normal operations at the end of the work period for that day and sooner if at all possible.
    - (2) Comply with all Owner's requirements with regard to air handling equipment.
    - (3) Special note: Contractor is responsible for any/all damage caused as a result of non-compliance with this instruction.
  - b. Post copies of Material SDS information at site and notify Owner's representative of location.
    - (1) Provide Material SDS to Owner and/or site manager upon request during the project.
    - (2) This is the Contractor's responsibility entirely.
  - c. Notify Owner's representative in writing, with copy to Roof Consultant, of any potential danger to building and/or occupants, including process, procedures, or materials prior to starting.
  - d. Notify Owner's representative, in writing, with copy to Roof Consultant, of methods of controlling entry of fumes into building interior.



#### 1.04 FIELD QUALITY CONTROL

- A. PROJECT CONTRACT: **NOT APPLICABLE THIS PROJECT – Refer to Owner's / General Contractor's Instructions**
1. The project is a formal Contract between Owner and the Roofing Contractor.
  2. Roofing Contractor is responsible for the coordination of all sub-contractors on this project.
- B. PROJECT COORDINATION/CONSULTANT:
1. The project shall be coordinated by Owner / General Contractor with the Roof Consultant (*A-Tech/Northwest, Inc.*) serving as the Owner's advocate.
  2. The project is subject to inspection by the Roof Consultant's representative and any additional Owner's representative they may choose.
  3. The Roof Consultant's responsibility shall include enforcement of Specified Requirements and the General Requirements of the Specifications stated herein, as well as documentation of deficient conditions, installation conditions, etc.
  4. The Roof Consultant's representative shall have the authority to recommend, to the Owner, discontinuance of work in the event that requirements are not complied with and/or deviations or significant problems are not immediately resolved to the Consultant and/or Owner's satisfaction and as directed within the specifications.
    - a. The Roof Consultant shall have the authority to stop the project at any time that they find that the project is not in compliance with the specifications, is a danger to the building or occupants or other unforeseen circumstances that may have a significant impact on the outcome of the project.
  5. The Roof Consultant's representative is to serve as the primary source of information gathering and conduit for both the Contractor and Owner.
    - a. The Contractor is to work through the Roof Consultant at all times in order to avoid time delays, etc.
    - b. This is intended to help provide an easy flow of information between the Contractor and the Owner and also provide a source to obtain answers to questions that may develop as the project moves along.
  6. The Roof Consultant, as the Owner's representative, will make the final determination as to the final project acceptance.
    - a. Project shall not be accepted and final payment made until all punch list and/or supplementary items are completed to the Roof Consultant's satisfaction on this specific roof project.
  7. The Roof Consultant shall have the authority as the Owner's representative to make binding decisions applicable to the roof project.
  8. Contractor shall submit to Roof Consultant for review, approval and forwarding to Owner the Two (2) Year Workmanship Guarantee, included within specification documents, upon final acceptance of project; See 1.08.
- C. ROOF SYSTEM MANUFACTURER:
1. Roofing manufacturer must provide the Manufacturer's NDL System Limited Guarantee that warrants Owner with a watertight condition of roof system and components thereof.
    - a. Warranty shall cover workmanship and materials required to maintain a watertight condition and roof system free of defects.
  2. Roof system manufacturer shall provide technical assistance during the entire project on an as required basis to both the Roofing Contractor and Roof Consultant.
  3. Manufacturer representative will be making periodic work-in-progress inspections with reports (*copy to Roof Consultant*) during the entire course of the project.
    - a. A copy of all manufacturer reports shall be submitted electronically to Roof Consultant for review and inclusion within final Project Manual documents.
  4. Roof system manufacturer shall conduct their final warranty inspection(s) which may or may not be considered the final project inspection/acceptance by Owner.

**D. PRE-BID MEETING:**

1. A pre-bid meeting (*conference*) is scheduled on this project. This is mandatory for the General Contractors submitting bids.
  - a. Refer to “Bid / Project Information” documents for further information.
  - b. Owner and Roof Consultant reserve the right to modify the Pre-Bid meeting and/or requirements as circumstances dictate.
2. Information generated at this meeting will be issued to the attendees and shall be identified as Addendum number 1.
  - a. Additional Addenda may be issued at the discretion of the Roof Consultant based on the relevance to the overall project and the bidders need to know and ability to bid the project in a competitive manner.
  - b. All Owner’s and Roof Consultant’s decisions shall be final.

**E. PRE-JOB MEETING:** (*aka: pre-construction and/or pre-application*)

1. Prior to beginning work, a Pre-Job Meeting will be held at the job site. Those present will be: the Roofing Contractor’s manager in charge of project, the Roofing Foreman, the Roof System Manufacturer’s field representative, the Sheet Metal and other applicable Sub-contractors, Roof Consultant, General Contractor and Owner’s representative.
  - a. Contractor will coordinate the date of the Pre-Job Meeting with the Consultant so that all required parties are in attendance.
2. Attendees shall review the facility and all pertinent details and Specifications, noting any potential problems and making any changes, deletions, or additions as deemed necessary.
  - a. Also included in the discussion will be the following: Nature and availability of roofing materials, guarantee and submittal requirements, sub-contractors and their specific procedures and project requirements, scheduling and forecast of weather conditions, regulatory requirements, protection of building, building components, and completed roof system, proposed installation procedures, and any additional items related to the total roof system.
3. Attendees shall tour representative areas of roofing project and discuss substrate construction and general conditions, including slope, expansion joints, curb and penetration installation, drains, and drain locations, perimeter wall details and material compatibility, etc.
4. Discussion will be recorded. The Owner’s Roof Consultant will furnish a copy of recorded discussions to all attendees.
5. No roofing work shall commence nor materials shall be delivered to the job site until after the Pre-Job Meeting, unless previously approved, in writing, by Owner and/or Roof Consultant.
  - a. This instruction may be waived upon award of the contract in order to expedite the delivery of materials to the job site on this project by Roof Consultant and contractor will be notified in writing if this waiver is granted.

**F. WORK-IN-PROGRESS INSPECTIONS:**

1. Project shall be subject to periodic inspection by Roof Consultant and Owner’s representative on an as-required basis during the course of the project. (*Full-time to part-time scheduling.*)
  - a. Roof Consultant’s inspector will develop a written report of the inspection for the Project Manual and Owner.

**G. SUBSTANTIAL COMPLETION INSPECTION(s):**

1. Prior to completion, Contractor shall schedule a Substantial Completion inspection with the Roof Consultant for potential punch list development.
  - a. Inspection is intended as a pre-acceptance inspection to be conducted when Contractor feels project is substantially completed. A “punch list” of all unfinished or unsatisfactory work will be noted.  
***NOTE: This is not intended as a way for the Contractor to see what Owner wants but to render the project complete with only potentially minor details remaining.***

**H. FINAL INSPECTION:**

1. Upon completion of all specified work items, a Final roof inspection shall be performed by a Manufacturer's representative and the Roof Consultant and, if they wish, the Owner's representative.
  - a. The Roofing Contractor will be notified of the date and time and may attend if they wish.
  - b. Any discrepancies or incomplete work shall be documented in a “punch list” which will be issued to the Contractor.
  - c. The Manufacturer's Guarantee (*as applicable*) will not be issued until completion and confirmation of all punch list items as well as all other guarantee requirements.
  - d. The Roof Consultant shall be the final determiner of the acceptance of the total roof project on the Owner's behalf including all parts of the roof project.

**I. MANUFACTURER'S WARRANTY INSPECTION:**

1. The roofing contractor shall schedule an inspection of the completed/installed and guaranteed roof system to be conducted by the Manufacturer's technical representative. At this time, any defects noted shall be documented.
  - a. Coordination is required to include the Manufacturer's technical representative and Roof Consultant at the meeting. All must agree to a time/date in order for this inspection to be conducted.
2. Any defects falling within the Contractor's Workmanship Guarantee liability shall be repaired by him prior to expiration of that Guarantee. Failure to make proper repairs within the guarantee period shall result in extension of the Contractor's Guarantee until acceptable completion of all applicable repair items.

**J. ROOF SAMPLES – TEST CUTS**

1. The Owner and/or Owner's representative reserve the right, at any time during the installation of the membrane roofing or thereafter, to order a sample or samples to be cut at random from the roof membrane.
  - a. Samples will be examined and evaluated as to standard ASTM testing criteria for material quality, lap adhesion, etc., utilizing manufacturer's nominal standards criteria per submittal requirements noted herein.
2. Test cuts, if required, shall be approximately 12" x 12", cut at right angles to the direction of the membrane and through (*across*) the field laps.
3. If the sample is immediately approved by the Owner and/or Owner's representative, Roofing Contractor shall patch the area(s) of such test cuts to whatever size and dimension as needed to properly ensure the specified longevity of the roof and comply with Manufacturer's requirements.
4. If for any reason the sample is not immediately approved by the Owner and/or Owner's representative, Roofing Contractor shall install all temporary protection necessary to prevent penetration of water through the roof membrane and into the roofing components until final repairs (*patches*) or new roofs are installed, and upon the decision of the Owner and/or Owner's representative, make all required patches and repairs/replacement.
5. All laboratory testing will be done by either an independent laboratory based upon the Owner and/or Owner's representative's directions. Copies of the lab results will be forwarded to Owner, Roofing Contractor, Owner's representative, General Contractor and Manufacturer's representative (*as applicable*).

6. If the samples meet the Manufacturer's Published General Requirements, the expense of cutting, patching, and testing, will be borne by the Owner. If the cuts fail to meet Manufacturer's Published General Requirements, the application shall be deemed defective and shall be removed, replaced, or corrected in a manner acceptable to the Owner, Owner's representative and the Manufacturer. Roofing Contractor will bear entire cost of such removal, replacement, repair, and cost of test cuts and testing. Repairs and/or replacements shall be done as per Manufacturer's Pre-published Specification and General Requirements.
7. Cut areas shall be replaced to avoid depression in the membrane. Patch shall be brought out onto field area a minimum of four inches (4") beyond edge of cut or as Manufacturer's published instructions dictate. Four inches (4") is the Owner's minimum lap for repair areas on this project.
8. Contractor is responsible for making repairs to any and all test cuts taken and for performing any recommended corrective work required by Manufacturer for issuance of his Guarantee, at no additional charge to Owner.
9. REPAIR REQUIREMENTS:
  - a. Cut areas shall be replaced to avoid depression in the membrane.
  - b. Repair shall comply with manufacturer's most recent published instructions for repair of applicable membrane.
  - c. Contractor is responsible for making repairs to any and all test cuts that may have been taken and for performing any recommended corrective work as required by these Specifications and/or any applicable Manufacturer for issuance of a Guarantee, at no additional charge to Owner.

#### 1.05 REFERENCES

- A. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.
  1. ASTM C 1177/C 1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2006.
  2. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2013.
  3. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.
  4. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2013a.
  5. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.
  6. FM 1-28 - Design Wind Loads; Factory Mutual System; 2007.
  7. FM 1-29 - Roof Deck Securement and Above Deck Roof Components; Factory Mutual System; 2006.
  8. FM 4470 - Approval Standard - Class I Roof Covers; current version.
  9. PS 1 - Construction and Industrial Plywood; 2009.
  10. PS 20 - American Softwood Lumber Standard; 2010.
  11. SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems; 2007. (ANSI/SPRI ES-1).
- B. Underwriters Laboratories (U.L.):
  1. ASTM E-108 / UL 790 Class A
- C. Factory Mutual:
  1. Current system approval data.
    - a. FM 1-90 or the equivalent - minimum standard with approved manufactures exceptions and modifications based on manufacturer's attachment requirements noted within these specification documents.
    - b. Refer to specific requirements within specification.
- D. Manufacturer's Specifications Catalog:
  1. TPO Single-ply roofing system most recent literature and system instructions.

#### **1.06 PRODUCT HANDLING - Delivery and Storage**

- A. Wet materials shall not be applied nor shall roofing application proceed during wet weather or when moisture is present on roof deck.
- B. Deliver materials to jobsite on pallets in original, unopened packaging with legible labels. Package labels shall indicate material name, products date, and product code.
- C. Store materials in dry, protected areas in an upright position. When stored outdoors, store on pallets above ground and cover with suitable protective sheet or tarpaulin. Shrink-wrap packaging is not intended for long-term jobsite storage and shall be removed upon arrival at jobsite and replaced with a watertight breathable covering.
  - 1. Roofing Contractor to meet or exceed all manufacturers' minimum standards for materials storage and handling at all times.
- D. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/supplier.
- E. Store curable materials (*adhesives, sealants, etc.*) between 60 °F and 80 °F, in dry areas protected from water and direct sunlight.
  - 1. If exposed to lower temperature, restore to 60 °F minimum temperature before using.
- F. Adhesives: As a general rule all adhesives shall be stored at temperatures between 40 degree F (5 degree C) and 80 degree F (27 degree C).
  - 1. Read instructions contained on adhesive canister or manufacturer's printed instructions for specific storage instructions.
- G. Membrane rolls shall be stored lying down on pallets and fully protected from the weather with clean canvas tarpaulins. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions that may affect the ease of membrane weldability.
- H. If membrane is exposed to the elements (*unwrapped*) to the elements for approximately seven (7) days must be prepared with applicable membrane cleaner prior to hot air welding.
- I. Select and handle materials and equipment in such a way as to avoid damage to materials, existing construction, or applied roofing.
  - 1. Refer to Specifications and all materials manufacturer's published material for guidelines and standards.
- J. Do not load or permit any part of structure to be loaded with a weight that will endanger its safety or cause damage. Confine equipment, storage of materials, and debris and the operations and movements of workmen within any limits as indicated or as directed by the Owner and/or Owner's representative.
- K. Any materials which the Roof Consultant and/or Manufacturer's representative determines to be damaged are to be removed from the job site and replaced at no cost to the Owner.
- L. Contractor must take every precaution to prevent interior leakage, materials falling into the interior, or other such occurrences. Installation of materials shall be conducted and accomplished in such a manner that drippage or falling objects does not occur at any time.
  - 1. Contractor is responsible for all damage and associated liabilities caused by any material entering the building during the course of the project.
- M. Any wet, damaged, or defective material will be marked and removed from the jobsite by Roofing Contractor that same day.
  - 1. This material will promptly be replaced at no cost to Owner.

- N. Temporary waterstops shall be installed at the end of each day's work and shall be removed before proceeding with the next day's work.
  - 1. Waterstops shall be compatible with all materials and shall not emit dangerous or incompatible fumes.
  - 2. Waterstops shall be completely removed as roofing installation proceeds. Under no circumstances shall a waterstops remain in place and be "roofed over".
- O. Environmental Controls:
  - 1. Contractor is responsible for coordination with Owner's representative of shut down of any air handling equipment and/or passive source of building air infiltration as necessary to prevent odors and fumes from entering building.
  - 2. Building Occupant (*as well as surrounding areas*) safety shall be taken into consideration at all times.
  - 3. Contractor assumes all responsibility for environmental control during the course of this project.

#### **1.07 JOB CONDITIONS - General**

- A. Roofing materials may be installed under certain adverse weather conditions but only after consultation with Roof Consultant and Manufacturer's representative, as installation time and system integrity may be affected.
- B. Only as much of the new roofing as can be made weathertight each day, including all flashing and detail work, shall be installed. All seams shall be heat welded before leaving the job site that day.
- C. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all risks.
- D. Comply with all manufacturer's printed instructions and specification documents at all times during this project.
- E. Contractor is ultimately responsible for the safety and management of the roof project and assumes all risk and responsibility for proper safe completion of the specified project.

#### **1.08 GUARANTEE AND WARRANTY**

- A. CONTRACTOR'S WORKMANSHIP GUARANTEE AGREEMENT:
  - 1. For a two (2) year period from the date of completion and Owner's written acceptance, Roofing Contractor agrees to inspect and make necessary repairs to defects of leaks in the roof and flashings.  
*-- 5-year requirement if Performance & Payment Bond Requirements are NOT exercised on this project.*
    - a. Leakage will be attended to within twenty-four (24) hours from receipt of notice of problem from Owner.
    - b. As soon as weather permits, Contractor will restore affected areas to standards of this contract without voiding the Manufacturer's Guarantee and repair any damages from these leaks without cost to Owner, except for leaks caused by abuse to roof by others or by abnormal weather conditions such as lightning, severe hail, or other unusual climatic phenomena.
    - c. This Guarantee must be submitted to the Owner in writing before final payment is released for the project.
      - (1) Refer to "Roofing System Contractor's Guarantee" included within this document.
      - (2) Form included within this document must be utilized (*fully filled out and submitted*).
- B. MANUFACTURER'S NDL ROOF SYSTEM WARRANTY:
  - 1. This project requires that the quoted system include the Manufacturer's NDL (20-yr) roof system warranty.



2. Submit to the Owner a Manufacturer's unlimited penal sum Guarantee covering any and all repairs and/or replacements to keep the roof, including the field and flashing, watertight for a period of 20-years (*as defined within Specifications*) beginning at the time of the Owner's (*via Roof Consultant*) acceptance of final installed roof system/product including ALL parts of the specified project. Cost of this Guarantee to be borne by the Owner and included in each Quote. (*Refer to 1.02 SUBMITTALS for further discussion.*)
3. The Guarantee shall be executed by Manufacturer to cover any and all costs for repairs necessary to stop leaks which occur resultant of, but not limited to, the following:
  - a. Deterioration of the roofing membrane and/or base flashing and detail system resulting from ordinary wear and tear by the elements.
  - b. Workmanship on the part of the Approved Roofing Contractor in application of the roofing membrane, base flashing and/or detail system.
  - c. Blisters/delamination, fishmouths, bare spots, ridges and/or wrinkles in the components associated with the roof system.
  - d. Splits or cracks in the roofing membrane not caused by structural movement.
  - e. Seaming failure; Slippage of the roofing membrane or base flashing.
4. If, twenty-four (24) hours after notification of roof leakage Contractor has not responded, Owner shall have the right, without invalidating any Guarantees and at the expense of the Contractor, to make any emergency temporary repairs that are required in order to protect the building and its contents from damage due to roof leakage.

## **1.09 MISCELLANEOUS**

### **A. SANITARY CONTROL:**

1. Contractor shall supply portable restroom facilities and maintain in a clean and secure manner during the course of the project. (*No building access allowed.*)
  - a. Unit shall be immediately removed upon completion of the project.
  - b. If unit shall not be mounted on roof, it shall be located only on the ground at a location that is agreeable to the Owner.

### **B. POWER & WATER:**

1. Contractor shall supply own power and water unless prior written approval by Owner is received.
  - a. If approval is provided, a written correspondence from the Consultant to the Contractor will be provided.
  - b. Contractor is responsible for all problems, damage, etc. that may result from the use of the Owner's power and water should permission be granted.

### **C. BUILDING ACCESS; STAGING & LOADING:**

1. Roof access via ladder(s) is required.
2. Location of access, staging, drop box, etc. shall be discussed at the mandatory pre-bid meeting and confirmed during the mandatory pre-job meeting.
  - a. Notification of selected applicable locations shall be provided to Owner's representative and Consultant prior to start up.

### **D. SECURITY:**

1. Contractor shall be responsible for the security of all applicable equipment and materials during the course of the project.
  - a. The Owner shall not be responsible for any problems, damage or loss associated with this instruction without additional cost to Owner.

2. Contractor shall maintain a secured site during the entire course of the project.
3. Contractor shall comply with Owner's security requirements at all times.
  - a. To be discussed at the pre-bid and pre-job meetings.

## **PART 2 - PRODUCTS**

### **2.01 MANUFACTURER**

- A. Source Limitations: Obtain components including roof insulation and fasteners for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

### **2.02 MATERIALS**

- A. ROOFING MEMBRANE SYSTEM:
  1. Fleece backed TPO membrane system
    - a. Membrane minimum: 60- mil (*minimum*)
    - b. Combined total defined as 115 mil (*minimum*)
  2. No others will be considered.
  3. Roof system includes all components and shall be considered a "single-source" rated and warranted assembly.

### **2.03 MANUFACTURER MATERIALS**

-- (See special notes with regard to approved membrane types)

- A. Acceptable TPO Materials Manufacturer shall be:
  1. Versico Roofing Systems
  2. Carlisle Syntec Roofing Corporation
  3. Firestone Roof Systems Company
- B. Roofing systems manufactured by above approved listed manufactures are the only manufacturers that will be considered for this project.

### **2.04 SUMMARY OF MATERIALS -- ROOFING SYSTEM DESCRIPTION:**

1. Roofing System: 115 mil –TPO Fleece-back Single-Ply System - Adhered – mfg. approved adhesive.
  - a. Refer to Bid Form and other sections within specification documents.
2. UL: Class A assembly - (*carries same classification as system be covered*)
3. Substrate: Approved by manufacturer for installation of new assembly.
  - a. Refer to "General Description" section of this specification.
4. New Insulation: As required to replace wet and or damaged.
  - a. Mechanically attached polyisocyanurate.
  - b. Meet a listed specifications requirements and minimum FM 1-90 standard/rating with manufacturer's notes addressed/added to approvals.
5. Comply with applicable local building code requirements.



**C. SUMMARY OF MATERIALS:**

<u>Description</u>	<u>Weight</u>
TPO Fleece-back adhered assembly:.....	.45 lbs psf
Existing Single-ply membrane (salvaged): .....	.33 lbs psf
3" Polyisocyanurate Insulation (varies – where present):.....	.61 lbs psf
Deck - (Wood):.....	- lbs psf -
Total completed weight:.....	1.39 lbs psf approx.

**2.05 PERFORMANCE REQUIREMENTS:**

- A. Installed roofing and components shall be in accordance with the Roof Manufacturer's current published application procedures, the general recommendation of the NRCA, and FM Global requirements, for the specific and building height, building location and substrate type.
- B. Installed roof system must comply with all codes and regulations of authorities having jurisdiction including but not limited to wind uplift, flame spread, and hail resistance.
- C. FM Global Listing:
  - 1. Attachment of all roofing components must meet or exceed the uplift criteria on the 2009 FM Global Wind Design Data Sheets. Minimum FM Global Fire/Windstorm Classification shall be Class 1A-90.
- D. Exterior Fire-Test Exposure:
  - 1. ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

**2.06 TPO MEMBRANE MATERIALS**

**A. Roofing and Flashing Membrane:**

Reinforced 60-mil TPO membrane laminated to 55-mil thick non—woven polyester fleece-backing resulting in a total finished sheet thickness of 100 mills:

- 1. Membrane type: TPO
- 2. Membrane thickness: 60 mil --- (0.060 inch) - minimum
- 3. Combined total with fleece backing: 0.110 inch minimum
- 4. Sheet Width: Provide the widest available sheets to minimize field seaming.
- 5. Acceptable Product: Membrane mfg. approved only for specified roof system.

**B. Membrane Attachment: Adhesive adhered – Membrane manufacture approved -- (FM-1-90 minimum).**

**C. Flashing Membrane: Membrane system manufacture approved for specified system and meeting fully adhered requirements of specification documents.**

- 1. Color: Same as field membrane (Black).
- 2. Acceptable Product: As approved by membrane mfg. for use within the specified warranted assembly.

**D. Membrane Adhesive:**

- 1. Membrane Manufacture approved adhesive.
- 2. Spray foam type adhesive applied in ribbon pattern per FM-Global listed requirements (approved system).
- 3. Membrane manufacturer approved.

## **2.07 ADDITIONAL MFG. ROOF SYSTEM ACCESSORIES:**

- A. Accessory materials recommended and/or required by roofing system manufacturer for intended use and compatible with other roofing components.
  - 1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: 60-mil (1.5-mm-) thick TPO.
- C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- D. Bonding Adhesive: Manufacturer's standard
  - 1. Membrane manufacturer approved for specified system.
- E. Low-Rise, Urethane, Fabric-Backed Membrane Adhesive: Roof system manufacturer's standard spray-applied, low-rise, two-component urethane adhesive formulated for compatibility and use with fabric-backed membrane roofing.
  - 1. Basis of Design – Membrane manufacturer approved.
- F. Seaming Material: Factory-applied seam tape, width as recommended by manufacturer.
- G. Lap Sealant: Manufacturer's standard, single-component sealant, colored to match membrane roofing.
- H. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- I. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- J. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer.
- G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced TPO securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.
- H. Roof Walkway Pads: TPO compatible – membrane manufacturer supplied and approved – fully adhered.
- I. Yellow Safety Strip: To designate areas of caution on the roof or around rooftop objects. 5.5 inches wide (140 mm) by 100 feet long (30 m) strip and nominal 30 mil (0.76 mm) thick yellow TPO membrane. Compatible with TPO; adhered/heat welded – permanent Yellow Safety Strip. Installed at 5' in from outboard edge of roof assembly.

## **2.08 AUXILIARY MATERIALS**

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
- B. Sheet Flashing: Manufacturer's standard unreinforced thermoplastic polyolefin sheet flashing, 60 mils thick, minimum, of same color as sheet membrane.
- C. Coated Metal: G90 galvanized steel as provided by mfg. on one-side, color to match roofing membrane, as supplied by the roof system manufacturer, minimum 24 gauge, 0.028-inch (0.711-mm) for flashed metal details.
- D. Adhesive:
  - 1. Membrane Bonding Adhesive: Roofing membrane manufacturer's standard TPO bonding adhesive.
  - 2. Insulation Bonding Adhesive: Roofing membrane manufacturer's approved adhesive.
  - 3. Other: Roofing membrane manufacturer's approved adhesive.

- E. Other miscellaneous materials shall be manufacturer's best grade available and approved in writing by the roof system manufacturer for the specific application.
- F. Sealants & Specialty Items:
  - 1. General Construction Sealants: One-part non-priming gun-grade urethane sealant as specified in Division 07 Section "Joint Sealants".
  - 2. Roofing Sealants: Sealants used in contact with roofing system shall be roofing membrane manufacturer's approved sealant used to seal penetrations through the membrane system or miscellaneous sealant applications that come in contact with roofing system.
  - 3. Backer Rod:
    - a. Required at all joints in vertical walls and parapets wider than 3/8".
  - 4. Coned pipe/stack penetration boots, with foam insulation filler.

## **2.09 ROOF INSULATION AND COVER BOARDS**

**As Required to replace damaged existing --- no other insulation is specified within this project**

### **A. POLYISOCYANURATE FOAM INSULATION:**

- 1. Polyisocyanurate Board Insulation: Rigid closed cell polyisocyanurate foam ASTM C 1289, Type II, glass-fiber mat facer on both major surfaces. Manufactured or approved by membrane roofing manufacturer. See Drawings for total insulation thickness.
  - a. Products:
    - (1) Membrane Manufacturer Approved for full system warranty inclusion - ISO 95+.
    - (2) No substitutions allowed.
  - b. Compressive Strength: ASTM D 1621, minimum 20 psi (138 kPa).
  - c. Density: Minimum 20 lbs/pcf - (138 kg/m<sup>3</sup>).
  - d. Attachment: Mechanical – Meet and/or exceed FM-Global 1-90 minimums
    - (1) 12" max spacing with extra at perimeters and corners per FM-Global requirements (12/6/4).
  - e. Cover Board: - *Not Applicable this Project*
  - f. Tapered insulation where indicated on roof plan and up-slope side of all roof mounted equipment with a base wider than 24".
    - (1) Minimum thickness 1/2-inch (13 mm), factory sloped at 2 times the roof slope.

## **2.10 VAPOR RETARDER:**

- A. Not Applicable for this project.

## **2.11 OTHER LISTED ITEMS:**

### **A. PIPE/CONDUIT SUPPORTS** *(to replace any/all existing wood supports)*

- 1. Pre-manufactured support specifically manufactured for roof applications.
- 2. Approval: Approved for use on single-ply roof system.
- 3. Separator sheet *(single-ply membrane)* slightly larger than the base of the support shall be spot adhered to bottom of support at all supports.
- 4. Maximum spacing of 6' between each support with extra required at corners.

- B. WOOD NAILERS:
  - 1. Material: Wood nailers shall be new material.
  - 2. Grade: #2 or better
  - 3. Attachment Standards: Conform to Factory Mutual's loss prevention data 1-49.
- C. ROOFED IN CURB:
  - 1. Material: Pressure Treated lumber
  - 2. Grade: Construction Grade / Straight and True.
- D. PLYWOOD:
  - 1. Material: Size to match existing as applicable or as specified elsewhere.
  - 2. Grade: CDX minimum; Smooth surfaced exterior grade for use within new construction.
- E. SPLASH PANS:
  - 1. Prefabricated splash pan if/where utilized shall be installed with protective separator sheet.
- F. FALL PROTECTION WARNING LINE *(as applicable)*:
  - 1. Permanently installed fall protection line system – Permanent – OSHA Safety warning line.
    - a. Required when any perimeter system (*parapet, wall, etc.*) is less the 40" high from top of roof surface to top of perimeter assembly.
  - 2. Location: 6' feet in from all perimeters less than 40" high.
    - a. Measure for outboard edge if drip edge to outboard edge of warning line.
    - b. Measure in from inboard side of parapet and/or cur or light metal edge detail to outboard edge of line.
  - 3. Width: Four-inch (4") minimum.
  - 4. Color: Yellow – OSHA standard color.
  - 5. Application: Membrane manufacturer approved for permanent installation.

## **2.12 WALKWAYS / PADS**

- A. Flexible Walkways: Minimum of 30-inches (762-mm) by 30-inches (762-mm) factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, approximately 3/16 inch (5 mm) thick as furnished by roofing system manufacturer.
  - 1. Attachment: Fully adhered
  - 2. Note: Allow drainage between individual pads of approximately 1½" and keep back from base of roof mounted units a minimum of 4".
  - 3. Pre-bid meeting will review solar panel system walk/protection pad requirements, type, square footage, etc.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION FOR RE-ROOFING**

- A. Comply with manufacturer's requirements for the specified warranted assembly/system.
- B. Prepare Substrate to meet all manufacturers most recent published requirements.
  - 1. Salvage of main field of existing single-ply membrane system.
  - 2. Cleaning (*pressure washing*) of roof surface.
  - 3. After washing of the existing roof surface, scope requires complete removal of all existing flashing, sheet-metal, perimeter metal, etc. with proper disposal.
    - a. Do not remove more roofing in one work period that can be successfully rendered watertight during that work period.

4. After proper cleaning a complete examination of the salvage membrane is required including localized repair to render substrate acceptable for the specified new roof assembly.
5. All for drying of the deck at areas where excessive moisture has been present.
- C. Contractor must keep building watertight during the course of the project and be sealed at the end of each work period.
- D. Tear-off shall be limited to the amount of area that can be successfully recovered in the event of unexpected rain during the project. Refer to other portions of the specification for further discussion and responsibilities as they apply to this project.
  1. Substrate preparation, as applicable, shall meet and/or exceed manufacturer's requirements for an acceptable substrate upon which the new system is installed.
    - a. Strictest document applies when a conflict occurs.
  2. All tear-off materials shall be removed from the roof on a daily basis and disposed of in accordance with applicable codes and ordinances.
    - a. Contractor shall comply with all current asbestos removal and disposal laws as they apply to roof system removal.
  3. Contractor shall not remove more in one day than can be covered during that same workday (*work period*) or that can be protected from unforeseen rainstorms.
    - a. Contractor is responsible for all damage caused as a result of violating this instruction.
- E. As applicable -- Structural Deck: Inspection and repair of the structural deck is required at all "complete tear-off" areas where the structural deck is exposed, or as may be directed by Owner's representative.
  1. Repair of this type of damage shall be considered a "Cost-Plus" item within the scope of work of this project.
    - a. Exception: Deck replacement at equipment removal areas shall be included in the base bid/scope of work.
    - b. Deck preparation shall meet and/or exceed manufacturer's requirements for an acceptable substrate upon which the new system is installed.
      - (1) Strictest document applies when a conflict occurs.
    - c. Verification of the damage by Roof Consultant and/or designated Owner's representative is required in order to obtain approval for additional billing/repairs.
- F. Damaged Structural Deck Criteria and Procedures:
  1. If during the course of the project damaged or deteriorated decking and/or applicable substrate is identified, Contractor shall notify Owner's representative and/or Consultant immediately before proceeding.
  2. Whenever deteriorated deck and/or substrate conditions are found or suspected, and as directed by Owner's representative and/or Roof Consultant, it shall be repaired or replaced with new, similar (*like*) material installed in accordance with the requirements for new construction.
    - a. Deck and/or substrate replacement and/or repairs billed based on the "Cost-Plus" portion of the Bid Form.
- G. Any obsolete equipment no longer required on the roof shall be removed and the deck installed level and smooth with the adjacent deck.
  1. Refer to drawings for verification of equipment to be removed.

2. Any item not noted previous to and/or at the pre-job meeting and added for removal after the project has been bid will be subject to the Owner's / General Contractor's change order procedures
  3. After removal of the existing membrane (*at work area*), the entire surface of the work area to be re-roofed, during that time period, shall be swept free of all dust, dirt, grime, debris, or other foreign material before installation of any component of the assembly.
  1. Roof project shall be kept in a neat and orderly condition during the entire scope of the project.
- H. Refer to and meet all Manufacturers' General Requirements for appropriate substrate requirements.

### **3.02 GENERAL APPLICATION REQUIREMENTS**

#### **A. GENERAL:**

1. Roofing work shall not be conducted when water in any form is present on deck, such as rain, dew, ice, frost, or snow.
2. Water should be limited to containers for human consumption.
3. Precautions shall be taken to keep materials clean, dry, free of damage and protected from applicable cold and heat at all times during the project.
  - a. Contractor shall replace any damaged or wet materials at no additional cost to Owner.
4. Do not start application of more materials each day than can be completed within the same day's work period or protected from unexpected inclement weather, etc.
5. Start roofing work in dry weather only and without threat of immediate inclement weather (*preferably 3-hr window*).
  - a. Keep the roofed area of the building watertight each day as the work progresses.
6. Water-cutoff: At the end of the workday, edge-seal the finished portion of the roofing system completed that day with a membrane manufacturer approved water cut-off detail in order to keep the roof system (*new and/or existing*) watertight at the end of the work period. Completely remove edge seals prior to the start of the next day's work.
7. Any obsolete equipment no longer required on the roof shall be removed and the deck installed level and smooth with the adjacent deck.
  - a. Refer to drawings for verification of equipment to be removed.
  - b. Any item not noted previous to and/or at the pre-job meeting and added for removal after the project has been bid will be invoiced only after the change order process is completed..
8. All areas of opened roof system must be covered with the completed roof membrane system (*except surfacing*) at the end of each day's work. In addition, all roof terminations and openings shall be made waterproof at the end of each day's work.
  - a. Perimeter of newly installed system must be sealed at the end of each work period.
  - b. All edge seals shall be completely removed before installation of finished roof assembly components.
9. Coordinate installation of specified roof assembly so as not to interfere with the day-to-day operations of the building and building occupants.
10. Use only materials and procedures that are proper and suitable for the slopes and for the underlying materials to which they are attached. All materials are to be manufactured by or approved by Prime Membrane Manufacturer.
  - a. All substitutions must be approved, in writing, by Roof Consultant prior to the installation of the materials.
11. Thoroughly clean and re-seal all exposed metal joints and penetrations to result in a watertight seal.
12. Approved and operable fire extinguishers will be on hand at all times on the roof.
  - a. All additional requirements of OSHA Safety Regulations will be followed.



13. Existing rooftop equipment shall:
  - a. Be raised to meet specified 8" minimum height requirements.
  - b. Be temporarily raised (*if adequate finished height requirements are met*) as needed to accommodate proper installation of new roofing and flashing materials. Resecurement of units through horizontal metal flashing surfaces shall utilize ¼" solid neoprene gaskets. Resecurement through vertical surfaces shall utilize appropriate screws through steel/neoprene washers placed at a maximum twelve inches (12") o.c. or a minimum of two (2) per side.
14. All existing equipment curbs, support sleepers, etc. shall be extended as needed to achieve a minimum eight-inch (8") height above the roof deck for curbs and six inches (6") minimum for enclosed sleepers and platforms.
15. CRICKETS:
  - a. Crickets shall be installed at the upslope side of all HVAC and roof-mounted units, curbs, etc. to provide positive surface water flow around unit as well as noted on drawings and shall not be installed over existing membrane.
    - (1) Remove existing membrane at any location that new cricket shall be installed.
16. All existing flanged components, which were incorporated into the membrane system, shall be replaced with new and comply with membrane system manufacturer's requirements for installation in new specified system.

### **3.03 EXAMINATION**

- A. Inspect and correct all deficiencies as noted and within the scope of the work necessary to comply with the manufacturer's requirements for the specified warranted single-ply roof system.
- B. As Applicable -- Examine roof areas for conditions that would prevent the proper application of new roofing and verify the following.
  1. Decking, curbing, renovation, and wall substrate preparation has been completed.
  2. Deck and/or substrates are clean, smooth and free from depressions, waves, projections, defects and damage.
  3. Wood nailers are properly installed to receive roofing system.
  4. Surfaces in contact with any single ply material are free from bitumen, grease, oil, or other foreign material.
  5. Surfaces in contact with roofing membrane are free from sharp edges, fins, or projections.
  6. Materials are completely dry and free from ice and snow, including substrate, deck, insulation, and roofing membrane as applicable. Confirm dryness by moisture meter and demonstrate to Owner.
  7. Roof equipment, openings, curbs, pipes, sleeves, ducts, vents and blocking members are solidly and properly set.
  8. Work has been completed where possible for other trades that require work or traffic on the roofing area.
- C. Correct or complete any conditions requiring correction or completion prior to the installation of the roofing system.
  1. Notify the Owner's representative (*Roof Consultant*) in writing of any unacceptable conditions.
- D. Verify the location of interior ducts, electrical lines, piping, conduit, and/or similar obstructions. Perform work to avoid contact with the above-mentioned items.
  1. Conduit locations shall be discussed at mandatory pre-bid meeting.
  2. Do not force fasteners during installation project so as to run screws into/thru electrical conduit. Care is necessary to control this condition.
  3. Immediately notify Owner's representative (*Roof Consultant*) of any adverse or dangerous conditions and to obtain further instructions.

- E. Verify existing conditions that may cause moisture penetration.
  - 1. Notify the Owner's representative (*Roof Consultant*) in writing prior to beginning construction.
- F. Start of Work constitutes acceptance of deck substrate and site conditions.

### **3.04 PREPARATION**

- A. Broom clean roof surface immediately prior to installing new roofing/application after the initial power-washing process.
  - 1. Any debris under roof membrane is unacceptable.
  - 2. Roof surface must be clean and dry before proceeding with specified installation.

### **3.05 ROOF VAPOR RETARDER, INSULATION & HD COVER BOARD**

- A. GENERAL: (*As applicable to Scope*)
  - 1. Install Vapor Retarder over clean dry substrate.
    - a. Install VR so that it is fully adhered without ridges, air gaps and other deficiencies.
    - b. Protect VR and repair as necessary and damage until the next layer of roofing material is correctly installed.
  - 2. Insulation shall be laid with edges parallel to the roof edges.
    - a. Field insulation must be installed to meet Prime Membrane Manufacturer's tested and approved system.
      - (1) Adhesive shall meet manufacturer's special project requirements as well as FM 1-90 configuration including perimeter, field, and corners.
    - b. Crickets shall be installed with approved adhesive (*no mechanical fasteners*) per manufacturer's printed requirements for particular system (*as applicable*).
      - (1) Crickets required at all upslope sides of roof-mounted equipment.
      - (2) Crickets may not be installed over HD Iso-Guard (*top layer*). It must be installed as part of the insulation system.
  - 3. Insulation boards shall be laid in an ashlar (*cross*) pattern (*joints staggered at end and side*) with the joints between the long dimensions of the boards continuous.
    - a. Minimum 12" offset from ends and sides is required at all times.
    - b. Joints must be broken between lower and upper levels where multiple levels of insulation occur (*either direction*).
    - c. **SPECIAL NOTE:**
      - (1) Do not install edges of new insulation so that they line up (*directly above*) the existing membrane fastener strips that are allowed to remain. Offset a minimum of 12" from this material.
      - (2) In addition, as a preparation for the new roof system, any areas where the existing insulation is cupped, shall receive appropriate fasteners prior to the installation of the new recover system.
  - 4. Space roof insulation 1/4" maximum from all vertical flashings and between boards, edges, etc.
  - 5. Stagger the end joints of the primary insulating layer; stagger joints top to bottom on multiple layer applications.
  - 6. Butt joints tight allowing no more than 1/4-inch (6-mm) wide gap between units.
    - a. Fill any gaps larger than 1/4-inch (6-mm).
  - 7. Insulation shall be neatly cut and fit around all through-roof projections.
  - 8. No more insulation shall be laid than can be completely covered in a day's work.
  - 9. Provide tapered roof insulation around roof drains and at cricket locations to provide positive drainage.



10. No insulation material shall bridge expansion joints.
11. Remove and replace all insulation that gets wet during the application process. Roofing shall not be applied over wet insulation at any time.
12. Subsequent layers of materials shall not be applied over insulation joints in excess of ¼" width.

**B. SPECIFIC:**

1. Adhesive Requirements:
  - a. Primary roof membrane system manufacturer shall review and define the requirements for adhesive patterns for insulation attachment for the warranted assembly and document shall be included in submittal package.
  - b. Information shall define adhesive pattern including field, perimeter, and corners.
2. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.
3. Adhesive-adhere the insulation to the substrate in accordance with Factory Mutual requirements as determined by FM1-90 data sheet criteria for wind uplift.
4. Install roof insulation directly over the substrate except where otherwise indicated.
5. Do not rupture or deform the surface, facer, or structure of the insulation by handling.
6. Do not use warped or bent insulation boards.
7. Cut and fit insulation neatly at roof perimeter and roof penetrations to reduce openings to a minimum. Fill all openings 1/4-inch (6-mm) or larger with insulation.
8. Prior to application of membrane, secure loose areas so that no board movement or warpage exists.
9. Prior to application of membrane, remove foreign matter, gravel, etc. from the substrate. Gravel or debris between the substrate and the roof membrane is not acceptable.
10. Install temporary water cut off at completion of each day's work and remove upon resumption of work.
11. Tapered Insulation
  - a. Install tapered insulation as required or shown on Drawings at sumps and at up-slope side of all roof mounted equipment.
  - b. Notify Consultant of any areas that do not have adequate slope prior to proceeding so that a decision as to adding slope via tapered insulation or other methods can be made prior to the installation process.
  - c. Install additional insulation as outlined above.
  - d. Taper insulation a minimum of 24-inches (610-mm) in each direction around scuppers and drains to provide for proper drainage.

**3.06 TPO SINGLE-PLY MEMBRANE INSTALLATION:**

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.
- D. Install membrane adhered to the substrate, with edge securement as specified.
  1. Adhered Membrane: Fully Bond membrane sheet to substrate using membrane manufacturer's recommended bonding material, application rate, and procedures (*FM-Global requirements are the minimum standard*).
- E. Edge Securement: Comply with manufacturer's requirements.

### **3.07 FLASHING and ACCESSORIES INSTALLATION.**

- A. Perimeter wood nailers – (As Required to meet height requirements):
  - 1. New Pressure Treated wood nailers are a requirement of this project.
  - 2. Mechanically attach nails to FM 1-47 minimum standards.
    - a. Do not install in such a way as to spall out or damage existing concrete curbs.
    - b. Follow roofing manufacturer's instructions.
  - 3. Remove protective plastic surface film immediately before installation.
- B. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.
- C. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.
  - 4. Follow roofing manufacturer's instructions.
  - 5. Remove protective plastic surface film immediately before installation.
  - 6. Install water block sealant under the membrane anchorage leg.
  - 7. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
  - 8. Where a single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
  - 9. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.
  - 10. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.
- D. Scuppers: Set in sealant and secure to structure; flash as recommended by manufacturer.
- E. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8 inches (200 mm) high above membrane surface.
  - 1. Use the longest practical flashing pieces.
  - 2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
  - 3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
  - 4. Provide termination directly to the vertical substrate as shown on roof drawings.
- F. Roof Drains:
  - 1. Taper insulation around drain to provide smooth transition from roof surface to drain. Use specified pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope; slope not to exceed manufacturer's recommendations.
  - 2. Position membrane, then cut a hole for roof drain to allow 1/2 to 3/4 inch (12 to 19 mm) of membrane to extend inside clamping ring past drain bolts.
  - 3. Make round holes in membrane to align with clamping bolts; do not cut membrane back to bolt holes.
  - 4. Apply sealant on top of drain bowl where clamping ring seats below the membrane.
  - 5. Install roof drain clamping ring and clamping bolts; tighten clamping bolts to achieve constant compression.

- G. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.
  2. Pipe Clusters and Unusual Shaped Penetrations: Provide penetration pocket at least 2 inches (50 mm) deep, with at least 1 inch (25 mm) clearance from penetration, sloped to shed water.
  3. Structural Steel Tubing: If corner radii are greater than 1/4 inch (6 mm) and longest side of tube does not exceed 12 inches (305 mm), flash as for pipes; otherwise, provide a standard curb with flashing.
  4. Flexible and Moving Penetrations: Provide weathertight gooseneck set in sealant and secured to deck, flashed as recommended by manufacturer.

### **3.08 FINISHING AND WALKWAY INSTALLATION**

- A. Install walkways at access points to the roof, around rooftop equipment that may require maintenance, and where indicated on the drawings.
1. Use specified walkway pads unless otherwise indicated.
- B. Walkway Pads: Fully Adhere to the roofing membrane, spacing each pad at minimum of 1.0 inch (25 mm) and maximum of 3.0 inches (75 mm) from each other to allow for drainage.
1. If installation of walkway pads over field fabricated splices or within 6 inches (150 mm) of a splice edge cannot be avoided, adhere another layer of flashing over the splice and extending beyond the walkway pad a minimum of 6 inches (150 mm) on either side.
  2. Prime the membrane, remove the release paper on the pad, press in place, and walk on pad to ensure proper adhesion.

### **3.09 WATER CUT-OFF**

- A. At the end of each day's work, Contractor shall provide temporary water cut-offs at the edge of the membrane installation to render the installation watertight.
- B. Comply with manufacturer's requirements.
- C. Water cut-offs shall be sealed so that the detail cannot be blown loose with windy conditions.
- D. Remove water cut-offs before proceeding with work. (*Mandatory*)

### **3.10 CURBS and PLATFORMS:**

- A. GENERAL:
1. Provide new roofed in curbs and/or platforms at designated locations.
    - a. Curbs shall have new standing seam cap metal.
    - b. Platforms shall have:
      - (1) CDX plywood tops with a minimum 3/4" CDX thickness.
      - (2) Top of platform shall have a dry sheet and then standing seam metal cap.

### 3.11 ROOF DRAINS:

#### A. GENERAL:

1. Provide gradual taper to roof drains by the use of tapered insulation.
  - a. Sump area (*with taper*) shall extend a minimum of 24" out from the center of the drain outlet pipe in all directions.
2. Comply with manufacturer's published requirements for extra fully adhered ply within sump assembly for the specified warranted system.

#### B. SPECIFIC:

1. The drain ring shall be cleaned and securely tightened. Metal Strainer dome shall be reinstalled over roof drains and new metal strainers shall be considered a part of the base bid if missing or currently plastic.
2. Remove and replace all plastic and/or damaged metal drain strainer screens.
  - a. All drain strainer/screens shall be metal when project is completed. Plastic is not acceptable.
  - b. Include cost within base bid.
3. Replace or repair any and all missing, broken, or damaged drain parts to result in a functioning assembly.
  - a. Cost of drain repair parts (*other than item b. below*) will be a Cost-Plus item as noted on the "Bid Form". Submit quote based on assumption that drain parts (*other than lead*) are salvageable.
  - b. Base bid shall include replacement, with new stainless steel, all existing bolts and nuts and replacement of any non-metal or missing metal strainers.
4. After complete installation of the roofing system, all roof drains should be inspected and tested to assure that no clogging of the drainage system is present. In addition, the roof drain leader should be in such condition that the full diameter of the drain leader is clear and that no leak or seepage is present.

### 3.12 MISCELLANEOUS WORK ITEMS

#### A. FALL PROTECTION WARNING LINE SYSTEM

1. Install permanent fall protection warning line in compliance with all membrane manufacturers published requirements.
2. Painting of line is not acceptable. This must be a yellow color membrane that is approved by roof system manufacturer.
3. Install, straight and true with the outboard edge 6' from the perimeter edge.

#### B. PIPE & CONDUIT SUPPORTS:

1. Provide pre-manufactured pipe/conduit supports with separator sheet as noted within specifications spot adhered to the underside of the all supports.
2. Secure pipes to supports using oversized galvanized clamps secured on both sides of pipe.
3. Adjust height of supports to provide a straight and true transitional run of the pipe.
  - a. Use adjustable pipes supports as required to accommodate elevated pipes, substrate slope, etc.
4. Supports shall be spaced no more than six feet (6') apart and installed so as not to impede water flow.

### **3.13 CLEAN UP**

**A. Contractor shall:**

1. Remove all markings from finished surfaces that are directly related to the installation of the specified roof system.
2. Keep the roof and premises clean and free from accumulations of waste materials and rubbish at all times.
  - a. Remove all debris, scrap, and rubbish from the work area daily.
  - b. Contractor is responsible for any material blown off the roof and shall correct the situation immediately.
  - c. Surplus materials and all equipment shall be promptly removed from the site upon completion of work.
3. Contractor shall not store materials of any type on finished newly installed roof system.
4. If Contractor fails to keep premises clean of debris, Owner reserves the right to contract for clean-up of the premises and charge the Contractor for the direct cost of this work.
  - a. Owner shall notify Contractor, in writing, of the intent to hire an independent clean-up firm or crew if a problem and/or situation develops.
  - b. Contractor has twenty-four (24) hours to rectify the condition before the Owner will proceed.
5. Prior to final acceptance, the Contractor shall restore all areas affected by his work to their original state of cleanliness and repair all damage done to the premises, by his workmen and equipment.
6. Contractor is responsible for any and all damage to building or surrounding area during the course of the project, NO EXCEPTIONS.

**-- END OF SECTION 07 54 23 ---**

**SECTION 07 60 00**  
**FLASHING & SHEET METAL**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

**A. Work Included:**

1. Supplemental to Standing Seam Section and as applicable to the Single-ply Section and Metal Standing Seam Panels Section. Provide Flashing and Sheet Metal not specifically described in other sections of these specifications and details but is required to prevent penetration of water through the exterior shell of the building as it applies to the roof and parapet areas supplemental to the standing seam metal roof system.
2. Additional Work under Separate Section:
  - a. Section: 07 54 23 – Single-ply Roofing & Roof Insulation.
3. GENERAL REVIEW:
  - a. New:
    - (1) Pre-painted perimeter metal - Standing Seam --- pre-painted Kynar finish.
    - (2) Manufacturer's clad metal as required for warranted system.
    - (3) Perimeter; Surface Mounted Reglet.
    - (4) Counter-flashing at all equipment, hatches, penetrations, equipment curb with metal cover, etc. and where it cannot be carefully salvaged at perimeter. (*Galvanized metal is acceptable rather than pre-painted for this item.*)
    - (5) New Pre-painted continuous Gutters, Leaderheads, and Downspouts to match existing (*w/overflow outlets added*). (*Where any existing are in place/exist. – They will be replaced*)
    - (6) New continuous gutters – pre-painted 5" K-line with downspouts.
    - (7) Mfg. requirements; Termination bar, clad-metal, etc.
    - (8) New Pre-painted K-Style 6" gutter and downspout.
4. WALL METAL:
  - a. No wall metal this project.
5. PERIMETER METAL: - (*as applicable to the existing conditions*)
  - a. Surface Mounted Reglets.
  - b. Saw Cut Reglets – (*masonry walls with irregular surfaced CMU*)
  - c. Salvaged and adapted reglets and venting assemblies
  - d. Match existing style with new.
  - e. Perimeter fascia, gutter, and venting system.
  - f. Parapet: Pre-painted standing seam cap/coping metal.
6. CAP METAL – Roofed-in Curbs:
  - a. New cap metal at all roofed in curbs.

7. OTHER METAL:
  - a. Remove, properly dispose of and replaced with new unless specifically identified within the specification documents or during the pre-job meeting.
  - b. Section: 07 54 23 – Single-ply Roofing & Roof Insulation, within specification documents.
  - c. Counter-flashing is required at all equipment.
    - (1) *Exception:* Not necessary at units that can be raised and roofed around and/or a part of the Ventilation Equipment rework portion of the project.
  - d. Fabricate and install new stainless-steel scupper(s) to replace existing.
8. General Work Summary on this project shall include the following:
  - a. Installation of new manufacturer requires clad metal.
  - b. Installation of new standing seam coping metal at all roof perimeters to match existing color/style.
  - c. Equipment counter-flashing/skirting.
  - d. Curb/Platform sheet metal caps.
  - e. Miscellaneous details to meet the manufacturer's and "good roofing" practices for entire completed roof system.
9. Roofing accessories and incidentals, as may be required during the project.
10. All painted metal surfaces which must be removed to properly complete the project, shall be carefully removed, examined, cleaned, primed, painted and replaced to match existing colors as applicable and discussed at pre-job meeting.
  - a. Color shall match the existing perimeter metal where replacement requires painted metal.
  - b. Color shall be standard manufacturer's color. No special order color required on this project.

## **1.02 SYSTEM DESCRIPTION**

- A. Work within this Section is to physically protect membrane roofing, base flashing, etc. from damage that would permit moisture entry into the building interior.

## **1.03 QUALITY ASSURANCE**

- A. In addition to complying with pertinent codes and regulations, all work shall comply with pertinent recommendations contained in current edition of "Architectural Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
- B. Standard commercial items may be utilized for flashing trim, reglets and similar purposes provided such items meet or exceed the quality standards specified herein.
- C. All metal shall meet and/or exceed compliance with membrane manufacturer's warrantable system.
  1. Utilize membrane manufacturer's specific product with any specific application where the metal is considered a warrantable item under the manufacturer's warrantable system.

## **1.04 SUBMITTALS**

- A. Submit shop drawings to describe all detail installations and compliance with scope of these Specifications and General Requirements where no detail drawing currently exists. This includes any proposed changes to detail drawings herein.
  1. The scope of the shop drawing details will be reviewed at the mandatory pre-job meeting.



### **1.05 REFERENCES**

- A. American Society for Testing and Materials (ASTM) A525-Steel Sheet, Zinc Coated (*Galvanized*) by the Hot-Dip Process.
- B. SMACNA – Architectural Sheet Metal Manual.

### **1.06 PRODUCT HANDLING**

- A. Store products under applicable provisions of Section 07 54 23.
- B. Stack pre-formed material to prevent twisting, bending, or abrasion.
- C. Prevent contact with materials during storage, which may cause discoloration, staining or damage.
- D. Any material to be removed and replaced shall be marked for identification and carefully removed and stored until re-installation is completed.
  - 1. Items that cannot be removed and replaced without damage must be discussed and approved prior to the work at this area or the contractor shall be responsible for replacement of materials damaged during their operations.

### **1.07 PROTECTION**

- A. Exercise care when working on or about roof surface to avoid damaging or puncturing membrane or other components.
- B. Immediately remove any screws, fasteners, trim, etc. from roof surface.
- C. All open roof areas exposed by the sheet metal removal shall be in a waterproof condition at the end of each day's work.
- D. Immediately notify Roofing Contractor (*if sheet metal contractor is a sub-contractor*) of any damage or punctures to newly installed or existing membrane waterproofing.

### **1.08 WARRANTY**

- A. Work of this section shall be covered under Contractor's Warranty as specified in Section 07 54 23.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS AND GAUGE**

- A. Where sheet metal is required, and no material or gauge is indicated on the drawings and details, provide the highest quality and gauge commensurate with the standards associated with this Specification with a minimum gauge of twenty-four (24).
- B. Utilize specified roofing system manufacturer's products as a first priority.
- C. Galvanized Steel: ASTM A-525, G-90; 24 gauge minimum.
- D. Pre-painted metal: Factory finish; 24 gauge minimum.
- E. Sheet Lead Flashing: Hard type conforming to Federal Specification QQ-L-201; 4 lbs per square foot for drain flashing and pipe sleeves requiring field soldering, 2 ½ lbs minimum per square foot for pre-fabricated pipe sleeves.

### **2.02 ACCESSORIES**

- A. Fasteners: Galvanized steel with steel neoprene washers at exposed fasteners and other appropriate products in other unspecified locations.
- B. Metal Primer: ASTM D-41



- C. Sealant: 1 part polyurethane  
(As approved by prime membrane manufacturer for use and compatibility with specified assembly.)
- D. Plastic Cement: ASTM D-4586, Type I
- E. Solder: FS QQ-S-571; ANST/ANTM B3; 50/50 type
- F. Flux: FS O-F-506
- G. Pitch Pan Sealant: ASTM C-920, Type S, Grade P, Class 25  
(As approved by prime membrane manufacturer for use and compatibility with specified assembly.)

## **2.03 FABRICATION**

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest practical lengths.
- C. Hem exposed edges on underside  $\frac{1}{2}$ "; miter and seam corners.
- D. Form material with flat lock seam, unless otherwise specified or detailed.
- E. Solder and seal metal joints. After soldering, remove flux. Wipe and wash solder joints clean.
- F. Fabricate corners from one piece with minimum 18" seam or solder for rigidity, seal with sealant.
- G. Fabricate vertical faces with bottom edge formed outward  $\frac{1}{4}$ " (6mm) and hemmed to form drip.
- H. Fabricate flanged flashings (*pitch pans*) to allow flanges to extend at least four inches (4") – (50mm) over roofing.
  - 1. Provide full soldered corners.
- I. All fabricated sheet metal work necessary to complete the project shall receive standing seams and shall employ double breaks with no exposed sharp edges.

## **2.04 FINISH**

- A. Shop prepare and prime exposed ferrous metal surfaces.
- B. Back paint flashings with bituminous paint where expected to be in contact with cementitious materials or dissimilar metals.

# **PART 3 - EXECUTION**

## **3.01 SURFACE CONDITIONS**

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
- B. Refer to details and drawings for specific direction on various types of equipment.
- C. Coordinate with Roofing Contractor (*if sub-contractor to roofing contractor*) so that sheet metal work is completed in a timely manner following installation of roof membrane waterproofing systems. Roof shall remain watertight at all times.
  - 1. Do not install sheet metal until all roofing work is completed to an acceptable level at the area where sheet metal work is to proceed.
- D. Verify roof openings, curbs pipes, sleeves, ducts, or vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.
- E. Verify membrane termination and roof system primary and base flashings sheets are in place, sealed, and secure.
- F. Beginning of installation of flashing metals means acceptance of existing conditions by the Sheet Metal Contractor (*if other than Roofing Contractor*).

### **3.02 WORKMANSHIP**

#### **A. GENERAL METAL FABRICATION:**

1. Shop-fabricate work to greatest extent possible.
2. Comply with details shown and with applicable requirement of SMACNA “Architectural Sheet Metal Manual” and other industry recognized practices.
3. Fabricate for waterproof and weather-resistant performance with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work.
4. Angle bottom edges of exposed vertical surfaces to form drips.
5. Fabricate to profiles and sizes as to match existing installations.
6. Form work to fit all substrates.
7. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and level indicated, with exposed edges folded back to form hems.

#### **B. Form, fabricate and install sheet metal so as to adequately provide for expansion and contraction in the finished work.**

#### **C. Installation process and finished work shall be installed in a manner that will not damage the surrounding surfaces and or waterproofing.**

1. Contractor shall repair and/or correct the defective workmanship at no additional cost to Owner.

### **3.03 INSTALLATION**

#### **A. Embed metal in contact with roof assembly in a solid bed of sealant, using materials and methods approved by the prime roofing system Manufacturer as applicable and compatible with specified and/or installed system.**

#### **B. Conform to standard Prime Manufacturer’s and/or SMACNA details as applicable for the successful completion of project.**

#### **C. Pipe Flashing:**

1. Open vent stacks shall be sealed using lead sleeves with the tip edge crimped carefully back down into the pipe at least one inch. Replace existing damaged lead flashings with two-piece fabrication to prevent future damage from building settlement and/or movement.

*(Prime Manufacturer’s pre-formed sleeves are acceptable as approved for use within specified system and applicable to existing conditions.)*

2. At electrical lines and pipes which cannot be disassembled, solder lead sleeve and flange together in the field, maintaining minimum six-inch (6”) sleeve height and eight-inch (8”) wherever possible.

*(Prime Manufacturer’s pre-formed sleeves are acceptable as approved for use within specified system and applicable to existing conditions.)*

#### **D. Screw fastened: All fasteners shall comply with current SMACNA published recommendations applicable to size and installation pattern(s).**

1. All fasteners require neoprene washers.

#### **E. Install and seal new metal-flanged sleeve flashing and drain flashing in accordance with Section 07 54 23 and applicable Details.**

### **3.04 SOLDERING**

#### **A. GENERAL:**

1. Thoroughly clean and tin the joint materials prior to soldering.
2. Perform soldering slowly, with a well-heated copper (*or applicable component material*), in order to heat the seams thoroughly and to completely fill them with solder.
3. Perform soldering with a heavy soldering copper of blunt design, properly tinned for use.
4. Make exposed soldering on finished surfaces neat, full flowing and smooth.

#### **B. After soldering, thoroughly wash acid flux with a soda solution.**

#### **C. Safety:**

1. Care shall be taken during any soldering work so as not to damage the roofing membrane system and/or components.

### **3.05 TESTS**

- #### **A. Upon request of the Consultant and/or Owner, demonstrate by hose or running water that the system is completely watertight.**

### **3.06 FINISH**

#### **A. Finish to match existing style and color.**

1. Finish color shall be manufacturer's standard color.
2. Color to be selected by Owner based on submittals provided by contractor after award of contract.
3. Refer to specific instructions within specifications, addenda and/or drawings with regard to specific metal type and color requirements associated with various components.

#### **B. If painting is required, clean, prime and paint per Consultant's and/or Owner's recommendations to match existing color.**

### **3.07 CLEAN UP**

#### **A. Contractor shall:**

1. Remove all excess materials from finished surfaces and keep the roof and premises clean and free from accumulations of waste materials and rubbish at all times.
  - a. Remove all debris, scrap, and rubbish from the work area daily.
  - b. Surplus materials and all equipment shall be promptly removed from the site upon completion of the work.
2. Prior to final acceptance, the Contractor shall restore all areas affected by his work to their original state of cleanliness and repair all damage done to the premises, by his workmen and equipment.

**-- END OF SECTION --**

**Section 07 99 07**

**JEFFERSON COUNTY SCHOOL DISTRICT**  
Madras, Oregon

Building:

**Buff Elementary School**

375 SE Buff Street  
Madras, Oregon

**Roof Construction Data**

**Roofs in Project - C, D, E & F**

**Existing – Roof Construction Data**

**Roof - Roof C, E-1:**

ROOF TYPE: .....	White single-ply membrane
MEMBRANE TYPE & PLIES:...	Single-ply – 1 layer – Mechanically attached
BITUMEN TYPE: .....	n/a
COVERBOARD: .....	½" Gypsum Board
INSULATION: .....	None
VAPOR RETARDER: .....	None
DECK: .....	Wood

**Roof - Roof D:**

ROOF TYPE: .....	White single-ply membrane
MEMBRANE TYPE & PLIES:...	Single-ply – 1 layer – Mechanically attached
BITUMEN TYPE: .....	n/a
COVERBOARD: .....	None
INSULATION: .....	2-1/4" Polyisocyanurate insulation (Black)
VAPOR RETARDER: .....	None
DECK: .....	Wood

**Roof - Roof E-2:**

ROOF TYPE: .....	White single-ply membrane
MEMBRANE TYPE & PLIES:...	Single-ply – 1 layer – Mechanically attached
BITUMEN TYPE: .....	n/a
COVERBOARD: .....	None
INSULATION: .....	3" Polyisocyanurate Board (2-Layers 1-1/2" Polyisocyanurate)
VAPOR RETARDER: .....	None
DECK: .....	Wood

**Roof - Roof F:**

ROOF TYPE: .....	White single-ply membrane
MEMBRANE TYPE & PLIES:...	Single-ply – 1 layer – Mechanically attached
BITUMEN TYPE: .....	None
COVERBOARD: .....	None
INSULATION: .....	3-Layers 1.8" Polyisocyanurate insulation
VAPOR RETARDER: .....	None
DECK: .....	Wood



**NEW SPECIFIED ROOF ASSEMBLY --- Roof Construction Data**

**Roof - Roof C, D, E, & F: -- (Salvage & Recover)**

SCOPE -- GENERAL:..... Salvage of existing Single-ply roof system  
ROOF TYPE:..... Single-Ply – Fleece back adhered

**-NEW ASSEMBLY:**

MEMBRANE:..... 60-Mil (membrane) fleece back TPO Membrane (fully adhered)  
COVERBOARD: ..... None  
INSULATION: ..... None  
VAPOR RETARDER: ..... None

**ROOF AREA DATA**

**Single-ply Roof: -- (All are included within this project)**

Roof C:.....	869	sq. ft.
Roof D:.....	1,244	sq. ft.
Roof E:.....	9,985	sq. ft.
Roof F:.....	227	sq. ft.

**Total Roof Area included in this Project:** ..... 12,325 sq. ft. - approx.

**SPECIAL NOTES: ---**

1. All square footage provided within this document or during the bidding process, unless otherwise specifically stated is considered to be provided as a courtesy BUT is an ESTIMATE and Bidder and/or Contractor must verify.

**-- End of Section --**



**Section 07 99 28**

**ROOFING SYSTEM CONTRACTOR'S 2-YR WORKMANSHIP GUARANTEE**

**TPO – Single-Ply Roof System**

DATE ISSUED: _____	CONTRACTOR: _____
OWNER: _____	ADDRESS: _____
ADDRESS: _____	_____
_____	_____
BLDG NAME: _____	ROOF SPEC#: _____
ADDRESS: _____	MANUFACTURER: _____
_____	ROOF AREA: _____
_____	COMPLETION DATE: _____
ROOF PROJECT #: _____	ACCEPTANCE DATE: _____
MISC COMMENTS: _____	MANUFACTURER'S WARRANTY: (y/n) _____
_____	MANUFACTURER'S WARRANTY DATE: _____
_____	MANUFACTURER'S WARRANTY LENGTH: _____
_____	Note: <i>Attach Applicable Manufacturer's Warranty</i>

The above named Roofing contractor guarantees the roofing system installed as the above project reference number on the above identified facility for a period of **TWO (2) years** from the Date of Acceptance (*noted above*) and will pay all authorized material and labor costs of repair to the roof system necessary to stop leaks as described within this Guarantee and project Specifications which occur during the guarantee period, as a result of any of the following causes and as noted within the specification documents for this project:

1. Abnormal deterioration of the roofing membrane, seams, base flashing system and/or other integral components of the installed system resulting from ordinary wear and tear by the elements.
2. Workmanship as it applies to the application of the roof system including any and all components.
3. Physical defects such as voids, blisters, fishmouths, bare spots, delaminations, ridges, wrinkles, fastener problems and/or other defects that result in leakage into the roofing system and/or the building interior. (*As applicable to roof system installed.*)
4. Damage to the roof system not caused by structural movement of the building and/or structural deck.

**EXCLUSIONS:**

It is understood that leakage caused by any of the following are excluded from this guarantee:

1. Natural disasters including but not limited to floods, lightening, hail, ice, earthquakes, wind damage exceeding force seven on the Beaufort Scale, etc.
2. Damage to the roof assembly resulting from:
  - a. Traffic and/or damage by Owner or Owner's representative(s).
  - b. Movement and/or deterioration of metal not associated with this specific project and not under the control of the Roofing Contractor during the course of this project.
  - c. Chemical attacks on the roof assembly.
  - d. Changes to building or roof system after acceptance.



**JEFFERSON COUNTY SCHOOL DISTRICT**  
**BUFF ELEMENTARY SCHOOL – Roofs C, D, E & F**  
*Single-ply – Fleeceback TPO Recover Roof Project*  
**ROOFING SYSTEM CONTRACTOR'S GUARANTEE**  
**SINGLE-PLY**  
Project #: 23058

**CONTRACTOR'S RESPONSIBILITY:**

1. Roofing Contractor shall respond to leak calls within twenty-four (24) hours of notification by Owner and/or Owner's representative(s).
2. Temporary repairs may be made based on roof system manufacturer's recommendations for temporary repair techniques.
3. Permanent repairs (*restoring the roof to its original condition*) shall be completed within the thirty (30) day period after the first call from Owner and/Owner's representative.
4. Manufacturer's guidelines for repair of all problem(s) shall be strictly adhered to, and all techniques and products utilized during the repair must be approved by manufacturer.

**OWNER'S RESPONSIBILITY:**

In the event of a problem with the Roof System, the Owner's responsibilities under this guarantee are as follows:

1. Owner and/or Owner's representative will notify the Roofing Contractor via telephone followed by a written notification within thirty (30) days of the leak (*problem*).
2. Owner will notify Roofing Contractor in writing of any proposed modification, major repair, and/or addition on or through the roof system for each situation occurring after the "Date of Issue" of this guarantee.
  - a. Applicable drawings and plans showing the location of the proposed changes will be provided as may be available.

**ACCEPTANCE:**

OWNER SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_  
Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_  
ROOFING CONTRACTOR: \_\_\_\_\_ Date: \_\_\_\_\_  
Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

**DISTRIBUTION:**

1. Original to Roof Consultant –to be delivered to Owner
2. Copy to Project Manual

23058-S Sec 07 99 28 - Contr-2-yr SP-Work-Guarantee-JCSD-Buff Elem -RR -FA-60-mil TPO -Perf



– END OF SPECIFICATION –  
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