



## **PROJECT MANUAL**

# **- ROOF SPECIFICATION -**

**Single-Ply Reroof Project**  
**- Mechanical Penthouse Roofs -**

*Owner:*

***Beaverton School District #-48J***

*Facility:*

**FIVE OAKS MIDDLE SCHOOL**

**Beaverton, Oregon**

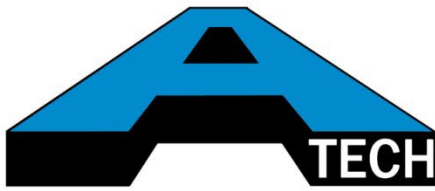
***Project Number: 22048***

**February 2, 2022**

***Project Roof Consultants:***

**A-TECH/NORTHWEST, INC.**  
**503-628-2882**





**TECH/NORTHWEST, INC.**

ROOF CONSULTING, MOISTURE TESTING & ANALYSIS

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*NOTE: Roof Consultant is not an Architectural Firm nor is it acting as such. All references to the Architect shall be deemed to refer to the Roof Consultant, who is acting as the Owner's representative.*

## **01 10 00**

### **SUMMARY OF WORK**

#### **PART 1 – GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Related Requirements
- B. Work Covered by Contract Documents.
- C. Contract Method.
- D. Permits and Fees
- E. Work by the District or Others.
- F. Contractor's Use and Site Premise.

##### **1.02 RELATED REQUIREMENTS**

- A. General Conditions of the Contract for Construction.

##### **1.03 WORK COVERED BY THE CONTRACT DOCUMENTS**

A. All work shall be performed on the Beaverton School District – Five Oaks Middle School Roof Project located at: Five Oaks Middle School, 1600 NW 173<sup>rd</sup> Ave, Beaverton, Oregon 97006.

B. The Work shall include all supplies, tools, equipment, scaffolding, transportation, utilities, service, superintendence, labor, and the furnishing of all materials, items, and accessories needed for the Project.

- 1. A complete roof replacement of the existing built-up roofing at five mechanical penthouses.
- 2. 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.
- 3. The Contractor shall provide for all scheduling, coordination, cutting and patching and all other items required by the Contract Documents to complete the Work.
- 4. The contractor will be required to learn and use Owners Project Management database (e-Builder) for this project.

C. Work of this Contract, as more completely detailed in the Contract Documents consists of one scope of work at one Beaverton School District school. The scope of work for the school includes, but is not limited to, the following elements:

###### **REROOF**

###### **1. ARCHITECTURAL**

- a. Re-roof with single-ply roofing materials and rigid insulation.
- b. Replace/reuse roof flashings and copings.

###### **2. MECHANICAL**

- a. Adjust mechanical utility supports to accommodate new roofing height.

###### **3. ELECTRICAL**

- a. Adjust electrical utility supports to accommodate new roofing height.

##### **1.04 CONTRACT METHOD**

- A. Construct the work under the AIA Contract, furnished by the Owner. See Sample contract.

#### 1.05 PERMITS AND FEES

A. The Owner will reimburse the Contractor as a direct expense (no markup) for the building permit. All other permits will be the responsibility of the Contractor.

#### 1.06 WORK BY THE DISTRICT OR OTHERS

A. If District-awarded contracts interfere with each other due to work being performed at the same time or at the same Site, the District will determine the sequence of work under all contracts. "Contractor's Use of Site and Premises" Articles in this Section outline the District's policies on use of site.

B. Coordinate Work with utilities of the District and public or private agencies.

C. The Contractor shall afford the District and the Owner's separate contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work.

#### 1.07 OWNER FURNISHED PRODUCTS INSTALLED BY CONTRACTOR (OFCI)

A. There are no OFCI items on this project.

#### 1.08 OWNER FURNISHED PRODUCTS INSTALLED BY OWNER (OFOI)

A. There are no OFOI items on this project.

#### 1.09 HAZARDOUS MATERIALS PROCEDURES

A. The District will directly retain an accredited Asbestos Consultant to provide documentation regarding the finding of asbestos and mitigation measures as required by the Asbestos Hazard Emergency Response Act. The Contractor is responsible for the following procedures when encountering suspected hazardous materials:

1. Immediately reporting to the District and its Asbestos Consultant the finding of suspected asbestos material.
2. Following of any rapid response procedures to isolate District staff, students, visitors, and Contractor staff from the suspected material, while maintaining continued progress on the remainder of the project work.
3. Sending a sample of the suspected material to a qualified testing laboratory, receiving test results and informing the District and their Asbestos Consultant.
4. If a material is confirmed to contain asbestos, considering any recommendations from the District and/or its Asbestos Consultant and then implementing asbestos remediation.
5. Resuming full scale work activities on the project as soon as the remediation is complete.

#### 1.10 ASBESTOS FREE CERTIFICATION

Absolutely no materials containing asbestos are to be provided or installed as part of this Project. The Contractor shall ensure that no subcontractor or any of Contractor's own forces installs any materials containing asbestos. At final closeout of the Project, the Contractor shall provide to the School District certification that no materials containing asbestos have been installed in the Project and that the Project is asbestos free as required by the State of Oregon.

1. Upload certification to eBuilder for review to verify it meets the needs of the District.

#### 1.11 CONTRACTOR'S USE OF SITE AND PREMISES

A. Construction operations are to be limited to areas indicated on contractor's logistics plan approved by the Owner.

B. Use of the Site:

1. Do not unreasonably encumber Site or facility with materials and equipment.
2. Do not load structure with weight that will endanger structure.
3. Confine operations at the site to the areas permitted. Portions of the site beyond areas in which work is indicated are not to be disturbed.
4. Keep existing driveways and entrances serving the premises clear and available at all times. Do not use parking for storage of materials.
5. Move stored products which interfere with the District operations and other contractors.
6. Assume full responsibility for the protection and safekeeping of stored products.
7. Obtain and pay for use of additional storage land work areas needed for Contractor operations if necessary.
8. Provide resources for trash removal. Facility dumpsters and trash cans cannot be used for Contractor's trash disposal. Contractor shall not interfere with District waste facilities and scheduled trash pickup.
9. Lock automotive type vehicles and other mechanized or motorized construction equipment when parked and unattended. Do not leave vehicles or equipment unattended with the motor running or ignition key in place.
10. Areas of the site which will be occupied by the Contractor or impacted by construction shall be restored to existing conditions. Contractor is responsible for damage caused by construction activities to playgrounds and surfaces not rated for heavy traffic.
11. It is understood that the Contractor has the most knowledge about staging construction and the extent of restoration required. The Contract Documents therefore do not indicate new construction to replace existing.
12. Landscaping damaged by the Contractor or associated activities shall be repaired to original conditions. All newly seeded or planted areas will be maintained through a period of establishment as determined as reasonable but not less than one growing season. Contractor shall follow requirements as indicated below:
  - a. The Contractor shall be responsible for protecting seeded areas from damage and maintaining seeded areas as necessary to establish a complete coverage of the specified vegetation in a healthy and growing condition for 365 days from the date of substantial completion of the project.
  - b. Mowing: Mow all seeded areas as required to maintain in a healthy growing condition, and to control the germination and spread of noxious weeds. Mow a minimum of once per maintenance period. Line trimmers may be used where appropriate.
  - c. Re-Seeding: Upon detection of damaged or failing areas and areas showing unsatisfactory growth and coverage, the Contractor shall restore the area as necessary to establish a complete cover crop. Reseed using the seed mixes specified.
  - d. Provide necessary watering of seeded areas via temporary irrigation system or hand watering. Any irrigation system is subject to requirements for system use, such as approved backflow devices. Perform necessary site visits and

observations to maintain the proper amounts of moisture in soils to promote healthy and vigorous plant growth. Correct conditions of over or under-watering as may be determined by weekly observations during the irrigation season.

13. Contractor is to protect existing trees in the vicinity of construction operations. No Work, staging, or vehicle traffic is to extend into the drip line of a tree. Contractor will be responsible for any and all penalties, fines, arborist reports, inspections, and required remediation steps for causing damage to a tree or its root system.

C. Contractor's Use of the Existing Building:

1. Maintain the existing building in a safe and weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect building during construction period.

2. Keep public areas such as hallways, stairs, elevator lobbies, and toilet rooms free from the accumulation of waste materials, rubbish, or construction debris.

3. Cleaning:

a. Contractor to ensure that non-construction areas remain free of construction dust throughout the course of the project.

b. When school is in session, daily cleaning of all construction-related dust and debris is the responsibility of the Contractor. Contractor must remove dust that falls overnight from the previous night's work or over the weekend from weekend work prior to staff and students occupying the space. Required cleaning includes dust/debris on the floor, student desks, teacher desks, chairs, the top of light fixtures, the top of sprinkler piping and other exposed pipes and/or ducts, all classroom accessories (animal cages, furniture, sinks, cabinets, etc.), cardboard and other storage boxes, and all items in classrooms and other spaces affected by construction. Contractor will be back charged full cost of cleaning by Owner if Owner is required to clean up dust and debris from Contractor's construction operations.

4. Area of exterior work will need to be secured with a construction fence to provide security for roof access point as well as to secure chutes or any areas where materials are loading/unloading from the roof.

5. In the event of a water intrusion incident, the Contractor shall follow the below procedures:

a. Notify the District of the incident immediately.

b. Investigate the source of the water intrusion and put measures in place to stop the infiltration of water or moisture into the building.

c. Hire a professional remediation company that is pre-approved by the District to manage and remediate the damage within 24 hours of becoming aware of the event.

d. If the areas impacted by the water intrusion are not sufficiently dried-out (as determined by moisture testing performed by a certified professional) within 48 hours to stop any potential mold growth, Contractor is to pay for a baseline mold test to be performed to establish whether any mold has started to grow. A final mold test will be required to clear the area after the remediation work is complete.

e. In addition to returning the affected areas to their original condition, Contractor is responsible for replacing any FF&E that is damaged, paying for the



necessary relocation of school operations, and paying for the District's employees and agents involved in managing and/or remediating the damage.

6. All roof openings, and areas where any portion of the roofing has been removed shall be made temporarily waterproof using EPDM rubber roofing or an equivalent product that is a minimum of 40 mils thick. Visqueen, plastic tarps, and other similar products are not acceptable.

7. Shrouding of existing furnishings, fixtures, and equipment:

- a. Contractor is to gather and shroud all furnishings near the work zone to protect them from dust, debris, and liquids.
- b. Furnishings are to be replaced to their former position at the end of the Work.
- c. Maintain clearance for circulation and egress within the halls.
- d. Furniture and contents from each room shall be stored separately and cannot be mingled.

8. In addition to the above requirements, the contractor shall prepare a detailed temporary barrier plan that covers at a minimum procedure associated with:

- a. Separating the work zones from the non-work zones.
- b. Flooring protection from demolition and new construction damage.
- c. Cover mechanical grilles to protect from dust migration and damage.
- d. Light fixtures protection from dust migration and damage.
- e. Locker protection from dust migration and damage.
- f. Walk off mats at transitions from work zones to non-work zones to prevent dust migration.
- g. Temporary barriers shall be fully sealed and maintained so that they do not allow dust migration or passage of unauthorized personnel.
- h. All furniture, fixtures, and equipment exposed to dust hazard shall be covered with plastic.
- i. Contractor will be back charged if Owner is required to clean-up dust and debris from their construction operations.

D. Contractor's Site Conduct:

1. Identifying name tags will be worn at all times.
2. No loitering in the school buildings.
3. The site is a tobacco-free site. This means no smoking or chewing on the property.
4. Keep the project free of pop cans, lunch wrappers, etc.
5. The supervisor will review the scheduling of any work that is excessively noisy.
6. Profanity is not acceptable.
7. The wearing of clothing with logos displaying alcohol, tobacco, illegal substances, or suggestive themes is not acceptable attire.
8. The Contractor, the Contractor's employees and all subcontractor's and subcontractor's employees who perform Work will be required to comply with the Owner's policies and procedures.
9. Beyond courtesy, there should be no interaction between Contractor and the District's staff.

E. Emergency Building Exits During Construction:

1. Maintain required access to existing emergency exits as required by governing jurisdiction. Any changes made to the egress plan by the Contractor shall be the Contractor's responsibility to get it professionally designed and approved by the governing jurisdiction.
2. Protect the public and the District's staff from construction hazards in the emergency egress pathways.
3. Protection barriers from falling material hazards shall be professionally designed and submitted to the District for approval.

PART 2 – PRODUCTS – NOT USED  
PART 3 – EXECUTION – NOT USED  
END OF SECTION 01 10 00

**01 14 00**  
**WORK RESTRICTIONS**

**PART 1 - GENERAL**

**1.01 Section includes**

- A. Related Requirements
- B. Access to Site
- C. Coordination with Occupants
- D. Use of Site
- E. Standard Working Hours/Days
- F. Deviation from Standard Hours/Days

**1.02 RELATED REQUIREMENTS**

- A. General Conditions of the Contract for Construction

**1.03 ACCESS TO SITE**

- A. Contractor shall limit use of premises for Work and for construction operations.
- B. There shall be no access through or from adjacent residences.
- C. Coordinate use of premises under direction of the District.

**1.04 COORDINATION WITH OCCUPANTS**

- A. District staff will occupy portions of the building throughout the construction period. Contractor shall coordinate use of premises with owner.
- B. The District shall permit public closure of the areas of work within the building.
  - 1. Contractor shall limit access to authorized personnel only and shall not allow public access without prior authorization from the District.

**1.05 SECURITY REQUIREMENTS**

- A. All personnel under the employment of the Contractor and its Subcontractors who spend time at the project site are to wear photo ID badges while on the work site. Individuals not wearing badges will be removed from the project work site. ID badges are to contain:
  - 1. Individual's full name (no nicknames).
  - 2. Individual's company affiliation.
  - 3. Recent photograph of the individual; taken within the last 4 years.
- B. Badges must be always worn by workers in a visible location.
- C. All personnel under the employment of the Contractor and its Subcontractors that spend time at the project site must pass a formal background screening review before being allowed on the work site. Background screening is to be done by a professional screening firm meeting the following qualifications:
  - 1. Must have a minimum of five years of screening experience specifically for construction industry clients,
  - 2. Must have a minimum of fifteen employees.
  - 3. Must be able to provide access to an internet-based screening management software system which has a feature to allow access by the District to view the pass-no pass

result for each screened Contractor/Subcontractor employee working on a District project.

4. Must be accredited by the National Association of Professional Background Screeners (NAPBS).

D. Each individual will be screened for having committed any crime as listed in ORS 342.143, most recent edition.

#### 1.06 USE OF SITE

A. Contractor shall have full access to the Site during construction, but shall coordinate and limit locations as required for the operations of other construction projects and owner use.

Contractor to indicate locations and schedule to owner in advance for approval.

B. Contractor shall direct all construction vehicle and delivery traffic along an access route as approved by the Owner.

C. Contractor shall professionally prepare a site logistics plan defining Contractor areas for work, access, staging, and storage utilizing CAD, Bluebeam, Adobe Acrobat, or other similar software.

D. Provide staging and logistics plan delineated on Project Site Plan. Include crane operations plan, material lay-down area plan, job office location, fence locations, gate locations, and fence locking plan. Project Site Plan shall be on 11x17 paper and shall be professionally prepared.

1. Provide field office trailer during construction. Coordination with owner is required.

E. Contractor shall submit staging and logistics plan to District and governing authorities for review and approval prior to commencement of Work.

F. Contractor shall limit his use of the premises for Work and for storage to allow for:

1. District occupancy and operations.

2. Coordinated use of premises under direction of Owner.

3. Full responsibility for protection and safekeeping of products under this Contract stored at Site.

4. Moving stored products, under Contractor's control, which interfere with operations of District or a separate Contractor.

5. Obtaining and paying for use of additional storage or work areas needed for operations.

6. Conformance to fire / life safety requirements and fire equipment access.

7. Worker vehicle parking on-site.

G. The existing fire alarm system and fire sprinkler system shall remain operational twenty-four (24) hours/day, seven (7) days/week. If at any time during the Project the existing system is not fully operational the Contractor, at its own expense, shall provide a "Fire Watch" acceptable to the Owner until the existing system is made fully operational.

H. Work on weekends, evenings or holidays may be required to meet the project phasing schedules. Provide 72 hours notification to the Owner to ensure necessary inspections, monitoring, testing, etc. are provided during these work hours.

I. Temporary hard barriers as necessary shall be constructed prior to the start of work in accordance with Section 01 10 00 – Summary of Work.

J. On a site plan indicate lay down areas, pedestrian walkways, and contractor parking areas. Snow fencing is not acceptable as hard fencing.

K. The Contractor shall submit a diagram one week prior to start of construction indicating the construction zone, and barricades and access for students and School Personnel, for approval by the Owner.

L. The Contractor must provide and maintain access and code compliant egress to and from all

occupied spaces.

M. Contractor shall post temporary signage (appropriate and secure) to redirect students and staff for emergency exiting.

N. The Contractor shall diligently maintain all construction zone barricades and fencing.

1. Fence panels shall be secured with two fence clamps per joint.
2. The Contractor shall secure end panels in a manner acceptable to the Owner.
3. The use of tie wire will not be an acceptable method for securing fence panels.
4. Construction zone gates shall be secured with chains and District provided padlocks.

#### 1.07 STANDARD WORKING HOURS/DAYS

A. The project schedule assumes a 5-day work week. It is up to the contractor to determine their required work week needed to meet the required substantial completion date. Contractor is required to provide onsite management on days that they are working including Saturdays.

B. Exterior work and interior work that generates noise shall be performed in accordance with local codes.

C. For work occurring during the school year between Monday and Friday, before beginning work, contractor shall check in daily with the Project Manager to review the previous day's work and discuss upcoming work for that day/evening. This check-in will take place on every school day, Monday through Friday, so District staff members can be made aware of current construction activity.

#### 1.08 DEVIATION FROM STANDARD HOURS/DAYS

A. For any deviation from the above stated working days/times, Contractor shall submit a request in writing to the District at least 48 hours prior to the date in question. While the District cannot assure approval in every instance, efforts shall be made to accommodate such requests.

### PART 2 - PRODUCTS – NOT USED

### PART 3 - EXECUTION

#### 3.01 CONTRACT TIME / MILESTONE SCHEDULE AND DESCRIPTION OF PHASES

A. Contract Time and Milestone Schedule:

REFER TO INVITATION TO BID FOR ALL DATES REFERENCED IN THIS SECTION.

B. Description of General Construction Requirements:

1. These descriptions of the construction requirements are general in nature and in no way offer the complete and concise description of all the work required by the Contract Documents.
2. The start dates represented in the milestone schedule are preliminary and the District reserves the right to modify these dates based on when the Notice to Proceed is issued.
3. The Contractor is responsible for providing the manpower and scheduling the shifts necessary to complete the work in accordance with the Contract Time and Milestone Schedule.
4. The School will remain open during the academic year and will be partially occupied during summer construction periods. The Work of this project must consider that the site will be occupied by students and staff and will be phased as generally described



above and in other contract documents. Provide additional cleaning when school is in session as indicated in Section 01 10 00 – Summary of Work.

5. Non-School hours are defined as hours before 7:00 AM, and after 3:00 PM on days when school is in session.

6. Follow Washington County Noise Ordinance.

7. Work that is hazardous, noisy, or that causes vibration may not be performed in the buildings or on the site during school hours, without written approval from the Owner.

This includes but is not limited to the following work activities:

- a. Hazardous materials abatement.
- b. Concrete bushing, chipping, grinding, jack hammering.
- c. The use of Powder-Actuated (PAT's) fasteners.
- d. Chemicals used in quantities that cause excessive odor, such as hot tar, and cannot be effectively ventilated. As determined by the Owners Representative.
- e. Large impact drills for use in concrete.
- f. Smaller Bulldog type impact drills for ¼" holes or less.
- g. Operation of cranes in occupied areas, including drilling rigs, and concrete pump trucks unless the occupants can be sufficiently isolated from the swing zone.
- j. Chop Saws for metal studs or other metal cutting. These may be used if isolated in a temporary sound deadening room constructed by the Contractor as approved by the Owner's representative.
- k. Earthwork compaction, including the operation of vibratory compaction equipment.

### 3.02 LIQUIDATED DAMAGES

A. Substantial Completion: The delayed Substantial Completion of any phase of the Work will result in the assessment and withholding of Liquidated Damages for each day of delayed Substantial Completion. Refer to the STATEMENT OF WORK for daily rate. See Section 01 77 00 "Closeout Procedures" for requirements by phase of the project.

B. Final Completion: The delayed Final Completion of the Work will result in the assessment and withholding of Liquidated Damages for each day beyond the Contract Time until all punch list items are completed. Liquidated damages include but are not limited to: The District's project team labor (including the CM), additional time spent re-inspecting work that was completed incorrectly, and attorney's fees related to the delay in completing the work.

END OF SECTION 01 14 00

## **01 26 00**

### **CONTRACT MODIFICATION PROCEDURES**

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Related Requirements
- B. Requests for Information (RFI)
- C. Architectural Supplemental Instructions (ASI)
- D. Construction Change Directives (CCD)
- E. Change Order Requests (COR)
- F. Change Orders

##### **1.02 RELATED REQUIREMENTS**

- A. Section 01 31 23 Project Management Database

##### **1.03 REQUESTS FOR INFORMATION**

- A. Initiating the Request for Information (RFI).
  - 1. Where the Contractor requires additional information to assist in interpreting the documents or understanding how to apply the provisions of the Contract Documents, the Contractor shall submit an RFI to the Architect to distribute as appropriate to the Project team.
  - 2. Upon submitting an RFI, Contractor is to determine if there are portions of the ongoing Work that are directly affected by the issue described in the RFI that need to be stopped until further direction is received, and they are to notify the Architect and Owner of this in writing. The Architect and/or Owner will direct Contractor as to whether or not they are to stop working in those areas.
- B. All requests shall include the following:
  - 1. RFI number (assign sequential numbers to RFIs).
  - 2. Specific reference to the drawings, specifications or field conditions that initiated the need for interpretation, including drawing number(s), detail number(s), and specification section numbers(s).
  - 3. List of subcontractors involved.
  - 4. Date of request.
  - 5. Date that response is needed.
  - 6. Background: State purpose of Request. Provide concise information necessary for the Architect's understanding of the Request.
  - 7. State Contractor's interpretation of the requirements of the Contract Documents.
  - 8. Provide statements in condensed and precise question format, and where appropriate, compose in such a way that "yes" or "no" would be acceptable response.
  - 9. If the statement of the question for which interpretation is requested is ambiguous or unclear, the Request shall be considered incomplete.
  - 10. Use additional forms, diagrams or marked-up Contract Drawings where necessary.
  - 11. Reason for need for information (unanticipated field condition, conflict in documents, change in requirements of third party such as code entity).
- C. Suggested options for resolution.

D. Indication of whether or not the issue appears to have potential impact on the Contract Sum or Contract Time.

E. Space for Architect's response.

F. Limit Requests for Information to not more than one issue or question.

1. Avoid questions that may include multiple sub-issues
2. If Architect determines that a Request contains more than one issue, Contractor will be required to resubmit.

G. Architect's Review

1. After receipt of an RFI, Architect will determine whether the Request is complete.
2. If Request is determined to be incomplete, Architect will notify Contractor in writing of the deficiencies. Architect will take no further action on incomplete RFI until deficiencies are remedied.
3. Allow 5 working days for review by Architect.
  - a. If a longer review time is deemed necessary, Architect will notify Contractor of the anticipated response time, within 5 working days of receipt of the complete RFI.
  - b. Indicate "URGENT" on RFIs which may impact the Project Schedule to notify Architect of priority.
  - c. Urgent RFIs will take precedence and be answered as soon as possible.

H. Architect's Response

1. Responses issued by Architect will be to explain and clarify the intent of the Contract Documents.
2. Responses of the Architect shall be consistent with the intent of the Contract.

I. Distribution and Notification

1. Upon receipt of the Architect's response, Contractor shall distribute copies to the initiator of the request and to all affected parties.
2. Contractor is responsible for immediately implementing the changes to the Contract Documents in accordance with the Architect's response. Contractor shall be responsible for costs incurred due to continuing with Work that is contrary to the direction given in the Architect's response.
3. Contractor is to notify the Owner within 48 hours of receiving the Architect's response of any cost or schedule impacts due to the changes made to the Contract Documents by the Architect's response.
4. If there is a cost impact or a schedule impact due to the Architect's response, Contractor shall process a Change Order Request and obtain Owner's approval before proceeding with the changes. While waiting for the Owner's approval, Contractor shall not proceed with Work that will need to be redone if/when the cost or schedule impacts are approved.

J. Coordination with Contractor Submittals

1. Contractor shall take special care to ensure that RFI responses are included and coordinated with all trades and required project Submittals and Shop Drawings.
2. Submittals and Shop Drawings that do not incorporate all RFI responses shall be returned to Contractor without review as incomplete.

K. Administrative Costs

1. Requests for Information (RFIs) for information that is already contained or provided for in the Contract Documents may result in additional administrative costs to the Owner, which the Owner may charge to the Contractor.

2. Requests for Information (RFIs) for solutions to Contractor's errors may result in additional administrative costs to the Owner, which the Owner may charge to the Contractor.
3. Requests for Information (RFIs) for Substitution Requests may result in additional administrative costs to the Owner, which the Owner may charge to the Contractor.

#### 1.04 ARCHITECTURAL SUPPLEMENTAL INSTRUCTIONS

- A. The District, without invalidating the Contract, may issue Architectural Supplemental Instructions (ASI) authorizing changes in the Work.
- B. Distribution and Notification
  1. Upon receipt of the ASI, Contractor shall distribute copies to all affected parties.
  2. Contractor is responsible for immediately implementing the changes to the Contract Documents in accordance with the ASI. Contractor shall be responsible for costs incurred due to continuing with Work that is contrary to the direction given in the ASI.
  3. Contractor is to notify the Owner within 48 hours of receiving the ASI of any cost or schedule impacts due to the changes made to the Contract Documents by the ASI.
  4. If there is a cost impact or a schedule impact due to the ASI, Contractor shall process a Change Order Request and obtain Owner's approval before proceeding with the changes. While waiting for the Owner's approval, Contractor shall not proceed with Work that will need to be redone if/when the cost or schedule impacts are approved.
- C. Coordination with Contractor Submittals
  1. Contractor shall take special care to ensure that ASI's are included and coordinated with all trades and required project Submittals and Shop Drawings.
  2. Submittals and Shop Drawings that do not incorporate all ASI's shall be returned to Contractor without review as incomplete.

#### 1.05 CONSTRUCTION CHANGE DIRECTIVES

- A. Where the District has requested a change to the Work and the District and Contractor cannot agree to the terms of adjustment to the Contract Sum or Contract Time, the District shall issue a Construction Change Directive compelling to the Contractor to commence with the change, tracking both the time and cost of the work until such time as the Contractor and District can come to an agreement.
- B. Construction Change Directives shall contain a complete description of the changes in the work and shall designate the method to be followed to determine changes in the Contract Sum or Contract Time.
- C. Contractor shall maintain detailed records on a time and materials basis of the Work required.
- D. Upon completion of the change in the Work, the Contractor shall submit an itemized account and supporting data necessary to substantiate the cost and time adjustments to the Contract for preparation of a Change Order by the District's Representative.
- E. Payment to the Contractor shall not be made on basis of a Construction Change Directive until it is made into a Change Order approved by the District, its Representative, the Contractor and the Architect/Engineer. Portions of a Construction Change Directive shall not be eligible to be made into a Change Order for partial payment.

#### 1.06 CHANGE ORDER PROPOSAL

- A. Contractor shall process a Change Order Proposal (COP) for changes to the Contract Documents that result in revisions in the Contract Sum or Contract Time.
- B. A separate Change Order Proposal (COP) shall be created for each issue.
- C. Contractor is to submit the Change Order Proposal (COP) to the Architect for review via eBuilder (per Section 01 31 23).
- D. The Architect shall review the Change Order Proposal's scope and pricing and may request additional information or clarification from the Contractor.
- E. After completing their review, the Architect will forward the Change Order Proposal (COP) to the Construction Manager with their comments.
- F. The Construction Manager will review the Change Order Proposal's scope and pricing and may request additional information or clarification from the Contractor or the Architect.
- G. After completing their review, the Construction Manager will forward the Change Order Proposal (COP) to the District's Representative with their recommendation.
- H. The District's Representative will review the Change Order Proposal's scope and pricing along with the Architect's comments and the Construction Manager's recommendations and may request additional information or clarification from the Contractor, Architect, or Construction Manager.
- I. Upon approval of the Change Order Proposal (COP) by the District's Representative, the Contractor can officially proceed with the changes.
- J. Approved Change Order Proposals will be rolled-up into a Change Order on a monthly basis.
- K. Change Order Proposal must be received within 30 calendar days after the work related to the change order proposal has been performed and must have been identified within an RFI prior to the work being performed to be considered.

#### 1.07 CHANGE ORDERS

- A. Change Orders shall be recorded as a revision to the Contract for Construction and Contractor shall immediately upon execution add their content and value to both the Construction Schedule and the Schedule of Values.
- B. Applications for Payment shall include all executed change orders in order to be considered complete and acceptable for payment processing.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION 01 26 00



## **01 29 00**

### **PAYMENT PROCEDURES**

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Related Requirements
- B. Schedule of Values
- C. Progress Payment Procedures
- D. Payment for Stored Materials
- E. Payment for Deposits on Ordered Materials
- F. Payment Procedures for Testing Laboratory Services

##### **1.02 RELATED REQUIREMENTS**

- A. The General Conditions to the Contract

##### **1.03 SCHEDULE OF VALUES**

- A. Within 10 days of the Contract Award, the Contractor shall submit to the District for review and approval, the Schedule of Values, using the AIA Form G703.
- B. The Schedule of Values shall allocate the entire Contract Sum among the various portions of the Work and shall be prepared in such form as approved by the District and supported by such data to substantiate its accuracy.
- C. The Schedule of Values shall be itemized to the following level of detail:
  - 1. Separate the costs into Specification Sections (PVC Roofing, Sheet Metal Flashing, etc.).
  - 2. Separate costs for each Specification Section into Demo, Install Labor, Install Materials and Closeout Documentation.
  - 3. No one line item shall be more than 20% of the Contract Sum.
- D. District shall review and approve the Schedule of Values for use in the preparation of Applications for Payment.

##### **1.04 PROGRESS PAYMENT PROCEDURES**

- A. Each Application for Payment shall be submitted based on the procedures outlined in the Contract.
- B. Applications for Payment that have an inflated % complete for any give line item shall be rejected. Contractor shall revise and resubmit the Application for Payment with the corrected % complete. The Contractor shall be responsible for hardships due to delays in the approval of the Application for Payments that are caused by errors in the Applications.
- C. General Conditions shall be billed monthly at the same % complete as the total % complete for that Application for Payment.

##### **1.05 PAYMENT FOR STORED MATERIALS**

- A. Contractor may be entitled to receive payment for stored materials provided the following conditions have been met:
  - 1. A valid off-site stored materials insurance certificate is to be provided to the District. The policy needs to reference the project that the materials are for, and the value of the policy needs to meet or exceed the value of stored materials.

The District is to be listed as additional insured on the policy.

2. Materials shall be clearly labeled as District property and specific to the project, and shall be stored separately from other materials.

3. The District shall obtain verification from an independent third party that all items are present within the warehouse. The cost of the initial verification process will be the responsibility of the Contractor to pay for.

4. Keys and alarm codes are to be provided to the District representative for unfettered access to the warehouse until the stored materials are delivered to the project site. Periodic unannounced inspection visits to the warehouse may be made a District representative. If the materials are removed without permission from the District, Contractor shall immediately reimburse the District for the entire payment made for the stored materials.

5. Digital photos of the off-site stored materials labeled for the project are to be submitted with the Application for Payment.

6. Contractor is to provide an executed bill of sale as proof of payment for stored materials.

7. Verification of stored materials and partial payment for such materials do not constitute acceptance on the part of the District. If materials stored are found to be unsuitable for installation or incorporation into the Work for any reason, Contractor shall bear full responsibility for any and all corrections needed.

8. District shall not be responsible for any additional costs incurred for the storage of materials unless such storage is the result of and a part of an approved Change Order where the District is found to be responsible for such costs.

#### 1.06 PAYMENT FOR DEPOSITS ON ORDERED MATERIALS

A. Where the Contractor has placed an order for materials or services and an initial deposit is required, the Contractor shall have the right to submit invoices for deposits as a part of the Application for Payment with supporting documentation indicating why such deposits are necessary.

B. The District shall review submitted invoices and shall have the right to approve or reject the payment for the deposit. The District is not obligated to pay for any deposits required for materials not present at the project site.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION 01 29 00

## **01 31 00**

### **PROJECT MANAGEMENT AND COORDINATION**

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Related Requirements
- B. Project Coordination
- C. Construction Organization and Start-up
- D. Construction Coordination
- E. Coordinating Subcontractors' Work
- F. Project Meetings

##### **1.02 RELATED REQUIREMENTS**

- A. General Conditions of the Contract for Construction

##### **1.03 PROJECT COORDINATION**

A. Before submitting the Bid to the District, and continuously after the execution of this Contract, the Contractor shall carefully study and compare the Contract Documents and shall at once report to the District, any error, inconsistency or omission it 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.

B. By submitting bid for this Contract and the Work under it, the Contractor agrees that the Contract Documents, along with any addendums or other supplementary written instructions issued 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 District, the Contractor shall not be liable to the District for any damage resulting from any such errors, inconsistencies or omissions in the Contract Documents. The Contractor shall do no Work without Contract Documents and, when required, reviewed Shop Drawings, Product Data or samples for such portions of the Work.

##### **1.04 CONSTRUCTION ORGANIZATION AND START-UP**

A. Establish on-site lines of authority and communications by attending Pre-construction Meeting and Progress Meetings as required by the Architect, Engineer, District and District's Representatives.

B. Comply with procedures for intra-project communications including but not limited to:

- 1. Submittals
- 2. Reports and records
- 3. Recommendations
- 4. Coordination drawings
- 5. Schedules
- 6. Resolution of conflicts

C. Communication and transmitted documents are to flow from subcontractors to the GC (prime Contractor) and then in parallel to the Architect and the Owner. Communication and document transmission from the Architect and the Owner to the subcontractors is to occur in the same manner, except that the flow will be the reverse of that noted above.

## 1.05 CONSTRUCTION COORDINATION

### A. General Coordination:

1. Coordinate various elements of the work and entities engaged to perform work.
2. Coordinate the work with existing facilities/conditions, and with work by separate contractors and by the Owner.

### B. Mechanical and electrical drawings:

1. Mechanical and Electrical Contract Drawings are diagrammatic. Additional offsets and bends may be required.
2. Install additional offsets and bends in the systems where required by field conditions.
3. The Architect may make minor adjustments in fixture, outlet, grille, louver, or ventilator locations prior to rough-in work with no additional cost.

### C. Clearances:

1. Provide adequate clearance between Architectural, Structural, Mechanical, and Electrical Systems. Verify physical dimensions of equipment and its available space. Check access routes through concealed or existing spaces for installation of systems or equipment.
2. Review the Construction Documents for possible conflicts prior to rough-in. Contractor is responsible for verification that equipment will fit in the space provided. Resolve conflicts with the Architect prior to rough-in work.

## 1.06 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 their workmanship when subcontractors of subsequent materials have a reasonable and justifiable objection to conditions of work.

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.

## 1.07 PROJECT MEETINGS

### A. Preconstruction Meetings:

1. Owner and the Construction Manager will manage the preconstruction meeting for execution of Owner-Contractor Contract and exchange of preliminary submittals.

B. Site Mobilization Meetings

1. Owner will administer site mobilization conference at Project site for clarification of Owner and Contractor responsibilities in use of site and for review of administrative procedures.

C. Progress Meetings

1. Contractor shall attend the weekly project site meetings throughout the course of the Work. Contractor shall make physical arrangements for the meetings, prepare agenda with copies of the meeting minutes from the previous meeting and all necessary logs and schedules for the participants.

2. The Owner or the Construction Manager shall preside at the weekly meetings.

3. The Construction Manager will provide meeting minute's format/template. The Construction Manager shall record the minutes at the meetings which shall be distributed by the Contractor Manager within two days to Owner, Architect, Engineer, subcontractors, participants at the meetings, and those affected by decisions made at the meetings.

4. Attendees shall include Contractor's project manager and superintendent, Owner, Construction Manager, and Architect/Engineer as appropriate to the topics for each meeting.

5. Suggested agenda topics: informational items, safety, schedule review, RFI & ASI review, submittal review, Contractor issues, design issues, owner issues, change order requests and pay applications, and closeout.

D. Pre-Installation Meeting

1. Prior to commencement of critical new activities on site, Contractor shall conduct a Pre-Installation Meeting. Contractor shall ensure that all relevant subcontractors are present inclusive of those performing work immediately prior and subsequent to the subject activity as well as those who are impacted by the Work.

2. The purpose of the meeting is to review field conditions to confirm that the site and all previous work is ready for the commencement of the new activity, confirm clear understanding of the intention of the plans and specifications and to identify potential risks and resolutions to those risks related to the proposed work.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION 01 30 00



## **01 31 23**

### **PROJECT MANAGEMENT DATABASE**

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Related Requirements
- B. Summary
- C. General Requirements
- D. System Requirements
- E. System Access
- F. System Use

##### **1.02 RELATED REQUIREMENTS**

- A. General Conditions of the Contract for Construction

##### **1.03 SUMMARY**

A. Project Management Communications: The Owner, Contractor and Architect shall use the Internet web-based project management communications tool, E-Builder® ASP software and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.

B. Purpose: The intent of using E-Builder® is to improve project work efforts by promoting timely initial communications and responses and to reduce the number of paper documents while providing improved record keeping by creation of electronic document files.

##### **1.04 GENERAL REQUIREMENTS**

A. Project management communications is available through E-Builder® as provided by "E-Builder®" in the form and manner required by the Owner.

B. The project communications database is on-line and fully functional. User registration, electronic and computer equipment, and Internet connections are the responsibility of each project participant.

C. Support: E-Builder® will provide on-going support through on-line help files.

D. Training: The District will provide a minimum 2-hour e-Builder Training Session for awarded Contractor's project manager or lead member of Contractor's project staff for the specific E-Builder modules required on this project.

E. Authorized Users: Access to the web site will be by individuals who are licensed users as required by the Owner.

F. Licenses Granted by Owner: Owner shall pay for and provide licenses for the following members of the project team:

1. Lead member of Architect's design team responsible.
2. Contractor's project manager or lead member of Contractor's project staff.
3. Owner's project manager or representative.
4. Others as deemed appropriate by Owner.

## 1.05 SYSTEM REQUIREMENTS

### A. System Configuration:

1. Operating System: Windows 7 or later, or OS X v10.8 or later.
2. Display capable of SVGA (1024 x 768 pixels) 256 colors display.
3. 101 key Keyboard.
4. Mouse or other pointing device.

### B. Operating system and software configuration:

1. All software shall be properly licensed with vendors or developers. Use of "E-Builder" does not convey any rights or licensure for use of any software, hardware or internet service provider.
2. Software Configuration:
  - a. The most current version of Microsoft Internet Explorer, Google Chrome, or Safari. This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.
  - b. The most current version of Adobe Acrobat Reader (current version is a free distribution for download).
  - c. Other plug-ins specified by E-Builder® as applicable to the system (current versions are a free distribution for download from [www.e-builder.net](http://www.e-builder.net)).
  - d. Users are recommended to have properly licensed versions of the standard Microsoft Office Suite (current version must be purchased) or the equivalent.

## 1.06 SYSTEM ACCESS

- A. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Contractor shall be responsible for providing suitable computer systems for each licensed user at the user's normal work location with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.
- B. Authorized users will be contacted directly by the web site provider, E-Builder®, who will assign the temporary user password.
- C. Individuals shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.

## 1.07 SYSTEM USE

- A. Owner's Administrative Users: Owner administrative users have access and control of user licenses and all posted items. **DO NOT POST PRIVATE ITEMS OR YOUR COMPANY'S CONFIDENTIAL ITEMS IN THE DATABASE!**
- B. Improper or abusive language toward any party or repeated posting of items intended to deceive or disrupt the work of the project will not be tolerated and will result in deletion of the offensive items and revocation of user license at the sole discretion of the Administrative User(s). Costs incurred or associated with such issues shall be the financial responsibility of the party responsible for the transgression.
- C. Communications: Communication for this project for the items listed below shall be solely through E-Builder®
1. Submission of Contractor shop drawings and submittals, and receiving processed shop drawings and submittals.
  2. Submission of Requests for Information (RFI) and receiving RFI responses from the Owner and Architect.

3. Receiving Architect's Supplemental Instructions.
4. Submission of invoices and approval or rejection of same.
5. Distribution of meeting minutes.
6. Submission of as-built record drawings (electronic format).
7. Submission of test results and Operation and Maintenance (O&M) manuals (electronic format).
8. Submission of Change Orders (COs) and contract amendments and approval or rejection of same.
9. Transmission of formal letters and notices between the District and the Contractor.
10. All other communication shall be conducted in an industry standard manner.

D. In the event of occasional operational problems with e-Builder, transmission of the above documents may be done for a temporary period of time by hand carrying, email, normal mail or express mail. Prior approval must be obtained from the District before utilizing this backup communication system and a resumption of e-Builder use is to initiate as soon as the operational problems are corrected.

E. Communications shall be labeled in a manner that is site- and Contractor-specific and references projects in a coded sequential method. The Owner and Architects will refer to RFIs, Submittals, ASIs, and all other eBuilder tracked communications with the eBuilder assigned number. It is the Contractor's responsibility to coordinate their numbering system with the eBuilder assigned numbers.

F. Project Documentation: The following project documentation will be prepared by Contractor, converted to PDF electronic format, and shall be uploaded to E-Builder® on a **weekly basis** or as project record documents:

1. Project Schedule (See Requirements in the Contract General Conditions).
2. Contractor's Health and Safety Evaluation (See Requirements in Section 01 32 00).
3. Contractor's Daily Construction Progress Reports (See Requirements in Section 01 32 00).
4. Photographic Documentation (See Requirements in Section 01 32 00).
5. Other project supporting documentation as required by District.
6. Close-Out Submittals (See Requirements in Section 01 77 00).

G. Document Integrity and Revisions:

1. Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.
2. The system shall identify revised or superseded documents and their predecessors.
3. Server or Client side software enhancements during the life of the project shall not alter or restrict the content data published by the system. System upgrades shall not affect access to older documents or software.

H. Document Security: The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties' communication except for Administrative Users.

I. Document Integration: Documents of various types shall be logically related to one another and discoverable.

J. Notifications and Distribution: Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.

K. Ownership of Documents and Information: All documents, files or other information posted on the system shall become the property of the Owner.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION 01 31 23

## **01 32 00**

### **CONSTRUCTION PROGRESS DOCUMENTATION**

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Related Requirements
- B. Scheduling of Work
- C. Construction Progress Schedule
- D. Three Week Look Ahead
- E. Recovery Schedule
- F. Submittals Schedule
- G. Deferred Submittals
- H. Site Specific Safety Plans
- I. Site Specific Staging and Logistics Plan
- J. Contractor Health and Safety Evaluation
- K. Construction Progress Reporting
- L. Periodic Work Observation
- M. Photographic Documentation

##### **1.02 RELATED REQUIREMENTS**

- A. General Conditions of the Contract for Construction.

##### **1.03 SCHEDULING OF WORK**

- A. The primary objectives of the project scheduling program are as follows:
  - 1. To ensure the adequate planning, scheduling, and execution of the construction activities so they may be prosecuted in an orderly and expeditious manner within the Contract Time and the Milestones stipulated by the Contract.
  - 2. To provide optimum coordination between Subcontractors.
  - 3. To establish the basis for measuring and monitoring individual Contractor progress and overall project progress.
  - 4. To detect problems for the purpose of taking corrective action to maintain the scheduled program and to provide a mechanism or tool for determining and monitoring such corrective actions.
- B. If the Contractor should desire or intend to complete the Work earlier than any required Milestone or Completion date, the District, Architect/Engineer or the District's Representative shall 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 District 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 Contract, unless the District, the District's Representative and the Contractor otherwise agree in writing.

##### **1.04 CONSTRUCTION PROGRESS SCHEDULE**

- A. Pursuant to the General Conditions of this Contract, the following additional scheduling requirements are a part of this Contract.
- B. The Construction Progress Schedule shall be created using the current version of MS Project or approved equal.

- C. Work under this Section shall consist of completing a Construction Progress Schedule showing in detail how the Contractor plans to execute and coordinate the Work.
- D. Each work item on the Construction Progress Schedule, as well as being correlated to the payment document, shall be broken into feasible work segments/activities (where practicable) with individual starting and stopping dates.
- E. Work shall be segmented to demonstrate its relationship to the various Milestone Dates. Activity titles shall be self-explanatory and abbreviations shall be shown in the legend.

#### 1.05 THREE WEEK LOOK AHEAD SCHEDULE

- A. Each week the Contractor shall prepare and present an update schedule showing the planned activities for the next three weeks and 1 week prior. The schedule shall be coordinated with the master schedule and accurately portray activities completed and activities planned for the upcoming weeks. Unless otherwise directed by the Owner, the Contractor shall present this schedule at the weekly meeting.
- B. Provide copies to the participants at the time of the weekly Progress Meeting.
- C. Format shall be 11" by 17" or as necessary to be easily legible.

#### 1.06 RECOVERY SCHEDULE

- A. Should any conditions exist, such that certain activities shown on the Contractor's Construction Progress Schedule fall behind schedule to the extent that any of the critical path Milestones or Completion Dates are in jeopardy, the Contractor shall be required to, at no cost to the District, prepare and submit a supplementary Recovery Schedule. The Recovery Schedule shall be in a written form with appropriate details including an explanation and display on how he/she intends to reschedule those activities to regain compliance with the Construction Progress Schedule during the immediate subsequent pay period.
- B. The Contractor and District's Representative shall do the following after determination of the requirement for a Recovery Schedule:
  - 1. Within three (3) calendar days, the Contractor shall present to the District's Representative the Recovery Schedule.
  - 2. The Recovery Schedule shall represent the Contractor's best judgment regarding how to reorganize and accelerate the Work to get back on schedule within the immediate subsequent pay period. The Recovery Schedule shall be prepared to a similar level of detail as the Construction Progress Schedule.
- C. Five (5) calendar days prior to the expiration of the Recovery Schedule, the District's Representative 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 District's Representative, one of the following will happen:
  - 1. If, in the opinion of the District's Representative, the Contractor is still behind schedule, the Contractor in conjunction with the District's Representative will prepare another Recovery Schedule, at the Contractor's expense to take effect during the immediate subsequent pay period.
  - 2. If, in the opinion of the District's Representative, the Contractor has sufficiently regained compliance with the Construction Schedule, the use of the Construction Schedule will be resumed.

#### 1.07 SUBMITTALS SCHEDULE

- A. In conjunction with the preparation of the Construction Progress Schedule, the Contractor

Shall prepare a Submittals Schedule that shall outline all required submittals and when they are required to be approved based on ordering lead times and the incorporation of products into the Work in conformance with the Construction Progress Schedule.

B. Contractor shall then reverse engineer the Submittals Schedule to determine when submittals need to be provided to the District and design team, noting latest approval dates and factoring in time for the re-submittal of items if necessary.

C. The Submittals Schedule shall be clearly identified within Construction Progress Schedule and shall be updated and reviewed at each Project Progress Meeting.

D. Contractor shall fill out submittal log that will include all dates associated with submittals. The log will be updated accordingly and submitted weekly for approval.

#### 1.08 DEFERRED SUBMITTALS

A. Certain components of the Work under this project are Delegated Design. It is the Contractor's responsibility to coordinate and assume or assign to subcontractors the complete responsibility for the design, calculation, submittals, fabrication, transportation and installation of the Delegated Design portions or components as required. Delegated Design components of the Work are defined as complete operational systems, provided for their intended use.

B. Submit deferred submittals for Delegated Design elements to the governing agency for the separate approval of each Delegated Design item. Where required, provide design and calculations stamped by a professional engineer licensed in the State of Oregon.

C. Owner shall not be responsible to pay for any delays, additional products, additional hours of work or overtime, restocking or rework required due to failure by the Contractor or the subcontractor to coordinate their work with the work of the other trades on the project or to provide the Delegated Design portion or component in a timely manner to meet the schedule of the project.

#### 1.09 SITE SPECIFIC SAFETY PLAN

A. In an effort to reduce accidents and maintain a safe work site, the Contractor, prior to any work on site, shall submit to the Owner a detailed site-specific safety plan which outlines, at a minimum, a detailed description of the following:

1. Facility Safety and Security
2. Construction Safety and Security
3. Disaster Response
4. Emergency Procedures and Protection
5. Safety and Health Procedures and Work Practices pertaining to;
  - a. Demolition
  - b. Electrical
  - c. Excavations
  - d. Fall Protection
  - e. Fire Prevention
  - f. Hazard Communications
  - g. Heavy Equipment
  - h. Housekeeping
  - i. Mobile Cranes
  - j. Scaffolding
  - k. Signs – Barricades – Fencing



#### 1.10 SITE SPECIFIC STAGING AND LOGISTICS PLAN

A. The Contractor, prior to any work on site, shall submit to the Owner a detailed site specific staging and logistics plan

#### 1.11 CONTRACTOR HEALTH AND SAFETY EVALUATION FORM

A. The Contractor, prior to any work on site, shall fill out the Owner's required Contractor Health and Safety Evaluation form, and participate in the completion of a Hazard and Potential Exposure Evaluation Checklist.

B. The Owner will provide the Contractor with these forms.

#### 1.12 CONSTRUCTION PROGRESS REPORTING

A. The Contractor shall review the progress and quality of the Work on a daily basis and shall report on that progress daily and upload the reports to e-Builder.

B. Written progress reports shall include, at a minimum:

1. Project name.
2. Date.
3. Author of report.
4. Weather conditions including wind, precipitation and temperature.
5. Trades present through the reporting period and count.
6. A summary of the Work performed that day.
7. Materials and equipment delivered, utilized and/or stored on site.
8. Conformance with Contract Documents and/or any observed deviations.
9. Conformance with or deviation from Construction Progress Schedule.
10. Tests and/or inspections performed inclusive of results
11. List of site visitors including regulatory agencies and/or testing and inspection entities.
12. Notes from any safety meetings.

#### 1.13 PHOTOGRAPHIC DOCUMENTATION

A. Contractor shall provide ground-level, color digital progress photos weekly for a permanent record of the Project. Photos should be dated and include a description of the picture and the camera location. Contractor shall upload all photos to e-Builder.

B. Contractor shall determine at least six locations for different views. Stand in the same chosen locations week after week until no further progress can be seen from that location.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION 01 32 00

## **01 60 00**

### **PRODUCT REQUIREMENTS**

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. General Requirements
- B. Products
- C. Material and Equipment Selection.
- D. Product delivery requirements.
- E. Manufacturer's Instructions.
- F. Product storage and handling requirements.
- G. Product options.

##### **1.02 GENERAL REQUIREMENTS**

- A. General conditions of the Contract for Construction.

##### **1.03 PRODUCTS**

- A. At minimum, comply with specified requirements and reference standards.
- B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- C. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.
- D. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- E. Furnish interchangeable components from same manufacturer for components being replaced.

##### **1.04 MATERIAL AND EQUIPMENT SELECTION**

- A. Manufactured and fabricated products:
  - 1. Design, fabricate and assemble in accordance with the best engineering and shop practices.
  - 2. Manufacture like parts of duplicate units to standard sizes and gauges and to be interchangeable.
  - 3. Where two or more items of the same kind are indicated, provided items that are identical and by the same manufacturer.
  - 4. Provide products suitable for service conditions.
  - 5. Adhere to equipment capacities, sizes, and dimensions shown or specified unless variations are specifically approved in writing.
- B. Do not use material or equipment for any purpose other than that for which it is designed or is specified.
- C. Fabricate and install equipment to deliver its full rated capacity at the efficiency for which it was designed.
- D. Select and install equipment to operate at full capacity without excessive noise or vibration.

E. Provide electrical products with Underwriter's Laboratories Label or as approved by the local inspection authority.

#### 1.05 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products according to manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

#### 1.06 MANUFACTURER'S INSTRUCTIONS

- A. Perform work in accordance with manufacturer's printed installation instructions. Obtain and distribute copies of such instructions to parties involved in the installation.
- B. Maintain one set of complete instructions at the job site during installation and until completion.
- C. Handle, install, connect, clean, condition, and adjust products in strict accordance with manufacturer's printed instructions and in conformity with specified requirements.
- D. Consult with the Architect for further instructions should job conditions or specified requirements conflict with manufacturer's instructions.
- E. Do not proceed with work without clear instructions.
- F. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by the Contract Documents.

#### 1.07 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.
- B. Store products with seals and labels intact and legible.
- C. Store sensitive products in weather-tight, climate-controlled enclosures in an environment suitable to product.
- D. For exterior storage of fabricated products, place products on sloped supports aboveground.
- E. Provide off-Site storage and protection when Site does not permit on-Site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

#### 1.08 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of the manufacturers named and comply with Specifications; no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit Request for Substitution for any manufacturer not named.

D. Or Approved Equal: Where products are specified by name and accompanied by the term “or equal” or “or approved equal” or “or approved”, comply with District Substitution Request Procedures.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

## **01 73 00**

### **EXECUTION AND CLOSEOUT REQUIREMENTS**

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Related Requirements
- B. Related Sections
- C. Starting of Systems
- D. Demonstration and Instructions
- E. Testing, Adjusting, and Balancing
- F. Project Record Documents
- G. Operation and Maintenance Data
- H. Spare Parts and Maintenance Products
- I. Product Warranties and Product Bonds
- J. Maintenance Service
- K. Examination
- L. Preparation
- M. Execution
- N. Protecting Installed Construction
- O. Final Cleaning

##### **1.02 RELATED REQUIREMENTS**

- A. General conditions of the Contract for Construction.

##### **1.03 RELATED SECTIONS**

- A. Section 01 10 00 – Summary of Work
- B. Section 01 40 00 – Quality Requirements
- C. Section 01 77 00 – Closeout Procedures

##### **1.04 STARTING OF SYSTEMS**

Not Used

##### **1.05 DEMONSTRATION AND INSTRUCTIONS**

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. Demonstrate Project equipment by qualified manufacturer's representative who is knowledgeable about the Project.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- D. Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instruction.

##### **1.06 TESTING, ADJUSTING, AND BALANCING**

Not Used

##### **1.07 COMMISSIONING (BY OWNER)**

Not Used

## 1.08 PROJECT RECORD DOCUMENTS

- A. Record documents are prepared by the Architect. As-built documents are prepared by the Contractor.
- B. Maintain on Site one set of the following documents as a basis for as-built documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed Shop Drawings, product data, and Samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- C. Ensure entries are complete and accurate, enabling future reference by Owner.
- D. Store as-built documents separate from documents used for construction.
- E. Record information concurrent with construction progress, not less than weekly.
- F. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates used.
  - 3. Changes made by Addenda and modifications.
- G. As-Built Drawings and Shop Drawings: Legibly mark each item to record actual construction as follows:
  - 1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, RFI's, and change orders.
  - 2. Include locations of concealed elements of the Work.
  - 3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
  - 4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
  - 5. Identify and locate existing buried or concealed items encountered during Project.
  - 6. Measured depths of foundations in relation to finish main floor datum.
  - 7. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 8. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 9. Field changes of dimension and detail.
  - 10. Details not on original Drawings.
- H. As-built document submittal requirements specified in Section 01 77 00 – Closeout Procedures: Closeout Requirements.
- I. The contractor will be required to learn and use Owner Project Management database (e-Builder) for this project. Refer to Section 01 31 23 – Project Management Database.

## 1.09 OPERATION AND MAINTENANCE DATA

- A. Submit in PDF composite electronic indexed file.
- B. Internally subdivide contents with pdf bookmarks, logically organized as described below;
- C. Drawings: Provide hyperlinked electronic pdf drawings.

D. Contents: Prepare hyperlinked table of contents with each product or system description identified, in two parts as follows:

1. Part 1: PDF directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major suppliers.
2. Part 2: PDF of the Operation and maintenance instructions arranged and by system and subdivided /hyperlinked by Specification Section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Include the following:
  - a. Significant design criteria.
  - b. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

#### 1.10 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish maintenance, and extra products in quantities specified in individual Specification Sections.
- B. Deliver to Project Site or another location as directed by Owner; obtain receipt prior to final payment.

#### 1.11 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible Subcontractors suppliers, and manufacturers within ten days after completion on applicable item of Work.
- B. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Time of Submittals:
  1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
  2. Make other submittals within ten days after date of Substantial Completion, prior to final Application for Payment.
  3. For items of Work for which acceptance is delayed beyond Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

#### 1.12 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in Specification Sections for one (1) year from date of Substantial Completion during warranty period.
- B. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of District.

### PART 2 - PRODUCTS - NOT USED

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual Specification Sections.

### 3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance according to manufacturer's instructions.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer-required or -recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

### 3.03 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
  - 1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
  - 2. Physically separate products in place, provide electrical insulation, or provide protective Coatings to prevent galvanic action or corrosion between dissimilar metals.
  - 3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual-effect choices to Architect/Engineer for final decision.
- E. Allow for expansion of materials and building movement.
- F. Climatic Conditions and Project Status: Install each unit of Work under conditions to ensure best possible results in coordination with entire Project.
  - 1. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.
  - 2. Coordinate enclosure of Work with required inspections and tests to minimize necessity of uncovering Work for those purposes.
- G. Mounting Heights: Where not indicated, mount individual units of Work at industry recognized standard mounting heights for particular application indicated.
  - 1. Refer questionable mounting heights choices to Architect/Engineer for final decision.
  - 2. Elements Identified as Accessible to Handicapped: Comply with applicable codes and regulations.
- H. Adjust operating products and equipment to ensure smooth and unhindered operation.

### 3.04 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.



- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Use durable sheet materials to protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.
- G. Refer for Section 01 10 00 – Summary of Work for more information.

### 3.05 FINAL CLEANING

- A. Execute final cleaning prior to final Project assessment.
- B. Employ experienced personnel or professional cleaning firm.
- C. Clean equipment and fixtures to sanitary condition with appropriate cleaning materials.
- D. Clean permanent filters of operating equipment.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Verify industry standard approach for addressing excess granular fines, so as not to void roof warranty. Vacuum loose granular fines from the cap sheet of new roofs so that they don't wash down the roof drains.
- G. Clean Site; sweep paved areas, rake clean landscaped surfaces.
- H. Remove waste and surplus materials, rubbish, and construction facilities from Site.
- I. Repair, patch, and touch up marred surfaces.

END OF SECTION 01 73 00

## **01 77 00**

### **CLOSEOUT PROCEDURES**

#### **PART 1 – GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Related Sections
- B. Preliminary Closeout Reviews
- C. Substantial Completion Documentation
- D. Closeout Requirements

##### **1.02 RELATED SECTIONS**

- A. Section 01 73 00 - Execution and Closeout Requirements

##### **1.03 PRELIMINARY CLOSEOUT REVIEWS**

- A. Submit a closeout submittal log prior to the first payment application for review and approval by the District.
- B. When Contractor considers Work Substantially Complete, 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 substantially complete and ready for final inspection.
  - 6. Provide preliminary punch list identifying any known corrective items
- C. District Representative will coordinate inspection of the Work to verify completion status as soon as possible after receipt of Contractor's certification.
- D. Should District Representative consider Work incomplete or defective:
  - 1. Representative will promptly notify Contractor in writing incomplete or defective work.
  - 2. Contractor shall immediately remedy deficiencies and send second written certification that Work is complete.
  - 3. Representative will coordinate re-inspection of the Work.
- E. When District, District Representative and Architect/Engineer find Work acceptable under Contract Documents, they will jointly request Contractor to make closeout submittals.
- F. Re-inspection Fees: Should more than two Substantial inspections or one Final inspection be required due to Contractor's failure to correct specified deficiencies, the Contractor shall bear all costs (including compensation for the Construction Manager, Architect, and Engineer's additional services) made necessary thereby.

##### **1.04 SUBSTANTIAL COMPLETION DOCUMENTATION**

- A. General: Contractor shall submit documentation for Substantial Completion when it is evident that the Project can be occupied for its intended use and Final Completion can be achieved within thirty (30) days.
- B. Complete the following before requesting review for certification of Substantial Completion, either for entire Work or for portions of Work.
  - 1. Create a list of items that are incomplete with the request. Include the value of incomplete Work, and reason for Work being incomplete.

2. Include supporting documentation for completing 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 as directed by the Owner.
6. Complete final cleanup requirements.
7. Obtain Authorities Having Jurisdiction (AHJ) approvals as required and submit signed final permit in Closeout Documents.
8. Complete major punch list items.
9. Provide all certifications, reports and inspection records confirming that all work has been completed in accordance with the Contract Documents.

#### 1.05 CLOSEOUT REQUIREMENTS

- A. Subsequent to final punch list sign-off and prior to Application for Final Payment, submit all record documents to District that are required by governing or other authorities.
- B. Deliver salvaged materials, extra stock materials, and maintenance supplies to Owner.
- C. Remove all temporary services and contractor property from premises and affected areas restored.
- D. Provide the following Closeout Documents. All documents are to be uploaded to e-Builder.
  1. Closeout pdf documentations;
    - a. A Table of Contents, tab dividers for each item, and divider sheets describing the information to follow behind each tab divider.
    - b. A list of subcontractors with contact information (including emergency phone number), and a summary description of their scope of work.
    - c. A list of manufacturers with phone numbers and addresses of local distributors, service representatives and parts dealers. Include 24-hour service representatives when available.
    - d. Warranties and guarantees from all subcontractors and suppliers including contact information for each warranty and a detailed description of their scope of work.
    - e. The letter from the Contractor stating that the Work is Substantially Complete.
    - f. The Architect's and Engineer's Substantial Completion Observation Reports and punch lists.
    - g. The signed Substantial Completion Certificate.
    - h. Record of the final punch list work being completed and accepted by Owner, Construction Manager, Architect, and Engineers.
    - i. The final Application for Payment.
    - j. Contractor's affidavit of payment of debts and claims.
    - k. Certificate of consent of surety company to final payment.
    - l. Contractor's certificate of completion and release of liens.
    - m. Final permit(s) with all required signatures.
    - n. Temporary Certificate of Occupancy and/or Certificate of Occupancy (if applicable).
    - o. Special inspector's final report.

- p. Structural engineer's final sign-off.
- q. Signed transmittal for delivery of salvaged parts, extra stock materials, and maintenance supplies to BSD.
- r. A summary of trainings completed and participants.
- 2. As-built Drawings (one electronic copy):
  - a. Contractor shall submit a color scan of their fully-updated as-built drawings as defined in Section 01 73 00 - Execution and Closeout Requirements.
  - b. Architect will use Contractor's as-built drawings as the basis for project Record Drawings.
- 3. As-built Specifications (one electronic copy):
  - a. Contractor shall submit a color scan of their fully-updated Record Specifications as defined in Section 01 73 00 - Execution and Closeout Requirements.
  - b. Architect will use Contractor's as-built specifications as the basis for project Record Specifications.
- 4. Operation and Maintenance Manuals (one electronic copy):
  - a. Contractor shall submit O&M manuals as defined in Section 01 73 00 – Execution and Closeout Requirements.
- H. Final Payment Documentation: The final payment for the remaining retained percentages shall not become due until the Contractor submits:
  - 1. An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might in any way be responsible, have been paid or will be paid or otherwise satisfied within thirty (30) days after receipt of final payment from the Owner.
  - 2. Consent of surety to final payment.
  - 3. Certificate of Completion and Release of Liens.
  - 4. All Closeout Documents have been accepted by the Owner.
  - 5. If any third party fails or refuses to provide a release of claim or waiver of lien as required by the Owner, the Contractor shall furnish a bond satisfactory to the Owner to indemnify the Owner from liability.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION 01 77 00

**Section 07 01 00**  
**GENERAL DESCRIPTION**

**PART 1 - GENERAL**

**1.01 GENERAL DESCRIPTION**

A. Project Name:

1. This project shall be known as the:  
BEAVERTON SCHOOL DISTRICT #48J  
- **FIVE OAKS MIDDLE SCHOOL**  
- **2022 -- Mechanical Penthouses Single-ply Reroof Project**  
- **Project Number: 22048**

**1.02 QUALITY ASSURANCE**

A. **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.
2. There are multiple manufacturers 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 is 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. General - Project Overview:

1. Removal & Replacement: Penthouse Roofs C, H, I, J & K
  - a. Removal of existing roofing down to the structural deck with inspection, cleaning, and potential repair of substrate prior to proceeding.
  - b. Install new roof system: Over the prepared substrate install vapor retarder; mechanically attach 1-layer of 1.5" polyisocyanurate insulation and tapered insulation (*crickets*); mechanically attach 1/2" layer of HD coverboard; fully adhere 80 mil TPO membrane system, flashings and walk-pads, termination bar, surface mounted reglets, counter-flashing metal, new clad metal, scuppers, pre-painted standing seam coping metal, perimeter wood nailers and beveled cedar siding on parapets; reglets and counter-flashing metal; fall protection warning line, raising over perimeter and equipment to meet height requirements, and all incidentals, to complete the specified warranted system/assembly.
  - c. Note:
    - (1) Roof C perimeter requires additional nailers to meet height requirements (2 nailers additional).
    - (2) Overflow scuppers on Roof C & K with outboard finished metal detailing.

**B. Alternates:**

1. No membrane type and/or system or manufacturer alternates will be accepted for this project. 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.
2. REQUIRED Alternate Bid --- Project bid process requires a cost (*added as alternate*) to add permanent roof access ladders at all the penthouses that are included in this project including walk pads at top and bottom landing of each new ladder, etc. (*labor & materials to provide & install*).

**C. 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. All trades to complete the work shall be included within cost/bid with special notations/requirement.

**D. Alternates:**

1. No additional manufacturers 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. 80 mil TPO (*membrane – minimum thickness*) fully adhered assembly including all manufacturer approved/specified system components.

**B. General:**

1. Insulation & tapered insulation board– General as applicable to specific roof area:
2. Polyisocyanurate insulation.
  - a. Thickness varies by defined roof area.
  - b. Mechanically attached.
    - (1) Attachment shall meet and/or exceed FM 1-90 minimum requirements
3. HD Coverboard:
  - a. Field of roof: Mechanically attach HD Polyisocyanurate Board or ½" DensDeck Prime coverboard.
  - b. Vertical surfaces: ¼" DensDeck Prime – mechanically attached.
4. Insulation General:
  - a. Type: Polyisocyanurate
  - b. Thickness: One layer of 1.5" polyisocyanurate – mechanically attached to FM-1-90 minimum or the equivalent.
    - (1) Submittals on this project shall include attachment pattern layout for perimeter, field corners, etc. (*systems rating is applicable*).
    - (2) Attachment shall be minimum FM 1-90 (*or equivalent*).
  - c. Staggering of the insulation is required a minimum of 24" on ends and 12" on the sides (*all layers*).
  - d. Comply with published standards and specification with strictest requirements in effect.

- C. Crickets – Insulation:
  - 1. Refer to drawings for cricket design requirements for each roof area.
- 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 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. Perimeter: New - Powder Coated Extruded Aluminum (*Replace existing*)
  - 2. 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.
  - 3. Scuppers:
    - a. New overflow at Roof C & Roof K.
      - (1) Finished assembly includes new outboard metal surround to match existing siding color and style
    - b. Metal & Clad metal.
  - 4. Gutters & Downspouts:
    - a. Not applicable this project.
  - 5. General:
    - a. Color and style to match the existing (*removed and/or salvaged*).
    - b. **NOTE:** Absolute Requirement that All Color, Material and Style notes and instructions within the specification document for this project is adhered to fully. No exceptions.
    - c. This issue shall be discussed at the pre-job meeting.
    - d. All new sheet metal shall be installed to SMACNA standards when conflict occurs and finished assembly shall match the assembly removed.
    - e. Metal shall be galvanized or stainless steel or extruded aluminum, with scupper being only stainless steel.
    - f. Refer to Section 07 54 19 for further information.
  - 6. 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.
  - 7. A shop drawing approved by consultant, including gauge, style, color, and fastener pattern is required prior to the project start.

8. 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. Equipment & Height Requirements
1. Raise all equipment and perimeters to meet a minimum 8" height requirement above the finished top roof surface to the bottom of the unit (*clear area for flashing membrane & counter-flashing metal*).
- 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. Pipe Support Blocking: (*as applicable*)
1. Material: Pre-manufactured pipe support blocking with recycled materials and clamping assembly.
    - a. Baseline standard: Rubber Triangle w/uni-strut attached for brackets.
    - b. Dura-Block -- RTSTRUT6 -- (*standard*).
  2. Manufacturer and Brand: As approved by membrane manufacturer.
  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. Number and spacing based on current Code requirements.
    - a. Code Requirements & minimum spacing:
      - (1) Code for electrical support spacing --- all sizes:
        - (a) PVC and MC every 6'
        - (b) EMT and rigid every 10'
        - (c) 12" max from junction box (*either type*)
        - (d) Additional: Max 18" from corner (90 - 45 or T).
      - (2) Code for plumbing pipe support spacing --- different pipe sizes/types.
        - (a) 1/2" -- every 4'
        - (b) 3/4" or 1" -- every 6'
        - (c) 1 1/4" or larger -- every 8'
        - (d) Additional: Max 18" from corner (90- 45 or T).
  5. Approval: Approved for use on particular roof system applicable to this project. Refer to roof system sections for further information.
- I. Fall Protection Warning Line: (*Single-ply system only*)
1. Fall Protection line installation at six foot (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. ACRM – asbestos containing roofing materials.
2. Refer to Asbestos Analysis Lab results.
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. Safety:

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 is responsible for safety at site during the duration of the project and must comply with Owner requirements and requests.

L. 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: - *(As applicable)*
  - a. Carefully remove/support assembly; install roofing and reattach the electrical.
  - b. All electrical work shall be included within bids.
5. 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.
6. Contractors moving forward with installation is an acceptance of the substrate by the applicator/contractor. Notify project manager of any unacceptable conditions before proceeding.
7. Protect the existing and new roof system at all times during the course of the project.
8. All existing sleepers shall be replaced with new roofed in curb and/or platform detail.
9. 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.
10. Deck replacement areas require CDX minimum grade plywood. No OSB is allowed.
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 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.

## **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 performing as the General Contractor and coordinating all trades, material and labor and all incidentals as 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 school personnel unless specifically instructed. All coordination must include defined Owner's representative (*Roof Consultant*).
- 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 pre-bid meeting.
    - a. Costs for other trades shall be included within the Bid for all items noted and discussed at the pre-bid meeting and as noted via addenda prior to the bid date.
- 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.

G. 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.

**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 includes:

1. Substantial Completion Inspection(s).
2. Final Inspection.
3. Manufacturer's Warranty Inspection(s).
4. Building permit close-out paperwork (*notification document from Permitting Agency that work is Approved*).
5. Any additional inspections that Owner or Project Representative (*Roof Consultant*) requires in order for project to be accepted as completed.

**2.03 LICENSES & PERMITS --- 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. Copy of building permit for the project must be submitted to Roof Consultant prior to starting work on the project.
2. Prime contractor is responsible for all fines, or other ramifications for not complying with this instruction.

3. Permits shall be submitted prior to mobilization and final close-out/approval by permitting agency is required before final payment will be released.

#### **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 and must be approved PRIOR to mobilization.
- B. Completion of work is required based on approved schedule.
  1. Refer to 2.07 "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 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. Refer to Liquidated Damages information provided by the School District as liquidated damages applicable to substantial completion and final completion dates are in affect for this project.

#### **2.05 FACILITY OPERATIONS - and - SCHEDULING**

- A. The contractor shall be required to meet all Owner's 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.
- B. This project is to be conducted while the normal day-to-day operations of the facility are being conducted (*although school will not be in session during the work of this project*). Contractor is required to take care to make as little interruption and disruption as possible of the day-to-day activities.
  1. Schedule must comply with local zoning laws and requirements for noise, etc.

#### **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 - (of any kind):
  - 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 salvaged) 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 hardcopy*) 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. At all times, the Contractor shall comply with all applicable Codes and Standards with regard to safety and health issues and assume all responsibility for compliance.
  - 1. Applicable to, but not limited to, all Federal, State, and Local laws, standards, and regulations.
  - 2. Contractor shall meet all Owner's safety requirements as defined within their company policy or directed by Owner's representative and/or Roof Consultant.
- B. Contractor shall 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.
  - 1. At all times, Contractor shall 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.
- C. Contractor shall comply with all Owner's safety requirements during the course of the project.



- D. Fall protection shall be adhered to at all times during the project and is the contractor's responsibility.
- E. 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.

## **2.12 SECURITY**

- A. Contractor shall be responsible for the security of all applicable equipment and materials during the course of the project.
  - 1. The Owner shall not be responsible for any problems, damage or loss associated with this instruction without additional cost to Owner.
- B. Contractor shall maintain a secured site during the course of the project.
- C. Contractor shall comply with Owner's security requirements at all times.
- D. To be discussed at pre-bid and pre-job meetings.

## **2.13 ASBESTOS**

- A. RESULTS: *(Included within Specification or to be provided)*
- 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 submitted electronically, in a full and complete package.
    - a. Electronic submittals are a requirement of this project.
    - b. Submittals go directly to Roof Consultant unless otherwise directed during pre-bid meeting or by the School District's instructions.
    - c. Refer to Section 01 32 00 – Construction Project Documentation for further information.

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 COMMENCEMENT:** *(Minimum 12 working days prior to mobilization; submitted to Consultant)*  
*-- Submittal Package --*
  1. INSURANCE:
    - a. Refer to Contract documents provided by the School District.
    - b. A-Tech/Northwest, Inc. shall be named as an additional insured for the General Liability coverage.
  2. PERMITS:
    - a. Contractor shall provide a copy of the current building permit(s) for this project as issued by the regulating body/entity applicable to this project.
    - b. If no permit is required, then a dated letter on the Contractors letterhead and indicating the project and location does not require it at this time.
  3. 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.
  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 are required by Owner.
  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.
  13. BACKGROUND CHECKS:
    - a. To be eligible to work in all School facilities, a background check is required by the Owner.
      - (1) Refer to Beaverton School District's "Section 01 17 00 Work Restrictions".
  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.
- C. UPON COMPLETION: (To Consultant for review within 5 days of Final Inspection)
1. PERMIT:
    - a. Close out and approval document from the permitting agency.
      - (1) Final payment will not be released until Permit is closed out and documentation received.
  2. 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.
  3. Refer to Beaverton School District's "Section 01 77 00 Closeout Procedures" for more information.

#### **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. Refer to Beaverton School District's "Standard Form of Agreement" to be provided for further information.
- B. Contractor shall review, sign, and return the original contract documents provided by the Owner's representative during contract process, and will be provided an original set when the signature process is completed, prior to project start.
- C. Comply with all other requirements noted within the specifications and Owner's general requirements.

#### **4.03 CHANGE ORDERS**

- A. Refer to Beaverton School District's "Section 01 26 00 – Contract Modification Procedures" for information.
- B. Cost breakdown shall meet requirements developed and submitted on the Bid Form.

#### **4.04 APPLICATION FOR PAYMENT**

- A. Refer to Beaverton School District's "Section 01 29 00 – Payment Procedures" for information.
  - 1. 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 19**

### **Fully Adhered Single-Ply Insulated Roof System TPO Membrane & Roof Insulation**

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION:**

###### **A. General: "Performance Specification Statement"**

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. There are multiple manufacturers 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 is in compliance with the specified system requirements.
  - b. 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.
2. **SPECIAL NOTE:** Refer to "General Description" section of this specification document for specific information with regard to new specified roof assembly for each roof within project.
3. **Note:** All references to Contractor within roofing specification document apply to the Roofing Contractor or their defined sub-contractors, unless specifically stated differently.
4. **General Project Overview:**
  - a. **Removal & Replacement: Penthouse Roofs C, H, I, J & K**
    - (1) Removal of existing roofing down to the structural deck with inspection, cleaning, and potential repair of substrate prior to proceeding.
    - (2) Install new roof system: Over the prepared substrate install vapor retarder; mechanically attach 1-layer of 1.5" polyisocyanurate insulation and tapered insulation (*crickets*); mechanically attach ½" layer of HD coverboard; fully adhere 80 mil TPO membrane system, flashings and walk-pads, termination bar, surface mounted reglets, counter-flashing metal, new clad metal, scuppers, pre-painted standing seam coping metal, perimeter wood nailers and beveled cedar siding on parapets; reglets and counter-flashing metal; fall protection warning line, raising over perimeter and equipment to meet height requirements, and all incidentals, to complete the specified warranted system/assembly.
    - (3) **Note:**
      - (a) Roof C perimeter requires additional nailers to meet height requirements (*2 nailers additional*).
      - (b) Overflow scuppers on Roof C & K with outboard finished metal detailing.
  - b. Roof assembly requires a 20-year NDL manufacturer's warranty and a 2-year Contractor's Workmanship guarantee.
  - c. Assembly requires all system components, as specified, including materials and labor to completely install the specified roof system to complete the specified warrantable system.
    - (1) Roof assembly requires a 20-year NDL Manufacturer's Warranty and a 2-year Contractor's Workmanship Guarantee.

- d. Add perimeter wood nailers to raise perimeters with new insulation thickness requirements as necessary within the scope of the work.
    - (1) New beveled cedar siding at top of coping (*nailer*) to establish slope to the inboard side of the perimeter.
  - e. Replace existing perimeter metal. New metal will be pre-painted Kynar finish and clad metal as applicable to the roof system and roof area.
5. Related Work - The work includes but is not limited to the installation of:
- a. Substrate preparation
  - b. Insulation
  - c. Roof Membrane
  - d. Fasteners (*insulation & sheet metal*)
  - e. Adhesives for Roof System, Insulation and Flashings
  - f. Roof Membrane Flashings
  - g. Walk pads
  - h. Fall Protection system (*permanent warning line*)
  - i. Sealants
  - j. Perimeter metal replacement
  - k. Overflow scuppers
  - l. Equipment curb installation to achieve proper height requirements.
  - m. Sheet Metal Flashing / counter-flashing, etc.
6. Upon successful completion of work the following warranties may be obtained:
- a. Contractor's Two (2) Year Workmanship Guarantee.
  - b. Membrane Manufacturer's Twenty (20) Year NDL System Warranty.
7. Related Work Specified Elsewhere:
- a. Sheet Metal (*Section 07600*)
  - b. 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.

## **1.02 QUALITY ASSURANCE – Applicable to this Section of Work**

- A. Acceptable Roofing Materials Manufacturer shall be:
- 1. Sika-Sarnafil (*base line standard for the performance specification*)
  - 2. Carlisle Syntec Roofing Corporation
  - 3. Versico 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 Sarnafil 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. General Contract Requirements:**

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.

**C. Approved Equals:**

1. Only the listed Manufacturers will be considered and approved for this project.
2. Approved equals applies to system components ONLY.
3. Approved equals must be submitted per specification general instructions/requirements prior to award of project.
  - a. The Owner reserves the right to approve other products after award if it is in the best interest of Owner and the overall intent of the project.
4. Equals will be reviewed for compliance with all aspects of the specification documents including membrane system performance, compliance with specific manufacturer requirements as noted within specification documents, references, and similar projects, etc.
5. No alternates will be approved without meeting all requirements and intent of this specification and the scope of work of this project and have complied with all instruction, etc.
6. Submit requests for substitution on format per form included within the specification documents. Requests not submitted on approved format are unacceptable and may not be reviewed.
7. No unlisted product substitutions are acceptable.
  - a. Substitution for material components with similar components that comprise an approved system will be reviewed. No substitutions from fully-adhered TPO assembly/system will be accepted.
  - b. All Owner's, and their assigned project representative's, decisions are final.

**D. Acceptable Products:**

1. Primary roofing products, including each type of roofing membrane/sheet, all manufactured in the United States, shall be supplied by a single manufacturer, which has been successfully producing the specified types of primary products for not less than ten (10) years.
2. The primary roofing products shall have maintained a consistent composition for a minimum of five (5) years.
3. Manufacturer shall comply with all requirements as noted within the specification documents and supply a formal letter thru the bidder, with bid documents, stating such.

**E. Manufacturer Requirements:**

1. Shall be a company specializing in manufacturing the products specified in this Section.
2. Shall be a company with a minimum ten (10) years documented experience with the specified products.
3. Shall comply with all special conditions and requirements as defined within this particular project's specifications and general requirements.
4. The Manufacturer selected for this work must be willing to participate in all phases of the bidding and application process.
5. Shall provide 20-year NDL warranty to Owner upon completion of the project.

F. Roofing Contractor Qualifications:

1. Contractor selected for this work must be capable of submitting to the Owner the Manufacturer's Unlimited Penal Sum Guarantee upon completion and acceptance by Owner.
  - a. Refer to Guarantee and Warranty sections within this document for further information.
2. Contractor must be an "approved applicator" by the primary roof system manufacturer and shall submit a dated letter from Mfg. on the manufacturer's letterhead stating the same, with reference to this specific project.
  - a. Any roofing sub-contractors must be approved by membrane system manufacturer as defined under Contractor Qualifications herein.
  - b. It is understood that some roofing companies have contract agreements with roofing crews rather than direct employees to the primary roofing company. This is acceptable; however, this arrangement must be disclosed at time of bidding and within submittal requirements.
3. Contractor shall have a minimum of five (5) years' experience in successfully installing the same or similar roofing materials.
4. Contractor must be willing to work with Owner's designated representative(s) with regard to quality control and correct any deficiencies in a timely manner.
5. The Owner and/or its agent(s) reserve the right to require removal of a roofing contractor's crew, in all or part, if it is deemed that they are not acceptable for and/or completing the work to the established standards defined within the project specifications.

G. Roofing Contractor Installation/Application Requirements - General:

1. Roofing Foreman shall have a copy of these Specifications on the job at all times during application and shall refer to it for proper application methods.
2. Contractor shall comply with Local, State and Federal Regulations, Safety Standards and Codes.
  - a. Use the strictest document when a conflict arises.
3. Contractor shall be responsible for meeting all fire regulations.
  - a. A certified fire extinguisher of adequate size shall be located at the asphalt kettle and elsewhere as required and applicable.
  - b. A mandatory three-hour fire watch is required after all torch work is completed.
    - (1) This instruction can be modified only upon written approval from the Owners designated representative.
  - c. Torch applications NOT acceptable on this project although torches can be utilized to work on asphalt equipment with the stipulation that all safety requirements are met at all times.

H. Roofing Contractor Responsibility - General:

1. The responsibility for proper installation of all components of the roofing system and repairs included within the scope of this specification/project lies with the Roofing Contractor applicable to their trade, the specification documents and any sub-contractors that may be working for them directly during the course of this project.
  - a. Refer to Environmental and Safety portions of this document for further information.
2. Specific detail and attention to application temperatures and compliance with all written and printed instructions is a key element of this project.
  - a. Contractor is required to correct any and all deficiencies in a timely manner without additional charge to Owner.
3. The Contractor shall inform the Owner's representative, in writing, 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.



- I. Roofing Contractor Installation/Application Requirements - General:
  1. Adhesive application rates and fastener spacing shall conform to the specifications herein, applicable Manufacturer's most recent published requirements, Uniform Building Code, and wind uplift requirements for area where building is located and as indicated within these specification documents.
  2. Special precautions are necessary when installing the roof system to maintain optimum application temperatures if the application work occurs with outside ambient air temperatures below 50° F and in order to insure satisfactory application and performance.
    - a. Meet and/or exceed all manufacturer's requirements and printed instructions at all times.
  3. Contractor to notify Owner's representative if there is a potential for cold weather applications prior to working in these conditions.

### **1.03 ENVIRONMENTAL AND SAFETY REQUIREMENT**

- A. Environmental – Roofing Contractor's Responsibility:
  1. Contractor shall be responsible for all environmental control during course of project applicable to the work of this section. This includes but is not limited to:
    - a. Post copies of Material SDS information at site and notify Owner's representative of location. This is the Contractor's responsibility entirely.
    - b. Notify Owner's representative in writing, with copy to the Roof Consultant, of any potential danger to building and/or occupants, including process, procedures, or materials prior to starting.
    - c. Notify Owner's representative, in writing, with copy to the Roof Consultant of methods of controlling entry of fumes into building interior.
- B. Safety – Roofing Contractor's Responsibility:
  1. It is the contractor's responsibility to maintain a safe work site and comply with all laws and regulations at all times, as well any/all Owner's representative directives.
  2. Contactor shall install and maintain adequate barriers and traffic control devices to maintain a safe and secure work site and as may be directed by Owner's representative.
  3. Contractor shall not only take into consideration the safety of their employees but also building occupants and anyone that may be on and/or around the jobsite in any capacity.

### **1.04 FIELD QUALITY CONTROL**

- A. Project Coordination –Owner's Representative & Roof Consultant:
  1. The project shall be subject to inspections by Owner's representative(s) and Roof Consultant during the entire course of the project.
  2. 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.
    - a. The Roof Consultant shall have the authority to recommend to the Owner's representative to stop the work of this section at any time that they find that the project is not in compliance with the project 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.
  3. Manufacturer's participation:
    - a. Primary roofing materials manufacturer for this project shall provide direct trained company personnel (*or approved representative*) to attend all meetings, inspections, etc. upon request and as may be noted within this specification document.

- b. Representative shall not only meet the specified requirements of this project but also conduct a final inspection and applicable follow-up inspection (*if necessary*) upon completion of the project in order to issue the warranty.
  - c. Manufacturer shall supply Owner's representative with written report of all inspections within seven (7) working days after inspection is conducted.
- B. PRE-JOB MEETING: (*aka: pre-construction and/or pre-application*)
  - 1. Prior to beginning work, a Pre-construction Meeting will be held at the jobsite.
  - 2. The following representation is required at this on-site meeting (*as applicable*):
    - a. Owner Representative(s);
    - b. Roof Consultant;
    - c. Roofing Contractor's manager in charge of project;
    - d. Roofing Contractor Foreman;
    - e. Roof System Manufacturer's field representative;
    - f. Sheet Metal and other applicable Sub-contractors;
    - g. Owner's designated representative(s).
  - 3. 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. Also included in the discussion will be the following: safety, 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.
  - 4. Discussion will be recorded. The Roof Consultant will furnish a copy of recorded discussions to all attendees.
  - 5. No roofing work shall commence, nor material delivered to the jobsite until after the Pre-job Meeting, unless previously approved, in writing, by Owner's representative.
    - a. This instruction may be waived upon award of the contract, and agreement by all parties that a written Authorization-to-Proceed is acceptable, in order to expedite the delivery of materials to the job site on this project.
- C. CONTRACTOR'S ACCEPTANCE OF CONDITIONS:
  - 1. Prior to the start of the project, Contractor shall ascertain that all aspects of this Specification and possible modifications are workable and do not conflict with the manufacturer's requirements for the specified guarantee.
    - a. This requires participation of the manufacturer in the approval process of this specific project.
  - 2. Upon commencement of the work, it will be presumed that this specification, drawings, addenda, and modifications are satisfactory to both the Contractor and the Manufacturer in their entirety.
    - a. Contractor accepts conditions under which this project is specified and contracted and the requirements to fulfill the installation of the specified roofing system and all applicable components.
    - b. Exceptions are as noted within the documents and defined within the Cost-Plus requirements and options of this project.
- D. WORK-IN-PROGRESS INSPECTIONS:
  - 1. Project shall be subject to periodic inspection by Roof Consultant and/or Owner's Representative(s) on an as-required basis during the course of the project. (*Full-time to part-time scheduling*)
    - a. Under no circumstances shall access to work area by inspector and/or Owner's representative be restricted.



**E. SUBSTANTIAL COMPLETION INSPECTION:**

1. Prior to completion, Roofing Contractor shall schedule a Substantial Completion Inspection via the Roof Consultant and Owner's designated representatives and 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.
  - b. *NOTE: This is not intended as a way for the Contractor to see what Owner wants but is to render the project complete if at all possible.*

**F. FINAL INSPECTION:**

1. Upon completion of all specified work items, a Final Roof Inspection shall be performed by the Owner's designated representative, Roof Consultant and the Manufacturer's representative and anyone else the Owner may wish to have present, including the Owner's representative if they so desire.
  - 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*) shall not be issued until completion and confirmation of all punch list items as well as all other guarantee requirements.
2. **ROOF SAMPLES** (*as may be necessary*):
  - a. The Owner via their representatives 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.
  - b. **Sample Approvals & Non-Approvals:**
    - (1) Approved: If the sample is immediately approved by the Roof Consultant and/or Owner's representative, 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.
    - (2) Non-Approved: If for any reason the sample is not immediately approved by the Roof Consultant, install all temporary protection needed to prevent penetration of water through the roof until final patches or new roofs are installed, and upon the decision of the Roof Consultant, make all required patches and repairs/replacement.
  - c. All laboratory testing will be done by either an independent laboratory and/or the Manufacturer's Laboratory based upon the Owner's representative's directions. Copies of the lab results will be forwarded to Owner's representative to be forwarded to applicable parties.
  - d. **REPAIR REQUIREMENTS:**
    - (1) Cut areas shall be replaced to avoid depression in the membrane.
    - (2) All plies shall be built up and feathered out onto the adjacent membrane with succeeding plies to extend at least four inches (4") beyond previous ply in all directions.
    - (3) 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.
    - (4) Meet manufacturer's requirements and printed instructions, as applicable.

## **1.05 SUBMITTALS**

- A. PRIOR TO BID:
  - 1. Substitution Request - *(Components only)*
- B. AT TIME OF BID:
  - 1. Refer to Other Sections within this specification document.
- C. PRIOR TO COMMENCING WORK -- due 10 working days prior to pre-construction meeting  
- during submittal process /supplemental to any other requirements of the specification documents:
  - 1. MANUFACTURER'S LITERATURE: 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.
  - 2. SHOP DRAWINGS: Submit applicable shop drawings for items not detailed or changes not supplied by specifier and not modified by applicable addenda.
    - a. Drawings are required for all details that are not specifically included within this document but will be installed during the course of the work of this project.
    - b. Insulation fastener layout pattern is required on this project including perimeter, field and corners.
  - 3. APPLICATION TOLERANCES: Submit Manufacturer's application tolerances for all products and applications applicable to this project.
  - 4. SAFETY PROGRAM: Copy of Contractor's Written Safety Program.
    - a. *NOTE: Additional copy of Contractor's Safety Program shall be kept at the job site.*
  - 5. MANUFACTURERS WARRANTY: Submit a sample of the NDL manufacturer's published warranty documents.
- D. UPON COMPLETION: *(To Owner's Representative for review/approval)*
  - 1. GUARANTEE(s) / WARRANTIES:
    - a. CONTRACTOR'S 2-YR WORKMANSHIP GUARANTEE: Submit fully executed copy, as supplied within bid documents, of the Contractor's Guarantee of workmanship.
      - (1) It is acceptable for the contractor to submit the Contractor's Guarantee on their own form however, the supplied form *(within the specifications)* is required, and any additional forms can be attached to the required document, at the contractor's discretion.
    - b. MANUFACTURER'S WARRANTY: Submit fully executed copy of any applicable Manufacturer's Warranty to the Roof Consultant for review with Final close-out paperwork.
    - c. Submitted within five (5) days of final acceptance by Owner and before final billing will be processed.
  - 2. Other as noted in other sections of this document.

## **1.06 REFERENCES**

- A. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.
- B. ASTM D4434 latest version, "Standard for Polyvinyl Chloride Sheet Roofing". Classification: Type II, Grade I.
- C. NSF/ANSI Standard 347, "Sustainability Assessment for Single Ply Roofing Membranes" Certification Level: Platinum.
- D. ASTM D751, D3054, D1004, D2136, G154, D1204, D570, D5602, D5635, E903, E408, C1371
- E. American Society for Testing and Materials (ASTM)

- F. Manufacturer's most recent published Roofing Specifications Catalog and General Conditions.
- G. SPRI "Single-ply Roofing: A Professional's Guide to Specifications" (*most recent issue*).
- H. Sheet Metal and Air condition Contractors National Association, Inc. (SMACNA) – Architectural Sheet Metal Manual.
- I. Roofing terminology: Refer to ASTM D1079 and the glossary of the NRCA Roofing and Waterproofing Manual for definitions of roofing terms related to this section
- J. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.

#### **1.07 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 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. 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.
- E. 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.
  - 1. Due to the location of the project, special care must be taken to ensure welded surfaces are cleaned prior to welding.
- F. Select and handle materials and equipment in such a way as to avoid damage to materials, existing construction, or applied roofing. Refer to Specifications and all materials manufacturer's published material for guideline and standards.
- G. 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.
- H. 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.
- I. 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.
- J. 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. Waterstops shall be compatible with all materials and shall not emit dangerous or incompatible fumes.

K. Environmental Controls:

1. Contractor is responsible for coordination with Owner of shut down of any air handling equipment 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.

**1.08 GUARANTEE AND WARRANTY**

A. CONTRACTOR'S 2-YEAR 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.
  - a. Leakage will be attended to within twenty-four (24) hours or sooner if required by Owner based on severity of the leak as solely determined by Owner 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 WARRANTY:

1. This project requires that the quoted system meet all manufacturer's requirements for a 20-year NDL manufacturer's warranty.
  - a. A minimum 20-year NDL warranty is required on this project.
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 X-years (*as defined on Bid Form*) beginning at the time of the Owner's acceptance of final product. Cost of this Guarantee to be borne by the Owner upon notification of Contractor of option to purchase. (*Refer to 1.05 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 or base flashing 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 or base flashing system.
  - c. Splits or cracks in the roofing membrane not caused by structural movement.
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.
5. Should roof samples be required by Manufacturer, and if for any reason deficiencies are found within the samples, Contractor will, at his expense, make repairs as necessary to correct deficiencies and satisfy Manufacturer's requirements.

## **1.09 MISCELLANEOUS**

- A. Refer to "General Description" and other Sections within this specification for further information.

## **PART 2 - PRODUCTS**

### **2.01 GENERAL**

- A. ROOFING SYSTEM --- **Performance Specification – Baseline Standards**

### **2.02 MANUFACTURERS**

- A. Acceptable Manufacturer - Roofing System:
1. Firestone *(base line standard for the performance specification)*
  2. Carlisle Syntec Roofing Corporation
  3. Johns Manville Roofing Corporation
- B. Roofing systems manufactured by others are acceptable provided the roofing system is completely equivalent in materials and warranty conditions and the manufacturer meets the following qualifications:
1. Specializing in manufacturing the roofing system to be provided.
  2. Minimum ten (10) years of experience manufacturing the specified roofing system.
  3. Able to provide a minimum twenty (20) year no dollar limit (NDL), single source roof system warranty.

### **2.03 SUMMARY OF MATERIALS**

- A. ROOFING SYSTEM DESCRIPTION
1. Roofing System: 80 mil TPO – fully adhered
  2. Membrane: TPO
  3. Thickness: .080; 80 mil membrane – MINIMUM Thickness
  4. Membrane Attachment: Fully Adhered - *(comply with FM 1-90 wind up-lift requirements applicable to assembly).*
  5. Comply with applicable local building code requirements.
  6. Insulation:
    - a. New – Mechanically attached 1 layer of 1.5" polyisocyanurate insulation board and tapered/crickets.  
(1) No EPS acceptable within this project.
    - b. ½" High Density Polyisocyanurate Coverboard or DensDeck Prime as approved by prime membrane system manufacturer.
    - c. Polyisocyanurate insulation – mechanically attached.
    - d. Tapered Insulation and Crickets: Per tapered insulation documents as well as the requirement for crickets at upslope side of equipment – under coverboard.
    - e. Attachment Requirements: FM 1-90 including correct field, perimeter, and corner pattern.
  7. Perimeter attachment: Minimum ASCE #7 / 85 mph *(or most recent published standard)* plus safety importance factor for schools / or 93½ mph minimum.
  8. Additional perimeter nailers to meet additional height requirements.

## **2.04 MEMBRANE ROOFING:**

- A. Fabric-Reinforced Thermoplastic Polyolefin Sheet: ASTM D-6878, internally scrim reinforced, uniform, flexible TPO Sheet.
  - 1. Products:
    - a. TPO – White roofing membrane and all accessories to install specified warranted roof system.
    - b. Thickness: 80-mil -- MINIMUM
    - c. No Substitutions Allowed.
  - 2. Existing Products: Assure compatibility with any existing products salvaged as a part of this project.
    - a. When tying into existing roof system or installing new penetrations into existing roofing membrane, provide identical products to existing roofing membrane.
  - 3. Membrane:
    - a. Exposed Face Color: White.
    - b. Thickness: (ASTM D4637 & ANSI/RMA IPR-1): 80 mils minimum.
    - c. Breaking Strength (ASTMD751, Grab Method): 200 lb. minimum.
    - d. Tearing Strength (ASTM D751), Tongue Tear: 80 lb (36 kg).
    - e. Dimensional Stability (ASTM D 1204): 7 hour, 176 degree F max, 1.0 max.
    - f. Low Temperature Bend: ASTM D 2136: -40 degrees F Maximum.
    - g. Ply Adhesion: ASTM D 413, Strip specimen, Type A, Machine Method, 8.0 lbs per inch minimum.
    - h. Color: GRAY or White will be approved if Gray is not available.
- B. Adhesive: Membrane Manufacturer Approved.
- C. Flashing Membrane: Membrane Manufacturer Approved.
- D. Flashing, Pre-Clad Metal, Fasteners, Reinforcing strips, Termination bars, Adhesives, Cleaners, Sealants, molded system pieces, etc.
- E. General Purpose Sealant: White general-purpose sealant as approved by manufacturer.
- F. Coated Metal Flashing and Edgings: Galvanized steel with roofing manufacturer's bonded TPO coating; TPO Coated Metal by and/or approved by membrane system manufacturer.
- G. Roof Walkway Pads: Membrane manufacturer approved for use within their specified system – fully adhered.

## **2.05 ROOF INSULATION**

- A. Refer to system option requirements.
  - 1. Polyisocyanurate insulation board.
  - 2. All insulation shall be installed to minimum FM 1-90 standards.
- B. POLYISOCYANURATE FOAM INSULATION:
  - 1. Material: Rigid, foamed Polyisocyanurate board sandwiched between fiberglass skins on both sides.
  - 2. Manufacturer and Brand: As approved by Prime Manufacturer for use within specified system for cricket and slope development.
  - 3. Manufacturing Standard: FM Class I; Fed. Spec. #HH-I-1972/2.
  - 4. Density: As approved by manufacturer for use within the warranted system.
  - 5. Size: 4' x 8' manufactured sheets / 4' x 4' acceptable with membrane manufacturer's written approval.
  - 6. Thickness:
    - a. 1-layer of 1.5" (min) polyisocyanurate board
    - b. Tightly fit with 1/4" max gap allowable and staggered joints all perimeters.



7. Minimum Resistance Value (R) Standard: ASTM C 1289 (2002 version) / LTTR / RIC/TIMA 281-I 1/01/22014 published standards:
  - a. R-Value: Varies depending on specified thickness at defined roof areas.
    - (1) Refer to other parts of the specifications for further information.
- C. Insulation Fasteners:
  1. Prime Membrane manufacturer approved:
    - a. Mechanically attachment at metal deck areas.
    - b. Material shall meet and be provided and/or approved by primary roof membrane manufacturer for the specified roofing system
  2. Mechanical Fasteners: 6 (six) fasteners per 4x8 board minimum in field with corners and perimeters additional required.
  3. Attachment pattern: To be provided/submitted by contractor to meet manufacturer's requirements for specified system and meet or exceed the specified minimum FM 1-90 or the equivalent standards.
- D. High Density Cover Board – HD-Polyisocyanurate or DensDeck Prime
  1. Coverboard – specifically designed and approved for use in the specified warranted roof assembly.
  2. Name: Membrane Manufacturer's specific HD coverboard or DensDeck Prime or approved equal.
  3. Thickness:
    - a. ½" field
    - b. ¼" DensDeck Prime at all vertical surfaces minimum.
  4. Attachment –Mechanical
    - a. Comply with attachment minimum standard: FM 1-90 or the equivalent.

## **2.06 ADDITIONAL COMPONENTS WITHIN ASSEMBLY**

- A. SCREW AND PLATE FASTENERS: (*Insulation*)
  1. Type: Self-tapping screw with cap plate.
  2. Manufacturer and Brand: Prime Manufacturer approved.
  3. Cap Plate Material: Prime Manufacturer approved.
  4. Screw Material: Carbon steel with corrosion-resistant finish.
  5. Screw Head Type: Deep recessed Phillips or hex head.
  6. Screw Length: Penetrate deck minimum ½ inch.
  7. Test Standards:
    - a. Factory Mutual:
      - (1) 1-90; Wind up-lift minimum requirements
  8. NOTE: Fasteners shall not penetrate and/or extend beyond bottom of metal deck.
- B. PRE-FABRICATED PIPE & CONDUIT 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 unitstrut 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.

- C. Wood Nailers:
  - 1. Type – Fir
  - 2. Grade: Standard or better.
- D. Beveled Cedar (*under coping*):
  - 1. Type: Cedar
  - 2. Grade: Siding grade.
- E. Fall Protection:
  - 1. Fall Protection line installation at six foot (6') in from outboard perimeter at all perimeters with edges below forty-two inches (42").
    - a. TPO Fully Adhered system: Heat Welded or adhered depending on membrane manufacturers available products and requirement.
    - b. Paint only if preapproved and if there are no adhered options available.
      - (1) Requires prior approval, in writing, by project manager.
  - 2. No attachment (*davit, etc.*) included within the scope of this project unless addressed under other sections of this project.
- D. CLAD METAL – Membrane Mfg. Approved/Supplied:
  - 1. Refer to Sheet Metal Section within this document.
  - 2. Applicable Clad metal to complete project to specified standards.
    - a. Clad metal shall be supplied/approved by membrane manufacturer for use within the specified system.
    - b. Perimeter metal shall be approved by membrane system manufacturer for use within the specified roof assembly.
    - c. Metal shall be TPO clad where attachment to roof membrane system is required.
- E. PIPE SUPPORT BLOCKING:
  - 1. Material: Pre-manufactured pipe support blocking with recycled materials and clamping assembly.
    - a. Baseline standard: Rubber Triangle w/uni-strut attached for brackets.
    - b. Dura-Block -- RTSTRUT6 – (*standard*).
  - 2. Manufacturer and Brand: As approved by membrane manufacturer.
  - 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. Number and spacing based on current Code requirements.
- F. GENERAL:
  - 1. Refer to "General Description" and other sections of this document for further information.

## **PART 3 - INSTALLATION**

### **3.01 PREPARATION OF SUBSTRATE**

- A. Work shall be done in compliance with the requirements of this specification document and the manufacturer's most recent printed instructions applicable to the specified system/standards within this specification document.
- B. Upon beginning installation, Roofing Contractor implies and accepts, by his starting work, that the substrate meets all specified requirements and manufacturer's requirements for installation of specified roof system.
- C. Scope includes/requires removal of all existing roofing and perimeter metal and replacement with new as applicable to the specific/specified roof area.



### **3.02 GENERAL APPLICATION REQUIREMENTS**

- A. Application shall conform, at all times, to most recent manufacturer's published literature including General Requirements and Specifications as submitted as well as these Specifications.
  - 1. Unless otherwise noted, contractor shall comply with manufacturer's printed requirements at all times.
    - a. When conflict occurs, the strictest document shall apply.
- B. Do not remove more existing specified roofing than can be successfully reinstalled to keep the building and existing roof system watertight at the end of the work period.
- C. Roofing shall not be applied unless correct application temperatures can be maintained to meet manufacturer's published requirements.
- D. No roofing installation shall be conducted when water in any form is present on deck, such as rain, dew, ice, frost, or snow. Water shall be limited to containers for human consumption.
- E. Start roofing work in dry weather only and without threat of immediate inclement weather. Keep the roofed area of the building watertight each day as the work progresses.
- F. Precautions shall be taken to keep materials clean, dry, and free of damage. All damaged materials to be removed from the jobsite immediately.
- G. Do not start application of more materials each day than can be totally completed within the same day (*i.e. insulation, membrane, and flashing*).
- H. At the end of the day, edge-seal the finished portion of the roofing system completed that day with material and method(s) as noted within the manufacturer's most recent published literature. Remove edge-seals prior to the start of the next day's work.
- I. 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 Roofing System Manufacturer for use within approved system.
- J. No heavy objects shall be placed on the finished membrane at any time. Use all means necessary to protect the membrane before, during and after installation. In the event of damage, immediately make all repairs and/or replacements necessary to the satisfaction of the Owner and/or Owner's representative at no additional cost.
  - 1. Materials storage on membrane must have protection (*3/4" plywood with protection membrane*) under material and over membrane.
- K. An approved fire extinguisher is required on the roof at all times when work is underway. In addition, Contractor shall comply with any and all additional requirements of OSHA Safety Regulations as well as any Local, City, State and Federal codes.
- L. Install proper width starter sheets to insure minimum manufacturer's specified coverage for roofing system throughout.
- M. Do not use any wet or damaged materials.
- N. Equipment must be clean and in sufficiently good operating condition to perform specified work.
- O. All stains, foreign material, spills, etc. are to be removed from finished roof surface immediately. If not removable, then membrane shall be cut and patched within the manufacturer's patch methods to render the surface clean and true.

- P. Roofing Contractor shall inspect (*as applicable to this project*) all nailers for compliance with the following prior to installing roof system and notify Roofing Contractor of any deficiencies immediately:
1. Wood nailers shall be treated for fire and rot resistance (*wolmanized or osmose treated*), #2 or better lumber. Creosote or asphaltic treated lumber is not acceptable.
  2. Nailers shall be anchored to resist a minimum force of 175 pounds per lineal foot in any direction. Fastener spacing shall be a maximum of three feet (3') on center. Fasteners shall be installed within six inches (6") of each end. Spacing and fastener embedment shall conform to Factory Mutual Loss Prevention Data 1-49.
  3. Nailer thickness shall be as required to match substrate or insulation height.
- Q. If additional curb or support unit is to be added after the insulation and membrane have been installed, the membrane and insulation must be removed, and the curb installed directly to the deck and roofing system reinstalled at that area. Under no circumstances will curbs be installed over the insulation and membrane system considered acceptable.

### **3.03 EXAMINATION**

- A. Examine roof substrate (*per defined scope/option*) to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.
- B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
- C. Examine roof substrate to verify that it is properly sloped to drains.
- D. Verify that the specifications and drawing details are workable and not in conflict with the roofing manufacturer's recommendations and instructions; start of work constitutes acceptable of project conditions and requirements.

### **3.04 GENERAL:**

- A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations follow "good roofing practices and industry standards".
1. Comply with federal, state, and local regulations.
- B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.
- C. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.
1. Copy of notice shall be e-mailed to Roof Consultant prior to commencing work.
- D. Perform work using competent and properly equipped personnel.
- E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.
- F. Install roofing membrane only when surfaces are clean, dry, smooth, and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F.

- G. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
  - 1. Protect from spills and overspray from bitumen, adhesives, sealants, and coatings.
  - 2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen, adhesives, and sealants within the range of wind-borne overspray.
  - 3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.
- H. Until ready for use, keep materials in their original containers as labeled by the manufacturer.
- I. Consult membrane manufacturer's instructions, container labels, and material Safety Data Sheets (SDS) for specific safety instructions. Keep all adhesives, sealants, primers, and cleaning materials away from all sources of ignition.

### **3.05 PREPARATION**

- A. Clean, inspect and otherwise prepare existing substrate in preparation as a suitable substrate for the specified new roof system and all components.
- B. As applicable, take appropriate measures to ensure that fumes from any adhesive solvents are not drawn into the building through air intakes or building vent openings.
- C. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease, and other materials that may damage the new specified roof components and single-ply membrane assembly.
- D. At work areas inspect substrate for damage and or rust-corrosion damage conditions. If adverse conditions are identified or otherwise noted, immediately notify Owner's Representative and Roof Consultant before proceeding.

### **3.06 INSULATION AND COVER BOARD INSTALLATION**

- A. Install insulation in configuration and with attachment method(s) specified.
- B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.
- C. Lay roof insulation in courses parallel to roof edges in ashlar pattern staggered minimum 12" at sides and ends over the substrate. Stagger off of salvaged insulation also.
- D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch. Fill gaps greater than 1/4 inch with acceptable insulation and gypsum board. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch.
- E. Mechanical Fastening: (*Metal Decks*) - Use specified fasteners and insulation plates engage fasteners through insulation into deck to depth and in pattern required by Factory Mutual for FM Class specified in PART 2 and membrane manufacturer, whichever is more stringent.
- F. Parapets and vertical surfaces that membrane will be applied to: 1/4" DensDeck Prime shall be mechanically attached.
- G. Insulation Attachment as applicable to metal decks only: - Mechanically attached.

### **3.07 SINGLE-PLY MEMBRANE INSTALLATION**

#### **A. ROOFING MEMBRANE: -- Fully Adhered**

1. Install roofing membrane in accordance with the manufacturer's installation instructions.
  - a. Cut sheets to maximum size possible in order to minimize seams.
2. Position membrane over substrate without stretching membrane.
  - a. Allow membrane to relax one-half ( $\frac{1}{2}$ ) hour before bonding and flashing.
3. Begin installation of roofing system at the highest point of the Project area and work to the lowest point.
  - a. Prevent moisture migration into the roof system. Complete flashings, terminations, and seals in area on a daily basis.
4. Execute work so membrane can be temporarily sealed on a down slope surface at the end of each day with night seal.
  - a. Tie off with a water stop to the structural deck to prevent water flow into the new roofing installation.
5. Fully adhere perimeter in accordance with manufacturer's recommended procedures for building height and location.
  - a. Comply with approved submittals for field, perimeter and corner fastening patterns for all components within the assembly.
  - b. Termination bar is required at any parapet or vertical surface (*fully adhered*) with a height higher than 18".
6. Ensure that the installed roofing will not be marked, spotted, stained, or damaged.
  - a. Power washing of the membrane may be required if surface staining is deemed unacceptable to the Owner, at no additional cost to Owner.
7. Fully adhere membrane at all vertical areas including parapets, equipment, etc.

#### **B. MEMBRANE SPLICING:**

1. Membrane Lap Splices: 6 inches (*152 mm*) wide, minimum.
  - a. Locate field splices at roof drains outside drain sump.
2. Allow top sheet to fall freely into place over bottom ply without wrinkling or stretching.
3. Insure that surfaces to be spliced are cleaned, primed and dirt free.
  - a. Use automatic hot air welding equipment approved by the roof system manufacturer for field seams. Seam small work and repairs with hand welders.
  - b. Install minimum 1-1/2 inch (*38 mm*) wide weld.
4. Probe laps each day to verify seams are bonded. In addition, perform random lap test sample checks (*including checks at start of each day*) to verify peel strength.
  - a. Caulk cut edges by applying manufacturer's seam sealant, if required.
  - b. Roof system manufacturer's representative shall be on site at start of project to supervise operations and to inspect and approve seams.

#### **C. FLASHING:**

1. Walls, Parapets, Mechanical Equipment Curbs:
  - a. All Parapets require fully adhered attachment with termination bars required at perimeters and walls that are higher than 18".
  - b. Install flashing at roof penetrations, interruptions, and any roof intersection including roof edges with vertical or sloped surfaces in accordance with manufacturer's recommended procedures and Drawings.
    - (1) Pipe penetrations require cone/boot with foam filler.

- c. Curbs, projections, and vertical surface/wall conditions require a minimum 8-inch (203-mm) height for base flashings and sleeves.
  - d. Apply manufacturer's bonding adhesive to both underside of flashing and surface to which it is to be bonded, at a rate of approximately 1 gallon (3.8 l) per 50 sq. ft. (4.65-sq.m) of surface coverage.
  - e. Do not apply bonding adhesive to portion of flashing that overlaps onto itself. Use seam tape where membrane overlaps itself.
  - f. Allow bonding adhesive to dry to a finger touch until it does not string or stick to a dry finger. Roll the flashing into dry adhesive.
    - (1) Care must be taken to assure that flashing does not bridge where there is any change of direction.
  - g. Mechanically fasten top all of flashing under or through appropriate counter flashing with approved fasteners as shown on Drawings.
  - h. Install flashings for vents, pipe, soil vents and other round projections in accordance with manufacturer's recommendations and Drawings.
  - i. Install uncured or preformed flashing membrane as required to form a continuous membrane seal in each corner or change in plane.
  - j. Waterproof and positively secure flashings with termination bar at the top and sides to prevent seepage behind or into the flashing or roofing system.
- D. Other Penetrations:
- 1. Flash penetrations passing through membrane in accordance with the manufacturer's recommended procedure, Specifications and Drawings.
  - 2. Seal flashing directly to the penetration passing through the membrane system.
  - 3. Pipes, Round Supports:
    - a. Flash pipes with pre-molded pipe flashings where their installation is possible.
    - b. Where molded pipe flashings cannot be installed, use field fabricated pipe seals.
  - 4. Pipe Clusters and Unusually Shaped Penetrations: Flash pipe clusters and unusually shaped penetrations which prohibit the installation of field fabricated pipe seals with hooded sheet metal boxes.
    - a. Provide penetration boxes with solid sheet metal face closures.
    - b. Slope piping down slightly and away from the penetration flashings.
    - c. Provide removable tops.

### **3.08 FLASHING AND ACCESSORIES INSTALLATION**

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.

### **3.09 WALK-PAD INSTALLATION**

- A. General: Do not install flexible walk-pads within 6 feet (1830 mm) of a roof perimeter.
- B. Install walk-pad (walkway) products in locations indicated on drawings and as noted herein:
- 1. Perimeter work/service areas of large HVAC units.
  - 2. Roof Access Hatch.
  - 3. Roof Ladders.

C. Specific:

1. Adhere walk-pad (*walkway*) products to substrate with compatible adhesive or seam tape according to roofing system manufacturer's written instructions.
  - a. Walk pads shall be fully adhered in compatible/mfg. approved adhesive.
2. Walk pads will be installed at hatch, access ladders, and around large, serviced HVAC units.
3. Walk pads should be spaced approximately one to two inches (1" – 2") apart, to allow for water flow. Minimum spacing is 1.0" between pads with a maximum of 3.0".
4. If installation of walkway pads over field fabricated splices or within 6 inches 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 on either side.
  - a. Seams must be inspected and approved prior to walk-pad installation over the seam.
  - b. Prime the membrane, remove the release paper on the pad, press in place, and walk on pad to ensure proper adhesion.

**3.10 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*)

**3.11 FALL PROTECTION WARNING LINE**

- A. Scope of work includes OSHA safety warning line – Permanent.
  1. Location: 6' in from outboard perimeter at all perimeters except walls over six feet (6') high.
    - a. Measure in from outboard edge if drip-edge detail to outboard edge of line.
    - b. Measure in from inboard side of parapet and/or curb or light metal edge detail to outboard edge of line.
  2. Width: Four inch (4") wide.
  3. Color: Yellow – OSHA standard color.
  4. Application: Hot air weldable to finished/installed membrane roofing system.

**3.12 FIELD QUALITY CONTROL**

- A. Refer to other portions of this Section for additional instructions/requirements.
- B. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (*i.e. not a sales person*).
  1. Formal written report shall be provided to Owner's representative (*Roof Consultant*) within seven (7) working days after any manufacturer's inspection.



### **3.13 MISCELLANEOUS WORK ITEMS**

#### **A. PIPE & CONDUIT SUPPORTS:**

1. Provide specified pre-manufactured pipe/conduit supports with separator sheet as noted within specifications spot adhered to the underside of all supports.
  - a. Dura-Block -- RTSTRUT6 – (standard).
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.
5. Code Requirements & minimum spacing:
  - a. Code for electrical support spacing --- all sizes:
    - (1) PVC and MC every 6'
    - (2) EMT and rigid every 10'
    - (3) 12" max from junction box (either type)
    - (4) Additional: Max 18" from corner (90 - 45 or T).
  - b. Code for plumbing pipe support spacing --- different pipe sizes/types.
    - (1) ½" – every 4'
    - (2) ¾" or 1" – every 6'
    - (3) 1 ¼" or larger – every 8'
    - (4) Additional: Max 18" from corner (90- 45 or T).

### **3.14 CLEAN UP**

#### **A. Roofing Contractor shall:**

1. Remove all stains or other markings from finished surfaces.
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. Roofing Contractor is responsible for any material blown off the roof.
  - c. Surplus materials and all equipment shall be promptly removed from the site upon completion of work.
3. If Roofing 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.
4. Prior to final acceptance, the Roofing 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.
5. Roofing Contractor shall coordinate all clean-up activities with and as may be directed by the Roof Consultant and/or Owner's Representative for the duration of the project.
6. Roofing Contractor is responsible for any and all damage to building or surrounding area during the course of the project, NO EXCEPTIONS.

**- END OF SECTION -**

## **SECTION 07 60 00**

### **FLASHING & SHEET METAL**

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION**

**A. Work Included:**

1. 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.
2. GENERAL REVIEW:
  - a. The intent is to:
    - (1) New:
      - (a) Perimeter metal - pre-painted / Kynar to match existing style & color.
      - (b) Counter-flashing
      - (c) Equipment Counter-flashing
      - (d) Clad Metal, scuppers, etc.
      - (e) New continuous Gutters – Pre-painted / Kynar to match new perimeter metal color (*installed where there is currently gutters*).
      - (f) Additional as noted at pre-bid and noted via addenda and as defined within “Instructions to Bidders” and “General Description” portions of bid documents.
  - b. To be discussed at the mandatory pre-job meeting.
3. OTHER METAL:
  - a. General – This section: Remove and replace with new unless specifically identified within the specification documents or during the pre-job meeting as to be salvaged.
  - b. Existing Deck Replacement --- see other parts of Specifications for further information.
4. HVAC:
  - a. Counter-flashing all existing roof mounted units that will be salvaged/stay on roofs.
5. General Work Summary on this project shall include the following:
  - a. New perimeter metal.
  - b. Miscellaneous details to meet the manufacturer’s and “good roofing” practices for entire completed roof system.
6. Roofing accessories and incidentals as may be required during the project.
7. All painted metal surfaces which must be removed and replaced to properly complete the project
  - 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.
8. Any metal that is scheduled for salvage within the scope of this project, shall be carefully removed, examined, cleaned, primed, painted and replaced to match existing colors as applicable and discussed at pre-job meeting.

##### **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 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.
- C. Wall system manufacturer's installation instructions.

### **1.06 PRODUCT HANDLING**

- A. Store products under applicable provisions of Section 07 54 19.
- 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 19.

## **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.
- F. Wall System: Match existing.

### **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 ½"; 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 ¼" (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 sheet metal work is conducted as a 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 base flashings 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. Install and seal new metal-flanged sleeve flashing and drain flashing in accordance with Section 07 54 19 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**

**BEAVERTON SCHOOL DISTRICT #48-J**

Facilities Development  
16550 SW Merlo Drive  
Beaverton, Oregon

**Facility:**

**FIVE OAKS MIDDLE SCHOOL**

**-- Penthouse Roofs --**

1600 NW 173<sup>rd</sup>  
Beaverton, Oregon

**ROOF CONSTRUCTION DATA**

**(Existing Assembly)**

**Penthouses - (Roofs in this project)**

**Roofs --- C, H, I, J & K:** -- (Assembly from top to bottom) -- Roof over Roof assembly

ROOF TYPE: .....	BUR
SURFACE: .....	Gravel (pea type – approx. 4 bs psf)
PLYS: .....	7 total -- (4-ply top assembly & 3-ply bottom w/m-grain cap & 2-ply)
BITUMEN TYPE: .....	Asphal
INSULATION: .....	½" Fiberglass Board (top – recover system)
	1" Fiberglass Board (bottom – original system)
VAPOR RETARDER: .....	None
DECK: .....	Metal

**ROOF AREA DATA**

<b>Total Roof Area this Project:</b> .....	<b>5,341</b>	<b>sq. ft. (approx.)</b>
Roof C: .....	860	sq. ft.
Roof H: .....	1,252	sq. ft.
Roof I: .....	1,266	sq. ft.
Roof J: .....	1,236	sq. ft.
Roof K: .....	727	sq. ft.

Sq Footage is an approximate ONLY – Contractor-Bidder to verify

**New Roof System Information**

**Metal Roof System**

**Note: Entire Project is a Remove & Replace project**

Scope – General - All Roofs:

1. Remove existing roofing & all components down to structural deck entirely.
2. Inspection & Repair and Cleaning of deck substrate as required.
3. Install new specified assembly – keep building watertight at end of every work period.

**New roof system summary of materials per 100 square feet:**

<u>Description</u>	<u>Weight</u>	<u>R-Value</u>
<b><u>New TPO Single-ply – Fully Adhered System/Assembly</u> - (Remove &amp; Replace)</b>		
--- (Top to Bottom) -- Refer to other sections of this document for further information		
TPO – 80 mil ( <i>min</i> ) – fully adhered single-ply membrane system:	.46 lbs psf	--
½ HD coverboard - ( <i>Polyiso</i> ) .....	.64 lbs psf	2.5
1-layer of 1.5" Polyiso-insulation: .....	.37 lbs psf	8.5
Vapor Retarder .....	.06 lbs psf	---
Meal Deck - ( <i>existing</i> ): .....	-. lbs psf -	
Total completed weight: .....	1.53 lbs psf	11.0 approx.
Original BUR assembly single-ply system weight: 3.11 lb. psf + pea gravel = 6.11 lbs psf		
<u>Net DECREASE</u> in weight with new roof system: 1.58 lbs psf . or 5.58 including ballast - ( Less weight with new system )		

**-- End of Section --**


**Lab/Cor Portland, Inc.**

 4321 South Corbett Ave., Ste A  
 Portland, OR 97239

 Phone: (503) 224-5055  
 www.labcorpdx.com

## PLM - Visual Estimate Extended Final Report

**Job Number: 220409**
**Client: A-Tech Northwest, Inc.**
**Address: 2501 NW Gerke Rd**  
**Prineville, OR 97554**
**Project Name: Beaverton SD-Five Oaks MS**
**Project No.: 22048**
**PO Number:**
**Sub Project:**
**Reference No.:**
**Report Number: 220409R01**
**Report Date: 2/15/2022**

Enclosed please find results for samples submitted to our laboratory. A list of samples and analyses follows:

Lab/Cor Sample #	Client Sample # and Description	Analysis	Analysis Notes	Date Received:
220409 - S1	Roof C Top - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S2	Roof C Bott - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S3	Roof H Top - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S4	Roof H Bott - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S5	Roof H New - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S6	Roof I Top - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S7	Roof I Bott - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S8	Roof I New - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S9	Roof J Top - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S10	Roof J Bott - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S11	Roof J New - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S12	Roof K Top - BUR	PLM - Visual Estimate Extended		2/4/2022
220409 - S13	Roof K Bott - BUR	PLM - Visual Estimate Extended		2/4/2022





## Lab/Cor Portland, Inc.

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Portland, OR 97239

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### PLM - Visual Estimate Extended Final Report

Job Number: 220409

Client: A-Tech Northwest, Inc.

Project Name: Beaverton SD-Five Oaks MS

Report Number: 220409R01

Report Date: 2/15/2022

**PLM - Visual Estimate Extended** The submitted sample(s) were analyzed according to the EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials and EPA - 40CFR App. E to Subpart E of Part 763. The sample(s) were analyzed with a digital microscope in order to determine homogeneity, the presence of fibers, and make a preliminary estimate of any asbestos fibers present in the sample. The sample(s), and any observed layers, were then homogenized through techniques appropriate to that material and prepared for analysis by polarized light microscopy (PLM).

Three slide mount preparations were made from random subsamples of the homogenized material. This material was then mounted in the suitable refractive index liquid needed to perform a full optical characterization of the observed fibers. When necessary, dilute HCl, instead of RI liquids, were used to remove cementitious binders to facilitate analysis. The entirety of the slide mount preparations were then analyzed by PLM. Any observed fibers were reported and their optical characteristics recorded according to the EPA 600-R-93-116 method.

**Disclaimer** This report, and the data contained therein, cannot be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. The results found in this report are based only on the submitted sample(s). LabCor has no control over sampling procedures. This report is only valid when signed by an analyst.

NAD is No Asbestos Detected. Asbestos consists of the six following minerals: chrysotile, amosite, crocidolite, anthophyllite, actinolite, and tremolite.

Additional gravimetric, point-count or TEM analysis may be recommended for samples testing at  $\leq 1\%$  asbestos, or those with material binders that prevent the detection of small diameter fibers.

The following estimate of error for this method by visual estimation of asbestos percent are as follows:

1% asbestos:  $>0\text{-}3\%$  error,  
5% asbestos:  $1\text{-}9\%$  error,  
10% asbestos:  $5\text{-}15\%$  error,  
20% asbestos:  $10\text{-}30\%$  error.

Sincerely,



**Ryan Talaski-Brown**  
PLM Technical Manager

**BULK SAMPLE ASBESTOS ANALYSIS**

**Client:** A-Tech Northwest, Inc.  
2501 NW Gerke Rd  
Prineville, OR 97554

**Report Number:** 220409R01

**Report Date:** 02/15/2022

**Job Number:** 220409

**P.O. No:** n/a

**Project Name:** Beaverton SD-Five Oaks MS

**Project Number:** 22048

**Project Notes:**

<b>Client Sample ID:</b>	<b>Roof C Top</b>		<b>Sample ID:</b>		<b>Date Analyzed:</b>		02/14/2022	
<b>Client Sample Description:</b>	BUR				<b>Analyst:</b>		Ryan Talaski-Brown	
<b><u>Asbestos Mineral Fibers</u></b>	Layer Percent:	Chrysotile	Amosite	Crocidolite	<b>Percent Asbestos:</b>			
<b>Layer 01</b>								
rocky tar, black	35 %	-	-	-	<b>NAD</b>			
<b>Layer 02</b>								
fibrous tar, black	35 %	-	-	-	<b>NAD</b>			
<b>Layer 03</b>								
fibrous tar, black	18 %	-	-	-	<b>NAD</b>			
<b>Layer 04</b>								
loose fibrous material, yellow	12 %	-	-	-	<b>NAD</b>			
<b><u>Other Fibers</u></b>	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other	Matrix		
<b>Layer 01</b>	5 %	-	-	-	-	-	95 %	
<b>Layer 02</b>	8 %	-	-	-	-	-	92 %	
<b>Layer 03</b>	8 %	-	-	-	-	-	92 %	
<b>Layer 04</b>	100 %	-	-	-	-	-	0 %	

<b>Client Sample ID:</b>		<b>Roof C Bott</b>		<b>Sample ID:</b>		<b>S2</b>		<b>Date Analyzed:</b>		<b>02/14/2022</b>	
<b>Client Sample Description:</b>		<b>BUR</b>		<b>Analyst:</b>		<b>Ryan Talaski-Brown</b>					
<b><u>Asbestos Mineral Fibers</u></b>		<b>Layer Percent:</b>	<b>Chrysotile</b>	<b>Amosite</b>	<b>Crocidolite</b>	<b>Percent Asbestos:</b>					
<b>Layer 01</b>											
rubbery coating, black		10 %	-	-	-	<b>NAD</b>					
<b>Layer 02</b>											
rocky fibrous tar, black		10 %	-	-	-	<b>NAD</b>					
<b>Layer 03</b>											
fibrous tar, black		10 %	-	-	-	<b>NAD</b>					
<b>Layer 04</b>											
fibrous tar, black		10 %	-	-	-	<b>NAD</b>					
<b>Layer 05</b>											
loose fibrous tar particulate, black		30 %	-	-	-	<b>NAD</b>					
<b>Layer 06</b>											
loose fibrous material, yellow		30 %	-	-	-	<b>NAD</b>					
<b><u>Other Fibers</u></b>		<b>Fibrous Glass</b>	<b>Cellulose</b>	<b>Mineral Wool</b>	<b>Synthetic</b>	<b>Other</b>	<b>Matrix</b>				
<b>Layer 01</b>		-	-	-	-	-	100 %				
<b>Layer 02</b>		8 %	-	-	-	-	92 %				
<b>Layer 03</b>		8 %	-	-	-	-	92 %				
<b>Layer 04</b>		8 %	-	-	-	-	92 %				
<b>Layer 05</b>		5 %	5 %	-	8 %	-	82 %				
<b>Layer 06</b>		100 %	-	-	-	-	0 %				

**Client:** A-Tech Northwest, Inc.  
2501 NW Gerke Rd  
Prineville, OR 97554

**Report Number:** 220409R01

**Report Date:** 02/15/2022

**Job Number:** 220409

**P.O. No:** n/a

**Project Name:** Beaverton SD-Five Oaks MS

**Project Number:** 22048

**Project Notes:**

<b>Client Sample ID:</b> Roof H Top		<b>Sample ID:</b> S3			<b>Date Analyzed:</b> 02/14/2022	
<b>Client Sample Description:</b> BUR					<b>Analyst:</b> Ryan Talaski-Brown	
<b>Asbestos Mineral Fibers</b>		Layer Percent:	Chrysotile	Amosite	Crocidolite	<b>Percent Asbestos:</b>
<b>Layer 01</b>						
textured tar, brown/black		20 %	-	-	-	NAD
<b>Layer 02</b>						
fibrous tar, black		20 %	-	-	-	NAD
<b>Layer 03</b>						
fibrous tar, black		20 %	-	-	-	NAD
<b>Layer 04</b>						
fibrous tar, black		20 %	-	-	-	NAD
<b>Layer 05</b>						
loose fibrous material, yellow		20 %	-	-	-	NAD
<b>Other Fibers</b>		Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other
<b>Layer 01</b>		-	-	-	-	-
<b>Layer 02</b>		5 %	-	-	5 %	-
<b>Layer 03</b>		5 %	-	-	5 %	-
<b>Layer 04</b>		5 %	-	-	5 %	-
<b>Layer 05</b>		100 %	-	-	-	-
						Matrix
						100 %
						90 %
						90 %
						90 %
						0 %

<b>Client Sample ID:</b> Roof H Bott		<b>Sample ID:</b> S4			<b>Date Analyzed:</b> 02/14/2022	
<b>Client Sample Description:</b> BUR					<b>Analyst:</b> Ryan Talaski-Brown	
<b>Asbestos Mineral Fibers</b>		Layer Percent:	Chrysotile	Amosite	Crocidolite	<b>Percent Asbestos:</b>
<b>Layer 01</b>						
rocky fibrous tar, black		15 %	-	-	-	NAD
<b>Layer 02</b>						
fibrous tar, black		12 %	-	-	-	NAD
<b>Layer 03</b>						
textured fibrous tar, black		25 %	-	-	-	NAD
<b>Layer 04</b>						
fibrous tar, black/brown		8 %	-	-	-	NAD
<b>Layer 05</b>						
loose fibrous material, yellow		40 %	-	-	-	NAD
<b>Other Fibers</b>		Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other
<b>Layer 01</b>		8 %	-	-	-	-
<b>Layer 02</b>		8 %	-	-	-	-
<b>Layer 03</b>		5 %	-	-	-	-
<b>Layer 04</b>		10 %	-	-	-	-
<b>Layer 05</b>		100 %	-	-	-	-
						Matrix
						92 %
						92 %
						95 %
						90 %
						0 %

**Client:** A-Tech Northwest, Inc.  
2501 NW Gerke Rd  
Prineville, OR 97554

**Report Number:** 220409R01

**Report Date:** 02/15/2022

**Job Number:** 220409

**P.O. No:** n/a

**Project Name:** Beaverton SD-Five Oaks MS

**Project Number:** 22048

**Project Notes:**

<b>Client Sample ID:</b>	<b>Roof H New</b>		<b>Sample ID:</b>	S5		<b>Date Analyzed:</b>	02/14/2022	
<b>Client Sample Description:</b>	BUR					<b>Analyst:</b>	Ryan Talaski-Brown	
<b>Asbestos Mineral Fibers</b>	Layer Percent:	Chrysotile	Amosite	Crocidolite				<b>Percent Asbestos:</b>
<b>Layer 01</b>								
rocky tar, black	22 %	-	-	-				NAD
<b>Layer 02</b>								
fibrous tar, black	22 %	-	-	-				NAD
<b>Layer 03</b>								
fibrous tar, black	22 %	-	-	-				NAD
<b>Layer 04</b>								
fibrous tar, black	22 %	-	-	-				NAD
<b>Layer 05</b>								
foam, light yellow	12 %	-	-	-				NAD
<b>Other Fibers</b>	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other			Matrix
<b>Layer 01</b>	8 %	-	-	-	-	-		92 %
<b>Layer 02</b>	8 %	-	-	-	-	-		92 %
<b>Layer 03</b>	8 %	-	-	-	-	-		92 %
<b>Layer 04</b>	8 %	-	-	-	-	-		92 %
<b>Layer 05</b>	-	-	-	-	-	-		100 %

<b>Client Sample ID:</b>	<b>Roof I Top</b>		<b>Sample ID:</b>	S6		<b>Date Analyzed:</b>	02/15/2022	
<b>Client Sample Description:</b>	BUR					<b>Analyst:</b>	Ryan Talaski-Brown	
<b>Asbestos Mineral Fibers</b>	Layer Percent:	Chrysotile	Amosite	Crocidolite				<b>Percent Asbestos:</b>
<b>Layer 01</b>								
fibrous tar, black	25 %	-	-	-				NAD
<b>Layer 02</b>								
fibrous tar, black	25 %	-	-	-				NAD
<b>Layer 03</b>								
fibrous tar, black	25 %	-	-	-				NAD
<b>Layer 04</b>								
loose fibrous material, yellow	25 %	-	-	-				NAD
<b>Other Fibers</b>	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other			Matrix
<b>Layer 01</b>	5 %	-	-	-	-	-		95 %
<b>Layer 02</b>	5 %	-	-	5 %	-	-		90 %
<b>Layer 03</b>	5 %	-	-	5 %	-	-		90 %
<b>Layer 04</b>	100 %	-	-	-	-	-		0 %

**Client:** A-Tech Northwest, Inc.  
2501 NW Gerke Rd  
Prineville, OR 97554

**Report Number:** 220409R01

**Report Date:** 02/15/2022

**Job Number:** 220409

**P.O. No:** n/a

**Project Name:** Beaverton SD-Five Oaks MS

**Project Number:** 22048

**Project Notes:**

<b>Client Sample ID:</b> Roof I Bott		<b>Sample ID:</b> S7			<b>Date Analyzed:</b> 02/15/2022	
<b>Client Sample Description:</b> BUR					<b>Analyst:</b> Ryan Talaski-Brown	
<b>Asbestos Mineral Fibers</b>		Layer Percent:	Chrysotile	Amosite	Crocidolite	<b>Percent Asbestos:</b>
<b>Layer 01</b>						
rocky fibrous tar, black		28 %	-	-	-	NAD
<b>Layer 02</b>						
fibrous tar, black		28 %	-	-	-	NAD
<b>Layer 03</b>						
fibrous tar, black		25 %	-	-	-	NAD
<b>Layer 04</b>						
loose fibrous material, yellow		19 %	-	-	-	NAD
<b>Other Fibers</b>		Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other
<b>Layer 01</b>		5 %	-	-	5 %	-
<b>Layer 02</b>		5 %	-	-	5 %	-
<b>Layer 03</b>		-	35 %	-	-	-
<b>Layer 04</b>		100 %	-	-	-	-
						<b>Matrix</b>
						90 %
						90 %
						65 %
						0 %

<b>Client Sample ID:</b> Roof I New		<b>Sample ID:</b> S8			<b>Date Analyzed:</b> 02/15/2022	
<b>Client Sample Description:</b> BUR					<b>Analyst:</b> Ryan Talaski-Brown	
<b>Asbestos Mineral Fibers</b>		Layer Percent:	Chrysotile	Amosite	Crocidolite	<b>Percent Asbestos:</b>
<b>Layer 01</b>						
rocky fibrous tar, black		35 %	-	-	-	NAD
<b>Layer 02</b>						
foam, yellow		65 %	-	-	-	NAD
<b>Other Fibers</b>		Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other
<b>Layer 01</b>		5 %	-	-	5 %	-
<b>Layer 02</b>		-	-	-	-	-
						<b>Matrix</b>
						90 %
						100 %

**Lab/Cor Portland, Inc.**4321 South Corbett Ave., Ste A  
Portland, OR 97239**BULK SAMPLE ASBESTOS ANALYSIS**Phone: (503) 224-5055  
www.labcorpdx.com*Asbestos and Environmental Analysis***Client:** A-Tech Northwest, Inc.  
2501 NW Gerke Rd  
Prineville, OR 97554**Report Number:** 220409R01**Report Date:** 02/15/2022**Job Number:** 220409**P.O. No:** n/a**Project Name:** Beaverton SD-Five Oaks MS**Project Number:** 22048**Project Notes:**

Client Sample ID: Roof J Top		Sample ID: S9			Date Analyzed: 02/15/2022	
Client Sample Description: BUR		Analyst: Ryan Talaski-Brown				
<u>Asbestos Mineral Fibers</u>		Layer Percent:	Chrysotile	Amosite	Crocidolite	Percent Asbestos:
Layer 01						
fibrous tar, black		25 %	-	-	-	NAD
Layer 02						
fibrous tar, black		25 %	-	-	-	NAD
Layer 03						
fibrous tar, black		25 %	-	-	-	NAD
Layer 04						
loose fibrous material, yellow		25 %	-	-	-	NAD
<u>Other Fibers</u>	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other	Matrix
Layer 01	5 %	-	-	5 %	-	90 %
Layer 02	5 %	-	-	5 %	-	90 %
Layer 03	5 %	-	-	5 %	-	90 %
Layer 04	100 %	-	-	-	-	0 %

<b>Client Sample ID:</b> Roof J Bott		<b>Sample ID:</b> S10			<b>Date Analyzed:</b> 02/15/2022	
<b>Client Sample Description:</b> BUR		<b>Analyst:</b> Ryan Talaski-Brown				
<b><u>Asbestos Mineral Fibers</u></b>	Layer Percent:	Chrysotile	Amosite	Crocidolite	<b>Percent Asbestos:</b>	
<b>Layer 01</b>						
rubbery material, black	28 %	-	-	-	NAD	
<b>Layer 02</b>						
rocky tar, black	35 %	-	-	-	NAD	
<b>Layer 03</b>						
thin rubbery material, black	15 %	-	-	-	NAD	
<b>Layer 04</b>						
loose fibrous material, yellow	22 %	-	-	-	NAD	
<b><u>Other Fibers</u></b>	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other	Matrix
<b>Layer 01</b>	-	-	-	-	-	100 %
<b>Layer 02</b>	8 %	-	-	-	-	92 %
<b>Layer 03</b>	-	-	-	-	-	100 %
<b>Layer 04</b>	100 %	-	-	-	-	0 %

**Lab/Cor Portland, Inc.**4321 South Corbett Ave., Ste A  
Portland, OR 97239**BULK SAMPLE ASBESTOS ANALYSIS**Phone: (503) 224-5055  
www.labcorpdx.com*Asbestos and Environmental Analysis***Client:** A-Tech Northwest, Inc.  
2501 NW Gerke Rd  
Prineville, OR 97554**Report Number:** 220409R01**Report Date:** 02/15/2022**Job Number:** 220409**P.O. No:** n/a**Project Name:** Beaverton SD-Five Oaks MS**Project Number:** 22048**Project Notes:**

<b>Client Sample ID:</b> Roof J New		<b>Sample ID:</b> S11			<b>Date Analyzed:</b> 02/15/2022	
<b>Client Sample Description:</b> BUR					<b>Analyst:</b> Ryan Talaski-Brown	
<b>Asbestos Mineral Fibers</b>		Layer	Chrysotile	Amosite	Crocidolite	<b>Percent Asbestos:</b>
<b>Layer 01</b>		Percent:				
rocky fibrous tar, black		35 %	-	-	-	NAD
<b>Layer 02</b>						
foam, yellow		65 %	-	-	-	NAD
<b>Other Fibers</b>		Fibrous	Mineral			
		Glass	Wool	Synthetic	Other	Matrix
<b>Layer 01</b>		8 %	-	-	-	92 %
<b>Layer 02</b>		-	-	-	-	100 %

<b>Client Sample ID:</b> Roof K Top		<b>Sample ID:</b> S12			<b>Date Analyzed:</b> 02/15/2022	
<b>Client Sample Description:</b> BUR					<b>Analyst:</b> Ryan Talaski-Brown	
<b>Asbestos Mineral Fibers</b>		Layer	Chrysotile	Amosite	Crocidolite	<b>Percent Asbestos:</b>
<b>Layer 01</b>		Percent:				
rocky tar, black		30 %	-	-	-	NAD
<b>Layer 02</b>						
fibrous tar, black		30 %	-	-	-	NAD
<b>Layer 03</b>						
fibrous tar, black		20 %	-	-	-	NAD
<b>Layer 04</b>						
loose fibrous material, yellow		20 %	-	-	-	NAD
<b>Other Fibers</b>		Fibrous	Mineral			
		Glass	Wool	Synthetic	Other	Matrix
<b>Layer 01</b>		5 %	-	5 %	-	90 %
<b>Layer 02</b>		5 %	-	5 %	-	90 %
<b>Layer 03</b>		5 %	-	5 %	-	90 %
<b>Layer 04</b>		100 %	-	-	-	0 %

**Client:** A-Tech Northwest, Inc.  
2501 NW Gerke Rd  
Prineville, OR 97554

**Report Number:** 220409R01

**Report Date:** 02/15/2022

**Job Number:** 220409

**P.O. No:** n/a

**Project Name:** Beaverton SD-Five Oaks MS

**Project Number:** 22048

**Project Notes:**

<b>Client Sample ID:</b>	Roof K Bott		<b>Sample ID:</b>	S13		<b>Date Analyzed:</b>	02/15/2022	
<b>Client Sample Description:</b>	BUR					<b>Analyst:</b>	Ryan Talaski-Brown	
<b>Asbestos Mineral Fibers</b>	Layer							<b>Percent Asbestos:</b>
	Percent:	Chrysotile	Amosite	Crocidolite				
<b>Layer 01</b>								
textured tar, black	50 %	-	-	-				NAD
<b>Layer 02</b>								
textured tar, black	30 %	-	-	-				NAD
<b>Layer 03</b>								
fibrous tar, black	6 %	-	-	-				NAD
<b>Layer 04</b>								
loose fibrous material, yellow	14 %	-	-	-				NAD
<b>Other Fibers</b>	Fibrous Glass	Cellulose	Mineral Wool	Synthetic	Other			Matrix
<b>Layer 01</b>	8 %	-	-	-	-	-		92 %
<b>Layer 02</b>	8 %	-	-	-	-	-		92 %
<b>Layer 03</b>	-	20 %	-	-	-	-		80 %
<b>Layer 04</b>	100 %	-	-	-	-	-		0 %

This laboratory participates in the National Voluntary Laboratory Accreditation Program (NVLAP). Testing method is per EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials and EPA - 40CFR App. E to Subpart E of Part 763, PLM. This report and the data contained therein cannot be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

- "NAD" is No Asbestos Detected.
- Asbestos consists of the following minerals: chrysotile, amosite, crocidolite, tremolite, actinolite, anthophyllite.
- Material binders, such as those found in vinyl floor tiles, may prevent the detection of small diameter asbestos fibers. A gravimetric preparation and point-count is recommended for such samples.
- Quantitative analysis by PLM point count or TEM may be recommended for samples testing at < or = to 1% asbestos.
- The following estimate of error for this method by visual estimation of asbestos percent are as follows:  
1% asbestos: >0-3% error, 5% asbestos: 1-9% error, 10% asbestos: 5-15% error, 20% asbestos: 10-30% error.
- This report pertains only to the samples listed on the report. Report considered valid only when signed by analyst.

**Reviewed by:**

*Ryan Talaski-Brown*  
Ryan Talaski-Brown  
PLM Technical Manager



**Section 07 99 28**  
**ROOFING SYSTEM 2-YR CONTRACTOR'S WORKMANSHIP GUARANTEE**  
**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, lap issues, blisters, burns, skips/voids and bare spots, delamination, 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.

### 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 REPRESENTATIVE SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

ROOFING CONTRACTOR: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

### DISTRIBUTION:

1. Original to Roof Consultant –to be review, approved and then delivered to Owner
2. Copy to Project Manual

# DRAFT AIA® Document G702™ - 1992

## SAMPLE FORMS

### Application and Certificate for Payment

TO OWNER:	PROJECT:	APPLICATION NO:	Distribution to:
FROM	VIA	PERIOD TO:	OWNER:
CONTRACTOR:	ARCHITECT:	CONTRACT FOR:	ARCHITECT:
	A-TECH/NORTHWEST, INC.	CONTRACT DATE:	CONTRACTOR:
	2501 NW Gerke Rd.	PROJECT NOS:	FIELD:
	Prineville, OR 97754		:

### CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM.....	\$0.00
2. NET CHANGE BY CHANGE ORDERS.....	\$0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2) .....	\$0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703).....	\$0.00
5. RETAINAGE:	
a. 0 % of Completed Work	
(Column D + E on G703: \$0.00 )=	\$0.00
b. 0 % of Stored Material	
(Column F on G703: \$0.00 )=	\$0.00
Total Retainage (Lines 5a + 5b or Total in Column I of G703).....	\$0.00
6. TOTAL EARNED LESS RETAINAGE.....	\$0.00
(Line 4 Less Line 5 Total)	
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT.....	\$0.00
(Line 6 from prior Certificate)	
8. CURRENT PAYMENT DUE.....	\$0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE	
(Line 3 less Line 6)	\$0.00

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$0.00	\$0.00
Total approved this Month	\$0.00	\$0.00
TOTALS	\$0.00	\$0.00
NET CHANGES by Change Order		\$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By:

Date:

State of:

County of:

Subscribed and sworn to before

me this

day of

Notary Public:

My Commission expires:

### ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED..... \$0.00

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By:

Date:

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

## ARCHITECT'S PROJECT NO:

[illegible]

# DRAFT AIA<sup>®</sup> Document G706<sup>™</sup> - 1994

## Contractor's Affidavit of Payment of Debts and Claims

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

TO OWNER: *(Name and address)*

CONTRACT FOR:

CONTRACT DATED:

OWNER: ☐

ARCHITECT: ☐

CONTRACTOR: ☐

SURETY: ☐

ROOF CONSULTANT: ☐

STATE OF:

COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose

Indicate Attachment ☐ Yes ☐ No

*The following supporting documents should be attached hereto if required by the Owner:*

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.
3. Contractor's Affidavit of Release of Liens (AIA Document G706A).

CONTRACTOR: *(Name and address)*

BY: \_\_\_\_\_

*(Signature of authorized representative)*

\_\_\_\_\_  
*(Printed name and title)*

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:

# DRAFT AIA<sup>®</sup> Document G706A<sup>™</sup> - 1994

## Contractor's Affidavit of Release of Liens

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT  
NUMBER:

OWNER: ☐

ARCHITECT: ☐

TO OWNER: *(Name and address)*

CONTRACT FOR:  
CONTRACT DATED:

CONTRACTOR: ☐

SURETY: ☐

ROOF CONSULTANT: ☐

STATE OF:  
COUNTY OF:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: *(Name and address)*

BY:

*(Signature of authorized  
representative)*

*(Printed name and title)*

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:

# DRAFT AIA<sup>®</sup> Document G707<sup>™</sup> - 1994

## Consent Of Surety to Final Payment

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

OWNER: ☐

CONTRACT FOR:

ARCHITECT: ☐

TO OWNER: *(Name and address)*

CONTRACT DATED:

CONTRACTOR: ☐

SURETY: ☐

ROOF CONSULTANT: ☐

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the  
*(Insert name and address of Surety)*

on bond of  
*(Insert name and address of Contractor)*

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the  
Surety of any of its obligations to  
*(Insert name and address of Owner)*

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:  
*(Insert in writing the month followed by the numeric date and year.)*

\_\_\_\_\_  
*(Surety)*

\_\_\_\_\_  
*(Signature of authorized representative)*

Attest:  
*(Seal):*

\_\_\_\_\_  
*(Printed name and title)*



– END OF SPECIFICATION –  
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