

# Project Manual

## **PROJECT**

### **PARTIAL ROOF REPLACEMENTS FOR ANDERSON COUNTY SCHOOLS:**

#### **GRAND OAKS ELEMENTARY SCHOOL**

1033 Oliver Springs Highway – Clinton, Tennessee 37716

#### **NET ZERO BUILDING – CLINTON HIGH SCHOOL**

425 Dragon Drive – Clinton, Tennessee 37716

#### **OFFICE OF TECHNOLOGY**

141 East Broad Street – Clinton, Tennessee 37716

#### **MANDATORY PRE-BID DATE:**

Tuesday, February 27, 2024 @ 1:00 PM

#### **BID DATE:**

Tuesday, March 12, 2024 @ 2:30 PM

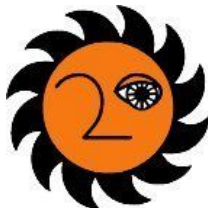
#### **RDWI PROJECT NO.:**

23-0612-02



**ANDERSON COUNTY  
BOARD OF EDUCATION  
101 S. Main Street, Suite 500  
Clinton, Tennessee 37716  
Telephone: (865) 463-8631**

**SET NO: \_\_\_\_\_**



***ROOF DESIGN WORKS, INC.***

*P.O. Box 12716*

*Knoxville, Tennessee 37912*

*Telephone: (865) 584-6682 / Fax: (865) 584-8213*



**PROJECT MANUAL**

FOR

THE CONSTRUCTION OF THE

**PARTIAL ROOF REPLACEMENTS FOR ANDERSON COUNTY SCHOOLS:**

**GRAND OAKS ELEMENTARY SCHOOL**

1033 OLIVER SPRINGS HIGHWAY  
CLINTON, TN 37716

**OFFICE OF TECHNOLOGY**

141 E. BROAD STREET  
CLINTON, TN 37716

AND

**NET ZERO BUILDING AT  
CLINTON HIGH SCHOOL**

425 DRAGON DRIVE  
CLINTON, TN 37716

**CLIENT**

**ROOF DESIGN WORKS, INC.**

PO BOX 12716  
KNOXVILLE, TENNESSEE 37912

February 1, 2024

**ARCHITECT**

**ARCHITECTS WEEKS AMBROSE McDONALD, INC.**

30 MARKET SQUARE  
KNOXVILLE, TENNESSEE 37902





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SHEET    TITLE

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**Consultant**

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**Architectural**

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**END OF SECTION 00 01 15**



**SECTION 00 11 16 - INVITATION FOR BIDS**

Sealed proposals for:

**ANDERSON COUNTY DEPARTMENT OF EDUCATION:**

**BID NO. 2425**

**PARTIAL ROOF REPLACEMENTS FOR ANDERSON COUNTY SCHOOLS:**

**GRAND OAKS ELEMENTARY SCHOOL**

1033 Oliver Springs Highway  
Clinton, TN 37716

**NET ZERO BUILDING AT  
CLINTON HIGH SCHOOL**

425 Dragon Drive  
Clinton, TN 37716

AND

**OFFICE OF TECHNOLOGY**

141 E. Broad Street  
Clinton, TN 37716

Will be received in **duplicate** by the Anderson County Purchasing Department, Room 214, Anderson County Courthouse, 100 North Main Street, Clinton, Tennessee 37716, until 2:30 PM on Tuesday, **March 12, 2024**, at which time they will be opened and read publicly. Any proposals received after the scheduled closing time for receipt of such proposals **will remain unopened.**

A **Mandatory** Pre-Bid Meeting will be held at Grand Oaks Elementary School, at 1:00 PM, Tuesday, **February 27, 2024**. Following the pre-bid meeting discussion and inspection, the bidders will reconvene on the rooftop of the Net Zero Building at Clinton High School for inspection of the existing conditions. Immediately thereafter we will proceed to the Office of Technology for a roof examination. Bidders must be present and sign the sign-in sheet at the Grand Oaks Elementary School pre-bid meeting in order to be eligible for bidding.

Bidding instruments including Plans, Specifications and Contract Documents will be placed in the Builders Exchange of Tennessee, 300 Clark Street, Knoxville, Tennessee, and online with McGraw-Hill Construction Dodge.

Plans, Specifications and Contract Documents may be obtained for bidding purposes at the office of Roof Design Works, Inc., 104 Luke Leinart Lane, Rocky Top, Tennessee 37769, (865) 584-6682 upon deposit of \$350.00 per set, payable to Roof Design Works, Inc. This deposit will be refunded only to unsuccessful bidders, tendering a bona fide bid, upon return of the plans and specifications in good condition within fourteen (14) days after the bids have been received. The successful bidder shall forfeit plan deposit of \$350.00.

Each bid must be accompanied by a Bid Bond naming the Owner as obligee thereof, underwritten by a surety company, satisfactory to the Owner, in the sum of 5% of the amount of the bid.

**END OF SECTION 00 11 16**



## SECTION 00 21 13 - INSTRUCTIONS TO BIDDERS

### PART 1 - GENERAL

#### 1.1 DEFINITIONS:

- A. Definitions set forth in the Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope, AIA Document A105-2017, are applicable to these Instructions to Bidders.
- B. Bidding Documents include the Bidding Requirements and the proposed Contract Documents including Addenda issued prior to receipt of bids.
- C. Addenda are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the bidding documents, including Drawings and Specifications, by additions, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the Construction Contract is executed.
- D. Other Contracts are subject to the Provisions of the Contract, General Provision Conditions and General Requirements where applicable.

#### 1.2 OBTAINING BID DOCUMENTS

- A. Bidders must be licensed by the State of Tennessee for Building Construction in the categories of Roofing (BC-21) and Sheet Metal (BC-20) or Building Construction (BC). Each qualified Contractor must obtain a complete set of Bid Documents for bidding purposes from the Roofing Consultant upon the deposit of a check in the amount of \$350 made payable to Roof Design Works, Inc. in the amount indicated in the Invitation to Bid. The full amount of this deposit will be returned to each unsuccessful Contractor, submitting a bona fide bid upon the return of all documents, including Addenda, in usable condition within fourteen (14) days after opening of bids. The successful bidder will forfeit the plan deposit.
- B. Subcontractors, vendors or others desiring to obtain Drawings and Specifications may do so by paying the actual cost of reproduction, plus postage if any; this may be arranged directly with the professional printer entrusted with the original Drawings and Specifications during the bidding process.

#### 1.3 SUBMISSION OF BIDS

- A. All bids must be prepared on the forms provided by the Roof Consultant and submitted in accordance with the Instructions to Bidders. Bids with bid security shall be enclosed in a sealed opaque envelope, which shall be plainly marked on the outside with the following:
  - 1. "Proposal for the construction of the (NAME AND ADDRESS OF PROJECT AS SHOWN ON TITLE PAGE).
  - 2. Statements that bidder has complied with the Instructions to Bidders and has fully completed all bid forms without any qualifying statements or modifications.
  - 3. T.C.A 62-6-103 Name of bidder, TN State contractor's license number, license limits, expiration date, and applicable classifications for Bidder and listed subcontractors, as defined by TN State licensing law.
  - 4. Name of mechanical and electrical sub-contractors, license numbers, and expiration date of licenses.
- B. A bid shall be invalid if it has not been deposited at the designated location prior to the time and date for receipt of bids indicated in the advertisement or invitation to bid, or prior to any extension thereof issued to the Bidders.

- C. Unless otherwise provided in any supplement to these Instructions to Bidders, no Bidder shall modify, withdraw or cancel his bid or any part thereof for the time designated in the Bid Form.
- D. Seven days prior to the receipt of bids, Addenda will be mailed or delivered to each person or firm recorded by the Roofing Consultant as having received the bidding documents and will be available for inspection wherever the bidding documents are kept available for that purpose. Addenda issued after receipt of bids will be mailed or delivered only to the selected Bidder.
- E. Each bid shall be accompanied by a bid guarantee for the sum designated in the Invitation to Bidders. Bid Bonds shall be executed on standard Bid Bond forms, AIA Document A310, and shall be secured through a Surety licensed to operate in the State of Tennessee.
- F. Documents shall remain bound and not, for any reason, be unbound.
- G. No electronic bid or electronic modification of bid will be considered.

#### 1.4 EXAMINATION OF BIDDING DOCUMENTS

- A. Each Bidder shall examine the bidding documents carefully and, not later than eight days prior to the date for receipt of bids, shall make written request to the Roofing Consultant for the true meaning of any part of the Contract Documents, or for interpretation or correction of any ambiguity, inconsistency or error therein which he may discover. Any interpretation or correction will be issued as an Addendum by the Roof Consultant. Only a written interpretation or correction by Addendum shall be binding. No bidder shall rely upon any interpretation or correction given by any other method.

#### 1.5 PRE-BID CONFERENCE

- A. A pre-bid conference may be scheduled prior to the bid date at a time and place to be announced by the Roofing Consultant. Three representatives of each prime bidder may attend.
- B. Questions as to the intent of the drawings and specifications may be entertained but proposed product substitutions may not. Discrepancies in the drawings or specifications should be brought to the attention of the Roof Consultant as soon as discovered.

#### 1.6 SUBSTITUTES

- A. Each bidder represents that his bid is based upon the materials and equipment described in the bidding documents.
- B. Bidder shall submit in writing any significant reservations he may have to the proposed use of any specified products prior to the opening of bids.

#### 1.7 QUALIFICATION OF BIDDERS

- A. If required, a bidder shall submit to Roof Consultant a properly executed Contractors Qualification Statement, AIA Document A305.
- B. The Contractor affirms by submission of a Bid that the Company is certified (at time of bid opening) as an authorized Contractor for installation of a fully warrantied roof system with the manufacturer's named on the Bid Form.

#### 1.8 BIDDER'S REPRESENTATION

- A. Each bidder by making his bid represents that he has read and understands the bidding documents.

- B. Before submitting a bid, each bidder shall visit the site and fully inform himself as to all existing conditions and limitations under which the Work is to be performed. Each bidder shall then include in his bid a sum to cover all costs of all items necessary to perform the Work as set forth in the proposed Contract Documents. After bidding no concessions will be made to any bidder who fails to examine the project site. The submission of a bid will be construed as conclusive evidence that the bidder is aware of existing conditions.

#### 1.9 WITHDRAWAL OF BIDS

- A. Any bidder may withdraw his bid, either personally or by written request, at any time prior to scheduled time for opening bids. No bidder may withdraw his bid for a period of sixty (60) days after the date set for opening thereof, and all bids shall be subject to acceptance by the Owner during this period.

#### 1.10 REJECTION OF BIDS

- A. The bidder acknowledges the right of the Owner to reject any or all bids and to waive any informality or irregularity in any bid received, and to award a Contract or contracts to other than the low bidder.
- B. Counterproposals or qualified bids shall be subject to rejection at the discretion of the Owner.
- C. Bidder recognizes the right of the Owner to reject a bid if bidder failed to furnish required bid security, to submit the data required by the bidding documents, or to complete bid in any way.

#### 1.11 SUBMISSION OF POST-BID INFORMATION

- A. Upon request by the Roof Consultant, the selected bidder shall within ten days thereafter submit the following:
  - 1. A statement of costs for each major item of work included in the bid.
  - 2. A designation of the work to be performed by the bidder with his own forces.
  - 3. A list of names of Subcontractors, other persons or organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for such portions of the work. The bidder will be required to establish to the satisfaction of the Roof Consultant and the Owner the reliability and responsibility of the proposed Subcontractors to furnish and perform the work described in the sections of the Specifications pertaining to such proposed Subcontractor's respective trades. Subcontractors and other persons and organizations proposed by the bidder and accepted by the Owner and the Roof Consultant must be used on the work for which they were proposed and accepted and shall not be changed except with the written approval of the Owner and the Roof Consultant.

#### 1.12 CONTRACT FORM

- A. The Contract between Owner and Contractor will be written on Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope, AIA Document A105-2017, as issued by The American Institute of Architects.

#### 1.13 CONTRACT BOND

- A. The successful bidder will be required to execute the AIA Document A312-2010, Performance Bond and Payment Bond. The amount of the bond shall equal 100% of the bid.
  - 1. Power of Attorney shall accompany bonds signed by Attorney-In-Fact.
  - 2. Company writing bond shall be licensed to transact business in the State of Tennessee.
  - 3. Agent signing bond shall be a resident of the State of Tennessee.

1.14 BACKGROUND CHECKS

- A. The successful bidder will be required to comply with Public Chapter 587 of 2007, as codified in Tennessee Code Annotated Section 49-5-413, which requires all contractors to facilitate a criminal history records check conducted by the Tennessee Bureau of Investigation and the Federal Bureau of Investigation for each employee prior to permitting the employee to have contact with students or enter school grounds when students are present.

1.15 TIME FOR COMPLETION

- A. The time for completion is shown on the Bid Form. Refer to Article 15.4 of the General Provisions of the Contract for governing liquidated damages.

1.16 PROOF OF COMPETENCY

- A. Any bidder may be required to furnish evidence satisfactory to the Owner that he and his proposed Subcontractors have sufficient resources and experience to accomplish the Work of the Project in a satisfactory manner.

1.17 EQUAL OPPORTUNITY

- A. Bidders should be aware of the requirements of Section 00 45 36 Nondiscrimination in Employment and Equal Opportunity.

1.18 CODES AND REGULATIONS

- A. Comply with applicable and current local, state and national codes and regulations including but not limited to the following:
  - 1. 2012 International Building Code as adopted by City of Maynardville, Tennessee.
  - 2. 2009 International Energy Conservation Code.
  - 3. 2012 International Mechanical Code.
  - 4. Standard Building Codes, where not replaced by IBC.
  - 5. NFPA Codes.
  - 6. National Electric Code.
  - 7. National Board of Fire Underwriter's Code.
  - 8. Occupational Safety and Health (OSHA).
  - 9. Americans with Disabilities Act (ADA).

**END OF SECTION 00 21 13**







**UNIT PRICES**

A. Treated Wood Nailer Replacement

- For Pressure Treated: 2 X 4 \$ \_\_\_\_\_ per linear foot.
- For Pressure Treated: 2 X 6 \$ \_\_\_\_\_ per linear foot.
- For Pressure Treated: 2 X 8 \$ \_\_\_\_\_ per linear foot.
- For Pressure Treated: 2 X 10 \$ \_\_\_\_\_ per linear foot.

B. Equipment Curb Replacement

Damaged or Non-Conforming Curb Replacement: \$ \_\_\_\_\_ per linear foot.

C. Metal Roof Deck Repair

Damaged Metal Roof Deck Repair: \$ \_\_\_\_\_ per square foot.

D. Exterior Grade Plywood Sheathing

- 1/2" Thick Ext. Grade Plywood (4'x8' Panel): \$ \_\_\_\_\_ per square foot.
- 3/4" Thick Ext. Grade Plywood (4'x8' Panel): \$ \_\_\_\_\_ per square foot.

E. Insulation Board Filler

1/2" thick HD polyisocyanurate roof insulation board: \$ \_\_\_\_\_ per square foot.

The Bidder acknowledges by his signature that he agrees to requirements contained in the Invitation to Bid and the Instructions to Bidders and, that should he fail to execute a Contract with the Owner, should the Owner award said Contract to him, that the Owner may rightfully collect the sum of the Bid Bond.

The required Bid Security is attached to this Bid.

Name of Firm \_\_\_\_\_

Signed By \_\_\_\_\_

Title \_\_\_\_\_

Bidder's Telephone Number \_\_\_\_\_

Note: If a corporation, Bid must be signed by person authorized by the corporation by-laws to bind it to contract.

**END OF SECTION 00 41 13**



**SECTION 00 45 36 – NON-DISCRIMINATION IN EMPLOYMENT AND EQUAL OPPORTUNITY**  
STATE OF TENNESSEE  
NONDISCRIMINATION IN EMPLOYMENT

- 1.1 In determining the suitability and acceptability of proposed bidders, the Owner reserves the right to consider each bidder's commitment to hire minorities and/or subcontract with minority contractors, relative to certain phases of the contracted services.
- 1.2 During the Performance of the Contractual Agreement, the contracting party agrees as follows:
- The contracting party will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The contracting party will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, or national origin. Each action shall include, but not be limited to, the following: recruitment advertising; layoff or termination; rates of pay or other forms of compensation; selecting for training, including apprenticeship. The contracting party agrees to post in conspicuous places, available to employees and applicants for employment, Executive Order No. 17, State of Tennessee, regarding Equal Opportunity and Nondiscrimination in Employment.
- 1.3 The Contractor will, in all solicitations for employees or job orders for employees placed with any employment agency, union, or other firm or agency, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, disability, national origin, sex or age. The words "equal opportunity employer" in all advertisements shall constitute compliance with this Section.
- 1.4 The Contractor will include the provisions of the foregoing paragraphs in every subcontract or purchase order for goods or services which are subject matter of this Agreement. The Owner shall have the right, at his option, to cancel the Agreement in whole or in part.
- 1.5 The Contractor shall have an affirmative action plan.

**END OF SECTION 00 45 36**



**SECTION 00 52 13 - AGREEMENT FORM - STIPULATED SUM (SINGLE PRIME CONTRACT)**

1.1 AGREEMENT FORM

- A. The Contract between the Owner and the Contractor shall be executed on AIA Document A107-2007 Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope, where the basis of payment is a Stipulated Sum. This form includes General Provisions, Articles 1-21, and may be examined at the office of the Roofing Consultant.

**END OF SECTION 00 52 13**





## **SECTION 00 60 00 - PROJECT FORMS**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

Unless otherwise permitted by the Roof Consultant, the following forms shall be employed by the Contractor for their specific purposes during the course of this Project:

- A. Anderson County Government Forms (Attached at the End of Section).
  - 1. Background Check Compliance
  - 2. Drug-Free Workplace Affidavit
  - 3. Conflict of Interest Statement
  - 4. Insurance Requirement Checklist
  - 5. State of Tennessee Contractors' License Law
  - 6. Diversity Business Information
  
- B. Certifying Agencies Bond Forms
  - 1. AIA Document A312-2010, Performance Bond and Payment Bond.
  
- C. Certificates and Other Forms
  - 1. AIA Document G705-2001 List of Subcontractors.
  - 2. AIA Document G715-2017, Instruction Sheet and Attachment for ACCORD Certificate of Insurance.
  
- C. Clarifications and Modification Forms
  - 1. AIA Document G702-1992 Application and Certificate for Payment.
  - 2. AIA Document G703-1992 Continuation Sheet.
  - 3. AIA Document G707A-1994 Consent of Surety to Reduction in or Partial Release of Retainage.
  - 4. AIA Document G716-2004 Request for Information.
  
- D. Closeout Forms
  - 1. AIA Document G704-2017 Certificate of Substantial Completion.
  - 2. AIA Document G706A-1994 Contractor's Affidavit of Release of Liens.
  - 3. AIA Document G707-1994 Consent of Surety to Final Payment.

**END OF SECTION 00 60 00**



# BACKGROUND CHECK COMPLIANCE FORM

## ANDERSON COUNTY GOVERNMENT

PURCHASING DEPARTMENT  
100 N. MAIN STREET, ROOM 214 or 218  
CLINTON, TN 37716  
(865) 457-6251  
(865) 457-6252 (Fax)

**BID NUMBER** \_\_\_\_\_

**CONTRACT NUMBER** \_\_\_\_\_

**BACKGROUND CHECKS** Contractors shall comply with Public Chapter 587 of 2007, as codified in Tennessee Code Annotated Section 49-5-413, which requires all contractors to facilitate a criminal history records check conducted by the Tennessee Bureau of Investigation and the Federal Bureau of Investigation for each employee prior to permitting the employee to have contact with students or enter school grounds when students are present.

Any person, corporation or other entity who enters or any employee of any person, corporation or entity who enters into or renews a contract with a local board of education or child care program on or after September 1, 2007, must:

- (1) Provide a fingerprint sample
- (2) Submit to a criminal history records check to be conducted by the Tennessee Bureau of Investigations and the Federal Bureau of Investigations.

Contact the Anderson County School's Human Resources Department at (865) 463-2800 ext. 2811 for fingerprint instructions.

Company or Individuals (Name) \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip Code \_\_\_\_\_

Telephone Number \_\_\_\_\_

(       )

Contractor License Number (If Applicable) \_\_\_\_\_

I agree to abide by Public Chapter 587 of 2007, as codified in Tennessee Code Annotated Section 49-5-413, and certify that I am authorized to sign. The undersigned further agrees if this bid or contract is accepted, to furnish any and all of the Background Check Information on himself and all of his employees as required by law, at the request of Anderson County Government. I hereby agree to release all criminal history and other required information to Anderson County Government, the Tennessee Bureau of Investigation and the Federal Bureau of Investigation in accordance with Tennessee law and I further certify that all information supplied by me regarding this inquiry is true and accurate. I agree to release and hold harmless the above-mentioned governmental entities for the use of this information related to the purposes mandated under Tennessee law. I further certify that I have obtained acceptable criminal history information on all current employees and will obtain said information on future employees associated with the performance of the work defined in this bid or contract, pursuant to Tennessee Code Annotated 49-5-413 and that neither I nor any employee of mine is prohibited from direct contact with school children for the reasons enumerated in Tennessee Code annotated Section §§ 49-5-401 et seq.

**Signature** \_\_\_\_\_ **Title** \_\_\_\_\_

**Printed Name:** \_\_\_\_\_ **Date** \_\_\_\_\_  
(Please Print Clearly) (Month, Day, Year)

### INTERNAL OFFICE USE ONLY

**Notes** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# **BID ENVELOPE COVER**

**Anderson County Government, 100 North Main St., Rooms 214, Clinton, TN 37716**

**BID #** \_\_\_\_\_

**NAME OF PROJECT:** Partial Roof Replacements Grand Oaks Elementary, Net Zero Building & Office of Technology

**BID OPENING DATE:** \_\_\_\_\_

**BIDDER/CONTRACTOR:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**TENNESSEE CONTRACTOR'S LICENSE NUMBER:** \_\_\_\_\_

**LICENSE CLASSIFICATION:** \_\_\_\_\_

**DOLLAR LIMIT:** \_\_\_\_\_

**LICENSE EXPIRATION DATE:** \_\_\_\_\_

## **SUBCONTRACTORS TO BE USED ON THIS PROJECT:**

**PLUMBING:** \_\_\_\_\_ **LICENSE #:** \_\_\_\_\_

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

**Classification:** \_\_\_\_\_ **Expiration Date:** \_\_\_\_\_

**HVAC:** \_\_\_\_\_ **LICENSE #:** \_\_\_\_\_

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

**Classification:** \_\_\_\_\_ **Expiration Date:** \_\_\_\_\_

**ELECTRICAL:** \_\_\_\_\_ **LICENSE #:** \_\_\_\_\_

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

**Classification:** \_\_\_\_\_ **Expiration Date:** \_\_\_\_\_

**MASONRY:** \_\_\_\_\_ **LICENSE #:** \_\_\_\_\_

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

**Classification:** \_\_\_\_\_ **Expiration Date:** \_\_\_\_\_

**GEOTHERMAL HEATING:** \_\_\_\_\_ **LICENSE #:** \_\_\_\_\_

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

**Classification:** \_\_\_\_\_ **Expiration Date:** \_\_\_\_\_



DRUG-FREE WORKPLACE AFFIDAVIT

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

The undersigned, principal officer of \_\_\_\_\_, an employer of five (5) or more employees contracting with \_\_\_\_\_ County Government to provide construction services, hereby states under oath as follows:

1. The undersigned is a principal officer of \_\_\_\_\_ (hereinafter referred to as the "Company"), and is duly authorized to execute this Affidavit on behalf of the Company.
2. The Company submits this Affidavit pursuant to T.C.A. 50-9-113, which requires each employer with no less than five (5) employees receiving pay who contracts with the state or any local government to provide construction services to submit an affidavit stating that such employer has a drug-free workplace program that complies with Title 50, Chapter 9 of the *Tennessee Code Annotated*.
3. The Company is compliance with T.C.A. 50-9-113

Further affiant saith not.

\_\_\_\_\_  
Principal Officer

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

Before me personally appeared \_\_\_\_\_, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who acknowledged that such person executed the foregoing affidavit for the purpose therein contained.

Witness my hand and seal office this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_, 20\_\_.





**ANDERSON COUNTY GOVERNMENT  
PURCHASING DEPARTMENT**

**CONFLICT OF INTEREST STATEMENT**

**NOTE: PLEASE SIGN AND RETURN PAGE TWO IN YOUR BID PACKET.**

**T. C. A. 5-14-114. Conflicts of interest -- Illegal payments.**

**(a)** Neither the county purchasing agent, nor members of the county purchasing commission, nor members of the county legislative body, nor other officials of the county, shall be financially interested, or have any personal beneficial interest, either directly or indirectly, in any contract or purchase order for any supplies, materials, equipment or contractual services used by or furnished to any department or agency of the county government.

**(b)** Nor shall any such persons accept or receive, directly or indirectly, from any person, firm or corporation to which any contract or purchase order may be awarded, by rebate, gift or otherwise, any money or anything of value whatsoever, or any promise, obligation or contract for future reward or compensation.

**(c)** A violation of this section is a Class D felony.

**T. C. A. 12-4-101 Personal interest of officers prohibited.**

**(a) (1)** It is unlawful for any officer, committee member, director, or other person whose duty it is to vote for, let out, overlook, or in any manner to superintend any work or any contract in which any municipal corporation, county, state, development district, utility district, human resource agency, or other political subdivision created by statute shall or may be interested, to be directly interested in any such contract. "Directly interested" means any contract with the official personally or with any business in which the official is the sole proprietor, a partner, or the person having the controlling interest. "Controlling interest" includes the individual with the ownership or control of the largest number of outstanding shares owned by any single individual or corporation. This subdivision (a)(1) shall not be construed to prohibit any officer, committee person, director, or any person, other than a member of a local governing body of a county or municipality, from voting on the budget, appropriation resolution, or tax rate resolution, or amendments thereto, unless the vote is on a specific amendment to the budget or a specific appropriation or resolution in which such person is directly interested.

**(2) (A)** Subdivision (a)(1) shall also apply to a member of the board of directors of any not-for-profit corporation authorized by the laws of Tennessee to act for the benefit or on behalf of any one (1) or more counties, cities, towns and local governments pursuant to title 7, chapter 54 or 58.

**(B)** Subdivision (a)(2)(A) does not apply to any county with a metropolitan form of government and having a population of four hundred thousand (400,000) or more, according to the 1980 federal census or any subsequent federal census.

**(b)** It is unlawful for any officer, committee member, director, or other person whose duty it is to vote for, let out, overlook, or in any manner to superintend any work or any contract in which any municipal corporation, county, state, development district, utility district, human resource agency, or other political subdivision created by statute shall or may be interested, to be indirectly interested in any such contract unless the officer publicly acknowledges such officer's interest. "Indirectly interested" means any contract in which the officer is interested but not directly so, but includes contracts where the officer is directly interested but is the sole supplier of goods or services in a municipality or county.

**(c) (1)** Any member of a local governing body of a county or a municipality who is also an employee



**ANDERSON COUNTY GOVERNMENT  
PURCHASING DEPARTMENT**

**CONFLICT OF INTEREST STATEMENT**

of such county or municipality and whose employment predates the member's initial election or appointment to the governing body of the county or municipality may vote on matters in which the member has a conflict of interest if the member informs the governing body immediately prior to the vote as follows: "Because I am an employee of (name of governmental unit), I have a conflict of interest in the proposal about to be voted. However, I declare that my argument and my vote answer only to my conscience and to my obligation to my constituents and the citizens this body represents." The vote of any such member having a conflict of interest who does not so inform the governing body of such conflict shall be void if challenged in a timely manner. As used in this subdivision (c)(1), "timely manner" means during the same meeting at which the vote was cast and prior to the transaction of any further business by the body.

**(2)** Any member of a local governing body of a county or a municipality who is also an employee of such county or municipality and whose employment began on or after the date on which the member was initially elected or appointed to serve on the governing body of the county or municipality shall not vote on matters in which the member has a conflict of interest.

**(3) (A)** In the event a member of a local governing body of a county or a municipality has a conflict of interest in a matter to be voted upon by the body, such member may abstain for cause by announcing such to the presiding officer.

**(B) (i)** Any member of a local governing body of a municipality who abstains from voting for cause on any issue coming to a vote before the body shall not be counted for the purpose of determining a majority vote.

**(ii)** This subdivision (c)(3)(B) shall in no way be construed to apply to any county having a metropolitan form of government and having a population in excess of five hundred thousand (500,000), according to the 1990 federal census or any subsequent federal census.

**(d)** This section shall apply to a member of the board of directors or officer of any nonprofit corporation required under § 8-44-102(b)(1)(E) to conduct all meetings of its governing body as open meetings.

I have read and understand both T.C. A. 5-14-114 and T. C. A. 12-4-101, and will comply.

**NOTE: PLEASE SIGN AND RETURN PAGE TWO IN YOUR BID PACKET.**

\_\_\_\_\_  
Contractor or Company Owner (signature)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Contractor or Company Name (print)



INSURANCE REQUIREMENT CHECKLIST

Revised- 1/28/08

The bidder awarded this bid or contract will maintain, at their expense adequate insurance coverage to protect them from claims arising under the Worker’s Compensation Act, any and all claims for bodily injury and property damage to the Bidder and to Anderson County Government while delivery and service are being done. A certificate of insurance must be on file in the Purchasing Department before work may begin and must be maintained until work is completed.

CONTRACT / BID TITLE: \_\_\_\_\_

**Only the items marked with an “X” are applicable to this bid and or contract.**

- 1.  **Workers Compensation** Statutory limits  
 **Employers Liability** 100,000/100,000/500,000
- 2.  **Commercial General Liability** \$1,000,000 per occurrence  
 \$2,000,000 aggregate
  - Occurrence Form Only
  - Include Premises Liability
  - Include Contractual
  - Include XCU
  - Include Products and Completed Operations
  - Include Personal Injury
  - Include Independent Contractors
  - Include Vendors Liability
  - Include Professional or E&O Liability
- 3.  **Business Auto** \$1,000,000
  - Include Garage Liability \$1,000,000
  - Include Garage Keepers Liability
  - Copy of Valid Drivers License
  - Copy of Current Motor Vehicle Record
  - Copy of Current Auto Liability Declarations Page
- 4.  **Crime Coverages**
  - Employee Dishonesty
  - Employee Dishonesty Bond
- 5.  **Property Coverages**
  - Builders Risk
  - Inland Marine
  - Transportation
- 6.  Performance Bond and Payment Required - A One-Hundred Percent (100%) performance bond and payment bond or an irrevocable letter of credit in favor of Anderson County Government at a federally insured financial institution.

**Certificate Holder Shall Be:** Anderson County Government, Clinton, Tennessee, and shall show the bid number and title. Anderson County Government shall be named as an additional insured on all policies except worker’s compensation and auto. Insurance carrier ratings shall have a Best’s rating of A-VII or better, or its equivalent. Cancellation clause on certificate should strike out “endeavor to” and include a 30-day notice of cancellation where applicable. Any deviations from the above requirements must be disclosed to the Anderson County Purchasing Agent. Any liability deductibles or exclusions must also be disclosed. Exceptions can be granted if applicable. Vendor is not to begin services until Certificate of Insurance is on file with Purchasing Agent.

**Bidders Statement and Certification**

I understand the insurance requirements of these specifications and will comply in full within 21 (twenty-one) calendar days of notification of intent to award of bid and or contract. Failure to comply will deem vendor non-responsive. I agree to furnish the county with proof of insurance for the entire term of the bid and or contract.

\_\_\_\_\_  
Vendor Name

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Bid Representative Name (Please Print)

\_\_\_\_\_  
Date



# **STATE OF TENNESSEE CONTRACTORS' LICENSE LAW**

## **62-6-119. Bid documents -- Penalties.**

**(a)** Any person or entity preparing plans, specifications or any other documentation for inclusion in an invitation to bid or comparable bid document including any electronic bidding documents, shall reference this chapter in such documentation and a specific statement informing the invited bidder that it is necessary for such bidder to provide evidence of compliance with the applicable provisions of this chapter before such bid may be considered.

**(b)** The person or entity involved in the preparation of the invitation to bid or comparable bid documents including any electronic bid documents shall direct that the name, license number, expiration date thereof, and license classification of the contractors applying to bid for the prime contract and for the masonry contract where the total cost of the masonry portion of the construction project exceeds one hundred thousand dollars (\$100,000), materials and labor, electrical, plumbing, heating, ventilation, and air conditioning contracts, and for each vertical closed loop geothermal heating and cooling project, the company name, department of environment and conservation license number, classification (G, L or G,L) and the expiration date, appear on the outside of the envelope containing the bid or in the submission of an electronic bid except when the bid is in an amount less than twenty-five thousand dollars (\$25,000). Only one (1) contractor in such classification may be listed. Prime contractor bidders who are to perform the masonry portion of the construction project which exceeds one hundred thousand dollars (\$100,000), materials and labor, the electrical, plumbing, heating, ventilation and air conditioning or the geothermal heating and cooling must be so designated upon the outside of the envelope or in the electronic bid. Failure of any bidder to comply therewith shall void such bid and such bid shall not be considered. It is the duty and responsibility of the awarding person or entity who received the envelope containing the bid or the electronic bid to verify only the completeness of the required licensure information. Prior to the opening of the envelope or acceptance of an electronic bid, the names of all contractors listed thereon or therein shall be read aloud at the official bid opening and incorporated into the bid. Prior to awarding a contract, the awarding person or entity and its authorized representatives shall verify the accuracy, correctness and completeness of the information required hereby. The failure of any bidder to comply with all of the provisions hereof shall automatically disqualify such bid. However, bids administered by the Tennessee department of general services shall require that the information be furnished within the bid or bid document only. When the bid is less than twenty-five thousand dollars (\$25,000), the name of the contractor only may appear on the outside of the envelope containing the bid or in the electronic bid document, and upon opening the envelope or review of the electronic bid, if such bid is in excess of twenty-five thousand dollars (\$25,000), the same shall automatically be disqualified.

**(c)** No invitation to bid may require that:

**(1)** Any subcontractor be identified, listed or designated until the final bid submission by the prime contractor; and

**(2)** Any prime contractor accept the bid of any subcontractor until the final bid submission by the prime contractor.

**(d)** Any person or entity, public and private, failing to observe this section shall be penalized in the same manner as any person under § 62-6-120 who accepts a bid from a person who is not licensed in accordance with the provisions of this chapter.

**(e)** Notwithstanding the Uniform Administrative Procedures Act, compiled in title 4, chapter 5, relative to the amount of civil penalties that may be imposed, the board may impose a civil penalty not to exceed five thousand dollars (\$5,000) for any violation of this section.







## DIVERSITY BUSINESS INFORMATION

### SECTION 5 – DIVERSITY DEFINITIONS

#### Definitions For Determining Minority, Women And Small-Owned Firms

The guidelines for determining minority, women and small-owned firms are defined as follows:

**“MINORITY”** means a person who is a citizen or lawful permanent resident of the United States and who is:

- o Black (a person having origins in any of the black racial groups of Africa);
- o Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- o Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
- o American Indian and Alaskan Native (a person having origins in any of the original peoples of North America).

**“MINORITY BUSINESS ENTERPRISE”** shall mean a minority business:

A continuing, independent, for profit business which performs a commercially useful function, and is at least 51 percent owned and controlled by one or more minority individuals; or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned and controlled by one or more minorities. Whose management and daily business operations are controlled by one or more of minority individuals. "Control" as used in the above clause, means exercising the power to make policy decision. "Operate," as used in the above clause, means being actively involved in the day-to-day management of the business.

**“WOMEN BUSINESS ENTERPRISE”** shall mean women business:

A continuing, independent, for profit business which performs a commercially useful function, and which is at least 51 percent owned and controlled by one or more women; or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned and controlled by one or more women. Whose management and daily business operations are controlled by one or more of such individuals. "Control" as used in the above clause, means exercising the power to make policy decision. "Operate," as used in the above clause, means being actively involved in the day-to-day management of the business.

**DIVERSITY BUSINESS INFORMATION  
ANDERSON COUNTY GOVERNMENT**

**NOTE:** This form is to be submitted only by those who qualify. Bidders do not have to be a minority business to be considered.

**IMPORTANT! NOTARY AND COPY OF CERTIFICATION REQUIRED**

**SECTION 6 – DIVERSITY INFORMATION**

**VENDOR/CONTRACTOR NAME:** \_\_\_\_\_

**Type of Company:** (Check One)

( ) Corporation    ( ) Partnership    ( ) Limited Liability    ( ) Sole Proprietor

Is your company 51% Owned or Operated by a Minority Group? Yes \_\_\_ No\_\_\_

If yes, check the ethnic category and indicate % of ownership:

- American Indian/Alaskan Native \_\_\_\_%
- African American \_\_\_\_%
- Hispanic \_\_\_\_%
- Asian/Pacific Islander \_\_\_\_%
- Other \_\_\_\_% \_\_\_\_\_(please indicate)

Please name the entity of certification: \_\_\_\_\_

Please provide copy of certification letter or certificate

**I, HEREBY CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.**

**Signature:** \_\_\_\_\_ **OFFICER OF THE COMPANY**

**Name:** \_\_\_\_\_ **Title:** \_\_\_\_\_

**NOTARY ACKNOWLEDGEMENT:**

STATE OF \_\_\_\_\_)

COUNTY OF \_\_\_\_\_)

ON \_\_\_\_\_, 20\_\_\_\_, BEFORE ME, \_\_\_\_\_,

PERSONALLY APPEARED \_\_\_\_\_, PERSONALLY KNOWN TO ME (OR PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE) TO BE THE PERSON(S) WHOSE NAME(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE/SHE/ THEY EXECUTED THE SAME IN HIS/HER/ THEIR AUTHORIZED CAPACITY (IES), AND THAT BY HIS/HER/ THEIR SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON BEHALF OF WHICH THE PERSON (S) ACTED, EXECUTED THE INSTRUMENT.

WITNESS MY HAND AND OFFICIAL SEAL.

SIGNATURE OF NOTARY: \_\_\_\_\_

PRINTED FULL NAME OF NOTARY: \_\_\_\_\_

MY COMMISSION EXPIRES: \_\_\_\_\_

**Q CERTIFYING AGENCIES**

- 1. Governor's Office of Diversity Business Enterprise (GODBE)**  
Sheila Simpson, Program Director  
27<sup>th</sup> Floor, William R. Snodgrass TN Tower  
312 8<sup>th</sup> Avenue North, Nashville, TN 37243  
[Sheila.i.simpson@state.tn.us](mailto:Sheila.i.simpson@state.tn.us)  
615-253-4657
  
- 2. Office of Minority and Women Business Assistance**  
Michelle Lane, Director Office of Minority and Women Business Assistance  
[Michelle.Lane@nashville.gov](mailto:Michelle.Lane@nashville.gov)  
John Irvin, Minority-Small Business Liaison  
[John.Irvin@nashville.gov](mailto:John.Irvin@nashville.gov)  
Metropolitan Government of Nashville and Davidson County  
<https://smartrac.nashville.gov>  
222 Third Avenue North, Suite 650  
Nashville, TN 37201  
615-880-2814
  
- 3. U. S. Small Business Administration**  
Kena Dixon, Business Development Specialist  
50 Vantage Way, Suite 201, Nashville, TN 37228  
[Kena.dixon@sba.gov](mailto:Kena.dixon@sba.gov)  
615-736-7426
  
- 4. Tennessee Department of Transportation**  
Small Business Development  
Deborah Luter, Director  
[deborah.luter@state.tn.us](mailto:deborah.luter@state.tn.us)  
Ross Webb  
505 Deaderick Street, Suite 400  
Nashville, TN 37243  
651-741-3681
  
- 5. Tennessee Minority Supplier Development Council (TMSDC)**  
Cheri Henderson, Executive Director  
220 Athens Way, Suite 105, Plaza 1, Nashville, TN 37228  
[info@tmsdc.net](mailto:info@tmsdc.net)  
615-259-4699



## **SECTION 00 72 13 - GENERAL PROVISIONS OF THE CONTRACT**

### **STANDARD FORM**

The General Provisions contained in the Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope, AIA Document A105-2017 Edition, Articles 1 through 21, inclusive, are hereby made a part of this specification to the same extent as if herein written out in full. Project specific provisions or conditions traditionally included within a separate "Supplementary" section have been incorporated within these General Provisions. These expanded General Provisions may be examined at the office of the Roof Consultant.

Where any article of the General Provisions is amended, voided or superseded herein, the provision of such articles not specifically amended, voided, or superseded shall remain in effect.

The General Provisions govern all sections of the specifications and are as binding as if repeated therein.

**END OF SECTION 00 72 13**



## SECTION 01 10 00 - SUMMARY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Provisions and other Division-01 Contracting Requirements, apply to this Section and to all other Sections in this Project Manual with the same emphasis as if repeated in each individual Section.

#### 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Project consists of partial reroofing of Grand Oaks Elementary School.
  - 1. Project Location:
    - a. **Grand Oaks Elementary School**  
1033 Oliver Springs Highway, Clinton, Tennessee 37716
    - b. **Net Zero Building At Clinton High School**  
425 Dragon Drive Clinton, TN 37716
    - c. **Office of Technology**  
141 E Broad Street Clinton, TN 37716
  - 2. Owner: Anderson County Board of Education, 101 South Main Street, Suite 500, Clinton, Tennessee 37716.
- B. Contract Documents, dated February 1, 2024 were prepared for the Project by Architects Weeks Ambrose McDonald, Inc.
- C. Summary by References: Work of the Contract can be summarized by references to the Contract, General Provisions, Specification Sections, Drawings, future addenda and modifications to the contract documents issued subsequent to the initial printing of this project manual and including but not necessarily limited to printed material referenced by any of these. It is recognized that work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions and other forces.
  - 1. Briefly, and without effect on the required Scope, the Work consists of removing the existing roofing systems down to the roof decks and replacing the EPDM sections with a fully adhered 60 mil. EPDM roofing system, including new rigid and tapered polyisocyanurate roof insulation, all with a 20 year warrantee. Additional work includes removing asphalt shingle system down to the deck and replacing with new underlayment and asphalt shingle system, installing additional perimeter wood nailers, new metal fascias, and new guttering.

#### 1.3 CONTRACT

- A. The Work will be constructed under a general construction contract.

#### 1.4 WORK SEQUENCE

- A. The work shall be conducted in a single phase.

#### 1.5 OWNER OCCUPANCY DURING CONSTRUCTION

- A. Except for normal school holidays and vacations, the Owner will occupy the enclosed space below the roof throughout the construction period.
  - 1. Contractor shall maintain the existing building in a weathertight condition throughout the construction period.

## 1.6 USE OF PREMISES

- A. General: Contractor shall have full use of project site for construction operations during construction period. Contractor's use of site is limited only by Owner's right to perform work or to retain other contractors on portions of Project. The project site shall be understood to mean the area within the temporary fence although it is recognized that occasional work may be required beyond the normal project limits. Work having the potential to disrupt the Owner's normal operations shall be scheduled with the Owner.
1. Confine operations to areas within Project Limits indicated during the times specified. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
  2. Keep driveways and entrances serving the premises clear and available to the Owner and the Owner's employees and the public at all times. Do not use these areas for parking or storage of materials except as approved by the Owner. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site. Do not schedule deliveries to or removals from the project site between 7:45 to 8:30 a.m. or 2:45 to 3:30 p.m. on normal school attendance days. Do not block emergency access or egress.

## 1.7 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: Owner reserves the right to award separate contracts for performance of related construction operations at the Project site. Those operations may be conducted simultaneously with work under this Contract.
- B. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

## 1.8 FUTURE WORK (Not Applicable)

## 1.9 PRODUCTS ORDERED IN ADVANCE (Not Applicable)

## 1.10 OWNER-FURNISHED PRODUCTS (Not Applicable)

## **PART 2 - PRODUCTS (Not Applicable)**

## **PART 3 - EXECUTION**

### 3.1 MISCELLANEOUS PROVISIONS

- A. Unknown Utility Lines: In performing the work under the Contract, it is possible that unknown utility lines may be encountered. Such lines may be lines which have been or will be abandoned; inactive lines which it may be desired to preserve for future use; or active lines which must be preserved and either relocated or replaced.
1. Should any such unknown lines be encountered, immediately notify the Roofing Consultant who will examine the lines to determine whether they have been or will be abandoned, or shall be preserved. The Contractor shall assist the Roofing Consultant, by making tests or otherwise as the Roofing Consultant deems necessary, to determine how best to dispose of the unknown lines.
  2. If the lines are found to have been, or to be possible to be abandoned, remove them to the extent necessary, without additional cost to the Owner. If it is found desirable or necessary to preserve the lines, they shall be capped off, relocated, or replaced, as directed by the Roofing Consultant. In general, this shall be done by the trades having jurisdiction, but all trades shall fully cooperate in such work.
  3. Should changes in connection with unknown utility lines which are to remain active involve a change in the quantity of work called for the drawings and specifications, the Contract Amount shall be equitably adjusted, by a change order, in accordance with the provisions of the General Provisions for changes in the work.

**END OF SECTION 01 10 00**



## **SECTION 01 21 00 - ALLOWANCES**

### **PART 1 - GENERAL**

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
  - 1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual quantities or materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
  - 1. Lump-sum allowances.
  - 2. Quantity allowances.
- C. Related Sections include the following:
  - 1. Section 01 22 00 Unit Prices
  - 2. Section 01 26 00 Contract Modification Procedures
  - 3. Section 07 01 50 Preparation for Roofing Replacement
  - 4. Section 07 53 23 EPDM Membrane Roofing
- D. Allowances are not to be used to repair damage caused by the Contractor while executing the Work, but rather to correct any unforeseen deficiencies or to execute undesignated work, which may be identified.

#### 1.2 SUBMITTALS

- A. Submit proposals for purchase of materials, equipment or services included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

#### 1.3 UNEXPENDED ALLOWANCE AMOUNTS

- A. At Project closeout, credit amounts remaining in the allowance to Owner by Change Order.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION**

#### 3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

#### 3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

### 3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1 – Include within the base bid a contingency allowance in the amount of \$5,000.00 for replacement or repair of existing defective materials that cannot be retained within the new roofing system. Charges against this allowance shall be the products of the areas of materials discovered to be defective multiplied by the appropriate unit prices listed on the bid form.

**NOTE: Defective material shall be replaced only upon authorization by the Roofing Consultant.**

**END OF SECTION 01 21 00**

## SECTION 01 22 00 - UNIT PRICES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for unit prices.
1. Unit prices and quantities enable the Owner to forestall decision-making on unknown or indeterminate elements until more adequate information upon which to base the decision becomes available. Unit prices do not apply to elements the extent of which are readily discernible at the time of bidding nor to items at the discretion of the Contractor.
  2. A unit price is an amount proposed by a bidder, and stated on the Bid Form, as a price per unit of measurement for materials or services added to the Contract Sum, by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased. If the required Work is decreased the unit price credit shall be 95% of the unit price for increased Work.
  3. Unit prices include all necessary material, delivery, installation, insurance, overhead, profit and applicable taxes.
  4. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
  5. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.
- B. Schedule: A "Unit Price Schedule" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods described under each unit price.

### PART 2 - PRODUCTS (Not Applicable).

### PART 3 - EXECUTION

#### 3.1 UNIT PRICE SCHEDULE

- A. Treated Wood Nailer Replacement  
Description: This unit price to be used to establish the cost of providing treat nailers where missing, or of replacing, with new pressure treated nailers, any original nailers found, during roofing removal, to be too deteriorated for continued service. This price is not to apply to any new nailers known to be required in base bid, alternates, other unit prices, or allowances. Refer to drawings and specifications, including Section 06 10 53 Miscellaneous Rough Carpentry.

<u>For</u>	<u>Per Unit</u>
PT 2 x 4	l.f.
PT 2 x 6	l.f.
PT 2 x 8	l.f.
PT 2 x 10	l.f.

B. Equipment Curb Replacement

Description: This unit price to be used to establish the cost of replacing, with new pressure treated wood, any original equipment curbs found during roof removal to be too deteriorated for continued service. The price is not to apply to any new curbs or extensions known to be required in base bid, alternates, other unit prices, or allowances. Refer to drawings and specification Section 06 10 53 Miscellaneous Carpentry.

<u>For</u>	<u>Per Unit</u>
PT 2 x 12	l.f.

C. Metal Roof Deck Repair

Description: This unit price is to be used to establish the cost of repairing portions of the original metal roof deck found, during roof removal, to be too deteriorated for additional service.

<u>For</u>	<u>Per Unit</u>
Matching deck	s.f.

D. Exterior Grade Plywood Sheathing

Description: This unit price to be used to establish the cost of replacing or installing new exterior grade plywood sheathing. The price is not to apply to any new plywood sheathing known to be required in base bid, alternates, other unit prices, or allowances. Refer to drawings and specification Section 06 16 00 Sheathing.

<u>For</u>	<u>Per Unit</u>
1/2" Thick (4'x8' Panel) Ext. Grade Plywood	s.f.
3/4" Thick (4'x8' Panel) Ext. Grade Plywood	s.f.

E. Replacement Insulation Board

Description: This unit price is to be used to establish the cost of replacing existing polyisocyanurate roof insulation board found, during roof removal, to be too damaged for additional service.

<u>For</u>	<u>Per Unit</u>
2" thick polyisocyanurate	s.f.

**END OF SECTION 01 22 00**

## SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
  - 1. Division 01 Section "Unit Prices" for administrative requirements for using unit prices.
  - 2. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

#### 1.2 MINOR CHANGES IN THE WORK

- A. Roof Consultant will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

#### 1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Roof Consultant will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Roof Consultant are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Unless otherwise indicated within the proposal request, within seven days of receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.
    - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Roof Consultant.
  - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  - 4. Include costs of labor and supervision directly attributable to the change.
  - 5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times,

and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

- C. Proposals shall be draft as in response to AIA Document G709 for Proposal Request.

#### 1.4 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Roof Consultant will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

#### 1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Roof Consultant may issue a Construction Change Directive on AIA Document G714 Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 26 00**

## SECTION 01 29 00 - PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. Division 01 Section "Allowances" for procedural requirements governing handling and processing of allowances.
  - 2. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 3. Division 01 Section "Unit Prices" for administrative requirements governing use of unit prices.
  - 4. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

#### 1.2 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### 1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with Continuation Sheets.
    - b. Submittals Schedule.
    - c. Contractor's Construction Schedule.
  - 2. Submit the Schedule of Values to Roof Consultant at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of Roof Consultant.
    - c. Roof Consultant's project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  - 2. Submit draft of AIA Document G703 Continuation Sheets.
  - 3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
    - a. Related Specification Section or Division.
    - b. Description of the Work.
    - c. Name of subcontractor.
    - d. Name of manufacturer or fabricator.
    - e. Name of supplier.
    - f. Change Orders (numbers) that affect value.

- g. Dollar value.
  - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
- 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
- 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
- 6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
- 7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
- 8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
- 9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

#### 1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Roof Consultant and paid for by Owner.
  - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Roof Consultant will return incomplete applications without action.
  - 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  - 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Roof Consultant by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
  - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
  - 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  - 2. When an application shows completion of an item, submit final or full waivers.



3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of Values.
  3. Contractor's Construction Schedule (preliminary if not final).
  4. Products list.
  5. Schedule of unit prices.
  6. Submittals Schedule (preliminary if not final).
  7. List of Contractor's staff assignments.
  8. Copies of building permits.
  9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  10. Initial progress report.
  11. Report of preconstruction conference.
  12. Certificates of insurance and insurance policies.
  13. Performance and payment bonds.
  14. Data needed to acquire Owner's insurance.
  15. Initial settlement survey and damage report if required.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final, liquidated damages settlement statement.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 29 00**



## SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. Coordination Drawings.
  - 2. Administrative and supervisory personnel.
  - 3. Project meetings.
  - 4. Requests for Interpretation (RFIs).
- B. Related Sections include the following:
  - 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
  - 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

#### 1.2 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

#### 1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
    - a. The Contractor, Subcontractors, and Suppliers, particularly Mechanical, Electrical and Food Service, shall review the Construction Documents for other sections of work affecting their own work and shall coordinate necessary accommodations before beginning installation.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
  - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts

and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

#### 1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
  - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
  - b. Indicate required installation sequences.
  - c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Roof Consultant for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
2. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

#### 1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Roof Consultant of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Roof Consultant, within three days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner, and Roof Consultant, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
1. Attendees: Authorized representatives of Owner, Roof Consultant, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Phasing.
    - c. Critical work sequencing and long-lead items.
    - d. Designation of key personnel and their duties.
    - e. Procedures for processing field decisions and Change Orders.
    - f. Procedures for RFIs.
    - g. Procedures for testing and inspecting.
    - h. Procedures for processing Applications for Payment.
    - i. Distribution of the Contract Documents.
    - j. Submittal procedures.
    - k. Applicable LEED requirements.
    - l. Preparation of Record Documents.
    - m. Use of the premises and existing building.
    - n. Work restrictions.
    - o. Owner's occupancy requirements.
    - p. Responsibility for temporary facilities and controls.
    - q. Construction waste management and recycling.
    - r. Parking availability.
    - s. Office, work, and storage areas.
    - t. Equipment deliveries and priorities.
    - u. First aid.
    - v. Security.
    - w. Progress cleaning.
    - x. Working hours.
  3. Minutes: Record and distribute meeting minutes.
- C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Roof Consultant of scheduled meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Options.
    - b. Related RFIs.
    - c. Related Change Orders.
    - d. Submittals.
    - e. Review of mockups.
    - f. Possible conflicts.
    - g. Time schedules.
    - h. Weather limitations.
    - i. Manufacturer's written recommendations.

- j. Warranty requirements.
  - k. Compatibility of materials.
  - l. Acceptability of substrates.
  - m. Space and access limitations.
  - n. Regulations of authorities having jurisdiction.
  - o. Testing and inspecting requirements.
  - p. Installation procedures.
  - q. Coordination with other work.
  - r. Protection of adjacent work.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
  5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at monthly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner, and Roof Consultant, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Work hours.
      - 10) Hazards and risks.
      - 11) Progress cleaning.
      - 12) Quality and work standards.
      - 13) Status of correction of deficient items.
      - 14) Field observations.
      - 15) RFIs.
      - 16) Status of proposal requests.
      - 17) Pending changes.
      - 18) Status of Change Orders.
      - 19) Pending claims and disputes.
      - 20) Documentation of information for payment requests.
  3. Minutes: Record the meeting minutes.

4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
  - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- E. For particular issues that arise respecting work in progress or work that has been suspended, delayed, interrupted or otherwise is not progressing in accordance with the project schedule or for work, completed or in progress, that may not be in conformance with the contract documents, the Roofing Consultant may call a special meeting requiring the attendance by the Contractor and appropriate Subcontractors, material persons and vendors. The Contractor and its Subcontractors, material persons or vendors shall attend such special meetings when required by the Roofing Consultant. Such a meeting shall be on five-days notice and may include such experts or consultants as the parties deem beneficial.

#### 1.6 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
  1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
  1. Project name.
  2. Date.
  3. Name of Contractor.
  4. Name of Roof Consultant.
  5. RFI number, numbered sequentially.
  6. Specification Section number and title and related paragraphs, as appropriate.
  7. Drawing number and detail references, as appropriate.
  8. Field dimensions and conditions, as appropriate.
  9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  10. Contractor's signature.
  11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
    - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
- C. Hard-Copy RFIs: CSI Form 13.2A.
  1. Identify each page of attachments with the RFI number and sequential page number.
- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
  1. Attachments shall be electronic files in Adobe Acrobat PDF format.

- E. Roof Consultant's Action: Roof Consultant will review each RFI, determine action required, and return it. Allow seven working days for Roof Consultant's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for coordination information already indicated in the Contract Documents.
    - d. Requests for adjustments in the Contract Time or the Contract Sum.
    - e. Requests for interpretation of Roof Consultant's actions on submittals.
    - f. Incomplete RFIs or RFIs with numerous errors.
  2. Roof Consultant's action may include a request for additional information, in which case Roof Consultant's time for response will start again.
  3. Roof Consultant's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
    - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Roof Consultant in writing within 10 days of receipt of the RFI response.
- F. On receipt of Roof Consultant's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Roof Consultant within seven days if Contractor disagrees with response.
- G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log monthly. Include the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Roof Consultant.
  4. RFI number including RFIs that were dropped and not submitted.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's response was received.
  8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 31 00**



## SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Submittals Schedule.
  - 4. Daily construction reports.
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
  - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
  - 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
  - 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

#### 1.2 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Roof Consultant.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Fagnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

- H. Major Area: A story of construction, a separate building, or a similar significant construction element.
- I. Milestone: A key or critical point in time for reference or measurement.
- J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

### 1.3 SUBMITTALS

- A. Submittals Schedule: Submit four copies of schedule. Arrange the following information in a tabular format:
  - 1. Scheduled date for first submittal.
  - 2. Specification Section number and title.
  - 3. Submittal category (action or informational).
  - 4. Name of subcontractor.
  - 5. Description of the Work covered.
  - 6. Scheduled date for Roof Consultant's final release or approval.
- B. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

### 1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from parties involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## **PART 2 - PRODUCTS**

### 2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

### 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
  - 1. The Contractor may opt to use a construction schedule type other than the one specified herein provided it provides no less detail.

- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.
  - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
  - 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Roof Consultant.
  - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  - 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
  - 4. Startup and Testing Time: Include adequate time for startup and testing.
  - 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Roof Consultant's administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions, if any, indicated in the Contract Documents in schedule, and show how the sequence of the Work is affected. Also allow for natural and cultural constraints such as local weather patterns and market factors.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
- G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.
- H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

### 2.3 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

### 2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

## 2.5 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording information such as the following concerning events at Project site:
  1. List of subcontractors at Project site.
  2. Approximate count of personnel at Project site.
  3. Equipment at Project site.
  4. Material deliveries.
  5. High and low temperatures and general weather conditions.
  6. Accidents.
  7. Meetings and significant decisions.
  8. Unusual events (refer to special reports).
  9. Stoppages, delays, shortages, and losses.
  10. Meter readings and similar recordings.
  11. Emergency procedures.
  12. Orders and requests of authorities having jurisdiction.
  13. Change Orders received and implemented.
  14. Construction Change Directives received and implemented.
  15. Services connected and disconnected.
  16. Equipment or system tests and startups.
  17. Partial Completions and occupancies.
  18. Substantial Completions authorized.
- B. If requested by the Owner or the Roof Consultant, submit copies of the reports for specific dates.

## **PART 3 - EXECUTION**

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  2. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Roof Consultant, Owner, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

**END OF SECTION 01 32 00**

## SECTION 01 32 50 - WEATHER DELAYS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section specifies administrative and procedural requirements governing requests for contract time extensions attributable to weather delays.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not limited to the following:
    - a. Section 00 72 13 General Provisions of the Contract for Construction.
    - b. Section 01 33 00 Submittal Procedures.

#### 1.2 CONDITIONS FOR AN EXTENSION OF CONTRACT TIME:

- A. Adverse weather conditions may be the basis for an extension of Contract Time but shall not be the basis of an increase in the Contract Sum.
- B. The following conditions must exist for an extension of Contract Time to be approvable:
  - 1. The reported delay must be verifiable by a reliable third party, preferably the nearest NOAA weather reporting station.
  - 2. The adverse weather conditions must exceed those normally expected for the project location and the time of year.
  - 3. The adverse conditions must demonstrably impact the progress of the work.
    - a. The work prevented must be on the critical path of the project schedule.
    - b. The work prevented must be weather dependent. (For example, exterior work as opposed to interior work.)
    - c. Work must actually have been scheduled for the day of adverse weather.
    - d. The work must have been prevented by adverse weather for 50% or more of the Contractor's scheduled work day, including a weekend days or holiday if Contractor has scheduled construction activity that day.
  - 4. The Contractor must claim weather delays in writing in a timely fashion on a monthly basis.
  - 5. If the basis exists for an extension of Time in accordance with paragraph 13.3 of the General Provisions, an extension of time on the basis of weather may be granted only for the number of weather delay days in excess of the number of days listed in the State of Tennessee standard Baseline for that month or the NOAA moving five or ten year average of days with more than a tenth of an inch, (trace) of rain (or equivalent) for that month.

#### 1.3 ADVERSE WEATHER AND WEATHER DELAY DAYS:

- A. Adverse Weather is defined as the occurrence of one or more of the following conditions, substantiated by NOAA data, which prevents exterior construction activity or access to the site within twenty-four hours (24) hours:
  - 1. Precipitation threshold (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure. Snow to liquid measure ratio is 10:1.
  - 2. Standing snow in excess of one inch (1.00").
- B. Additional extension of Time may be granted for drying days following periods of two or more consecutive days of precipitation for the following conditions:
  - 1. At a rate of one day extension of Time for each period of two or more consecutive days of precipitation of 1.0 inch or more (liquid measure).
  - 2. Only if there is a hindrance to site access or site work, such as excavation, backfill and footings and the like and then only when no such work is performed.

#### 1.4 STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE:

- A. The State of Tennessee has reviewed weather data available from the National Oceanic and Atmospheric Administration and determined a Standard Baseline of average climatic range for the State of Tennessee.
- B. Standard Baseline may be regarded as the normal and anticipatable number of calendar days for each month during which construction activity shall be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline (or the NOAA moving average) is included in the Work and is not eligible for extension of Contract Time.
- C. Standard Baseline for each month of the year is as follows (the anticipatable delay days follow the month):

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12	11	8	7	7	6	7	5	4	5	6	11

#### 1.5 DOCUMENTATION AND SUBMITTALS:

- A. Contractor shall submit on a monthly basis daily job site work logs (daily reports) showing which, and to what extent, construction activities have been adversely affected by weather.
- B. Submit actual weather data, if requested by Roof Consultant to support claim for time extension, as obtained from the nearest NOAA weather reporting station.
- C. Use Standard Baseline data provided in this Section or NOAA moving averages when documenting actual delays due to weather in excess of the average climatic range.
- D. Organize claim and documentation to facilitate evaluation on a basis of calendar month periods, and submit in accordance with the procedures for Claims established in paragraph 13.3 of the General Provisions.
- E. Extensions of Time requested by the Contractor and approved by the Roof Consultant on the basis of conditions stated above shall be acknowledged and communicated in writing to the Contractor periodically.
- F. A modification shall be issued in accordance with the provisions of Article 13 of the General Provisions, and the applicable General requirements for extensions of Contract Time granted. Modifications for extensions of Time may be issued quarterly or held to the end of the Project as appropriate.
- G. Extensions of Time not requested in a timely manner by the Contractor will not be granted at a later time.

**PART 2 - PRODUCTS** (Not Applicable)

**PART 3 - EXECUTION** (Not Applicable)

**END OF SECTION 01 32 50**

## SECTION 01 33 00 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
  - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
  - 3. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
  - 4. Division 01 Section "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
  - 5. Division 01 Section "Closeout Procedures" for submitting warranties.
  - 6. Divisions 02 through 33 Sections for specific requirements for submittals in those Sections.

#### 1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Roof Consultant's responsive action.
- B. Informational Submittals: Written information that does not require Roof Consultant's responsive action. Submittals may be rejected for not complying with requirements.

#### 1.3 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings may be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Roof Consultant reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
    - b. Approval of materials requiring color selection may be delayed until the required color samples for related or adjacent materials are received.
- C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow sufficient time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Roof Consultant's receipt of submittal. No

extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Roof Consultant will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 15 days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Roof Consultant's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
- E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Roof Consultant.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Roof Consultant.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Number and title of appropriate Specification Section.
    - i. Drawing number and detail references, as appropriate.
    - j. Location(s) where product is to be installed, as appropriate.
    - k. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Roof Consultant will return or discard submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Use AIA Document G810 or CSI Form 12.1A.
  2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Roof Consultant on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked "APPROVED" or "APPROVED AS NOTED" by Roof Consultant.
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.



- J. Use for Construction: Use only final submittals with mark indicating "APPROVED" or "APPROVED AS NOTED" taken by Roof Consultant.

#### 1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

- A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
  - 1. Contractor shall agree to hold Architect harmless for such use. See Electronic Data Waiver form at the end of this section.

### PART 2 - PRODUCTS

#### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  - 2. Mark each copy of each submittal to show which products and options are applicable.
  - 3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Standard color charts.
    - e. Manufacturer's catalog cuts.
    - f. Wiring diagrams showing factory-installed wiring.
    - g. Printed performance curves.
    - h. Operational range diagrams.
    - i. Mill reports.
    - j. Standard product operation and maintenance manuals.
    - k. Compliance with specified referenced standards.
    - l. Testing by recognized testing agency.
    - m. Application of testing agency labels and seals.
    - n. Notation of coordination requirements.
  - 4. Submit Product Data before or concurrent with Samples.
  - 5. Number of Copies: Submit three copies of Product Data, unless otherwise indicated. Submit one additional copy of consulting Engineer will review. Roof Consultant will return two copies. Mark up and retain one returned copy as a Project Record Document.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal of Architect's CAD Drawings are otherwise permitted.
  - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.

- h. Schedules.
  - i. Design calculations.
  - j. Compliance with specified standards.
  - k. Notation of coordination requirements.
  - l. Notation of dimensions established by field measurement.
  - m. Relationship to adjoining construction clearly indicated.
  - n. Seal and signature of professional engineer if specified.
  - o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
  3. Number of Copies: Submit three opaque copies of each submittal, unless copies are required for operation and maintenance manuals. Submit five copies where copies are required for operation and maintenance manuals. Roof Consultant will retain two copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of appropriate Specification Section.
  3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Roof Consultant will return submittal with options selected.
  5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit three sets of Samples. Roof Consultant will retain two Sample sets; remainder will be returned.
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

- 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
  2. Number and title of related Specification Section(s) covered by subcontract.
  3. Drawing number and detail references, as appropriate, covered by subcontract.
  4. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Roof Consultant will return two copies.
    - a. Mark up and retain one returned copy as a Project Record Document.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Roof Consultant will not return copies.
  2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- M. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."
- N. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- O. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- P. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- Q. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- R. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- S. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
  - 1. Preparation of substrates.
  - 2. Required substrate tolerances.
  - 3. Sequence of installation or erection.
  - 4. Required installation tolerances.

5. Required adjustments.
  6. Recommendations for cleaning and protection.
- T. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- U. Material Safety Data Sheets (MSDSs): If required by regulations, submit information directly to Owner; do not submit to Roof Consultant.
1. Roof Consultant will not review submittals that include MSDSs and will return the entire submittal for resubmittal.

## 2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Roof Consultant.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Roof Consultant.
- B. Approval Stamp: Stamp each submittal with a uniform approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### 3.2 ROOF CONSULTANT'S ACTION

- A. General: Roof Consultant will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Roof Consultant will review each submittal, make marks to indicate corrections or modifications required, and return it. Roof Consultant will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  - 1. Final Unrestricted Release: Where the submittal is marked "Approved," the Work covered by the submittal may proceed provided it complies with the Contract Documents. Final acceptance will depend on that compliance.
  - 2. Final-but-Restricted Release: Where the submittal is marked "Approved as Noted," the Work covered by the submittal may proceed provided it complies both with Roof Consultant's notations and corrections on the submittal and the Contract Documents. Final acceptance will depend on that compliance.
  - 3. Returned for Resubmittal: Where the submittal is marked "Not Approved, Revise and Resubmit," do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity for the product submitted. Revise or prepare a new submittal according to Roof Consultant's notations and corrections.
  - 4. Rejected: Where the submittal is marked "Not Approved, Resubmit" or "Rejected," do not proceed with the Work covered by the submittal. Prepare a new submittal for a product that complies with the Contract Documents.
  - 5. Incomplete: Where the submittal is marked "Submit Additional Information," do not proceed with the Work covered by the submittal. Prepare additional information requested, or required by the Contract Documents, that indicates compliance with requirements.
  - 6. Other Action: If the submittal is primarily for information purposes, record purposes, special processing, or other contractor activity, the submittal will be returned marked "Action Not Required."
- C. Informational Submittals: Roof Consultant will review each submittal and will not return it, or will return it if it does not comply with requirements. Roof Consultant will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

**END OF SECTION 01 33 00**

## SECTION 01 40 00 - QUALITY REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Roof Consultant, Owner or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
  - 1. Division 01 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
  - 2. Division 01 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
  - 3. Divisions 02 through 33 Sections for specific test and inspection requirements.

#### 1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Roof Consultant.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples.
- D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.
- E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

- G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

### 1.3 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Roof Consultant for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Roof Consultant for a decision before proceeding.

### 1.4 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Description of test and inspection.
  - 3. Identification of applicable standards.
  - 4. Identification of test and inspection methods.
  - 5. Number of tests and inspections required.
  - 6. Time schedule or time span for tests and inspections.
  - 7. Entity responsible for performing tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.
- C. Reports: Prepare and submit certified written reports that include the following:



1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.5 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

1. An English speaking person is required to be on-site at all times when work is being performed by the Contractor. The designated English speaking person will communicate with the building occupants, maintenance personnel and the Roofing Consultant.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Surveyor and/or Engineer Qualifications: A professional surveyor and/or engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land survey or engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according

to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Roof Consultant.
  2. Notify Roof Consultant seven days in advance of dates and times when mockups will be constructed.
  3. Demonstrate the proposed range of aesthetic effects and workmanship.
  4. Obtain Roof Consultant's approval of mockups before starting work, fabrication, or construction.
    - a. Allow seven days for initial review and each re-review of each mockup.
  5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  6. Demolish and remove mockups when directed, unless otherwise indicated.
- J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 33.

## 1.6 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor and the Contract Sum will be adjusted by Change Order.
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- D. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. **Testing Agency Responsibilities:** Cooperate with Roof Consultant and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Roof Consultant and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- F. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  6. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. **Coordination:** Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

## **PART 2 - PRODUCTS (Not Used)**

## **PART 3 - EXECUTION**

### **3.1 TEST AND INSPECTION LOG**

- A. Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Roof Consultant.
4. Identification of testing agency or special inspector conducting test or inspection.

- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Roof Consultant's reference during normal working hours.

### 3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

- B. Protect construction exposed by or for quality-control service activities.

- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION 01 40 00**

## SECTION 01 42 00 - REFERENCES

### PART 1 - GENERAL

#### 1.1 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Roof Consultant's action on Contractor's submittals, applications, and requests, "approved" is limited to Roof Consultant's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Roof Consultant. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

#### 1.2 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
- D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the organizations responsible for the standards and regulations in the Architect's MASTERSPEC list. Contact Architect for email copy. Names, telephone numbers,

and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

### 1.3 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the Architect's MASTERSPEC list. Contact Architect for email copy. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.
- C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the Architect's MASTERSPEC list. Contact Architect for email copy. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.
- D. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the Architect's MASTERSPEC list. Contact Architect for email copy. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 42 00**

## **SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS**

### **PART 1 - GENERAL**

#### 1.1 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
  - 1. Division 01 Section "Summary" for limitations on utility interruptions and other work restrictions.
  - 2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
  - 3. Division 01 Section "Execution" for progress cleaning requirements.
  - 4. Divisions 02 through 33 Sections for temporary utility requirements for products in those Sections.

#### 1.2 USE CHARGES

- A. General: Cost or use charges for temporary facilities not provided by the Owner shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Roof Consultant, testing agencies, and authorities having jurisdiction.
- B. Water Service: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

#### 1.3 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

### **PART 2 - PRODUCTS**

#### 2.1 MATERIALS

- A. Fencing: Provide fencing as necessary to safely and securely separate project personnel and operations from school occupants, visitors and other non-project personnel.

#### 2.2 TEMPORARY FACILITIES

- A. Field Office, General: Provide suitable facilities for protection and use of documents, administration of the work and communication with all project related parties, including the Owner, Roof Consultant, Subcontractors and Suppliers.
- B. Storage: Provide suitable storage facilities to accommodate materials and equipment for construction operations.
  - 1. Store combustible materials apart from building.

## 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
  - 1. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
- C. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.
  - 1. Provide electric distribution system of sufficient size, capacity, and power characteristics required for construction operations.
  - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
- G. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel.
  - 1. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Provide incombustible construction for facilities located within construction area or within 30 feet (9 m) of building lines. Comply with NFPA 241.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  - 2. Maintain access for fire-fighting equipment and access to fire hydrants.



- C. Project Identification: Provide Project identification sign. Install sign where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
  - 1. Project Identification Signs: At location specified by the Roof Consultant provide project identification sign complying with sketch/data sheet included at end of this section. Engage an experienced sign painter to paint graphics on sign as indicated. Construct sign of wood framing and posts, and 3/4" edge bound durably panels of exterior type sanded 2 sides.
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.
- E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
  - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  - 1. Comply with work restrictions specified in Division 01 Section "Summary."
- B. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- C. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities are property of Contractor.
  - 2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

**END OF SECTION 01 50 00**



## SECTION 01 60 00 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 01 Section "References" for applicable industry standards for products specified.
  - 2. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
  - 3. Divisions 02 through 33 Sections for specific requirements for warranties on products and installations specified to be warranted.

#### 1.2 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

#### 1.3 SUBMITTALS

- A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
  - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
  - 2. Roof Consultant's Action: Roof Consultant will respond in writing to Contractor within 20 days of receipt of completed product list. Roof Consultant's response will include a list of unacceptable known product selections and a brief explanation of reasons for this action.

Roof Consultant's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.

- B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use CSI Form 13.1A.
  2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified material or product cannot be provided.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
    - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - e. Samples, where applicable or requested.
    - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
    - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
    - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
    - j. Cost information, including a proposal of change, if any, in the Contract Sum.
    - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
    - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
  3. Roof Consultant's Action: If necessary, Roof Consultant will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Roof Consultant will notify Contractor of acceptance or rejection of proposed substitution within 20 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
    - a. Form of Acceptance: Change Order.
    - b. Use product specified if Roof Consultant cannot make a decision on use of a proposed substitution within time allocated.
- C. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Roof Consultant's Action: If necessary, Roof Consultant will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Roof Consultant will notify Contractor of approval or rejection of proposed comparable product request within 20 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."

- b. Use product specified if Roof Consultant cannot make a decision on use of a comparable product request within time allocated.
- D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

#### 1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

#### 1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

- B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

- C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

#### 1.6 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
  3. Refer to Divisions 02 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

## **PART 2 - PRODUCTS**

### **2.1 PRODUCT SELECTION PROCEDURES**

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Roof Consultant will make selection.
  5. Where products are accompanied by the term "match sample," sample to be matched is Roof Consultant's.
  6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
  2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
  3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
  4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
  5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
  6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies

- with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
  8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
  9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Roof Consultant's sample. Roof Consultant's decision will be final on whether a proposed product matches.
    - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
  10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
    - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Roof Consultant will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Roof Consultant will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Roof Consultant will consider requests for substitution if received within 60 days after the Notice to Proceed Requests received after that time may be considered or rejected at discretion of Roof Consultant.
- B. Conditions: Roof Consultant will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Roof Consultant will return requests without action, except to record noncompliance with these requirements:
  1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Roof Consultant for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
  2. Requested substitution does not require extensive revisions to the Contract Documents.
  3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  4. Substitution request is fully documented and properly submitted.
  5. Requested substitution will not adversely affect Contractor's Construction Schedule.
  6. Requested substitution has received necessary approvals of authorities having jurisdiction.
  7. Requested substitution is compatible with other portions of the Work.
  8. Requested substitution has been coordinated with other portions of the Work.
  9. Requested substitution provides specified warranty.
  10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

## 2.3 COMPARABLE PRODUCTS

- A. Conditions: Roof Consultant will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Roof Consultant will return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
  5. Samples, if requested.

### **PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 60 00**



## **SECTION 01 73 00 - EXECUTION**

### **PART 1 - GENERAL**

#### 1.1 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. General installation of products.
  - 2. Coordination of Owner-installed products, if any.
  - 3. Progress cleaning.
  - 4. Protection of installed construction.
  - 5. Correction of the Work.
  
- B. Related Sections include the following:
  - 1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
  - 2. Division 01 Section "Submittal Procedures" for submitting surveys.
  - 3. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
  - 4. Division 01 Section "Closeout Procedures" for recording of Owner-accepted deviations from requirements, and final cleaning.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION**

#### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of utilities and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems, and other construction affecting the Work.
  
- B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 2. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

#### 3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
  
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Roof Consultant.

Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

### 3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Roof Consultant.
  - 2. Allow for building movement, including thermal expansion and contraction.
- G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.4 OWNER-INSTALLED PRODUCTS

- A. Access: If required, provide access to Project for Owner's construction forces.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces, if any.
  - 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
  - 2. Pre-installation Conferences: Include Owner's construction forces at pre-installation conferences covering portions of the Work that are to receive Owner's work. Attend pre-installation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

### 3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period.
- I. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
- |  |   |
|--|---|
| 1. Excessive static or dynamic loading.      | 15. Bacteria.                               |
| 2. Excessive internal or external pressures. | 16. Rodent and insect infestation.          |
| 3. Excessively high or low temperatures.     | 17. Combustion.                             |
| 4. Thermal shock.                            | 18. Electrical current.                     |
| 5. Excessively high or low humidity.         | 19. High-speed operation.                   |
| 6. Pollution and air contamination.          | 20. Improper lubrication.                   |
| 7. Water or ice.                             | 21. Unusual wear or other misuse.           |
| 8. Chemicals and solvents.                   | 22. Contact between incompatible materials. |
| 9. Light.                                    | 23. Destructive testing.                    |
| 10. Radiation.                               | 24. Misalignment.                           |
| 11. Puncture.                                | 25. Excessive weathering.                   |
| 12. Abrasion.                                | 26. Unprotected storage.                    |
| 13. Heavy traffic.                           | 27. Improper shipping or handling.          |
| 14. Soiling, staining, and corrosion.        | 28. Theft or vandalism.                     |

3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and moisture.

3.7 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, and touching up with matching materials.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

**END OF SECTION 01 73 00**

## SECTION 01 73 29 - CUTTING AND PATCHING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
  - 1. Division 07 Section "Preparation for Re-Roofing".
  - 2. Divisions 02 through 33 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

#### 1.2 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

#### 1.3 SUBMITTALS

- A. Cutting and Patching Proposal: Where potential effect could be significant, submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
  - 3. Products: List products to be used and firms or entities that will perform the Work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
  - 6. Roof Consultant's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

#### 1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
  - 1. Obtain approval of the cutting and patching proposal before cutting and patching the following elements:
    - a. Foundation construction.
    - b. Bearing and retaining walls.
    - c. Structural concrete.
    - d. Structural steel.
    - e. Lintels.
    - f. Timber and primary wood framing.
    - g. Structural decking.

h. Miscellaneous structural metals.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:

1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Fire-suppression systems.
4. Mechanical systems piping and ducts.
5. Control systems.
6. Communication systems.
7. Conveying systems.
8. Electrical wiring systems.
9. Operating systems of special construction in Division 13 Sections.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Exterior curtain-wall construction.
4. Equipment supports.
5. Piping, ductwork, vessels, and equipment.
6. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Roof Consultant's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

## 1.5 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

### **3.3 PERFORMANCE**

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
  - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as

possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove excess paint, mortar, oils, putty, and similar materials.

**END OF SECTION 01 73 29**



## SECTION 01 77 00 - CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Warranties.
  - 3. Final cleaning.
  
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
  - 2. Division 01 Section "Execution" for progress cleaning of Project site.
  - 3. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

#### 1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  - 2. Manufacturer's Punchlist Inspection: Submit two copies of the Manufacturer's Punchlist Inspection as stated within the technical sections of the Project Manual.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  - 5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 6. Complete final cleaning requirements, including touchup painting.
  - 7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
  - 8. Advise Owner of pending insurance changeover requirements.
  
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Roof Consultant will either proceed with inspection or notify Contractor of unfulfilled requirements. Roof Consultant will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Roof Consultant, that must be completed or corrected before certificate will be issued.
  - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  - 2. Results of completed inspection will form the basis of requirements for Final Completion.

#### 1.3 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
  2. Submit certified copy of Roof Consultant's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Roof Consultant. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. General Contractor's Affidavit: Submit a General Contractor's Affidavit on form acceptable to the Owner, certifying completion of all contract requirements and punchlist corrections.
  4. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Roof Consultant will either proceed with inspection or notify Contractor of unfulfilled requirements. Roof Consultant will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.
1. Include the following information at the top of each page:
    - a. Name and number of inspection (e.g. Substantial Completion #2).
    - b. Project name.
    - c. Date.
    - d. Page number.

#### 1.5 WARRANTIES

- A. Submittal Time: For completed Work, submit written warranties commencing upon date of Substantial Completion. For Work completed after Substantial Completion commencement date shall be the date of acceptance of that Work. For warranties covering Work completed at different times, warranties shall commence at latest date.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

### **PART 2 - PRODUCTS**

#### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## **PART 3 - EXECUTION**

### **3.1 FINAL CLEANING**

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
    - j. Leave Project clean and ready for occupancy.
  - 2. Where Owner has allowed Contractor access through the building interior, visually inspect all access routes and remove all trace of soil, smudges, and other foreign matter. Repair any materials damaged as a result of this project to the satisfaction of the Owner or replace at no additional cost to the Owner.
  - 3. Visually inspect all exterior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. If necessary to achieve a uniform degree of exterior cleanliness, hose down the exterior of the structure. In the event of stubborn stains not removable with water, other cleaning techniques including refinishing may be required by the Roof Consultant at no additional cost to the Owner.

**END OF SECTION 01 77 00**



## **SECTION 01 78 23 - MAINTENANCE DATA**

### **PART 1 - GENERAL**

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing maintenance manuals, including the following:
  - 1. Maintenance documentation directory.
  - 2. Maintenance manuals for the care and maintenance of products, materials, and finishes.
- B. Related Sections include the following:
  - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for maintenance manuals.
  - 2. Division 01 Section "Closeout Procedures" for submitting maintenance manuals.
  - 3. Divisions 02 through 33 Sections for specific maintenance manual requirements for the Work in those Sections.

#### 1.2 SUBMITTALS

- A. Final Submittal: Submit one copy of manual in final form at least 15 days before final inspection. Roof Consultant will return copy with comments within 15 days after final inspection.
  - 1. Correct or modify manual to comply with Roof Consultant's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Roof Consultant's comments.

#### 1.3 COORDINATION

- A. Where maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

### **PART 2 - PRODUCTS**

#### 2.1 MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
  - 1. List of documents.
  - 2. Table of contents.
- B. Tables of Contents: Include a table of contents for each maintenance manual.
- C. Identification: In the documentation directory and in each maintenance manual, identify each system with same designation used in the Contract Documents.

#### 2.2 MANUALS, GENERAL

- A. Organization: Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
  2. Name and address of Project.
  3. Name and address of Owner.
  4. Date of submittal.
  5. Name, address, and telephone number of Contractor.
  6. Name and address of Roof Consultant.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize as follows:
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. Identify each binder on front and spine, with printed title "MAINTENANCE MANUAL," Project title or name, and subject matter of contents.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
  4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
    - c. Where clarity requires, provide annotated photographs to illustrate data.

### 2.3 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
  2. Manufacturer's name.
  3. Color, pattern, and texture.
  4. Material and chemical composition.
  5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
  2. Types of cleaning agents to be used and methods of cleaning.
  3. List of cleaning agents and methods of cleaning detrimental to product.
  4. Schedule for routine cleaning and maintenance.

5. Repair instructions.
- E. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
    1. Include procedures to follow and required notifications for warranty claims.

### **PART 3 - EXECUTION**

#### **3.1 MANUAL PREPARATION**

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each unique product, material, and finish incorporated into the Work.
- B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper maintenance.
- C. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting maintenance documentation.

**END OF SECTION 01 78 23**





## **SECTION 06 10 53 - MISCELLANEOUS ROUGH CARPENTRY**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Rough carpentry work not specified elsewhere and generally intended for support of other work.
  - 2. Wood blocking, cants and nailers.
  - 3. Wood equipment bases.
  - 4. Miscellaneous blocking, grounds, nailers, and panels.
  
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section 01 21 00 "Allowances".
  - 2. Division 01 Section 01 22 00 "Unit Prices".
  - 3. Division 07 Section 07 01 50 "Preparation for Re-Roofing".
  - 4. Division 07 Section 07 53 23 "EPDM Membrane Roofing."
  - 3. Division 07 Section 07 62 00 "Sheet Metal Flashing and Trim".

#### **1.2 SUBMITTALS**

- A. Wood treatment data from chemical treatment manufacturer. Include chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated material.
  - 1. Preservative Treatment: Include certification by treatment plant stating type of solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
  - 2. Waterborne Preservative Treatment: Include certification that moisture content of treated wood was reduced to levels specified prior to shipment to Project site.
  - 3. Warranty: Include warranty of chemical treatment manufacturer for each type of treatment.

#### **1.3 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery and Storage: Keep materials under cover, dry and well ventilated. Protect against exposure to weather and contact with damp or wet surfaces. Stack material above ground level on uniformly spaced supports to prevent deformation.
  - 1. For material pressure treated with waterborne chemicals, place spacers between each bundle for air circulation.
  - 2. Keep all materials clearly identified with all grade marks legible. Keep all damaged material clearly identified as damaged, and store separately to prevent inadvertent use.

### **PART 2 - PRODUCTS**

#### **2.1 LUMBER, GENERAL**

- A. Standards: Furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
  
- B. Grade Stamps: Furnish lumber with each piece factory-marked with grade stamp of inspection agency that indicates grading agency, grade, species, moisture content at time of surfacing, and mill.

1. For exposed lumber, furnish pieces marked on ends or back of each piece.
- C. Sizes: Provide nominal sizes indicated, complying with PS 20 except where actual sizes are specifically noted as being required.
- D. Surfacing: Dressed lumber, S4S, unless otherwise indicated.

## 2.2 DIMENSION LUMBER FOR CONCEALED CONDITIONS

- A. Species: Any wood species listed by PS 20.
- B. Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture content).
- C. Grade: No. 2 or standard grade.

## 2.3 DIMENSION LUMBER FOR EXPOSED CONDITIONS

- A. Species:
  1. Western red cedar.
- B. Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture content).
- C. Grade: No. 1 or construction grade.

## 2.4 BOARDS FOR CONCEALED CONDITIONS

- A. Species: Any wood species listed by PS 20.
- B. Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture content).
- C. Grade: No. 2, 2 Common, or Construction Boards.

## 2.5 BOARDS FOR EXPOSED CONDITIONS

- A. Species: Any one of the following:
  1. Redwood.
  2. Western cedar.
- B. Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture content).
- C. Grade: No. 1, 1 Common, Construction Heart, or Select Merchantable Boards.

## 2.6 CONSTRUCTION PANELS

- A. Structural-Use Panel Standards: Provide either all-veneer, mat-formed, or composite panels complying with DOC PS 2, "Performance Standard for Wood-Based Structural-Use Panels," unless otherwise indicated. Provide plywood panels complying with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood," where plywood is indicated.
- B. Trademark: Factory mark structural-use panels with APA trademark evidencing compliance with grade requirements.
- C. Plywood shall have the Exposure 1 rating of the American Plywood Association factory-marked on each panel.

1. Exposed Plywood: AC Plugged Exterior, thickness as indicated, but not less than 1/2 inch.
2. Miscellaneous Concealed Plywood: CC Plugged Exterior, thickness as indicated, but not less than 1/2 inch.

## 2.7 FASTENERS

- A. General: Where miscellaneous carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.
- B. Nails, Wire, Brads and Staples: FS FF-N-105.
- C. Bolts: ASTM A 307, Grade A; with ASTM A 563 hex nuts and flat washers.

## 2.8 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

- A. General: Obtain preservative-treated lumber complying with AWPA Standard C2. Mark each treated item with AWPB or SPIB Quality Mark Requirements. Coat surfaces cut after treatment to comply with AWPA M4.
- B. Above-Ground Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.25 pcf.
  1. Kiln-dry interior dimension lumber after treatment to 19 percent maximum moisture content.
  2. Kiln-dry interior construction panels after treatment to 15 percent maximum moisture content.
  3. Treat wood items indicated and in the following circumstances:
    - a. In contact with roofing, vapor barrier, flashing, or waterproofing.
    - b. In contact with masonry or concrete.
    - c. Within 18 inches of grade.
- C. Ground-Contact Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.40 pcf.

## PART 3- EXECUTION

### 3.1 INSPECTION

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION, GENERAL

- A. Carefully select all lumber pieces. Select individual pieces so that knots and obvious defects will not interfere with placing bolts, proper nailing or making connections. Discard units of material with defects that impair quality of miscellaneous carpentry and in sizes that would require an excessive number or poor arrangement of joints. Material may be rejected by the Roofing Consultant, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.
- B. Cut and fit miscellaneous carpentry accurately. Install members plumb and true to line and level.
- C. Coat cut edges of preservative-treated wood to comply with AWPA M4.

- D. Securely fasten miscellaneous carpentry as indicated and according to applicable codes and recognized standards. Install fasteners for anchoring wood nailers to parapets and roof edges, and for anchoring fascia nailers and cants according to Factory Mutual Loss Prevention Data Sheet 1-49, latest edition, including additional fasteners at corners.
- E. Countersink nail heads on exposed carpentry work and fill holes.
- F. Use fasteners of appropriate type and length. Predrill members when necessary to avoid splitting wood.

### 3.3 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Provide lumber for support or attachment of other construction including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members. Contractor shall provide all wood nailers as required for reroofing
- B. Install where shown and where required for screeding or attachment of other work. Cut and shape to required size. Coordinate location with other work involved.
- C. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.

**END OF SECTION 06 10 53**

## **SECTION 06 16 00 - SHEATHING**

### **PART 1 - GENERAL**

#### 1.1 SUMMARY

A. Section Includes:

1. Roof sheathing.

B. Related Requirements:

1. Division 01 Section "Unit Prices" for establishing unit cost for roof sheathing replacement.
2. Division 06 Section "Miscellaneous Rough Carpentry" for wood framing.
3. Division 07 Section "Asphalt Shingles" for underlayments applied over roof sheathing.

#### 1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

#### 1.3 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For following products, from ICC-ES:

1. Preservative-treated plywood.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

### **PART 2 - PRODUCTS**

#### 2.1 WOOD PANEL PRODUCTS

A. Certified Wood: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship":

1. Plywood.

B. Plywood: Either DOC PS 1 or DOC PS 2 unless otherwise indicated.

C. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.

- D. Factory mark panels to indicate compliance with applicable standard.

## 2.2 PRESERVATIVE-TREATED PLYWOOD

- A. Preservative Treatment by Pressure Process: AWPAC U1; Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
- C. Application: Treat items indicated on Drawings and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.

## 2.3 ROOF SHEATHING

- A. Plywood Roof Sheathing: Exterior, Structural I sheathing.
  - 1. Span Rating: Not less than 24/0.
  - 2. Nominal Thickness: Not less than 1/2 inch. (Match existing thickness of adjacent roof sheathing panels).

## 2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  - 1. For roof sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members unless otherwise indicated.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
  - 1. NES NER-272 for power-driven fasteners.
  - 2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."

- D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
- E. Coordinate roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

### 3.2 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
  - 1. Roof Sheathing:
    - a. Nail to wood framing.
    - b. Space panels 1/8 inch (3 mm) apart at edges and ends.

**END OF SECTION 06 16 00**





## SECTION 07 31 13 - ASPHALT SHINGLES (NET ZERO BUILDING)

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Asphalt shingles.
2. Underlayments.

B. Related Sections:

1. Division 06 Section "Miscellaneous Rough Carpentry" for wood framing.
2. Division 06 Section "Sheathing" for roof sheathing.
3. Division 07 Section "Sheet Metal Flashing and Trim" for sheet metal trim, flashings, gutters, and downspouts.

#### 1.2 DEFINITION

- A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Samples for Verification: For the following products, of sizes indicated, to verify color selected:

1. Asphalt Shingle: Full size.
2. Ridge and Hip Cap Shingles: Full size.
3. Ridge Vent: 12-inch- (300-mm-) long Sample.
4. Self-Adhering Underlayment: 12 inches (300 mm) square.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.

- B. Warranties: Sample of special warranties.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of asphalt shingle to include in maintenance manuals.

#### 1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Asphalt Shingles: 100 sq. ft (9.3 sq. m) of each type, in unbroken bundles.

#### 1.7 QUALITY ASSURANCE

- A. Source Limitations: Obtain ridge and hip cap shingles from single source from single manufacturer.

- B. Fire-Resistance Characteristics: Where indicated, provide asphalt shingles and related roofing materials identical to those of assemblies tested for fire resistance per test method below by UL

or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108 or UL 790, for application and roof slopes indicated.

C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Build mockups for asphalt shingles including related roofing materials.

a. Size: 48 inches (1200 mm) long by 48 inches (1200 mm) wide.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless the Architect specifically approves such deviations in writing.

3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Preinstallation Conference: Conduct conference at Project site.

## 1.8 DELIVERY, STORAGE, AND HANDLING

A. Store roofing materials in a dry, well-ventilated, weathertight location according to asphalt shingle manufacturer's written instructions. Store underlayment rolls on end on pallets or other raised surfaces. Do not double stack rolls.

1. Handle, store, and place roofing materials in a manner to avoid significant or permanent damage to roof deck or structural supporting members.

B. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

## 1.9 PROJECT CONDITIONS

A. Environmental Limitations:

1. Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended by manufacturer.

## 1.10 WARRANTY

A. Special Warranty: Standard form in which manufacturer agrees to repair or replace asphalt shingles that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Manufacturing defects.

b. Structural failures including failure of asphalt shingles to self-seal after a reasonable time.

2. Material Warranty Period: 30 years from date of Substantial Completion, prorated, with first 5 years nonprorated.

3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds up to 100 mph (45 m/s) for 10 years from date of Substantial Completion.

4. Algae-Discoloration Warranty Period: Asphalt shingles will not discolor 10 years from date of Substantial Completion.

5. Workmanship Warranty Period: 10 years from date of Substantial Completion.

B. Special Project Warranty: Roofing Installer's Warranty, or warranty form at end of this Section, signed by roofing Installer, covering the Work of this Section, in which roofing Installer agrees to

repair or replace components of asphalt shingle roofing that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Three years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 GLASS-FIBER-REINFORCED ASPHALT SHINGLES**

- A. Laminated-Strip Asphalt Shingles: ASTM D 3462, laminated, multi-ply overlay construction, glass-fiber reinforced, mineral-granule surfaced, and self-sealing.
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Atlas Roofing Corporation.
    - b. CertainTeed Corporation.
    - c. Elk Premium Building Products, Inc.; an ElkCorp company.
    - d. GAF Materials Corporation.
    - e. IKO.
    - f. Malarkey Roofing Products.
    - g. Owens Corning.
    - h. TAMKO Roofing Products, Inc.
  2. Butt Edge: Straight cut.
  3. Strip Size: Manufacturer's standard.
  4. Algae Resistance: Granules treated to resist algae discoloration.
  5. Color and Blends: As selected by the Roof Consultant from manufacturer's full range.
- B. Hip and Ridge Shingles: Manufacturer's standard units to match asphalt shingles.

### **2.2 UNDERLAYMENT MATERIALS**

- A. Self-Adhering Sheet Underlayment, Polyethylene Faced (Ice and Water Sheild): ASTM D 1970, minimum of 40-mil- (1.0-mm-) thick, slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied. Provide primer for adjoining concrete or masonry surfaces to receive underlayment.
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle Coatings & Waterproofing, Inc.
    - b. Grace, W. R. & Co. - Conn.
    - c. Henry Company.
    - d. Johns Manville.
    - e. Owens Corning.
    - f. Polyguard Products, Inc.
    - g. Protecto Wrap Company.

### **2.3 ACCESSORIES**

- A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.
- B. Roofing Nails: ASTM F 1667; aluminum, stainless-steel, copper, or hot-dip galvanized-steel wire shingle nails, minimum 0.120-inch- (3-mm-) diameter, barbed shank, sharp-pointed, with a minimum 3/8-inch- (9.5-mm-) diameter flat head and of sufficient length to penetrate 3/4 inch (19 mm) into solid wood decking or extend at least 1/8 inch (3 mm) through OSB or plywood sheathing.

1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

- C. Felt Underlayment Nails: Aluminum, stainless-steel, or hot-dip galvanized-steel wire with low-profile capped heads or disc caps, 1-inch (25-mm) minimum diameter.

## 2.4 METAL FLASHING AND TRIM

- A. General: Comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."
- B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item.
  1. Apron Flashings: Fabricate with lower flange a minimum of 4 inches (100 mm) over and 4 inches (100 mm) beyond each side of downslope asphalt shingles and 6 inches (150 mm) up the vertical surface.
  2. Step Flashings: Fabricate with a headlap of 2 inches (50 mm) and a minimum extension of 4 inches (100 mm) over the underlying asphalt shingle and up the vertical surface.
  3. Cricket Flashings: Fabricate with concealed flange extending a minimum of 18 inches (450 mm) beneath upslope asphalt shingles and 6 inches (150 mm) beyond each side and 6 inches (150 mm) above the roof plane.
  4. Drip Edges: Fabricate in lengths not exceeding 10 feet (3 m) with 2-inch (50-mm) roof-deck flange and 1-1/2-inch (38-mm) fascia flange with 3/8-inch (9.6-mm) drip at lower edge.
- C. Vent Pipe Flashings: ASTM B 749, Type L51121, at least 1/16 inch (1.6 mm) thick. Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof, and extending at least 4 inches (100 mm) from pipe onto roof.
  1. Contractor's Option: In lieu of lead sleeve pipe flashing, the Contractor has the option to furnish and install prefabricated plumbing vent flashing boots constructed of a thermoplastic base with rubber tight collar for a weather tight seal.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
  1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
  2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provision has been made for flashings and penetrations through asphalt shingles.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 UNDERLAYMENT INSTALLATION

- A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
- B. Self-Adhering Sheet Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install at

locations indicated below, lapped in direction to shed water. Lap sides not less than 3-1/2 inches (89 mm). Lap ends not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Roll laps with roller. Cover underlayment within seven days.

1. Prime concrete and masonry surfaces to receive self-adhering sheet underlayment.
2. Eaves: Extend from edges of eaves 24 inches (600 mm) beyond interior face of exterior wall.
3. Rakes: Extend from edges of rake 24 inches (600 mm) beyond interior face of exterior wall.
4. Closed-Cut Valleys: Extend from lowest to highest point 24 inches (600 mm) on each side.
5. Hips: Extend 18 inches (450 mm) on each side without obstructing continuous ridge vent slot.
6. Ridges: Extend 36 inches (914 mm) on each side without obstructing continuous ridge vent slot.
7. Sidewalls: Extend beyond sidewall 18 inches (450 mm) and return vertically against sidewall not less than 4 inches (100 mm).
8. Dormers, Chimneys, Skylights, and Other Roof-Penetrating Elements: Extend beyond penetrating element 18 inches (450 mm), and return vertically against penetrating element not less than 4 inches (100 mm).
9. Roof Slope Transitions: Extend 18 inches (450 mm) on each roof slope.

### 3.3 METAL FLASHING INSTALLATION

- A. General: Install metal flashings and other sheet metal to comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."
  1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
- B. Apron Flashings: Extend lower flange over and beyond each side of downslope asphalt shingles and up the vertical surface.
- C. Step Flashings: Install with a headlap of 2 inches (50 mm) and extend over the underlying asphalt shingle and up the vertical surface. Fasten to roof deck only.
- D. Cricket Flashings: Extend concealed flanges beneath upslope asphalt shingles and beyond each side.
- E. Eave Drip Edges: Install eave drip edge flashings below underlayment and fasten to roof sheathing.
- F. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

### 3.4 ASPHALT SHINGLE INSTALLATION

- A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
- B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip with tabs removed with self-sealing strip face up at roof edge.
  1. Extend asphalt shingles 3/4 inch (19 mm) over fasciae at eaves and rakes.
  2. Install starter strip along rake edge.

- C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- D. Fasten asphalt shingle strips with a minimum of six roofing nails located according to manufacturer's written instructions.
  - 1. Where roof slope exceeds 20:12, seal asphalt shingles with asphalt roofing cement spots after fastening with additional roofing nails.
  - 2. Where roof slope is less than 4:12, seal asphalt shingles with asphalt roofing cement spots.
  - 3. When ambient temperature during installation is below 50 deg F (10 deg C), seal asphalt shingles with asphalt roofing cement spots.
- E. Closed-Cut Valleys: Extend asphalt shingle strips from one side of valley 12 inches (300 mm) beyond center of valley. Use one-piece shingle strips without joints in valley. Fasten with extra nail in upper end of shingle. Install asphalt shingle courses from other side of valley and cut back to a straight line 2 inches (50 mm) short of valley centerline. Trim upper concealed corners of cut-back shingle strips.
  - 1. Do not nail asphalt shingles within 6 inches (150 mm) of valley center.
  - 2. Set trimmed, concealed-corner asphalt shingles in a 3-inch- (75-mm-) wide bed of asphalt roofing cement.
- F. Ridge and Hip Cap Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges and hips to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.

### 3.5 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS \_\_\_\_\_ of \_\_\_\_\_, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
  - 1. Owner:
  - 2. Address:
  - 3. Building Name/Type:
  - 4. Address:
  - 5. Area of Work:
  - 6. Acceptance Date:
  - 7. Warranty Period:
  - 8. Expiration Date:
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
  - 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
    - a. Lightning;
    - b. Peak gust wind speed exceeding 100 mph (m/sec);
    - c. Fire;
    - d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;

- e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
  - f. Vapor condensation on bottom of roofing; and
  - g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
  3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
  4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
  5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
  6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
  7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this \_\_\_\_day of \_\_\_\_\_.

1. Authorized Signature:
2. Name:
3. Title:

**END OF SECTION 07 31 13**





**SECTION 07 53 23 - EPDM MEMBRANE ROOFING  
(GRAND OAKS ELEMENTARY & OFFICE OF TECHNOLOGY)**

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. This Section includes the following:

1. Adhered membrane roofing system.
2. Roof insulation.
3. Insulation cover board.
4. Roof insulation accessories.
  - a. Fasteners
  - b. Adhesives

B. Related Sections include the following:

1. Division 01 Section "Allowances".
2. Division 01 Section "Unit Prices".
3. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
4. Division 7 Section "Preparation for Re-Roofing".
5. Division 7 Section "Sheet Metal Flashing and Trim" for flashing, coping, overflow scuppers, and gravel stop fascia.

**1.2 DEFINITIONS**

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," before multiplication by a safety factor.

C. Factored Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," after multiplication by a safety factor.

**1.3 PERFORMANCE REQUIREMENTS**

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.

1. Fire/Windstorm Classification: Class 1A-75.
2. Hail Resistance: MH.

- D. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist the factored design uplift pressures calculated according to SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems."

### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
  - 1. Base flashings and membrane terminations.
- C. Samples for Verification: For the following products:
  - 1. 12-by-12-inch (300-by-300-mm) square of sheet roofing, of color specified, including T-shaped side and end lap seam.
  - 2. 12-by-12-inch (300-by-300-mm) square of roof insulation.
- D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
- E. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
  - 1. Submit evidence of meeting performance requirements.
- F. Qualification Data: For Installer and manufacturer.
- G. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
- H. Research/Evaluation Reports: For components of membrane roofing system.
- I. Maintenance Data: For roofing system to include in maintenance manuals.
- J. Warranties: Special warranties specified in this Section.
- K. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
- B. Manufacturer Qualifications: A qualified manufacturer that has UL listing and FMG approval for membrane roofing system identical to that used for this Project.
- C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
- D. Source Limitations: Obtain components for membrane roofing system approved by roofing membrane manufacturer.

- E. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
  - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
  - 2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.
- F. Pre-Roofing Conference: Before starting roof construction, conduct conference at Project site. Comply with requirements for preinstallation conferences in Division 1 Section "Project Meetings." Review methods and procedures related to the roofing system including, but not limited to, the following:
  - 1. Meet with Roof Consultant; roofing Installer; and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review structural loading limitations of roof deck during and after roofing.
  - 5. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
  - 6. Review governing regulations and requirements for insurance and certificates if applicable.
  - 7. Review temporary protection requirements for roofing system during and after installation.
  - 8. Review roof observation and repair procedures after roofing installation.
- G. An English speaking person is required to be on-site at all times when work is being performed by the Contractor. The designated English speaking person will communicate with the building occupants, maintenance personnel and the Roofing Consultant.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

## 1.6 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

## 1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
  - 1. Special warranty includes roofing membrane, base flashings, fasteners, and other components of membrane roofing system.
  - 2. Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

### 2.2 EPDM ROOFING MEMBRANE

- A. EPDM Roofing Membrane: ASTM D 4637, Type I, nonreinforced uniform, flexible sheet made from EPDM, and as follows:
  - 1. Available Manufacturers:
    - a. Carlisle SynTec Incorporated.
    - b. Firestone Building Products Company.
    - c. GenFlex Roofing Systems.
    - d. Versico Inc.
  - 2. Thickness: 60 mils (1.5 mm), nominal.
  - 3. Exposed Face Color: Black.

### 2.3 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
  - 1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: 60-mil- (1.5-mm-) thick EPDM, partially cured or cured, according to application.
- C. Bonding Adhesive: Manufacturer's standard bonding adhesive.
- D. Seaming Material: Manufacturer's standard synthetic-rubber polymer primer and 3-inch- (75-mm-) wide minimum, butyl splice tape with release film.
- E. Lap Sealant: Manufacturer's standard single-component sealant, color to match roofing membrane.
- F. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

- G. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- H. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- I. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.
- J. Single-Component Nonsag Urethane Sealant
  - 1. Available Products:
    - a. Sika Corporation, Inc.; Sikaflex - 1a.
    - b. Sonneborn, Division of ChemRex Inc.; Ultra.
    - c. Sonneborn, Division of ChemRex Inc.; NP 1.
    - d. Tremco; Vulkem 116.
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 25.
  - 4. Uses Related to Exposure: T (traffic) and NT (nontraffic).  
Uses Related to Joint Substrates: M, G, A, and O.

#### 2.4 RIGID ROOF INSULATION (See Allowances and Unit Prices)

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.
  - 1. Available Manufacturers:
    - a. Apache Products Company.
    - b. Atlas Roofing Corporation.
    - c. Firestone Building Products Company.
    - d. Hunter Panels, LLC.
    - e. Johns Manville International, Inc.
    - f. Polyisocyanurate insulation as recommended and approved by the manufacturer of the EPDM membrane roofing system.
  - 2. Thickness: 2" minimum (existing damaged insulation replacement).
  - 3. Board size: 4' x 4' (Adhered Insulation) or 4' x 8' (Mechanically Attached Insulation).

#### 2.5 TAPERED ROOF INSULATION CRICKETS

- A. General: Provide factory-tapered insulation boards, saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricated to slope of 1/2 inch per 12 inches, unless otherwise indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.
  - 1. Available Manufacturers:
    - a. Apache Products Company.
    - b. Atlas Roofing Corporation.
    - c. Firestone Building Products Company.
    - d. Hunter Panels, LLC.
    - e. Johns Manville International, Inc.

- f. Polyisocyanurate insulation as recommended and approved by the manufacturer of the EPDM membrane roofing system.

## 2.6 ROOF INSULATION COVERBOARD

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards acceptable to the roofing membrane manufacturer for a 20 year warranty period.
  1. Products: High density, closed-cell polyisocyanurate foam core laminated to a premium-performance, coated-glass fiber-mat facer. Subject to compliance with requirements, provide products by one of the following.
    - a. Carlisle Syntec Incorporated – “SecurShield HD”
    - b. Firestone Building Products Company – “ISOGARD HD”
  2. Board size: 4' x 4' (Adhered Insulation) or 4' x 8' (Mechanically Attached Insulation).
  3. Thickness: 1/2”

## 2.7 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Heavy-Duty Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
  1. Material: SAE 1022, Heat Treated Steel
  2. Thread Size: .260” (6.6 mm)
  3. Threads/Inch: 13
  4. Thread Design: Buttress Thread.
- C. Cold Fluid-Applied Adhesive: Manufacturer's standard cold fluid-applied adhesive formulated to adhere roof insulation to substrate or the following products if approved by the manufacturer.
  1. Dow Chemical Co. “Insta-Stik Roofing Adhesive”.
  2. Olympic Manufacturing Group “OlyBond Adhesive Fastener”.

## 2.8 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, approximately 3/16-inch thick, and acceptable to membrane roofing system manufacturer.

## 2.9 PIPE SUPPORTS

- A. Pipe supports required shall be prefabricated stainless steel pipe roller supports, Model X-R-AH-SS, where “X” indicates size necessary for proper support of the pipe at that location, as manufactured by Miro Industries, Inc. (800) 768-6978. Recommended spacing is 8' to 15' of pipe between pipestands and in a manner to evenly distribute the load at each pipestand.

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
  1. Verify that roof openings and penetrations are in place and set and braced.

2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation composite.

### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering into and from spilling or migrating onto surfaces of other construction.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

### 3.3 INSULATION INSTALLATION (ACOUSTICAL STEEL DECK)

- A. Remove existing 2" polyisocyanurate roof insulation and cut to size 4' x 4' if required by insulation adhesive manufacturer.
  1. Inspect existing 2" polyisocyanurate for wetness or deterioration. Upon verification replace unsuitable insulation with new 2" polyisocyanurate.
- B. Inspect existing acoustical steel deck sound-absorbing insulation and verify that it will not interfere with the adhesion of the existing 2" polyisocyanurate to the deck.
- C. Adhere the existing 2" polyisocyanurate roof insulation to the acoustical steel deck with an approved cold fluid-applied adhesive.
- D. Adhere new roof insulation crickets over the existing 2" polyisocyanurate with an approved cold fluid-applied adhesive.
- E. Adhere new roof insulation cover boards and new crickets with an approved cold-fluid applied adhesive.
  1. Install cover boards with joints staggered from the underlying polyisocyanurate roof insulation and crickets a minimum of 6-inches in each direction.
  2. Cover boards shall be neatly fitted to all roof penetrations, projections, etc.
- F. No more insulation shall be installed than can be covered with membrane or underlayment and completed before the end of each day's work or before the onset of inclement weather.

### 3.4 INSULATION INSTALLATION (STEEL DECK)

- A. Inspect existing 2" polyisocyanurate for wetness or deterioration. Upon verification replace unsuitable insulation with new 2" polyisocyanurate.
- B. Install new roof insulation crickets over the existing 2" polyisocyanurate.
- C. Install new roof insulation cover boards over the existing 2" polyisocyanurate and new crickets.
  1. Install cover boards with joints staggered from the underlying polyisocyanurate roof insulation and crickets a minimum of 6-inches in each direction.
  2. Cover boards shall be neatly fitted to all roof penetrations, projections, etc.
- D. Secure the entire insulation assembly to the steel deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to steel roof deck.

1. Fasten insulation assembly according to requirements in FMG's "Approval Guide" for specified windstorm resistance classification.
  2. Fasten insulation to resist uplift pressures at corners, perimeter, and field of roof.
- E. No more insulation shall be installed than can be covered with membrane or underlayment and completed before the end of each day's work or before the onset of inclement weather.

### 3.5 ADHERED ROOFING MEMBRANE INSTALLATION

- A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
- B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical personnel.
- C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.
- E. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.
- F. Apply roofing membrane with side laps shingled with slope of roof deck where possible.
- G. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.
- H. Repair tears, voids, and lapped seams in roofing that does not meet requirements.

### 3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

### 3.7 JOINT-SEALANT APPLICATION

- A. Joint Sealant: Install Single-component nonsag urethane sealant as recommended by the manufacturer.



- B. Joint-Sealant Color: Where exposed, as selected by Roof Consultant from manufacturer's full range.

### 3.8 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

### 3.9 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Roof Consultant.

1. Notify Roof Consultant 48 hours in advance of date and time of inspection.

- B. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

### 3.10 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Roof Consultant.

- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

**END OF SECTION 07 53 23**



## SECTION 07 72 00 - ROOF ACCESSORIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes roof accessories not provided with the roofing system in the following categories.
  - 1. Premanufactured pipe stand supports.
  - 2. Turbine ventilators.
- B. Related Sections:
  - 1. Division 07 Roofing Sections for flashing and roofing accessories installed integral with roofing as part of roofing-system network.
- C. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For roof accessories. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work.
- C. Samples: For each exposed product and for each color and texture specified, prepared on Samples of size to adequately show color.
- D. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:
  - 1. Size and location of roof accessories specified in this Section.
  - 2. Method of attaching roof accessories to roof or building structure.
  - 3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.
  - 4. Required clearances.
- E. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals.

#### 1.3 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
- B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

## **PART 2 - PRODUCTS**

### **2.1 PIPE SUPPORTS**

- A. Pipe Supports (Gas Line): Adjustable-height, polycarbonate baseplate, suitable for quantity of pipe runs and sizes.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide MIRO Industries, Inc. (Model No. 5-RAH-7) [www.miroind.com](http://www.miroind.com) or comparable product.
  - 2. Pipe Support Height: Adjustable.
  - 3. Roller Assembly: Self-lubricating roller, stainless steel rod, polycarbonate resin roller.
  - 4. Finish: Manufacturer's standard.
- B. Pipe Supports (Conduit): Polycarbonate baseplate, suitable for quantity of pipe runs and sizes.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide MIRO Industries, Inc. (Model No. 1.5) [www.miroind.com](http://www.miroind.com) or comparable product.
  - 2. Pipe Support Height: Fixed with available stacking platforms.
  - 3. Finish: Manufacturer's standard.

### **2.2 TURBINE VENTILATORS**

- A. Turbine Ventilators: Contractor shall provide and install new aluminum turbine ventilators at areas indicated.
- B. Basis-of-Design Product: Lomanco, Inc. – Turbine Ventilator Model “BIB-12” (Internally Braced)
- C. Color: Mill Finish Aluminum

### **2.3 GENERAL FINISH REQUIREMENTS**

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- C. Verify dimensions of roof openings for roof accessories.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. General: Install roof accessories according to manufacturer's written instructions.
  - 1. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.

2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
  3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
  4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
1. Coat concealed side of uncoated aluminum roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
- C. Pipe Support Installation: Install pipe supports so top surfaces are in contact with and provide equally distributed support along length of supported item.
- 3.3 REPAIR AND CLEANING
- A. Clean exposed surfaces according to manufacturer's written instructions.
  - B. Clean off excess sealants.
  - C. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

**END OF SECTION 07 72 00**

