

**Specifications**  
**Re-Roofing Project**

**North Parish School**  
**Place Terrace**  
**Greenfield, MA**

Prepared for:

**Town of Greenfield**  
**14 Court Square**  
**Greenfield, MA**

Prepared by:

Structural Support & Design Services  
236 S. Shirkshire Rd.  
Conway, MA

February 18, 2015

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DOCUMENT 00 01 01 - PROJECT TITLE PAGE

1.1 PROJECT MANUAL

- A. Project: Re-Roofing Project, North Parish School.
- B. Project Location: Place Terrace, Greenfield, MA
- C. Owner: Town of Greenfield.
- D. Project Engineer: Michael Rainville, P.E.,
- E. Engineer's Address: Structural Support and Design Services, 236 S. Shirkshire Road, Conway, MA 01341
- F. Engineer's Phone: 413-522-7771
- G. Project Manager: Alan Schmidt
- H. Issued: February 18, 2015

END OF DOCUMENT 00 01 01

## DOCUMENT 00 01 15 - LIST OF DRAWING SHEETS

### 1.1 LIST OF DRAWINGS

- A. List of Drawings: Drawings consist of the following Contract Drawings and other drawings of type indicated:
  - 1. RF 1: TITLE PAGE, NOTES, LOCUS
  - 2. RF 2: ROOF PLAN VIEW
  - 3. FR 3 PARTIAL ROOF PLAN
  - 4. RF 4: PARTIAL ROOF PLAN, SECTIONS
  - 5. RF 5: SECTIONS
  - 6. RF 6: SECTIONS
  - 7. RF7: SECTIONS

END OF DOCUMENT 00 01 15

DOCUMENT 00 11 16 - INVITATION TO BID

1.1 PROJECT INFORMATION

- A. Notice to Bidders: Qualified bidders are invited to submit bids for Project as described in this Document according to the Instructions to Bidders.
- B. Project Identification: Re-Roofing Project, North Parish School, Greenfield, MA
  - 1. Project Location: Place Terrace, Greenfield, MA.
- C. Owner: Town of Greenfield.
  - 1. Owner's Representative: To be determined.
- D. Engineer: Michael Rainville, Structural Support & Design Services.
- E. Project Description: Project consists of :
  - 1. Strip off existing roof shingles and felt underlayment, preparing wood deck for new work, install new felt underlayment, install new three tab shingles.
  - 2. Recoating over the existing Burm 200 membrane roof.
  - 3. Replace step flashing where indicated.
  - 4. Relining the existing wood gutters with asphalt coating.
  - 5. Repair existing downspouts as shown on the drawing
  - 6. Strip off existing standing seam roof where indicated on the drawings and install new standing seam roof.
  - 7. Strip off existing flat sheet metal roof where indicated on the drawings and install new sheet metal roof.
  - 8. Re-coating over the existing flat silver coated roof where indicated on the drawings.
- F. Construction Contract: Bids will be received for the following Work:
  - 1. General Contract (all trades).

1.2 BID SUBMITTAL AND OPENING

- A. Owner will receive sealed bids until the bid time and date at the location indicated below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:
  - 1. Bid Date: March 18, 2015
  - 2. Bid Time: 2:00 p.m., local time.
  - 3. Location: Greenfield Town Hall, 14 Court Square, Greenfield, MA
- B. Bids will be thereafter opened in the presence of the bidders and read aloud.

1.3 BID SECURITY

- A. Bid security shall be submitted with each bid in the amount of 5 percent of the bid amount. No bids may be withdrawn for a period of 60 days after opening of bids. Owner reserves the right to reject any and all bids and to waive informalities and irregularities.

1.4 PREBID CONFERENCE

- A. A prebid conference for all bidders will be held at Terrace Place, Greenfield, MA on February 27, 2015 at 11:00 a.m., local time. Prospective bidders are required to attend.

1.5 DOCUMENTS

- A. Printed Procurement and Contracting Documents: Obtain after February 18, 2015 by contacting Owner. Documents will be provided to prime bidders only; only complete sets of documents will be issued.

- 1. Deposit: \$100.00.

- B. Online Procurement and Contracting Documents: Obtain access after February 18, 2015 at [www.greenfield-ma.gov/department/purchasing](http://www.greenfield-ma.gov/department/purchasing)

1.6 TIME OF COMPLETION

- A. Bidders shall begin the Work on receipt of the Notice to Proceed and shall complete the Work within the Contract Time.

1.7 BIDDER'S QUALIFICATIONS

- A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. A Performance Bond and a separate Labor and Material Payment Bond will be required of the successful Bidder.

END OF DOCUMENT 00 11 16

DOCUMENT 00 21 13 - INSTRUCTIONS TO BIDDERS

1.1 INSTRUCTIONS TO BIDDERS

- A. AIA Document A701, "Instructions to Bidders," is hereby incorporated into the Procurement and Contracting Requirements by reference.

END OF DOCUMENT 00 21 13

DOCUMENT 00 22 13 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

1.1 INSTRUCTIONS TO BIDDERS

- A. Instructions to Bidders for Project consist of the following:
  - 1. AIA Document A701, "Instructions to Bidders."
  - 2. The following Supplementary Instructions to Bidders that modify and add to the requirements of the Instructions to Bidders.

1.2 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS, GENERAL

- A. The following supplements modify AIA Document A701, "Instructions to Bidders." Where a portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions to Bidders, unaltered portions of the Instructions to Bidders shall remain in effect.

1.3 ARTICLE 2 - BIDDER'S REPRESENTATIONS

- A. Add Section 2.1.3.1:
  - 1. 2.1.3.1 - The Bidder has investigated all required fees, permits, and regulatory requirements of authorities having jurisdiction and has properly included in the submitted bid the cost of such fees, permits, and requirements not otherwise indicated as provided by Owner.
- B. Add Section 2.1.5:
  - 1. 2.1.5 - The Bidder is a properly licensed Contractor according to the laws and regulations of Massachusetts and meets qualifications indicated in the Procurement and Contracting Documents.
- C. Add Section 2.1.6:
  - 1. 2.1.6 - The Bidder has incorporated into the Bid adequate sums for work performed by installers whose qualifications meet those indicated in the Procurement and Contracting Documents.

1.4 ARTICLE 3 - BIDDING DOCUMENTS

- A. 3.2 - Interpretation or Correction of Procurement and Contracting Documents:
  - 1. Add Section 3.2.2.1:
    - a. 3.2.2.1 - Submit Bidder's Requests for Interpretation using THE CONTRACTOR'S form.
- B. 3.4 - Addenda:



1. Delete Section 3.4.3 and replace with the following:
  - a. 3.4.3 - Addenda may be issued at any time prior to the receipt of bids.

1.5 ARTICLE 4 - BIDDING PROCEDURES

A. 4.1 - Preparation of Bids:

1. Add Section 4.1.1.1:
  - a. 4.1.1.1 - Printable electronic Bid Forms and related documents are available from the Owner.
2. Add Section 4.1.8:
  - a. 4.1.8 - The Bid shall include unit prices when called for by the Procurement and Contracting Documents. Owner may elect to consider unit prices in the determination of award. Unit prices will be incorporated into the Contract.
3. Add Section 4.1.9:
  - a. 4.1.9 - Owner may elect to disqualify a bid due to failure to submit a bid in the form requested, failure to bid requested alternates or unit prices, failure to complete entries in all blanks in the Bid Form, or inclusion by the Bidder of any alternates, conditions, limitations or provisions not called for.
4. Add Section 4.1.10:
  - a. 4.1.10 - Bids shall include sales and use taxes. Contractors shall show separately with each monthly payment application the sales and use taxes paid by them and their subcontractors in the form indicated. Reimbursement of sales and use taxes, if any, shall be applied for by Owner for the sole benefit of Owner.

B. 4.3 - Submission of Bids:

1. Add Section 4.3.1.2:
  - a. 4.3.1.2 - Include Bidder's Contractor License Number applicable in Project jurisdiction on the face of the sealed bid envelope.

C. 4.4 - Modification or Withdrawal of Bids:

1. Add the following sections to 4.4.2:
  - a. 4.4.2.1 - Such modifications to or withdrawal of a bid may only be made by persons authorized to act on behalf of the Bidder. Authorized persons are those so identified in the Bidder's corporate bylaws, specifically empowered by the Bidder's charter or similar legally binding document acceptable to Owner, or by a power of attorney, signed and dated, describing the scope and limitations of the power of attorney.

Make such documentation available to Owner at the time of seeking modifications or withdrawal of the Bid.

- b. 4.4.2.2 - Owner will consider modifications to a bid written on the sealed bid envelope by authorized persons when such modifications comply with the following: the modification is indicated by a percent or stated amount to be added to or deducted from the Bid; the amount of the Bid itself is not made known by the modification; a signature of the authorized person, along with the time and date of the modification, accompanies the modification. Completion of an unsealed bid form, awaiting final figures from the Bidder, does not require power of attorney due to the evidenced authorization of the Bidder implied by the circumstance of the completion and delivery of the Bid.

D. 4.5 - Break-Out Pricing Bid Supplement:

1. Add Section 4.5:

- a. 4.5 - Provide detailed cost breakdowns on forms provided no later than two business days following Owner's request.

E. 4.6 - Subcontractors, Suppliers, and Manufacturers List Bid Supplement:

1. Add Section 4.6:

- a. 4.6 - Provide list of major subcontractors, suppliers, and manufacturers furnishing or installing products on forms provided no later than two business days following Owner's request. Include those subcontractors, suppliers, and manufacturers providing work totaling three percent or more of the Bid amount. Do not change subcontractors, suppliers, and manufacturers from those submitted without approval of Owner.

1.6 ARTICLE 5 - CONSIDERATION OF BIDS

A. 5.2 - Rejection of Bids:

1. Add Section 5.2.1:

- a. 5.2.1 - Owner reserves the right to reject a bid based on Owner's and Owner's Representative's evaluation of qualification information submitted following opening of bids. Owner's evaluation of the Bidder's qualifications will include: status of licensure and record of compliance with licensing requirements, record of quality of completed work, record of Project completion and ability to complete, record of financial management including financial resources available to complete Project and record of timely payment of obligations, record of Project site management including compliance with requirements of authorities having jurisdiction, record of and number of current claims and disputes and the status of their resolution, and qualifications of the Bidder's proposed Project staff and proposed subcontractors.

1.7 ARTICLE 6 - POSTBID INFORMATION

A. 6.1 - Contractor's Qualification Statement:

1. Add Section 6.1.1:

- a. 6.1.1 - Submit Contractor's Qualification Statement no later than two business days following Owner's request.

B. 6.3 - Submittals:

1. Add Section 6.3.1.4:

- a. 6.3.1.4 - Submit information requested in Sections 6.3.1.1, 6.3.1.2, and 6.3.1.3 no later than two business days following Owner's request.

1.8 ARTICLE 7 - PERFORMANCE BOND AND PAYMENT BOND

A. 7.1 - Bond Requirements:

1. Add Section 7.1.1.1:

- a. 7.1.1.1 - Both a Performance Bond and a Payment Bond will be required, each in an amount equal to 100 percent of the Contract Sum.

B. 7.2 - Time of Delivery and Form of Bonds:

1. Delete the first sentence of Section 7.2.1 and insert the following:

- a. The Bidder shall deliver the required bonds to Owner no later than 10 days after the date of Notice of Intent to Award and no later than the date of execution of the Contract, whichever occurs first. Owner may deem the failure of the Bidder to deliver required bonds within the period of time allowed a default.

2. Delete Section 7.2.3 and insert the following:

- a. 7.2.3 - Bonds shall be executed and be in force on the date of the execution of the Contract.

1.9 ARTICLE 9 - EXECUTION OF THE CONTRACT

A. Add Article 9:

- 1. 9.1.1 - Subsequent to the Notice of Intent to Award, and within 10 days after the prescribed Form of Agreement is presented to the Awardee for signature, the Awardee shall execute

and deliver the Agreement to Owner through Construction Manager, in such number of counterparts as Owner may require.

2. 9.1.2 - Owner may deem as a default the failure of the Awardee to execute the Contract and to supply the required bonds when the Agreement is presented for signature within the period of time allowed.
3. 9.1.3 - Unless otherwise indicated in the Procurement and Contracting Documents or the executed Agreement, the date of commencement of the Work shall be the date of the executed Agreement or the date that the Bidder is obligated to deliver the executed Agreement and required bonds to Owner.
4. 9.1.4 - In the event of a default, Owner may declare the amount of the Bid security forfeited and elect to either award the Contract to the next responsible bidder or re-advertise for bids.

END OF DOCUMENT 00 22 13

## DOCUMENT 00 31 00 - AVAILABLE PROJECT INFORMATION

### 1.1 AVAILABLE PROJECT INFORMATION

- A. This Document and its referenced attachments are part of the Procurement and Contracting Requirements for Project. They provide Owner's information for the Bidder's convenience and are intended to supplement rather than serve in lieu of the Bidder's own investigations. They are made available for the Bidder's convenience and information but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.
- B. Refer to Owner's RFP 15-11 for Schedule
  - 1. For Project time requirements, see the General Conditions, the Supplementary Conditions, and Section 01 10 00 "Summary."
- C. Permit Application: Complete building permit application and file with authorities having jurisdiction within five days of the Notice to Proceed.
- D. Related Requirements:
  - 1. Document 002113 "Instructions to Bidders" for the Bidder's responsibilities on examination of Project site and existing conditions.

END OF DOCUMENT 00 31 00

DOCUMENT 00 41 13 - BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Project Name: Re-Roofing Project.
- C. Project Location: North Parish School, Place Terrace, Greenfield MA.
- D. Owner: Town of Greenfield.
- E. Engineer: Michael Rainville, Structural Support & Design Services.

1.2 CERTIFICATIONS AND BASE BID

- A. Base Bid, Single-Prime (All Trades) Contract: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by Structural Support & Design Services and Engineer's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:
  - 1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_).
  - 2. The above amount may be modified by amounts indicated by the Bidder on the attached Document 004322 "Unit Prices Form."

1.3 BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 60 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:
  - 1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_).
- B. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.4 SUBCONTRACTORS AND SUPPLIERS

- A. The following companies shall execute subcontracts for the portions of the Work indicated:
  - 1.

2.

1.5 TIME OF COMPLETION

- A. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Owner, and shall fully complete the Work within 60 calendar days.

1.6 ACKNOWLEDGEMENT OF ADDENDA

- A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:
  - 1. Addendum No. 1, dated \_\_\_\_\_.
  - 2. Addendum No. 2, dated \_\_\_\_\_.
  - 3. Addendum No. 3, dated \_\_\_\_\_.
  - 4. Addendum No. 4, dated \_\_\_\_\_.

1.7 BID SUPPLEMENTS

- A. The following supplements are a part of this Bid Form and are attached hereto.
  - 1. Bid Form Supplement - Unit Prices.
  - 2. Bid Form Supplement - Bid Bond Form (AIA Document A310).

1.8 CONTRACTOR'S LICENSE

- A. The undersigned further states that it is a duly licensed contractor, for the type of work proposed, in Massachusetts, and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

1.9 SUBMISSION OF BID

- A. Respectfully submitted this \_\_\_\_ day of \_\_\_\_\_, 2015.
- B. Submitted By: \_\_\_\_\_(Name of bidding firm or corporation).
- C. Authorized Signature: \_\_\_\_\_(Handwritten signature).
- D. Signed By: \_\_\_\_\_(Type or print name).
- E. Title: \_\_\_\_\_(Owner/Partner/President/Vice President).
- F. Witness By: \_\_\_\_\_(Handwritten signature).

- G. Attest: \_\_\_\_\_ (Handwritten signature).
- H. By: \_\_\_\_\_ (Type or print name).
- I. Title: \_\_\_\_\_ (Corporate Secretary or Assistant Secretary).
- J. Street Address: \_\_\_\_\_.
- K. City, State, Zip: \_\_\_\_\_.
- L. Phone: \_\_\_\_\_.
- M. License No.: \_\_\_\_\_.
- N. Federal ID No.: \_\_\_\_\_ (Affix Corporate Seal Here).

END OF DOCUMENT 00 41 13



DOCUMENT 00 43 13 - BID SECURITY FORMS

1.1 BID FORM SUPPLEMENT

- A. A completed bid bond form is required to be attached to the Bid Form.

1.2 BID BOND FORM

- A. AIA Document A310, "Bid Bond," is the recommended form for a bid bond. A bid bond acceptable to Owner, or other bid security as described in the Instructions to Bidders, is required to be attached to the Bid Form as a supplement.
- B. Copies of AIA standard forms may be obtained from The American Institute of Architects; [www.aia.org/contractdocs/purchase/index.htm](http://www.aia.org/contractdocs/purchase/index.htm); email: [docspurchases@aia.org](mailto:docspurchases@aia.org); (800) 942-7732.

END OF DOCUMENT 00 43 13

DOCUMENT 00 43 22 - UNIT PRICES FORM

1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Prime Contract:
- C. Project Name: Re-Roofing Project.
- D. Project Location: North Parish School, Greenfield, MA.
- E. Owner: Town of Greenfield.
- F. Engineer: Michael Rainville.
- G. Construction Manager: To be determined.

1.2 BID FORM SUPPLEMENT

- A. This form is required to be attached to the Bid Form.
- B. The undersigned Bidder proposes the amounts below be added to or deducted from the Contract Sum on performance and measurement of the individual items of Work and for adjustment of the quantity given in the Unit-Price Allowance for the actual measurement of individual items of the Work.
- C. If the unit price does not affect the Work of this Contract, the Bidder shall indicate "NOT APPLICABLE."

1.3 UNIT PRICES

- A. Unit-Price No. 1: Removal and disposing of existing rotted or damaged wood decking and replacement with  $\frac{3}{4}$  in. plywood sheathing.
  - 1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_) per unit.
- B. Unit-Price No. 2: Removal and replacement of existing copper sheet metal flashing not indicated in the drawings.
  - 1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_) per unit.
- C. Unit-Price No. 3: Stripping existing shingles and underlayment, installing new felt underlayment and three tab shingles.
  - 1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_) per unit.

1.4 SUBMISSION OF BID SUPPLEMENT

- A. Respectfully submitted this \_\_\_\_ day of \_\_\_\_\_, 2015.
- B. Submitted By: \_\_\_\_\_(Insert name of bidding firm or corporation).
- C. Authorized Signature: \_\_\_\_\_(Handwritten signature).
- D. Signed By: \_\_\_\_\_(Type or print name).
- E. Title: \_\_\_\_\_(Owner/Partner/President/Vice President).

END OF DOCUMENT 00 43 22

DOCUMENT 00 43 93 - BID SUBMITTAL CHECKLIST

1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Prime Contract: \_\_\_\_\_.
- C. Project Name: Re-Roofing Project.
- D. Project Location: North Parish School, Greenfield, MA.
- E. Owner: Town of Greenfield.
- F. Engineer: Michael Rainville.
- G. Construction Manager: To be determined.

1.2 BIDDER'S CHECKLIST

- A. In an effort to assist the Bidder in properly completing all documentation required, the following checklist is provided for the Bidder's convenience. The Bidder is solely responsible for verifying compliance with bid submittal requirements.
- B. Attach this completed checklist to the outside of the Submittal envelope.
  - 1. Used the Bid Form provided in the Project Manual.
  - 2. Prepared the Bid Form as required by the Instructions to Bidders.
  - 3. Indicated on the Bid Form the Addenda received.
  - 4. Attached to the Bid Form: Bid Supplement Form - Unit Prices.
  - 5. Attached to the Bid Form: Proposed Schedule of Values Form.
  - 6. Attached to the Bid Form: Bid Bond OR a certified check for the amount required.
  - 7. Bid envelope shows name and address of the Bidder.
  - 8. Bid envelope shows the Bidder's Contractor's License Number.
  - 9. Bid envelope shows name of Project being bid.
  - 10. Bid envelope shows name of Prime Contract being bid, if applicable.
  - 11. Bid envelope shows time and day of Bid Opening.
  - 12. Verified that the Bidder can provide executed Performance Bond and Labor and Material Bond.

END OF DOCUMENT 00 43 93

## DOCUMENT 00 51 00 - NOTICE OF AWARD

### 1.1 BID INFORMATION

- A. Bidder: .
- B. Bidder's Address:
- C. Prime Contract:
- D. Project Name: Re-Roofing Project.
- E. Project Location: Place Terrace, Greenfield, MA.
- F. Owner: Town of Greenfield.
- G. Engineer: Michael Rainville.

### 1.2 NOTICE OF AWARD OF CONTRACT

- A. Notice: The above Bidder is hereby notified that their bid, dated, \_\_\_\_\_ for the above Contract has been considered and the Bidder is hereby awarded a contract for re-roofing the North Parish School.
- B. Contract Sum: The Contract Sum is \_\_\_\_\_ dollars (\$ \_\_\_\_\_ ).

### 1.3 EXECUTION OF CONTRACT

- A. Contract Documents: Copies of the Contract Documents will be made available to the Bidder immediately. The Bidder must comply with the following conditions precedent within 10 days of the above date of issuance of the Notice:
  - 1. Deliver to Owner three sets of fully executed copies of the Contract Documents.
  - 2. Deliver with the executed Contract Documents Bonds and Certificates of Insurance required by the Contract Documents.
- B. Compliance: Failure to comply with conditions of this Notice within the time specified will entitle Owner to consider the Bidder in default, annul this Notice, and declare the Bidder's Bid security forfeited.
  - 1. Within 10 days after the Bidder complies with the conditions of this Notice, Owner will return to the Bidder one fully executed copy of the Contract Documents.

### 1.4 NOTIFICATION

- A. This Notice is issued by:

1. Owner:\_\_\_\_\_.
2. Authorized Signature:\_\_\_\_\_ (Handwritten signature).
3. Signed By:\_\_\_\_\_ (Type or print name).
4. Title:\_\_\_\_\_ (Owner/Partner/President/Vice President).

END OF DOCUMENT 00 51 00

## DOCUMENT 00 60 00 - PROJECT FORMS

### 1.1 FORM OF AGREEMENT AND GENERAL CONDITIONS

- A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:
  - 1. AIA Document A105, "Standard Form of Agreement between Owner and Contractor for a Small Project, Where the Basis of Payment Is a Stipulated Sum."
    - a. The General Conditions for Project are included in AIA Document A105

### 1.2 ADMINISTRATIVE FORMS

- A. Administrative Forms: Additional administrative forms are specified in Division 01 General Requirements Sections.
- B. Copies of AIA standard forms may be obtained from the following:
  - 1. The American Institute of Architects: [www.aia.org/contractdocs/purchase/index.htm](http://www.aia.org/contractdocs/purchase/index.htm); [docspurchases@aia.org](mailto:docspurchases@aia.org); (800) 942-7732.
- C. Preconstruction Forms:
  - 1. Form of Performance Bond and Labor and Material Bond: AIA Document A312, "Performance Bond and Payment Bond."
- D. Information and Modification Forms:
  - 1. Form for Requests for Information (RFIs): AIA Document G716, "Request for Information (RFI)."
  - 2. Form of Request for Proposal: AIA Document G709, "Work Changes Proposal Request."
  - 3. Change Order Form: AIA Document G701, "Change Order."
- E. Payment Forms:
  - 1. Schedule of Values Form: AIA Document G703, "Continuation Sheet."
  - 2. Payment Application: AIA Document G702/703, "Application and Certificate for Payment and Continuation Sheet."
  - 3. Form of Contractor's Affidavit: AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  - 4. Form of Affidavit of Release of Liens: AIA Document G706A, "Contractor's Affidavit of Payment of Release of Liens."
  - 5. Form of Consent of Surety: AIA Document G707, "Consent of Surety to Final Payment."

END OF DOCUMENT 00 60 00

## SECTION 01 10 00 - SUMMARY

### PART 1 - GENERAL

#### 1.1 PROJECT INFORMATION

- A. Project Identification: Re-Roofing Project, North Parish School.
  - 1. Project Location: Place Terrace, Greenfield, MA.
- B. Owner: Town of Greenfield.
- C. Engineer: Michael Rainville, P.E..
- D. The Work consists of:
  - 1. Strip existing shingles and install new shingles.
  - 2. Re-coat existing low sloped roof areas.
  - 3. Replacing flashing and step flashing where indicated.
  - 4. Repair to existing downspouts.
  - 5. Re-coat asphalt lining of wooden gutters.
  - 6. Replace standing seam roof
  - 7. Replace curved metal roof.

#### 1.2 WORK RESTRICTIONS

- A. Contractor's Use of Premises: During construction, Contractor will have limited use of site indicated. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project and as follows:
  - 1. Owner will occupy premises during construction. Perform construction only during normal working hours (7 AM to 5 PM Monday thru Friday, other than holidays), unless otherwise agreed to in advance by Owner. Clean up work areas and return to usable condition at the end of each work period.
  - 2. Driveways, Walkways, and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
- B. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00



## SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 UNIT PRICES

- A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.
- B. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- C. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

#### 1.2 PAYMENT PROCEDURES

- A. Submit a Schedule of Values at least seven days before the initial Application for Payment. Break down the Contract Sum into at least one line item for each Specification Section in the Project Manual table of contents. Coordinate the schedule of values with Contractor's construction schedule.
  - 1. Arrange schedule of values consistent with format of AIA Document G703.
  - 2. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  - 3. 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.
  - 4. Provide separate line items in the schedule of values for initial cost of materials and for total installed value of that part of the Work.
  - 5. Provide a separate line item in the schedule of values for each allowance.
- B. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 or forms provided by Owner as form for Applications for Payment.
- C. Submit three copies of each application for payment according to the schedule established in Owner/Contractor Agreement.
  - 1. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor.
  - 2. 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.

3. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  - a. Include insurance certificates, proof that taxes, fees, and similar obligations were paid, and evidence that claims have been settled.
  - b. Include affidavit of payment of debts and claims on AIA Document G706.
  - c. Include affidavit of release of liens on AIA Document G706A.
  - d. Include consent of surety to final payment on AIA Document G707.
  - e. Submit final meter readings for utilities, a record of stored fuel, and similar data as of the date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 SCHEDULE OF UNIT PRICES

- A. Remove and dispose of rotted or damaged wood decking uncovered when the roof is stripped. Repair deck with  $\frac{3}{4}$ " plywood. Price per square foot.
- B. Removal and replacement of copper flashing where required and not indicated on the drawings. Price per square foot.
- C. Re-roofing: 3 tab shingles: price per square foot for stripping existing shingles, applying felt underlayment, and installing new shingles, includes cost of materials. Price per square foot.
  1. Quantity Allowance: Coordinate unit price with allowance adjustment requirements.

END OF SECTION 01 20 00

## SECTION 01 25 00 - SUBSTITUTION PROCEDURES.

### PART 1 - GENERAL

#### 1.1 SUBSTITUTION PROCEDURES

- A. Substitutions include changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- 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. Submit requests within 5 days after the Notice to Proceed.
  - 3. Identify product to be replaced and show compliance with requirements for substitutions. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified, a list of changes needed to other parts of the Work required to accommodate proposed substitution, and any proposed changes in the Contract Sum or the Contract Time should the substitution be accepted.
- C. Owner will review proposed substitutions and notify Contractor of their acceptance or rejection by Change Order. If necessary, Owner will request additional information or documentation for evaluation.
  - 1. Owner will notify Contractor of acceptance or rejection of proposed substitution within 7 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- D. Do not submit unapproved substitutions on Shop Drawings or other submittals.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

## SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 PROJECT MANAGEMENT AND COORDINATION

- A. Subcontract List: Submit a written summary identifying individuals or firms proposed for each portion of the Work.
- 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. List e-mail addresses and telephone numbers.
- C. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work.
- D. Requests for Information (RFIs): On discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI. Use forms acceptable to the Owner.
- E. Project Web Site: Use Owner's Project Web site for purposes of hosting and managing project communication and documentation until Final Completion.
- F. Schedule and conduct progress meetings at Project site at biweekly intervals. Notify Owner and Engineer of meeting dates and times. Require attendance of each subcontractor or other entity concerned with current progress or involved in planning, coordination, or performance of future activities.
  - 1. Record minutes and distribute to everyone concerned, including Owner and Engineer.

#### 1.2 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Owner's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Owner for Contractor's use in preparing submittals.
  - 1. Owner will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
    - a. Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    - b. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.
- B. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 1. 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.

2. Submit three copies of each action submittal. Owner will return two copies.
  3. Submit two copies of each informational submittal. Owner will not return copies.
  4. Owner will discard submittals received from sources other than Contractor.
- C. Paper Submittals: Place a permanent label or title block on each submittal for identification. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Owner. Include the following information on the label:
1. Project name.
  2. Date.
  3. Name and address of Contractor.
  4. Name and address of subcontractor or supplier.
  5. Number and title of appropriate Specification Section.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
  2. Name file with unique identifier, including project identifier, Specification Section number, and revision identifier.
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Owner.
- E. Identify options requiring selection by Owner.
- F. Identify deviations from the Contract Documents on submittals.
- G. Contractor's Construction Schedule Submittal Procedure:
1. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
  2. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections.
1. Post electronic submittals as PDF electronic files directly to Project Web site specifically established for Project.
    - a. Owner will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

## 2.2 ACTION SUBMITTALS

- A. Submit three paper copies of each submittal unless otherwise indicated. Owner will return two copies.
- B. Product Data: Mark each copy to show applicable products and options. Include the following:
  - 1. Manufacturer's written recommendations, product specifications, and installation instructions.
  - 2. Wiring diagrams showing factory-installed wiring.
  - 3. Printed performance curves and operational range diagrams.
  - 4. Testing by recognized testing agency.
  - 5. Compliance with specified standards and requirements.
- 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. Submit on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches. Include the following:
  - 1. Dimensions and identification of products.
  - 2. Fabrication and installation drawings and roughing-in and setting diagrams.
  - 3. Notation of coordination requirements.
  - 4. Notation of dimensions established by field measurement.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.
  - 1. If variation is inherent in material or product, submit at least three sets of paired units that show variations.

## 2.3 INFORMATIONAL SUBMITTALS

- A. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
- B. Qualification Data: Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- C. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

## 2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type 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.

- C. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
- D. Recovery Schedule: When periodic update indicates the Work is seven or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and indicate date by which recovery will be accomplished.

## PART 3 - EXECUTION

### 3.1 SUBMITTAL 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 Owner.
- B. Owner will review each action submittal, make marks to indicate corrections or modifications required, will stamp each submittal with an action stamp, and will mark stamp appropriately to indicate action.
- C. Informational Submittals: Owner will review each submittal and will not return it, or will return it if it does not comply with requirements. Owner will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

### 3.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Updating: At bi-weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribute copies of approved schedule to Owner, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.

END OF SECTION 01 30 00

## SECTION 01 40 00 - QUALITY REQUIREMENTS/Supporting Information.

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements, comply with the most stringent requirement. Refer uncertainties to Owner for a decision.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum. The actual installation may exceed the minimum within reasonable limits. Indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner for a decision.
- C. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. 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 re-inspecting.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, notices, receipts for fee payments, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
- E. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Owner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
  - 1. Notify Owner and Contractor of irregularities or deficiencies in the Work observed during performance of its services.



2. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
  3. Do not perform any duties of Contractor.
- 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 REPAIR AND PROTECTION

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

- A. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- B. Abbreviations and Acronyms: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.
  - 1. AF&PA - American Forest & Paper Association; [www.afandpa.org](http://www.afandpa.org).
  - 2. AIA - American Institute of Architects (The); [www.aia.org](http://www.aia.org).
  - 3. ARMA - Asphalt Roofing Manufacturers Association; [www.asphaltroofing.org](http://www.asphaltroofing.org).
  - 4. ASTM - ASTM International; (American Society for Testing and Materials International); [www.astm.org](http://www.astm.org).
  - 5. CSI - Construction Specifications Institute (The); [www.csinet.org](http://www.csinet.org).
  - 6. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
  - 7. NAAMM - National Association of Architectural Metal Manufacturers; [www.naamm.org](http://www.naamm.org).
  - 8. NRCA - National Roofing Contractors Association; [www.nrca.net](http://www.nrca.net).
  - 9. SSPC - SSPC: The Society for Protective Coatings; [www.sspc.org](http://www.sspc.org).
- C. 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 following list. Names, are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.
  - 1. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
  - 2. ICC-ES - ICC Evaluation Service, LLC; [www.icc-es.org](http://www.icc-es.org).

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 SECTION REQUIREMENTS

- A. Water and Electric Power: Available from Owner's existing system without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts and top and bottom rails.

#### 2.2 TEMPORARY FACILITIES

- A. Provide field offices, storage and fabrication sheds, and other support facilities as necessary for construction operations. 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.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. 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 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. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

### 3.2 SUPPORT FACILITIES INSTALLATION

- A. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

### 3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering staging area, except by entrance gates. Staging area to be determined by Owner.
- C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- D. Install and maintain temporary fire-protection facilities. Comply with NFPA 241.

### 3.4 MOISTURE AND MOLD CONTROL

- A. Before installation of weather barriers, protect materials from water damage and keep porous and organic materials from coming into prolonged contact with concrete.
  - 1. Protect stored and installed material from flowing or standing water.
  - 2. Remove standing water from decks.
  - 3. Keep deck openings covered or dammed.
- B. After installation of weather barriers but before full enclosure and conditioning of building, protect as follows:
  - 1. Discard water-damaged material.
  - 2. Do not install material that is wet.
  - 3. Discard, replace, or clean stored or installed material that begins to grow mold.
  - 4. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

### 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. Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion.
- C. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period.

END OF SECTION 01 50 00

## SECTION 01 60 00 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

- A. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced.
  - 1. Show compliance with requirements for comparable product requests.
  - 2. Owner will review the proposed product and notify Contractor of its acceptance or rejection.
- C. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
  - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - 2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - 3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
  - 4. Store materials in a manner that will not endanger Project structure.
  - 5. Store products that are subject to damage by the elements, under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.
- D. 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.

### PART 2 - PRODUCTS

#### 2.1 PRODUCT SELECTION PROCEDURES

- A. Provide products that comply with the Contract Documents, are undamaged, and, unless otherwise indicated, are new at the time of installation.
  - 1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.
  - 2. Where products are accompanied by the term "as selected," Owner will make selection.

B. Where the following headings are used to list products or manufacturers, the Contractor's options for product selection are as follows:

1. Products:

- a. Where requirements include "one of the following," provide one of the products listed that complies with requirements.
- b. Where requirements do not include "one of the following," provide one of the products listed that complies with requirements or a comparable product.

2. Manufacturers:

- a. Where requirements include "one of the following," provide a product that complies with requirements by one of the listed manufacturers.
- b. Where requirements do not include "one of the following," provide a product that complies with requirements by one of the listed manufacturers or another manufacturer.

## 2.2 COMPARABLE PRODUCTS

A. Owner will consider Contractor's request for comparable product when the following conditions are satisfied:

1. Evidence that the proposed product does not require 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.
3. List of similar installations for completed projects, if requested.
4. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

## SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 EXECUTION REQUIREMENTS

- A. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

#### 1.2 CLOSEOUT SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Certified List of Incomplete Items: Final submittal at Final Completion.
- C. Operation and Maintenance Data: Submit one copy of manual.
- D. Record Product Data: Submit one paper copy of each submittal.

#### 1.3 SUBSTANTIAL COMPLETION PROCEDURES

- A. 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.
- B. Submittals Prior to Substantial Completion: Before requesting Substantial Completion inspection, complete the following:
  - 1. Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 2. Submit closeout submittals specified in other sections, including project record documents, operation and maintenance manuals, similar final record information, warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 3. Submit maintenance material submittals specified in other sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect.
  - 4. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Before requesting Substantial Completion inspection, complete the following:
  - 1. Advise Owner of pending insurance changeover requirements.
  - 2. Remove temporary facilities and controls.
  - 3. Complete final cleaning requirements.
  - 4. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.



- D. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Owner will proceed with inspection or advise Contractor of unfulfilled requirements. Owner will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

#### 1.4 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting inspection for determining final completion, complete the following:
  - 1. Submit a final Application for Payment.
  - 2. Submit certified copy of Owner's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner. Certified copy of the list shall state that each item has been completed or otherwise resolved.
- B. Submit a written request for final inspection for acceptance. On receipt of request, Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.
  - 1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

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

#### 2.2 OPERATION AND MAINTENANCE DOCUMENTATION

- 1. Copies of warranties. Include procedures to follow and required notifications for warranty claims

### PART 3 - EXECUTION

#### 3.1 EXAMINATION AND PREPARATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed.

- B. Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance.
  - 1. Verify compatibility with and suitability of substrates.
  - 2. Examine walls, floors, and roofs for suitable conditions.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Take field measurements as required to fit the Work properly. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication.
- E. Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- F. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for preparation of substrates to receive subsequent work.

### 3.2 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
- B. Comply with manufacturer's written instructions and recommendations.
- C. 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.
- D. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place. Where size and type of attachments are not indicated, verify size and type required for load conditions.
- E. Use products, cleaners, and installation materials that are not considered hazardous.

### 3.3 CUTTING AND PATCHING

- A. 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.

### 3.4 CLEANING

- A. Clean Project site and work areas daily, including common areas. Dispose of materials lawfully.
  - 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.
  - 3. Remove debris from concealed spaces before enclosing the space.

- B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:
  - 1. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds that are neither planted nor paved.

### 3.5 OPERATION AND MAINTENANCE MANUAL PREPARATION

- A. 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.

END OF SECTION 01 70 00

## SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

##### A. Action Submittals:

1. Waste Management Plan: Submit plan within seven days of date established for commencement of the Work.

### PART 2 - PRODUCTS

### PART 3 - EXECUTION

#### 3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

#### 3.2 RECYCLING WASTE

- A. General: Recycle paper and beverage containers used by on-site workers.

#### 3.3 DISPOSAL OF WASTE

- A. Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
- B. Do not burn waste materials.

END OF SECTION 01 74 19

## SECTION 02 41 19 - SELECTIVE DEMOLITION

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. It is not expected that hazardous materials will be encountered in the Work. If hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Hazardous materials will be removed by Owner under a separate contract.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with EPA regulations and with hauling and disposal regulations of authorities having jurisdiction.

### PART 3 - EXECUTION

#### 3.1 DEMOLITION

- A. Maintain services/systems indicated to remain and protect them against damage during selective demolition operations. Before proceeding with demolition, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of the building.
- B. Locate, identify, shut off, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
- C. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- D. Protect walls, ceilings, floors, and other existing finish work that are to remain.
- E. Provide temporary weather protection to prevent water leakage and damage to structure and interior areas.
- F. Remove demolition waste materials from Project site and legally dispose of them in an EPA-approved landfill. Do not burn demolished materials.

END OF SECTION 02 41 1

## SECTION 07 01 50.19 - PREPARATION FOR RE-ROOFING

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Field Conditions: Owner will occupy portions of building immediately below reroofing area. Conduct reroofing so Owner's operations are not disrupted. Provide Owner with not less than 48 hours' notice of activities that may affect Owner's operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Use infill materials matching existing roofing system materials unless otherwise indicated.
- B. General: Use auxiliary reroofing preparation materials recommended by roofing system manufacturer.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Protect existing roofing system that is not to be reroofed.
- B. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.
- C. Maintain roof drains in functioning condition. Prevent debris from entering or blocking roof drains. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday.

#### 3.2 ROOF TEAR-OFF

- A. Full Roof Tear-Off: Shingled Areas: remove existing roofing and other roofing system components down to the deck.

### 3.3 DECK PREPARATION

- A. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Owner. Do not proceed with installation until directed by Owner.
- B. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Owner. Do not proceed with installation until directed by Owner.

### 3.4 INFILL MATERIALS INSTALLATION

- A. Immediately after roof tear-off and, if needed, inspection and repair of deck, fill in tear-off areas to match existing roofing system construction.
- B. Install new roofing patch over roof infill area. If new roofing is installed the same day tear-off is made, roofing patch is not required.

### 3.5 BASE FLASHING REMOVAL

- A. Where indicated in the drawings, remove existing base flashings. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.
- B. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish.

END OF SECTION 07 01 50.19

## SECTION 07 01 50.74 – REHABILITATION OF BUILT-UP ROOFING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

##### A. JOB OVERVIEW

1. Conduct adhesion test to ensure compatibility with substrate.
2. All flashings, blisters, splits, cracks, and roof penetrations must be repaired and treated per manufacture specification.
3. Remove all dirt, debris, etc. by mechanical brush, stiff broom, vacuum, power washing etc. All surfaces must be clean and dry.
4. Apply base coat and reinforcing fabric to all flashing details, drains, and repairs prior to installation of base coat on roof field.
5. Apply base coat at rate of 2 gal./100 sq. ft. (32 wet mils).
6. Allow base coat to cure (24 hours).
7. Apply finish coat at rate of 1 gal./100 sq. ft. (16 wet mils).
8. Do not permit traffic on completed roof surfaces until complete cure.

##### B. This Section includes the following:

1. Roof re-coating preparation including roof patching and cleaning preparation for coating.
2. Rehabilitation or replacement of base flashings.
3. Application of fluid-applied roof membrane and flashings over existing built-up asphalt roofing.

##### C. Related Requirements:

1. Division 00 Document "Available Information."
  - a. Construction Drawings for existing roofing system.
2. Division 01 Section "Summary" for use of the premises and phasing requirements, and for restrictions on use of the premises due to Owner or tenant occupancy.
3. Division 01 Section "Summary" for description of scope of building envelope rehabilitation, use of the premises and phasing requirements, and for restrictions on use of the premises due to Owner or tenant occupancy, for full building rehabilitation projects.

#### 1.3 MATERIALS OWNERSHIP

- A. Demolished materials shall become Contractor's property and shall be removed from Project site.

#### 1.4 DEFINITIONS

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



- B. Existing Roofing System: Built-up asphalt roofing, and components and accessories between deck and roofing membrane.
- C. Roofing Re-Coating Preparation: Existing roofing that is to remain and be prepared to accept restorative coating application.
- D. Patching: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system and replacement with similar materials.
- E. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.
- F. Existing to Remain: Existing items of construction that are not indicated to be removed.

#### 1.5 PERFORMANCE REQUIREMENTS

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

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Contractor's Product Certificate: Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.
- B. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.
  - 1. Certificate indicating Installer is qualified in Project jurisdiction to perform asbestos abatement if applicable.
- C. Warranties: Unexecuted sample copies of special warranties.
- D. Inspection Reports: Daily reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions required and carried out.

#### 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: To include in maintenance manuals.
- B. Warranties: Executed copies of approved warranty forms.

#### 1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and the following:

1. Qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
- B. **Manufacturer Qualifications:** Approved manufacturer listed in this Section with minimum five years experience in manufacture of specified products in successful use in similar applications.
1. **Approval of Other Manufacturers and Comparable Products:** Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
    - a. Product data sheets.
    - b. Samples of each component.
    - c. Sample warranty.
- C. **Roofing Inspector Qualifications:** A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
1. An authorized technical employee of the manufacturer.
- D. **Roofing Rehabilitation Pre-installation Conference:** Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to roofing system.
1. Meet with Owner; roofing re-coating materials manufacturer's representative; roofing re-coating Installer including project manager and foreman; and installers whose work interfaces with or affects re-coating including installers of roof accessories and roof-mounted equipment requiring removal and replacement as part of the Work.
  2. Review methods and procedures related to re-coating preparation, including membrane roofing system manufacturer's written instructions.
  3. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.
  4. Review roof drainage during each stage of re-coating and review roof drain plugging and plug removal procedures.
  5. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  6. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect re-coating.
  7. Review HVAC shutdown and sealing of air intakes.
  8. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
  9. Review procedures for unexpected discovery of asbestos-containing materials.
  10. Review governing regulations and requirements for insurance and certificates if applicable.
  11. Review existing conditions that may require notification of Owner before proceeding.

## 1.9 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately below re-coating area. Conduct re-coating so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

- B. Protect building to be rehabilitated, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from rehabilitation operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- D. Weather Limitations: Proceed with rehabilitation work only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.
  - 1. Store all materials prior to application at temperatures between 60 and 90 deg. F.
  - 2. Apply coatings within range of ambient and substrate temperatures recommended by manufacturer. Do not apply materials when air temperature is below 50 or above 110 deg. F.
  - 3. Do not apply roofing in snow, rain, fog, or mist.
- E. **Hazardous Materials:** It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.
  - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify the Owner. Hazardous materials will be removed by Owner under a separate contract.

#### 1.10 WARRANTY

- A. Special Warranty for Roof Rehabilitation: Written warranty in which Manufacturer agrees to repair roof rehabilitation installations that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Membrane failures including rupturing, cracking, or puncturing.
  - 2. Qualified Installer Requirement: Installer must meet requirements of Quality Assurance Article.
  - 3. Installation Inspection Requirement: By Roofing Inspector in accordance with requirements of Part 3 Field Quality Control Article.
  - 4. Annual Manufacturer Inspection and Preventive Maintenance Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's annual inspections and preventive maintenance is included in the Contract Sum. Inspections to occur in Year 2 and 5 following completion.
  - 5. Warranty Period: 12 years from date of completion of rehabilitation work.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. **Basis-of-Design Manufacturer/Product:** The roof system specified in this Section is based upon products of Tremco, Inc., Beachwood, OH, (800) 562-2728, [www.tremcoroofing.com](http://www.tremcoroofing.com) that are named in other Part 2 articles. Subject to compliance with requirements, provide the named product or an approved comparable product by one of the following:

1. Tremco, Inc.
2. Or Owner-Approved Equal.

## 2.2 MATERIALS

- A. General: Re-coating materials recommended by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system.
- B. Temporary Roofing Materials: Selection of materials and design of temporary roofing is responsibility of Contractor.
- C. Infill Materials: Where required to replace test cores and to patch existing roofing, use infill materials matching existing membrane roofing system materials, unless otherwise indicated.

## 2.3 FLUID-APPLIED ROOFING MEMBRANE

- A. **Polyurethane Roof Coating, Base Coat:** Fire-resistant, elastomeric, single-component, asbestos-free, moisture-curing, aromatic urethane high-performance roof base coat for two-coat system.
  1. Basis of Design Product: **Tremco, Geogard LO Base.**
  2. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: Less than 50 g/L.
  3. Elongation at 77 deg. F, minimum, ASTM D 2370: 500 percent.
  4. Flexibility at 0 deg F, 1/8 inch dia. mandrel, ASTM D 1737: Pass.
  5. Hardness, Shore A, minimum, ASTM D 2240: 35.
- B. **Polyurethane Roof Coating, Finish Coat:** Solar reflective, fire-resistant, elastomeric, single-component, asbestos-free, moisture-curing, aliphatic urethane high-performance roof coating, CRRC-listed and Energy Star qualified
  1. Basis of Design Product: Tremco, Geogard LV Finish Coat.
  2. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: Less than 250 g/L.
  3. Elongation at 77 deg. F, minimum, ASTM D 2370: 250 percent.
  4. Flexibility at 0 deg F, 1/8 inch dia. mandrel, ASTM D 1737: Pass.
  5. Hardness, Shore A, minimum, ASTM D 2240: 80.
- C. Polyester Reinforcing Fabric: Stitch-bonded polyester fabric, minimum 3 oz./sq. yd., for fluid-applied membrane and flashing.
  1. Basis of Design Product: Tremco, Permafab.

## 2.4 AUXILIARY ROOFING COATING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with existing roofing system and fluid-applied roofing system.
- B. Metal Surface Primer: Single-component, water based primer to promote adhesion of base coat to metal surfaces.
  1. Basis of Design Product: Tremco, AlphaGuard M-Prime.
- C. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine existing roofing substrates, with Installer present, for compliance with requirements and for other conditions affecting application and performance of roof coatings.
  - 1. Verify compatibility of approved re-coating system with and suitability of substrates.
  - 2. Verify that substrates are visibly dry and free of moisture.
  - 3. Verify that roofing membrane surfaces have adequately aged to enable proper bond with re-coating system base coat.
  - 4. Verify that existing roofing membrane is free of blisters, splits, open laps, indications of shrinkage, and puncture damage or other indications of impending roof system failure.
  - 5. Application of fluid-applied re-coating membrane indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. **Protect existing roofing system** that is indicated not to be rehabilitated, and adjacent portions of building and building equipment.
  - 1. Comply with warranty requirements of existing roof membrane manufacturer.
  - 2. Mask surfaces to be protected. Seal joints subject to infiltration by coating materials.
  - 3. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
  - 4. Maintain temporary protection and leave in place until replacement roofing has been completed.
- B. **Shut down air intake equipment** in the vicinity of the Work in coordination with the Owner. Cover air intake louvers before proceeding with re-coating work that could affect indoor air quality or activate smoke detectors in the ductwork.
  - 1. Verify that rooftop utilities and service piping affected by the Work have been shut off before commencing Work.
- C. **Maintain roof drains** in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
  - 1. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

### 3.3 ROOFING RE-COATING PREPARATION

- A. Membrane Surface Preparation:
  - 1. Remove loose aggregate from aggregate-surfaced built-up bituminous roofing.
  - 2. Remove blisters, ridges, buckles, and other substrate irregularities from existing roofing membrane that would inhibit application of uniform, waterproof coating.
  - 3. Repair membrane at locations where irregularities have been removed.
  - 4. Broom clean existing substrate.
  - 5. Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating by power washing at maximum 800 psi. Allow to dry thoroughly.
  - 6. Verify that existing substrate is dry before proceeding with application of coating. Spot check substrates with an electrical capacitance moisture-detection meter.

7. Verify adhesion of new products.

### 3.4 APPLICATION

- A. The base coat and finish coat may be applied by brush, roller, squeegee, or heavy-duty airless splay. Preferred method of application is by roller. When applying system over a previously coated substrate, a test patch should be applied to determine compatibility and adhesion.

### 3.5 FLUID-APPLIED MEMBRANE APPLICATION AND REPAIRS

- A. Fluid-Applied Flashing Application: Complete base coat and polyester reinforcement at parapets, curbs, penetrations, and drains prior to application of field of fluid-applied membrane.
  1. All flashings, blisters, splits, fishmouths, alligatoring, roof top penetrations should be three coursed prior to base coat application at 1 gal./100 sq. ft. (16 wet mil) base coat, fabric, 2 gal./100 sq. ft. (32 wet mils) base coat and taper a minimum of 2" beyond edges in each direction.
  2. Extend coating minimum of 8 inches up vertical surfaces and 4 inches onto horizontal surfaces.
  3. Embed polyester reinforcement into wet base coat. Lap adjacent flashing pieces of polyester minimum 3 inches along edges and 6 inches at end laps.
  4. Roll surface of polyester reinforcing to completely embed and saturate fabric. Leave finished base coat with fabric free of pin holes, voids, or openings.
- B. Roof Drains
  1. Remove existing clamping ring and clean membrane under surface of clamping ring. Clamping ring must be reinstalled if rain is in the forecast to ensure rainwater does not enter the building below the membrane at the drain.
  2. Apply base coat at 1 gal./100 sq. ft. (16 wet mils) covering all existing membrane.
  3. Cut a 40" x 40" section of fabric and embed into wet base coat without wrinkles.
  4. Apply second coat of base coat at 2 gal./100 sq. ft. (32 wet mils) and allow to cure.
  5. Apply finish coat at 1 gal./100 sq. ft. (16 wet mils) and allow to cure.
  6. Reinstall clamping ring and all drain bowls.
  7. Replace any broken drain ring clamping bolts.
- C. Base Coat: Apply base coat to flashing surfaces in accordance with manufacturer's written instructions. Back roll to achieve minimum wet mil coating thickness of 2 gal./100 sq. ft. (32 wet mils) unless otherwise recommended by manufacturer; verify thickness of base coat as work progresses.
  1. Apply base coat on properly prepared surfaces and spread coating evenly.
  2. Allow base coat to cure prior to application of top coat (24 hours).
- D. Top Coat: Allow base coat to cure (24 hours). Apply top coat uniformly in an application rate of 1 gal./100 sq. ft (16 wet mils) to complete installation to field of roof and flashings.
  1. Prime base coat prior to application of top coat if top coat is not applied within 72 hours of the base coat application, using manufacturer's recommended primer.
  2. Apply top coat to flashings extending coating up vertical surfaces and out onto horizontal surfaces 4 inches. Install top coat over field base coat and spread coating evenly.
  3. Avoid foot traffic on new fluid-applied membrane for a minimum of 24 hours.

### 3.6 FIELD QUALITY CONTROL

- A. Roof Inspection: **Contractor shall engage** roofing system manufacturer's technical personnel to inspect roofing installation , and submit report to the Architect. Notify Architect or Owner 48 hours in advance of dates and times of inspections. Inspect work as follows:
  - 1. Upon completion of preparation of first component of work, prior to application of re-coating materials.
  - 2. Following application of re-coating to flashings and application of base coat to field of roof.
  - 3. Upon completion of re-coating but prior to re-installation of other roofing components.
- B. Repair fluid-applied membrane where test inspections indicate that they do not comply with specified requirements.
- C. Arrange for additional inspections, at Contractor's expense, to verify compliance of replaced or additional work with specified requirements.

### 3.7 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period.
- B. Correct deficiencies in or remove coating that does not comply with requirements, repair substrates, and reapply coating.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

### 3.8 THE PROTECTIVE COATING

- A. General
  - 1. For optimum results, the protective coating must not be applied to wet or damp surfaces, and postponed if rain is imminent. Failure to comply can result in blistering.
  - 2. The finish coat must be applied to the base coat within 72 hours.
  - 3. If over 72 hours pass, the base coat must be reactivated using primer at a rate of 400 sq. ft./gal. This includes all flashing details as well as patch and repair work and tie-ins.
  - 4. Base coat and finish coat are not recommended for roofs where all plies have become embrittled or where insulation has become saturated.
  - 5. Not recommended over un-weathered asphalt less than two seasons old, tar roofs, and silicone based coatings.
  - 6. Apply at temperatures over 40 degrees F.

END OF SECTION 07 01 50.74

## SECTION 07 31 13 - ASPHALT SHINGLES

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data, Samples, and ICC-ES evaluation reports.
- B. Warranties: Manufacturer's standard written warranty, signed by manufacturer agreeing to promptly repair or replace asphalt shingles that fail in materials for a period of 25 years, prorated, with first five years non-prorated.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A. Identify products with appropriate markings of testing and inspecting agency acceptable to authorities having jurisdiction.

#### 2.2 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

- A. Three-Tab-Strip Asphalt Shingles: ASTM D 3462/D 3462M, glass-fiber reinforced, mineral-granule surfaced, and self-sealing; with tabs regularly spaced.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following, or an approved equal:
    - a. Atlas Roofing Corporation.
    - b. CertainTeed Corporation.
    - c. GAF Materials Corporation.
    - d. Owens Corning.
- B. Felts: ASTM D 226/D 226M, Type I, No. 15 asphalt-saturated organic felt.
- C. Self-Adhering Sheet Underlayment: ASTM D 1970/D 1970M, SBS-modified asphalt; mineral-granule or slip-resisting-polyethylene surfaced; with release paper backing; cold applied.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following, or an approved equal:
    - a. Atlas Roofing Corporation.
    - b. Carlisle Residential; a division of Carlisle Construction Materials.
    - c. CertainTeed Corporation.
    - d. GAF Materials Corporation.
    - e. Grace Construction Products; W.R. Grace & Co. -- Conn.
    - f. Owens Corning.



- D. Asphalt Roofing Cement: ASTM D 4586/D 4586M, Type II, asbestos free.
- E. Roofing Nails: Aluminum, stainless-steel, or hot-dip galvanized-steel shingle nails, minimum 0.120-inch diameter, of sufficient length to penetrate 3/4 inch into solid wood decking or extend at least 1/8 inch through OSB or plywood sheathing.
  - 1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.
- F. Felt-Underlayment Nails: hot-dip galvanized-steel wire with low-profile capped heads or disc caps, 1-inch minimum diameter.
- G. Sheet Metal Flashing and Trim: Comply with requirements in Section 07 62 00 "Sheet Metal Flashing and Trim."
  - 1. Sheet Metal: Match existing.
  - 2. Drip Edge: Formed sheet metal to match existing.
  - 3. Open-Valley Flashing: If existing valley flashing is damaged, fabricate with 1-inch-high, inverted-V profile at center of valley and equal flange widths of 12 inches, to match existing.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with asphalt shingle recommendations in NRCA's "The NRCA Roofing Manual: Steep-Slope Roof Systems."
- B. Apply self-adhering sheet underlayment at eaves and rakes from edges of roof to at least 36 inches inside exterior wall line.
- C. Apply self-adhering sheet underlayment at valleys extending 18 inches on each side.
- D. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment.
- E. Install valleys complying with NRCA instructions. Construct sheet metal open valleys.
- F. Install metal flashings to comply with requirements in Section 07 62 00 "Sheet Metal Flashing and Trim."
- G. Install first and remaining courses of asphalt shingles, stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses and maintaining uniform exposure.

END OF SECTION 07 31 13

## SECTION 07 41 13 - METAL ROOF PANELS

### 1.1 SECTION REQUIREMENTS

- A. Summary: Factory-formed metal roof panels, fasciae, and trim.
- B. Submittals: Product Data and color Samples.
- C. Warranties: Manufacturer's standard written warranty, signed by manufacturer agreeing to promptly repair or replace products that fail to remain weather-tight for the period of 10 years.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Wind-Uplift Resistance of Roof Assemblies: UL 580, Class 60.

### 2.2 METAL ROOF PANELS

- A. Roof Panel Type: concealed-fastener, standing-seam metal roof panels.
  - 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. Architectural Building Components.
    - b. Architectural Metal Systems.
    - c. Butler Manufacturing Company; a division of BlueScope Buildings North America, Inc.
    - d. Fabral.
    - e. Firestone Metal Products, LLC.
    - f. Garland Company, Inc. (The).
    - g. Metal-Fab Manufacturing, LLC.
- B. Metallic-Coated Steel Roof Panels: Fabricated from galvanized steel sheet, ASTM A 653/A 653M, G90, or aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M, Class AZ50.
  - 1. Nominal Metal Thickness: 0.028 inch.
  - 2. Finish: Manufacturer's standard two-coat fluoropolymer system with color coat containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight.

## 2.3 ACCESSORIES

- A. Provide components required for a complete roof panel assembly, including trim, fasciae, clips, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
- B. Flashing and Trim: Formed from 0.025-inch nominal thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet. Provide flashing and trim as required to seal against weather and to provide finished appearance. Finish flashing and trim with same finish system as adjacent metal roof panels.
- C. Self-Adhering Sheet Underlayment, High Temperature: Butyl or SBS-modified asphalt; slip-resisting-polyethylene surfaced; with release-paper backing; cold applied. Stable after testing at 240 deg. F and passes after testing at minus 20 deg. F; ASTM D 1970.
- D. Felt Underlayment: ASTM D 226, Type I (No. 15), asphalt-saturated organic felts.
- E. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.
- F. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Apply self-adhering sheet underlayment at eaves and rakes from edges of roof to at least 24 inches inside exterior wall line.
- B. Apply self-adhering sheet underlayment at valleys extending 18 inches on each side.
- C. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment.
- D. Apply slip sheet over underlayment before installing metal roof panels.
- E. Install flashings to cover underlayment to comply with requirements specified in Section 07 62 00 "Sheet Metal Flashing and Trim."
- F. Rigidly fasten metal roof panels to structure at one and only one location for each panel. Allow remainder of panel to move freely for thermal expansion and contraction. Predrill panels for fasteners.
  - 1. Steel Roof Panels: Use stainless-steel fasteners for surfaces exposed to the exterior and galvanized-steel fasteners for surfaces exposed to the interior.
  - 2. Aluminum Roof Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior and aluminum or galvanized-steel fasteners for surfaces exposed to the interior.
  - 3. Provide metal closures at rake edges rake walls and each side of ridge caps.
  - 4. Flash and seal metal roof panels with weather closures at eaves, rakes, and perimeter of all openings.
  - 5. Install ridge caps as metal roof panel work proceeds.

- G. Install gaskets, joint fillers, and sealants where required for weatherproof performance of metal roof panel assemblies. Provide types of gaskets, fillers, and sealants recommended by metal roof panel manufacturer.
- H. Separate dissimilar metals with a bituminous coating or self-adhering sheet underlayment.

END OF SECTION 07 41 13

## SECTION 07 61 00 - SHEET METAL ROOFING

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

- A. Warranty on Finishes: Manufacturer agrees to repair or replace sheet metal roofing that shows evidence of deterioration of factory-applied finishes within 10 years.
- C. Installation Warranty: Installer agrees to repair or replace components of sheet metal roofing that fail in materials or workmanship within two years.

### PART 2 – PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" and CDA's "Copper in Architecture Handbook"] unless otherwise indicated.

#### 2.2 ROOFING SHEET METALS

- A. Metallic-Coated Steel Sheet: Galvanized-steel sheet, ASTM A 653, G90, or aluminum-zinc alloy-coated steel sheet, ASTM A 792, Class AZ50 coating designation, Grade 40; with smooth, embossed surface; 0.022-inch nominal thickness.
  - 1. Finish: Manufacturer's standard two-coat fluoropolymer system with color coat containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight.

#### 2.3 ACCESSORIES

- A. Felt Underlayment: ASTM D 226, Type I (No. 15), asphalt-saturated organic felts.
- B. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners.
  - 1. Exposed Fasteners: Heads matching color of sheet metal roofing using plastic caps or factory-applied coating.

- E. Metal Accessories: Matching sheet metal roofing in finish and material required for a complete roofing assembly, including trim, copings, fasciae, clips, flashings, metal closures, and similar items.

## 2.4 FABRICATION

- A. Fabricate sheet metal roofing to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, geometry, metal thickness, and other characteristics of installation.
  - 1. Flat-Seam Roofing: Form flat-seam panels from metal sheets 20 by 28 inches with 1/2-inch notched and folded edges.
  - 2. Standing-Seam Roofing: Form standing-seam panels with finished seam height of 1 inch.

## PART 3 – EXECUTION

### 3.1 INSTALLATION

- A. Apply self-adhering sheet underlayment at eaves and rakes from edges of roof to at least 36 inches inside exterior wall line.
- B. Apply self-adhering sheet underlayment at valleys extending 18 inches on each side.
- C. Install felt underlayment on roof deck not covered by self-adhering sheet underlayment.
- D. Apply slip sheet over underlayment before installing metal roof panels and related flashing.
- E. Metal Protection: Where dissimilar metals contact each other, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating.
  - 1. Coat concealed side of aluminum with bituminous coating where it contacts wood, ferrous metal, or cementitious construction.
- F. Anchor roofing securely in place, with provisions for thermal and structural movement. Install with concealed fasteners unless otherwise indicated.
- G. Install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks, considering metal temper and reflectivity. Provide uniform, neat seams with minimum exposure of solder and sealant. Fold back sheet metal to form a hem on concealed side of exposed edges unless otherwise indicated.
  - 1. Install cleats to hold sheet metal panels in position. Attach each cleat with two fasteners to prevent rotation.
  - 2. Space cleats not more than 12 inches o.c. Bend tabs over nails.
  - 3. Provide expansion-type cleats for roof panels that exceed 30 feet in length.

- I. Seal joints as shown and as required for leak-proof construction.

END OF SECTION 07 61 00

## SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data, Shop Drawings, and color Samples.
- B. Coordinate installation of sheet metal flashing and trim with adjoining roofing and wall materials, joints, and seams to provide a leakproof, secure, and noncorrosive installation.
- C. Fabricator Qualifications: For copings and low-slope roof edge flashings that are FM Approvals approved, shop shall be listed as able to fabricate required details as tested and approved.
- D. Warranty on Finishes: Manufacturer agrees to repair or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within 10 years.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Standard: Comply with NRCA's "The NRCA Roofing Manual" SMACNA's "Architectural Sheet Metal Manual" and CDA's "Copper in Architecture Handbook" unless otherwise indicated. Conform to dimensions and profiles shown unless more stringent requirements are indicated.

#### 2.2 SHEET METAL

- A. Copper: ASTM B 370; Temper H00 or H01, cold rolled, not less than 16 oz./sq. ft.
- B. Metallic-Coated Steel Sheet: Galvanized steel sheet, ASTM A 653, G90, Class AZ50 coating designation, Grade 40; 0.022-inch nominal thickness.
  - 1. Finish: Manufacturer's standard two-coat fluoropolymer system with color coat containing not less than 70 percent PVDF resin by weight.
  - 2. Concealed Finish: Manufacturer's standard white or light-colored acrylic or polyester backer finish.

#### 2.3 ACCESSORIES

- A. Felt Underlayment: ASTM D 226, Type I (No. 15), asphalt-saturated organic felts.



- B. Self-Adhering, High-Temperature Sheet Underlayment: Butyl or SBS-modified asphalt; slip-resisting-polyethylene surfaced; with release paper backing; cold applied. Stable after testing at 240 deg F and passes after testing at minus 20 deg F; ASTM D 1970.
- C. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners.
  - 1. Exposed Fasteners: Heads matching color of sheet metal roofing using plastic caps or factory-applied coating.
  - 2. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
  - 3. Fasteners for Copper: Copper, hardware bronze, or Series 300 stainless steel.
  - 4. Fasteners for Zinc-Tin Alloy-Coated Stainless-Steel Sheet: Series 300 stainless steel.
  - 5. Fasteners for Metallic-Coated Steel Sheet: Hot-dip galvanized steel or Series 300 stainless steel.
- D. Solder for Copper: ASTM B 32, Grade Sn50.
- E. Butyl Sealant: ASTM C 1311, solvent-release butyl rubber sealant.
- F. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

## 2.4 FABRICATION

- A. Fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to the design, dimensions, geometry, metal thickness, and other characteristics of item indicated.
- B. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
- C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that are capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with cited sheet metal standards. Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.
- B. Seams: Fabricate nonmoving seams with flat-lock seams.
- C. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Prein edges of sheets to a width of 1-1/2 inches; however, reduce prein where prein surface would show in completed Work.

1. Do not solder metallic-coated steel sheets.
  2. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
- D. Metal Protection: Where dissimilar metals contact each other, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating.
1. Coat concealed side of aluminum with bituminous coating where it contacts wood, ferrous metal, or cementitious construction.

END OF SECTION 07 62 00

## SECTION 07 71 00 - ROOF SPECIALTIES

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

- A. Warranties: Provide manufacturer's standard written warranty, without monetary limitation, signed by manufacturer agreeing to promptly repair or replace roof specialties that show evidence of deterioration of factory-applied finishes for the period of 10 years.

### PART 2 - PRODUCTS

#### 2.1 ROOF SPECIALTIES

- A. Gutters and Downspouts:
  - 1. Downspouts: Plain rectangular with mitered elbows. Furnish wall brackets of same material and finish as downspouts, with anchors.
    - a. Copper: 16 oz./sq. ft.
- B. Counterflashings: Manufactured units of heights to overlap top edges of base flashings by 4 inches designed to snap into through-wall-flashing receiver and compress against base flashings with joints lapped.
  - 1. Copper: 16 oz./sq. ft..

#### 2.2 MATERIALS

- A. Copper Sheet: ASTM B 370, Temper H00 or H01, cold rolled, mill finish.
- B. Felt Underlayment: ASTM D 226, Type I (No. 15), asphalt-saturated organic felts.
- C. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements.
  - 1. Exposed Penetrating Fasteners: Gasketed screws with heads matching color of metal.
  - 2. Fasteners for Copper Sheet: Copper, hardware bronze, or Series 300 stainless steel.
- D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant.
- E. Butyl Sealant: ASTM C 1311, solvent-release butyl rubber sealant.
- F. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement.
- B. Separate dissimilar metals with a bituminous coating or polymer-modified, bituminous sheet underlayment.
- C. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate wood blocking or sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.
- E. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Prein edges of sheets to be soldered to a width of 1-1/2 inches, except where pretinned surface would show in finished Work.
- F. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c.

END OF SECTION 07 71 00

## SECTION 07 92 00 - JOINT SEALANTS

### PART 1 - GENERAL

#### 1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and color Samples.
- B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg. F.

### PART 2 - PRODUCTS

#### 2.1 JOINT SEALANTS

- A. Low-Emitting Materials: Sealants shall comply with the following limits for VOC content:
  - 1. Architectural Sealants: 250 g/L.
  - 2. Nonmembrane Roof Sealants: 300 g/L.
  - 3. Other Sealants: 420 g/L.
  - 4. Sealant Primers for Nonporous Substrates: 250 g/L.
  - 5. Sealant Primers for Porous Substrates: 775 g/L.
  - 6. Modified Bituminous Sealant Primers: 500 g/L.
  - 7. Other Sealant Primers: 750 g/L.
- B. Low-Emitting Materials:
  - 1. Exterior reactive sealants shall have a VOC content of not more than 50 g/L or 4 percent by weight, whichever is greater.
  - 2. Other exterior caulks and sealants shall have a VOC content of not more than 30 g/L or 2 percent by weight, whichever is greater.
- C. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.
- D. Sealant for General Exterior Use Where Another Type Is Not Specified, One of the Following:
  - 1. Single-component, non-sag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and for Use NT.

#### 2.2 MISCELLANEOUS MATERIALS

- A. Provide sealant backings of materials that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with ASTM C 1193.
- B. Install sealant backings to support sealants during application and to produce cross-sectional shapes and depths of installed sealants that allow optimum sealant movement capability.

END OF SECTION 07 92 00