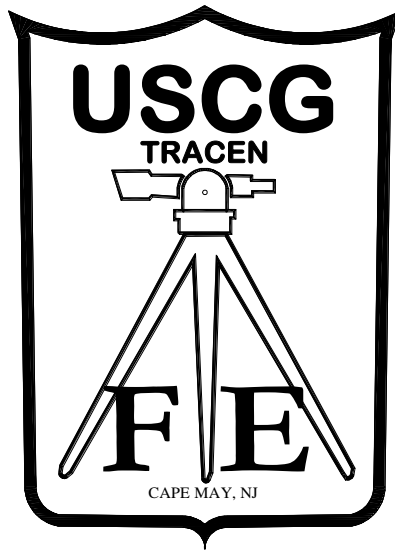


**TRAINING CENTER  
CAPE MAY, NJ**

**FACILITIES ENGINEERING  
DIVISION**



**CMS-1592**

**Project No.: 13253052**

**JUNE 2020**

**SPECIFICATION FOR ROOF REPLACEMENT  
OCEANSIDE, R.P.F.N. 163  
TRACEN CAPE MAY  
CAPE MAY, NEW JERSEY**

**AUTHOR: Paul C. Farnan, AIA, NCARB**

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DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 11 00  
SCOPE OF WORK

1. WORK INCLUDED: Work of the Project includes all materials, labor, equipment, services, and all operations necessary for Roof Replacement, Oceanside, RPFN #163, United States Coast Guard Training Center (TRACEN) Cape May, New Jersey.:

1.1 Major work items include but are not limited to:

- A. Removal of existing asphalt shingle roofing system, approximately 6,300 Sq. Ft., and all underlying;
- B. Repair and/or replacement of damaged roof sheathing, approximately 630 Sq. Ft.;
- C. Installation of new asphalt shingle roofing system, approximately 3,500 Sq. Ft.;
- D. Installation of new built-up roofing system, approximately 2,800 Sq. Ft.;
- E. Installation of solid polymer trim board, approximately 500 LF;
- F. Installation of perforated vinyl soffit, approximately, 250 LF;
- G. Mobilization, demobilization and clean up;
- H. Supervision, materials, equipment, transportation, labor and all other incidentals necessary to complete the work.

2. DRAWINGS: Drawings and the accompanying specifications are the property of the Government and comprise legal documentation that pertains exclusively to this project. Drawings will be made available in a format determined by the solicitation method. CEU Cleveland will not provide hard copies of drawings.

2.1 Construction Drawings:

T-7159-AD	TITLE SHEET	SHT 1 of 2
T-7160-AD	ROOF PLAN AND DETAILS	SHT 2 of 2

SECTION 01 11 16  
WORK BY OTHERS

1. WORK NOT INCLUDED IN THE CONTRACT: Non-contractor personnel will accomplish the following work items necessary for completion of the project. However, the contractor must coordinate accomplishment of these work items with the appropriate parties noted below in accordance with Section 01 14 16, "Coordination".
  - 1.1 Work by other Contractors or Service Companies: Contractor personnel and equipment associated with another construction contract in progress may require access to the site during execution of this contract. The contractor shall coordinate work and ensure that work operations do not interfere with the contract currently in progress. The contractor shall allow service contract personnel access to the site for trash removal, snow removal, grounds maintenance or the performance of other related service contracts. The Coast Guard will advise the contractor of the trash removal, grounds maintenance or other recurring maintenance schedules.

SECTION 01 12 16  
PROJECT PHASING

1. To minimize interference with Coast Guard operations, utilize the following phasing sequence to accomplish contract work. Coordinate timing between successive phases with Coast Guard personnel to allow for necessary relocations.

PHASE I - N/A There is no phasing in this project.

SECTION 01 14 00  
CONTRACTOR WORK HOURS

1. WORK HOURS: The Contractor will be permitted to perform construction work through the hours of 7:00 am and 4:30 PM Mondays through Thursdays. The Coast Guard base hosts recruit graduations on most Fridays year round. The contractor shall expect increased automobile and pedestrian traffic on Fridays. Excessive noise and other disruptive activities shall be limited on Fridays between the hours of 10:00 am and 12:00 during graduation ceremonies unless otherwise approved by the COR. No major deliveries shall be scheduled between 8:00 and 12:00. Note any departures from these work hours on the Daily Reports.

2. SATURDAY, SUNDAY AND HOLIDAYS: The contractor shall provide the Contracting Officer's Representative at least forty-eight hours advance notice prior to working on weekends or Federal holidays. The Government may reject any such request without impacting the completion time of the contract.
3. CONTRACT COMPLETION: The contractor shall complete work within the time frame indicated upon issuance of the Notice to Proceed for Submittals. Limitations imposed by these work hours will not entitle the Contractor additional time to complete the project. Refer to FAR Clause 52.211-10 "Commencement, Prosecution and Completion of Work".
4. ACCESS TO BASE: Prior to commencement of the contract, the Contractor and all sub-contractors are required to register with the USCG TRACEN Cape May Security Office. Background screenings will be performed by TRACEN Security for all employees of the Contractor and sub-contractors working on the Base. The Contractor shall contact USCG TRACEN Cape May Security Office at (609) 898-6915 for detailed requirements.

SECTION 01 14 13  
PRE-BID SITE VISITS

1. GENERAL: Bidders are responsible for visiting the site to field verify existing conditions and determine actual dimensions and the nature of the work required. Failure to visit the site does not relinquish the bidder from determining the extent and scope of the work required and estimating the difficulty and cost to complete the project. Requests for equitable adjustments, in either time or money, arising from failing to field verify site conditions may be denied. Provisions regarding the site visit requirements are outlined in FAR Clause 52.236-3 "Site Investigation and Conditions Affecting the Work".
2. SITE VISIT: During the Solicitation Phase of this Project, two Pre-Bid site visits will be scheduled by the Owner. The first Pre-Bid site visit will held approximately two weeks after the release of the Solicitation. The second Pre-Bid site visit will be held approximately three weeks after the release of the Solicitation. It is the responsibility of the contractor to contact the Project Architect, Paul C. Farnan, AIA, NCARB Facilities Engineering, Design Section, at (609) 898-6313 or Paul.C.Farnan@uscg.mil to obtain the specific dates, as no other site visits will be scheduled.

SECTION 01 14 14  
PRE-CONSTRUCTION SITE CONDITIONS

1. SITE CONDITION VERIFICATION: The Contractor shall verify the conditions of the existing site, equipment and facilities potentially affected by the work under this contract. When designated on the submittal list, the contractor shall photograph and/or videotape the conditions in order to document their pre-construction condition. Copies of photos and videos shall be submitted to Contracting Officer prior to starting work.

SECTION 01 14 16  
COORDINATION

1. INTERFERENCE WITH COAST GUARD OPERATIONS: Accomplish work in a manner that causes minimal impact on normal operations. The Contractor shall notify the Contracting Officer's Representative at least five working days in advance of any planned outages of water, electrical, telephone, or sanitary facilities. Notify the Contracting Officer's Representative at least one week prior to beginning construction.
2. TRAINING CENTER REGULATIONS:
  - 2.1 The Contractor, his employees, and subcontractors shall become familiar with and obey all Training Center regulations. All personnel employed on the project shall keep within the limits of the work and avenues of ingress and egress, and shall not enter any other areas outside of the site of the work unless required to do so in the performance of their duties. The Contractor's equipment shall be conspicuously marked for identification
  - 2.2 There shall be NO SMOKING in any Coast Guard building.
  - 2.3 Storage Areas: The Contracting Officer's Representative will determine exact location and boundaries of staging areas. Under no circumstances shall materials be stored in areas that will interfere with aircraft operations.
  - 2.4 Storm Protection: If a gale force wind warning or higher is issued, take precautions to minimize any danger to persons and protect the work and nearby Government property. Precautions shall include, but not be limited to, closings, removing loose materials, tools and equipment, from exposed locations. Remove and secure scaffolding and temporary work. Close openings in the work area if storms of lesser intensity are imminent.

SECTION 01 14 19  
FIELD ADJUSTMENTS

1. The Contracting Officer's Representative may authorize field adjustments. Field adjustments are those alterations that do not affect time, price, or intent of the contract documents. All field adjustments shall be documented in the Daily Reports and on the As-Built Drawings.

SECTION 01 18 14  
BUILDING PERMITS

1. NO BUILDING PERMITS from state or local governments are required for work performed on federal property.

SECTION 01 18 17  
ENVIRONMENTAL PERMITS

1. Unless directed by other sections of this specification, the Contractor will not be responsible for obtaining environmental permits.

SECTION 01 26 13  
REQUESTS FOR INFORMATION

1. SUMMARY:

- 1.1 Section Includes: Administrative requirements for requests for information.

2. DEFINITIONS:

- 2.1 Request for Information: A document submitted by the Contractor requesting clarification of a portion of the contract documents, hereinafter referred to as RFI (Request for Information).

- 2.2 Proper RFIs: A properly prepared request for information shall include a detailed written statement that indicates the specific Drawings or Specification in need of clarification and the nature of the clarification requested.

- A. RFIs shall be sequentially numbered.
- B. Drawings shall be identified by drawing number and location on the drawing sheet.
- C. Specifications shall be identified by Section number, page and paragraph.

- 2.3 Improper RFIs: RFIs that are not properly prepared.

- A. Improperly prepared RFIs will not be processed by the Contracting Officer, but will be returned unprocessed.

- 2.4 Frivolous RFIs: RFIs that request information that is clearly shown on the Contract Documents.

- A. Frivolous RFIs may be returned unprocessed.

3. CONTRACTOR'S REQUESTS FOR INFORMATION:

- 3.1 During Bid Phase: Bidders shall submit all questions, in writing, to the Contracting Officer. Requests for Information (RFI) shall be submitted no later than five (5) business days prior to the bid due date. RFIs will be addressed by the USCG three (3) business days prior to the bid due date.



- 3.2 During Construction Phase: When the Contractor is unable to determine from the Contract Documents, the material, process or system to be installed, the Contracting Officer shall be requested to make a clarification of the indeterminate item.
- A. Wherever possible after contract award, such clarification shall be requested at the next site visit by the Contracting Officer's Representative (COR), with the response entered on the daily reports. When clarification at the COR's site visit is not possible either because of the urgency of the need, or the complexity of the item, Contractor shall prepare and submit an RFI to the Contracting Officer.
  - B. Contractor shall endeavor to minimize the number of RFIs. In the event that the process becomes unwieldy, in the opinion of the Contracting Officer because of the number and frequency of the RFIs submitted, the Contracting Officer may require the Contractor to abandon the process and submit future requests as either submittals, substitutions or requests for change.
  - C. RFIs shall be submitted on the form provided by the Contracting Officer. Forms completely filled in, and if prepared by hand, shall be fully legible after photocopying, scanning or fax transmission. Each page of the attachments to RFIs shall bear the RFI number in the upper right corner.
  - D. RFIs shall be originated by the Prime Contractor.
    - 1. RFIs from subcontractors or material suppliers shall be submitted through, reviewed by, and signed by the Prime Contractor prior to submitting to the Contracting Officer.
    - 2. The Contracting Officer will neither act on nor respond to RFIs received directly from subcontractors or suppliers.
  - E. Contractor shall carefully study the Contract Documents to assure that the requested information is not available therein. RFIs which request information available in the Contract Documents will be deemed either Improper or Frivolous as defined above.
  - F. In cases where RFIs are issued to request clarification of coordination issues, for example, pipe and duct routing, clearances, specific locations of work shown diagrammatically, and similar items when feasible, Contractor shall fully lay out a suggested solution using drawings or sketches drawn to scale, and submit with the RFI.
  - G. RFIs shall not be used for the following purposes:
    - 1. To request approval of submittals.
    - 2. To request approval of substitutions.
    - 3. To request changes which entail additional cost or credit.

4. To request different methods of performing work than those drawn and specified.
- H. In the event the Contractor believes that a clarification by the Contracting Officer results in additional cost or time, the Contractor shall not proceed with the work indicated by the RFI until a modification is prepared and approved. RFIs do not automatically justify a cost increase in the work or a change in the project schedule.
  1. Answered RFIs shall not be construed as approval to perform extra work.
- I. Contractor shall prepare and maintain a log of RFIs, and at any time requested by the Contracting Officer, Contractor shall furnish copies of the log showing outstanding RFIs. Contractor shall note unanswered RFIs in the log.
- J. Contractor shall allow up to 14 days review and response time for RFIs, however, the Contracting Officer will endeavor to respond in a timely fashion to RFIs.
- K. The Government reserves the right to issue a change order to expedite the work per FAR Clause 52.243-4, Changes.

#### 4. CONTRACTING OFFICER'S RESPONSE TO RFIs:

- 4.1 Contracting Officer will respond to RFIs on one of the following forms:
  - A. Proper RFIs:
    1. Change Order
    2. Request for Proposal
  - B. Improper or Frivolous RFIs:
    1. Unprocessed RFIs will be returned with a stamp or notation: Not Reviewed.
  - C. Answers to properly prepared RFIs may be made directly upon the RFI form with supplementary instructions as necessary.

### SECTION 01 31 19 PROJECT MEETINGS

1. LOCATION: Project meetings will be conducted either on-site or with a conference call. The following meetings may be held:
  - 1.1 Pre-Construction Conference: After award of a contract, the Coast Guard will arrange a conference with the contractor, and necessary Coast Guard personnel. The purpose of this conference is to orient the Contractor to Government

procedures for wage rates, contractual and administrative matters, and to discuss specific issues regarding actual construction.

- 1.2 Progress and Technical Review Meetings: These meetings generally take place at the project site. Either party may request a meeting to review the progress of the project and/or review or clarify the technical requirements of the specifications.

SECTION 01 32 16  
CONSTRUCTION SCHEDULE, SCHEDULE OF VALUES,  
AND PROGRESS SCHEDULE

1. In accordance with the Notice to Proceed letter, the Contractor shall submit the following:
  - 1.1 Construction Schedule-This schedule shall be prepared using a horizontal bar graph with time scale. It shall be in an industry accepted Project Management format and shall accurately display:
    - A. All major categories of work to be performed within the required contract completion date broken out in sufficient detail to track progress throughout the life of the contract. Major work categories should include but are not limited to mobilization, carpentry, plumbing, mechanical, electrical, roofing, concrete, site work, and demobilization. In addition to construction activities, procurement times for critical items, submittal turnaround time, mobilization, final inspection, punchlist work, and demobilization shall be shown on the schedule.
    - B. The duration of each work category.
    - C. Any concurrent work categories.
  - 1.2 Schedule of Values-This schedule shall be prepared as a **detailed** cost breakdown of the contract price and be submitted with the Construction Schedule. This schedule shall include but not be limited to costs of materials, equipment, and labor for all major work categories shown on the Construction Schedule. The Contractor shall adhere to the following guidelines when developing the Schedule of Values.
    - A. Format - The line items in the Schedule of Values shall be the same as that of the Construction Schedule.
    - B. Bonds - Bonding costs will only be paid in a lump sum if they are broken out separately and included with the schedule of values. The Contractor shall provide evidence that he has furnished full payment to the surety.
    - C. Materials - To request progress payments for materials delivered to the construction or fabrication site, the particular category of work associated

with the materials must be broken down into separate material and labor costs.

2. **UPDATES:** Each month and /or with each progress payment request, the Contractor **shall** submit the following:
  - 2.1 Progress Schedule-This schedule shall be an update of the Construction Schedule. It shall show the current schedule of all work.
    - A. Modifications - If modifications are made to the contract, the work added shall be tracked separately from the original Construction Schedule and shall maintain its individuality on the Progress Schedule throughout the life of the contract. Progress Payment requests shall not lump modification costs into the original contract price.

SECTION 01 32 26  
CONSTRUCTION DAILY REPORTS

1. **GENERAL:** The Contractor shall complete a Daily Report for each and every day after mobilization. The importance of an accurate, fully detailed Daily Report, promptly delivered to the designated On-Site Representative cannot be overemphasized. The report shall provide an accurate cumulative summary of the history and performance of the work. The Daily Report shall document weather; work hours; work in-place; inspections and tests conducted, and their results; dimensional checks; equipment and material checks; data on workers by classification; the mobilization and demobilization of construction equipment; materials delivered to the site; and any other pertinent noteworthy event; e.g., personnel injury, site visit by Coast Guard personnel, etc.
2. **RESPONSIBILITY:** The Daily Reports play an important role in settling disputes and claims for both parties. For this reason the On-Site Representative and the Contractor's Superintendent, together, should review the report to ensure its completeness and accuracy. Each day's report shall be submitted to the On-Site Representative no later than 10:00 a.m. the following morning. The maximum allowable retainage will be enforced for late, sporadic or non-submission of Daily Reports. In the absence of an On-Site Representative the Contractor shall mail the Daily Reports directly to the Contracting Officer every Friday. Should the Daily Report indicate an accident, environmental issue, OSHA violation or any crisis the On-Site Representative deems important, the Report should be faxed immediately to the Contracting Officer at (216) 902-6278.
3. **DESIGNATED ON-SITE REPRESENTATIVE RESPONSIBILITY:** After a Notice to Proceed for site work has been issued the On-Site Representative shall complete a Daily Report for each day until the Contractor mobilizes. After the Contractor is at the site, the On-Site Representative shall ensure that the Contractor completes the Daily Report in accordance with Paragraphs 1 and 2 above. Any items of dispute or other notes the On-Site Representative feels appropriate shall be added to the Daily Report.

The On-Site Representative is also responsible for informing the COR when the contractor fails to submit daily reports.

SECTION 01 33 00  
SUBMITTAL PROCEDURES

1. GENERAL: The Contractor shall submit to the COR and Contracting Officer, one (1) electronic copy in “.pdf” format of submittals required by this specification and/or itemized on the "List of Submittals" found at the end of this division.
2. REQUEST: A "CONTRACT ITEM ACCEPTANCE REQUEST" shall accompany all submittals. All items shall be individually listed and clearly identified, referencing the applicable Section and Paragraph. A copy of this form is located at the end of this division and may be reproduced as needed. Both sides of Contract Item Acceptance Request sheet shall be submitted. The sheet shall be signed and dated by the Contractor.
  - 2.1 The Contract Item Acceptance Request and the item information shall be consolidated into one .pdf file and one email. Email to the COR and Contracting Officer. Manage email size so as not to exceed the limit allowed by the Coast Guard system. If the email is rejected by the system, reduce the file size and resubmit.
  - 2.2 Up to eleven (11) items may be listed on an individual approval request. Number each Contract Item Acceptance Request consecutively (*Submittals # 1, 2, etc.*) and re-submittals with letters (*Submittal #1A is the first re-submittal of Submittal #1*).
  - 2.3 Submittals shall be forwarded to the COR and Contracting Officer. The contractor shall allow 14 calendar days, excluding mailing time, for the review process in the Construction Schedule and all project planning. In instances where submittal review must be expedited, the Contractor may annotate the Contract Item Acceptance Request as "Urgent" to request a prompt return. The Coast Guard will make every effort to accelerate the review of each urgent submittal; however, the Contractor should not anticipate a reduced time schedule and shall plan project progress accordingly.
3. DEVIATIONS
  - 3.1 Deviation from specification:
    - A. The COR and Contracting Officer will consider requests for deviations/substitutions only if submitted within fifteen (15) calendar days after award.
    - B. Deviations may be considered when a product becomes unavailable through no fault of the Contractor.

- C. The Contractor shall document each request with complete data substantiating compliance of proposed deviation with the Contract documents. *Request for deviation shall not be submitted on a Request for Information (RFI) form.*
- D. A request constitutes a representation that the Contractor:
  - 1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
  - 2. Will provide the same warranty for deviation as for specified product.
  - 3. Will coordinate installation and make changes to other work which may be required for the work to be completed at no additional cost to the Government.
  - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
  - 5. Will reimburse the Government for review or redesign services associated with re-approval by the COR and Contracting Officer.
- E. If the deviation has a lesser value than the product originally specified, the Contractor shall provide a credit to the Government.
- F. Deviations will not be considered when they are indicated or implied on Shop Drawings or Product Data submittals, without a separate written request, or when acceptance will require revisions to the Contract documents.

3.2 Deviation submittal procedures:

- A. The Contractor shall mark the “Deviation” block on the Contract Item Acceptance Request (CIAR) form and provide the information stated in Paragraph 3.1 above.
- B. The Contractor shall submit shop drawings, product data, and certified test results attesting to proposed product equivalence. Burden of proof is on the Contractor.
- C. The COR and Contracting Officer will then review the “deviation” request and either accept or reject the deviation. The COR and Contracting Officer’s acceptance of the deviation signifies that the Contractor has provided the information required in Paragraph 3.1. If a credit is due the government, the Contracting Officer will notify the Contract Specialist and the deviation will be processed utilizing the Change Request procedures for a modification to the contract/task order.
- D. The COR and Contracting Officer will notify the Contractor of acceptance/rejection of the deviation via an accepted or rejected CIAR. The Contracting Officer will notify the Contractor, in writing, if a modification to the contract is required.

- E. If a request for deviation is received without the documentation stated above, the COR and Contracting Officer will return the submittal to the contractor for the required information.
- 4. **ACCEPTANCE:** Submittals will be stamped "Accepted, "Accepted with Comment", or "Resubmit". Accepted, Accepted with Comment or Resubmit for each item will be indicated on the Contract Item Acceptance Request form and one copy returned to the Contractor.
  - 4.1 **Prompt re-submittal of items is required.** The Contractor shall furnish a new Contract Item Acceptance Request numbered in accordance with the requirements of paragraph 2.1.
  - 4.2 The actions taken by the Coast Guard are only for general conformity to the contract drawings and specifications and shall not relieve the Contractor from responsibility for error in dimensions and compliance with all terms stipulated by contract.
- 5. **DEFECTIVE WORK:** Approval of Submittals does not restrict the Government's right to reject departures from contract requirements, use of damaged or improperly installed items/materials, or latent defects, nor does it prejudice the Government's rights of rejecting any work found defective at Final Inspection and Acceptance.
  - 5.1 Work started or completed prior to submittal acceptance is **solely** at Contractor's risk and may jeopardize contract performance.
- 6. **TYPES OF SUBMITTALS:** The paragraphs given below provide descriptions for each type of submittal that may be required within the individual sections of this specification. Refer to the Individual Sections themselves and the List of Submittals document for the required submittals.
  - 6.1 **Product Data:** Submit pursuant to this section for review for conformance with contract.
    - A. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
    - B. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
  - 6.2 **Shop Drawings:** Submit pursuant to this section for review for conformance with contract.
    - A. Shop drawing submittals shall be drawings, diagrams, schedules and other data specially prepared for the work of this contract by the contractor or any

subcontractor, manufacturer, supplier or distributor to illustrate a portion of work to be installed under this contract.

- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual specification sections, provide shop drawings signed and sealed by professional engineer responsible for designing components shown on shop drawings.
  - 1. Include signed and sealed calculations to support design.
  - 2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
  - 3. Make revisions and provide additional information when required by authorities having jurisdiction.

6.3 Samples: Submit pursuant to this section for review for conformance with contract.

- A. Samples For Selection as Specified in Product Sections:
  - 1. Submit to Contracting Officer's Representative for aesthetic, color, or finish selection.
  - 2. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns.
- B. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- C. Include identification on each sample, with full Project information.
- D. Submit number of samples specified in individual specification sections.
- E. Reviewed samples which may be used in the Work are indicated in individual specification sections.
- F. Samples will not be used for testing purposes unless specifically stated in specification section.

6.4 Design Data: Submit pursuant to this section for review for conformance with contract.

- A. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

6.5 Test Reports: Submit pursuant to this section for review for conformance with contract.



- A. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.
  - B. The testing shall have been performed in a laboratory meeting the requirements specified herein. The tests shall have been performed within three years of submittal of the reports for approval. Test reports shall be accompanied by the certificates from the manufacturer certifying that the material and equipment proposed to be supplied is of the same type, quality, manufacture, and make as tested.
- 6.6 Certifications: Manufacturer's certification furnished by the Contractor on items of materials and equipment incorporated into the work will be accepted only when this method will assure full compliance with the provisions of the contract. Pre-printed certificates will not be acceptable. All certifications shall be in the original. The original of all manufacturers' certifications shall name the appropriate item of equipment or material, specification, standard, or other document specified as controlling the quality of that item and shall have attached thereto certified copies of test data upon which the certifications are based. All certificates shall be signed by the manufacturer's official authorized to sign certificates of conformance or compliance.
- A. When specified in individual specification sections, submit certification.
  - B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- 6.7 Laboratory Reports: Reports shall cite the contract requirements, the test or analysis procedures used, the actual test results, and include a statement that the item tested or analyzed conforms or fails to conform to the specification requirements. Each report shall be conspicuously stamped on the cover sheet in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements as the case may be. All test reports shall be signed by a representative of the testing laboratory authorized to sign certified test reports. The Contractor shall arrange for immediate and direct delivery of the signed original of all reports, certifications, and other documentation.
- 6.8 Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing.
- A. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- 6.9 Manufacturer's Field Reports: When specified in the individual specification sections, submit Manufacturer's Field Reports on tests conducted by manufacturers. Reports shall cite the contract requirements, the test or analysis procedures used, the

actual test results, and include a statement that the item tested or analyzed conforms or fails to conform to the specification requirements. Each report shall be conspicuously stamped on the cover sheet in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements as the case may be. All test reports shall be signed by a representative of the testing laboratory authorized to sign certified test reports. The Contractor shall arrange for immediate and direct delivery of the signed original of all reports, certifications, and other documentation.

- 6.10 **Manufacturer and Installer Qualifications:** When specified in the individual specification sections, submit qualifications of the manufacturers or installers as required. Qualifications shall include a list of projects of similar nature and a list of five references, minimum, with all contact information. Additional references may be required upon request.
- 6.11 **Manufacturer's Inspection Reports:** When specified in the individual specification section, submit Manufacturer's Inspections Reports prepared by the Manufacturer's Field Representative. Reports shall cite name and contact information of inspector, date of inspection, time on and off the site, weather conditions at time of inspection, contractors on site, number of workmen, equipment, improvements installed, overall quality of work, deficiencies and other concerns, recommended corrective actions and any other information required by the manufacturer.

#### SECTION 01 35 29 SAFETY PROGRAM

1. **GENERAL:** The Contractor is wholly responsible for work site safety. The Contractor shall implement a safety program that protects the lives and health of personnel in the construction area, prevents damage to property, and avoids work interruptions. The Contractor shall provide appropriate safety barricades, signs, signal lights, etc. (see Section 01 56 00, "Lights, Signs & Barricades") as well as complying with the requirements of all applicable Federal, State and Local safety laws, rules and regulations.
2. **COMPLIANCE:** The Contractor is specifically required to comply with the requirements of the U. S. Army Corps of Engineers "Safety and Health Requirements Manual" (EM 385-1-1, latest version available) and the "Accident Prevention" clause (FAR 52.236-13). Once accepted, this safety plan shall become part of the contract requirements. Note: This review/acceptance does not in any way relinquish the Contractor from responsibility for work site safety nor the obligation to comply with the OSHA regulations found in 29 CFR 1910 & 1926 or any other State or Local safety law, rule or regulation applicable to the contract work. The Coast Guard will cooperate fully with the Department of Labor (Occupational Safety and Health Administration) in their enforcement of OSHA regulations.

3. SAFETY PLAN: The Contractor shall submit a written safety plan. At a minimum, this plan shall describe the Contractor's general safety program and identify specific safety provisions for hazards incidental to the contract work; e.g., elevated working surfaces, working over water, working from floating work platforms, overhead crane operations, etc.

SECTION 01 51 00  
TEMPORARY UTILITIES

1. GENERAL: All temporary utility connections shall be compatible with existing materials and equipment to provide safe and efficient installation, operation and removal.
2. ELECTRICITY: The Contractor may utilize electrical power from the nearest electrical receptacle or panelboard, subject to availability. OSHA requirements will govern the use of such utility. All equipment used shall be supplied by the Contractor. US Coast Guard does not make any guarantee against any voltage variation or service interruption.
  - 2.1 Utility Outages and Shutdown: Needed power outages shall be arranged only with prior approval from Contracting Officer's Representative (COR), with duration and affected areas held to a minimum.
3. TELEPHONE: Telephone services will not be available for use by the Contractor.
4. WATER HOOKUP: Water will be made available at the nearest hydrant or exterior hose bib. All connections to the water system shall be equipped with back flow protection. Temporary potable water pipes and hoses shall be sterilized before being placed in operation and every time the system is opened to the atmosphere for repair or relocation.
5. SANITARY FACILITIES: It shall be the Contractor's responsibility to furnish and maintain approved portable toilet facilities for all Contractor personnel. The On-Site Representative will designate the physical location for the facility and the Contractor shall maintain the toilet facility to the satisfaction of the Government. Contractor personnel are forbidden to use toilet facilities within existing buildings.

SECTION 01 51 13  
EQUIPMENT/UTILITY LOCKOUT AND TAGOUT REQUIREMENTS

1. GENERAL: The Contractor shall comply with OSHA 29 CFR 1910.147, "The Control of Hazardous Energy" (Lockout/Tagout). The Contractor shall provide a Lockout/Tagout Plan to the Contracting Officer prior to starting any work affected by the energy in the equipment/utility system.
2. APPLICATION: The Contractor shall be responsible for locking out and tagging out

of service, all equipment/utility systems involved in the work under this contract. After the Contracting Officer's Representative has approved an outage, Government personnel and the Contractor shall independently secure the equipment/utility system and tag the respective system out of service. The Contractor shall provide their own locks and chains that are required to secure the equipment/utility systems; e.g., steam, water, air, and/or electricity.

SECTION 01 51 16  
TEMPORARY FIRE PROTECTION

1. TEMPORARY FIRE PROTECTION: Install and maintain temporary fire-protection facilities to protect against predictable and controllable fire loss. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations".

1.1 HOT WORK PERMIT

- A. Prior to performing "Hot Work" (welding, burning, lead melting, blowtorches, tar pots, etc.) or operating other flame-producing devices, the contractor shall request a Hot Work permit. This permit will be issued by the Training Center Fire Department through the Contracting Officer's Representative (COR). This permit will be issued only after job site inspection by a member of the Fire Department for a specific task.
  1. All Hot Work will be shut down 30 minutes before the end of work and a fire watch shall be kept at the scene of operation during this 30 minutes.
  2. Extinguishers and Fire Watch Personnel: The contractor shall furnish, in accordance with all applicable requirements of the NFPA (National Fire Protection Association) Standards, sufficient fire extinguishers and fire watch personnel to protect the area in which his work is being performed. The size and type of fire extinguisher used will be subject to review by the Training Center Fire Department through the COR.

1.2 BURNING

- A. The burning of trash or other waste material shall be prohibited.

1.3 HEATING

- A. All sources of temporary heat shall carry an "Underwriters Laboratory" label and portable heaters shall be located to avoid ignition of combustible materials.
- B. Electrical heaters shall not be connected to extension cords.
- C. Open drumfires are prohibited.

#### 1.4 ELECTRICAL

- A. All portable electric devices (saws, sanders, compressors, lights, extension cords) not required to be left on shall be disconnected at the close of work each day.
- B. All wires plugged into electrical outlets shall be equipped with male plugs. The inserting of the bare ends of wires into outlets is prohibited.

#### 1.5 FLAMMABLES

- A. Oil painting materials (paint, brushes, empty paint cans, rags, paint clothes, drop cloths, etc.) and flammable liquids shall be removed from the building at the close of work each day.
- B. Highly flammable liquids such as paints, thinner, etc. that are to be kept inside buildings shall be held to an absolute minimum except in buildings authorized and designed for such storage.
- C. Storage of gasoline in excess of (5) gallon containers shall be permitted only by specific approval from the Training Center Fire Chief through the Contracting Officer's Representative.
- D. All storage areas containing flammable liquids shall be marked with signs indicating "FLAMMABLES" and "NO SMOKING".

#### 1.6 FIRE HYDRANTS

- A. Fire hydrants shall not be used without approval of the Training Center Fire Department through the Contracting Officer's Representative. Where permission is granted for the use of fire hydrants, the contractor shall be required to furnish a gate valve and backflow preventer to fit the 2 1/2-inch outlets.
- B. The Training Center Fire Department through the Contracting Officer's Representative will have control of the opening and closing of fire hydrants.
- C. A clear space of 15 feet on both sides of fire hydrants shall be maintained at all times.

#### 1.7 EXISTING FIRE DEVICES

- A. Fire hose or extinguishers in existing buildings shall not be removed from their locations, unless specifically indicated to be relocated or removed by the plans and specification for the project. No fire hose or extinguishers shall be used for any purpose other than combating a fire.

1.8 SMOKING:

- A. Smoking is strictly prohibited in all Government buildings. Smoking is only permitted in designated smoking areas. There shall be NO SMOKING or unsupervised open flame permitted inside any structure, temporary or permanent; nor within 25 feet of combustible material or within 50 feet of flammable liquids or compressed gasses.

1.9 FIRE REPORTING

- A. All contractors providing office space or trailers with telephone service shall place or post the fire reporting phone number by the phone. All contractor personnel shall be instructed how to report a fire. Any fire, no matter how small, shall be reported, including those already extinguished, to the Training Center Fire Department immediately. If a Training Center telephone is used, dial extension 6333. If any other telephone is used, dial 911.

SECTION 01 52 13  
FIELD OFFICES

- 1. OFFICE AND STORAGE SHED: A field office for the COR is not required. The Contractor shall provide his own office and storage shed or trailer, if necessary. No equipment or material storage will be provided by the Coast Guard. Locations of the office and sheds shall be provided by the COR at the Pre-Construction meeting.

SECTION 01 54 30  
CONFINED SPACE ENTRY

- 1. COMPLIANCE: The Contractor shall comply with OSHA 29 CFR 1910.146, Permit-Required Confined Space. The Contractor shall provide a Confined Space Entry Plan to the Contracting Officer and the COR and notification to the USCG Training Center Fire Department prior to entering or starting any work in a confined space. The Contractor shall provide all equipment and materials as required to comply with OSHA and complete the work under this contract.

SECTION 01 55 00  
ACCESS ROADS AND PARKING

- 1. ACCESS: Access to the site is available from public roads. Any damage to these roads by the Contractor's vehicles shall be repaired without cost to the Government.
- 2. PARKING: Vehicular operations and parking shall comply with all applicable government orders and regulations. All driveways and entrances serving the Government shall be kept clear and available to emergency vehicles at all times.

3. VEHICLE AND VEHICLE OPERATION: All vehicles, owned by the Contractor or employees of the Contractor, and operators of these vehicles, shall meet all state regulations for safety, noise, loading and minimum liability insurance. All vehicle operators demonstrating reckless or careless operation in the opinion of the Government shall not be allowed to operate vehicles on government property for the duration of the contract.
4. VISITORS: No visiting vehicles will be permitted on government property unless the operator is employed by a subcontractor or supplier.

SECTION 01 55 29  
STAGING AREAS AND ACCESS

1. LOCATION: The Contractor shall store materials and operate equipment within the confines of the staging area identified by the Government. Storage of materials outside of the staging area will not be permitted. A lay down and parking area for Contractor's vehicles, trailers and personnel will be designated by the Contracting Officer's Representative at the Pre-construction meeting.
2. COORDINATION: Obey all U.S. Coast Guard Parking Signs and traffic rules. Vehicles shall not travel or park on grass. If travel or parking on grass is necessary, grass shall be restored to original condition after completion of the project at no cost to the Government.
3. ADJACENT AREAS: The Contractor shall ensure that all land and vegetation adjacent to the staging area and access drive remain undisturbed and undamaged; all damages shall be repaired at no cost to the Government.

SECTION 01 56 00  
LIGHTS, SIGNS & BARRICADES

1. GENERAL: The contractor shall provide and maintain all warning lights, sign, and barriers to insure the safety of pedestrians or vehicles traveling near or through any hazardous area caused by the execution of the Contract work.

1.1 TRAFFIC REGULATION

A. Traffic Control Signs and Devices:

1. Post Mounted and Wall Mounted Traffic Control and Informational Signs: Shall comply with the Manual on Uniform Traffic Control Devices, latest edition.
2. Traffic Cones and Drums, Flares and Lights: Shall comply with the Manual on Uniform Traffic Control Devices, latest edition.
3. Provide signs at approaches to site and on site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.

4. Relocate as Work progresses, to maintain effective traffic control.
- B. Removal:
1. Remove equipment and devices when no longer required.
  2. Repair damage caused by installation.
- 1.2 BARRICADES: Any stored debris, equipment and all areas dangerous to foot or vehicular traffic shall be barricaded by the Contractor. At night and during other times of poor visibility, barricades shall be illuminated. All barricading, including night illumination shall be maintained by the Contractor. All barricades shall be constructed in accordance with ANSI D6-1.
- 1.3 PEDESTRIAN TRAFFIC: The Contractor shall arrange his equipment and/or progression of work, so as not to interfere with the normal flow of pedestrian traffic. Where interference is unavoidable, the contractor shall provide a marked, safe, and clean route around the obstruction
- 1.4 BARRIERS
- A. Provide barriers to prevent unauthorized entry to construction areas to protect existing facilities and adjacent properties from damage from construction operations and demolition.
  - B. Provide protection for plants designated to remain. Replace damaged plants.
  - C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

SECTION 01 57 23  
POLLUTION CONTROL

1. VOLATILE ORGANIC COMPOUND (VOC) REGULATIONS: Contractors are required to comply with local, state and federal VOC compliance laws and regulations in the foregoing order of precedence. In order to comply with the provisions of the Clean Air Act, each state must have a State Implementation Plan. Some contractors may be required to abide by the provisions of a Title V Permit. Some contractors may be required by state or local law to operate under the terms of a Compliance Plan to reduce VOC Emissions.
- 1.1 In accordance with the Notice to Proceed Letter, the contractor will submit copies of any local, state or federal implementation plans, permits or compliance plans required/applicable to the use/application of VOCs at contractor's facility or offsite work places.
- 1.2 If no local, state or federal implementation plans, permits or compliance plans are required/applicable to the use/application of VOCs, then the contractor shall submit



to the designated Contracting Officer a letter, notarized under oath, that such documents are not required.

SECTION 01 65 00  
RECOVERED MATERIALS NOTICE

1. GENERAL: It is the intent of Training Center Cape May to comply with the requirements of Section 6002 of the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA or the Act) as amended, 42 U.S.C. 6962 and Executive Order 12873 as they apply to the procurement of the materials designated in paragraph 2.
2. DESIGNATED RECOVERED MATERIALS: It is the purpose of this section to designate items that are or can be made with recovered materials. These designated items can be found at <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program#products>.
3. CONTRACTOR RESPONSIBILITY: The contractor should provide recycled materials to the extent practical, provided the materials meet all other requirements of the applicable specification section.

SECTION 01 66 13  
HAZARDOUS WASTE

1. GENERAL: The Contractor shall comply with all federal, state, and local environmental regulations dealing with the generation, management, storage, and disposal of solid, toxic, and hazardous wastes. The Contractor shall ensure that all wastes are properly containerized, labeled and placarded, managed, tested, stored, documented/manifested, transported and disposed of in accordance with all applicable regulations. The manifest for all hazardous waste shall be signed by an authorized Coast Guard representative.
2. USED ELECTRIC LAMPS: 40 CFR 273 requires that electric lamps, including incandescent, fluorescent, neon and high intensity discharge (mercury vapor, high/low pressure sodium, metal halide) lamps that are no longer of use be recycled or treated as universal waste. The Contractor shall not dispose of any used electric lamps as solid waste. The Contractor shall recycle all waste electric lamps generated as a result of this work only at a licensed recycling facility.
3. RECYCLABLES: Recycling is a mandatory law of the State of New Jersey.
  - A. At the discretion of the COR, certain items of copper (including insulated cable), aluminum and steel shall remain the property of the Training Center. The Contractor shall separate and deliver these materials to a location at the

Training Center designated by the COR. The Contractor shall place these materials in their respective bins or dumpsters.

- B. The contractor shall recycle or reuse all other material designated as recyclable or prohibited from landfilling. Definitions for recyclables and landfill prohibited material can be obtained from the CMCMUA regulations.
4. SUBMITTALS: The Contractor shall provide the Contracting Officer with signed and fully executed originals of all hazardous waste profiles, test results, hazardous waste manifests and/or other shipping papers, electric lamp disposal documents and all other required documentation. Maximum payment retention shall be withheld until this documentation is received.

SECTION 01 66 16  
SAFETY DATA SHEETS AND MATERIAL HANDLING PROCEDURES

1. DATA SHEETS: Submit a Safety Data Sheet (SDS) for all materials containing hazardous substances required for contract execution. Information provided in SDS's shall meet the requirements of 29 CFR 1910.1200. SDS's require Contracting Officer review and acceptance prior to bringing these materials on site.
2. MATERIAL STORAGE: Limit the quantity of these materials stored on site to the amount needed for execution of work. Storage of excess materials will not be permitted. Assure that the storage of these materials comply with all applicable federal, state, and local laws and regulations and provide additional storage facilities (paint lockers, etc.) as required for the storage of such materials. Coordinate the physical location of storage areas with the On-site Representative prior to bringing these materials on site.
3. PROTECTIVE MEASURES: The contractor shall take all protective measures outlined on the SDS's and as required by federal, state, and local regulations to protect all personnel in the vicinity of the work area from exposure to these materials. The Contractor shall include any required protective measures in the Safety Plan (See Section 01 35 29, "Safety Program"). The Contracting Officer's Representative shall review protective measures prior to allowing use of these materials.
4. DISPOSAL OF EXCESS MATERIAL: The Contractor shall dispose of all excess hazardous materials as required by the SDS and all applicable federal, state, and local laws and regulations.

SECTION 01 71 33  
PROTECTION FROM WEATHER AND CONSTRUCTION OPERATIONS

1. TEMPORARY ENCLOSURES: Protect existing facilities/equipment and new construction, whether in progress or newly completed, from the adverse effects of the weather and construction operations. Provide temporary enclosures, coverings and

barriers as required to afford protection against exposure, weather and wind damage and from construction operations which could degrade, stain, age, or reduce the finished quality of new work or damage existing facilities and equipment.

2. CONTRACTOR'S STAGING AND STOCKPILING: The Contractor is responsible for the protection and use of materials for the project inside or outside the facility, including his dumpster and spot pot used on site. Should the USCG notify the Contractor of a weather emergency such as an impending Hurricane, the Contractor will need to tie-down or move these temporary facilities to higher ground. Hurricane season is from June 1 - November 30.
3. REAPPLICATION: All temporary closures or enclosures shall be made ready for immediate re-application in the event of sudden storms or man-made conditions requiring protection of existing facilities or completed construction.
4. CLIMATE CONTROL: Where temporary heat is required during construction to protect work completed or to heat facilities in operation by the Coast Guard, all openings shall be made weather tight to allow the maintenance of 68 degrees F heat minimum with the existing or temporary heating equipment or 78 degrees F. maximum with existing or temporary cooling. NOTE TO OFFEROR: CLIMATE CONTROL SPECIFICALLY REQUIRED BY THIS CONTRACT WILL BE SPECIFIED IN THE STATEMENT OF WORK AND/OR ASSOCIATED DRAWINGS.
5. PIPING: Prevent water-filled pipes or tanks from freezing for both interior and exterior systems installed or in storage.

SECTION 01 74 00  
GENERAL CLEANUP & SITE RESTORATION OF WORK AREAS

1. GENERAL: The Contractor shall remove and properly dispose of all trash and debris incidental to the contract work from the limits of government property, as well as all adjacent affected areas. The Contracting Officer shall determine the extent and interval of these cleanups.
2. WORK AREA CLEANUP: At the end of each day the entire work area and all adjacent affected areas shall be thoroughly cleaned by removing all trash, debris, dust, etc. caused by the contract work. Any floor, wall or ceiling surfaces that may have been stained or soiled by the contract work shall be restored to pre-construction condition.
3. SITE RESTORATION: If at any time while performing the contract the Contractor causes damage or destruction to any portion of any Government facility or grounds; e.g., bulkheads, pavement, lawns, shrubbery, etc., it shall be the Contractor's responsibility to replace and/or restore the damage as approved by the Contracting Officer's Representative at no additional cost to the Government.
4. POST CONSTRUCTION CLEANUP: Upon completion of the job, the Contractor

shall clean up the job site, returning it to a state of cleanliness equal to or exceeding that in which it was found. The Contractor shall properly dispose of any trash, extra materials, dirt, debris, or other litter that remains. If the job site appearance is not to the satisfaction of the Contracting Officer's Representative, final acceptance will not be approved.

SECTION 01 78 00  
AS BUILT DRAWINGS

1. GENERAL: Maintain one full size set of contract drawings to record variations from the original design. **All deviations shall be neatly and clearly marked in RED** on these drawings to show work and/or materials actually provided. As Built drawings shall be **updated** as work progresses and kept at the work site for the duration of the contract. These drawings shall be available for Contracting Officer Representative review upon request.
2. DISCOVERED UTILITIES: Indicate the exact location and depth of any **underground utility lines discovered in the course of the work** on the As-Built drawings.
3. PERMITTED VARIATIONS: As Built drawings shall reflect the actual construction and materials provided when alternative materials or work methods are allowed in the specifications and/or drawings or if the scope is altered by award of bid items, subsequent changes or modifications.
4. STANDARDS: Variations shown on As Built drawings shall be neat, clear and conform with standard drafting practices. Mark-ups shall include supplementary notes, legends, and details necessary to convey the exact representation of construction actually provided. As Built drawings shall be clearly labeled "AS-BUILT" and dated.
5. SUBMITTAL: Submit one ".pdf" digital copy and one ANSI D sized (22"x34") paper copy of the As Built drawings for Contracting Officer and COR acceptance upon completion of the contract. **Final payment will not be until all required As-Built drawings are accepted.** Maximum retention shall be withheld for late or incomplete As Built drawings.

### LIST OF SUBMITTALS

SECT.	PAR.	ITEM	STATUS	COMMENTS
07 31 13	1.3-B	Asphalt Shingles – Product Data		
07 31 13	1.3-C	Asphalt Shingles – Physical Samples		
07 31 13	1.3-D	Asphalt Shingles – Manufacturer Instruction		
07 31 13	1.3-E	Asphalt Shingles – Manufacturer Warranty		
07 51 13	1.3-B	Built-Up Roofing – Product Data		
07 31 13	1.3-C	Built-Up Roofing – Physical Samples		
07 31 13	1.3-D	Built-Up Roofing – Manufacturer Instruction		
07 31 13	1.3-E	Built-Up Roofing – Manufacturer Warranty		
07 71 23	1.3-B	Gutters and Downspouts – Product Data		
07 71 23	1.3-C	Gutters and Downspouts – Physical Samples		
07 62 00	1.3-B	Metal Flashing – Product Data		
07 62 00	1.3-C	Metal Flashing – Shop Drawings		
07 92 00	1.3-B	Joint Sealants – Product Data		
07 92 00	1.3-C	Joint Sealants – Manufacturer Instruction		

Status Abbreviation Guide: AC-Accepted; AC w/CMT-Accepted with Comment; R-Resubmit; NA-Not Applicable



DHS-USCG TRAINING CENTER CAPE MAY, NJ		<b>CONTRACT ITEM ACCEPTANCE REQUEST</b>		
Contract Number		Submittal Number	Submittal New Re-submittal	Date
Project Number			CONTRACTOR MARK IF DEVIATION FROM SPECIFICATIONS	FOR GOVERNMENT USE ONLY
Item No.	Specification Sect. & Para.	DESCRIPTION OF MATERIAL (Include Type, Model No., Catalog No., Mfg., etc.)	Deviation	Status
Contractor		By: (Signature and Date)		
Request as indicated above was received in this office on _____				
Recommend Acceptance or Resubmit as indicated above and subject to any applicable comments.				
Name and Grade		Signature		Date
Acceptance or Resubmit as indicated above and subject to any applicable comments.				
Name and Grade		Signature		Date

Status Abbreviation Guide: AC-Accepted; AC w/CMT-Accepted with Comment; R-Resubmit

## DIVISION 02 – EXISTING CONDITIONS

### SECTION 02 41 19 SELECTIVE DEMOLITION

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes:
  - 1. Selective demolition;
  - 2. Protection of existing items to remain;
  - 3. Equipment to be salvaged.

##### 1.2 SUBMITTALS

- A. Submittals are not required for this Section.

##### 1.3 QUALITY ASSURANCE

- A. Conform to applicable codes for demolition work, dust control, products requiring electrical disconnection, etc.
- B. Conform to applicable codes for procedures when hazardous or contaminated materials are discovered.

#### PART 2 PRODUCTS

Not Used.

#### PART 3 EXECUTION

##### 3.1 PREPARATION

- A. Do not close or obstruct building egress path.
- B. Do not disable or disrupt building fire or life safety systems without obtaining written approval from the Contracting Officer's Representative.

##### 3.2 EQUIPMENT SALVAGE REQUIREMENTS

- A. Coordinate with the Contracting Officer's Representative to identify building components and equipment required to be removed and delivered to the government.



- B. Protect designated salvage items from demolition operations until items can be removed.
- C. Carefully remove building components and equipment indicated to be salvaged.
- D. Deliver salvaged items to the on-base location identified by the Contracting Officer's Representative.

### 3.3 DEMOLITION

- A. Conduct demolition to minimize interference with adjacent building areas.
- B. Maintain protected egress from and access to adjacent existing buildings at all times.
- C. Coordinate all road and sidewalk closures with the Contracting Officer's Representative.
- D. Cease operations immediately if structure appears to be in danger and notify the Contracting Officer's Representative. Do not resume operations until directed.
- E. Cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition.
- F. Demolish in orderly and careful manner. Protect existing improvements.
- G. Maintain and protect above and below grade utilities indicated to remain.
- H. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
- I. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.

END OF SECTION

## DIVISION 07 – THERMAL & MOISTURE PROTECTION

### SECTION 07 31 13 ASPHALT SHINGLES

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
1. Asphalt shingles.
  2. Ridge cap shingles.
  3. Starter strip.
  4. Ice & water barrier membrane.
  5. Roof deck underlayment.
  6. Asphalt primer.
  7. Metal flashings and accessories.

##### 1.2 REFERENCES

- A. ASTM International:
1. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
  3. ASTM C317 – Standard Specification for Gypsum Concrete.
  4. ASTM C631 – Standard Specification for Bonding Compounds for Interior Gypsum Plastering.
  5. ASTM C1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.
  6. ASTM C1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
  7. ASTM D41 – Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
  8. ASTM D71 – Standard Test Method for Relative Density of Solid Pitch and Asphalt (Displacement Method).
  9. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
  10. ASTM D3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.

11. ASTM D3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
12. ASTM D3462 - Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
13. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
14. ASTM D7158 - Standard Test Method for Wind Resistance of Asphalt Shingles (Uplift Force/Uplift Resistance Method).
15. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.
16. ASTM E408 - Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques.
17. ASTM E903 - Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres.
18. ASTM E1918 - Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field.
19. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
20. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

B. National Roofing Contractors Association:

1. NRCA - The NRCA Steep Roofing Manual.

C. Sheet Metal and Air Conditioning Contractors:

1. SMACNA - Architectural Sheet Metal Manual.

D. Underwriters Laboratories Inc.:

1. UL 790 - Tests for Fire Resistance of Roof Covering Materials.

### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures for overall submittal procedures and specific requirements associated with each type of submittal listed below.
- B. Product Data: Submit data indicating material characteristics, performance criteria, and limitations for each item listed in Part 2, Paragraph 2.2 – Components of this section.
- C. Samples: Submit two samples of each shingle color of manufacturer's standard list of colors, indicating color range and finish texture/pattern; for color and texture selection.
- D. Manufacturer's Installation Instructions: Submit installation criteria and procedures.

E. Manufacturer's warranty.

#### 1.4 QUALITY ASSURANCE

- A. Roof Covering Fire Classification: Minimum Class A when tested in accordance with ASTM E108 or UL 790.
- B. Perform Work in accordance with the International Building Code, latest edition.

#### 1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not install ice dam membrane and shingles when surface, ambient air, or wind chill temperatures are below 45 degrees F.

#### 1.6 WARRANTY

- A. Furnish manufacturer's standard limited lifetime warranty for asphalt shingles.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURER:

- A. All roof system components, except those listed under accessories, shall be from one manufacturer.

#### 2.2 COMPONENTS

##### A. ROOF SHINGLES

- 1. Description: ASTM D3018, Class A, Type I – Architectural asphalt shingle, self sealing; glass fiber mat base, fungus resistant, mineral granule surface type.
  - a. Color: As selected from manufacturer's standard list by project architect or engineer.
  - b. Wind Resistance: UL 790 Class A rated with UL 997 Wind Resistance Label; ASTM D3161, Class F, 110 mph rating utilizing manufacturer's standard installation methods; D7158 Class H, passes 150 mph test velocity.

##### B. RIDGE CAP SHINGLES

- 1. Description: Asphalt shingle, self sealing, matching color and style of selected roof shingle. Ridge cap shingles shall be specifically made for this purpose.
- 2. **Cutting standard roof shingles to fit will not be accepted.**

- C. STARTER STRIP
  - 1. Description: ASTM D3462 and D3018, UL 790 Class A fire rating, pre-cut strip, specifically made for this purpose.
- D. ICE AND WATER BARRIER MEMBRANE
  - 1. Description: ASTM D1970; self-adhering, self sealing, bituminous leak barrier surfaced with fine, skid-resistant granules; 40 mils thick; 36 inches wide.
- E. RIDGE VENT:
  - 1. Description: Rigid, plastic, ridge ventilator; 18.0 sq inches net free ventilation per lineal foot; overlapping design between individual pieces.

## 2.3 ACCESSORIES

- A. Nails: ASTM F1667; standard round wire, zinc-coated steel or aluminum; 10 to 12 gauge, smooth, barbed or deformed shank, with heads 3/8 inch to 7/16 inch in diameter. Length must be sufficient to penetrate through plywood by at least 1/8 inch.
- B. Roof Deck Underlayment: ASTM D226; Type II, No. 30 unperforated asphalt felt.
- C. Plastic Cement: ASTM D4586, Type I or II, Asphalt type with mineral fiber components, free of toxic solvents, capable of setting within 24 hours at temperatures of 75 degrees F.
- D. Metal Flashing: 3003 alloy, H14 temper, 0.032-inch aluminum sheet. Drip Edge: Aluminum, T style, 2 inch minimum width.
- F. Pipe Penetration Flashing: 24 gauge galvanized sheet metal with brown Kynar coating; UV stable PVC compression collar; accommodates slopes up to 18/12; wide perimeter flashing (6" on top, 4" on sides, 3" on bottom). Flashing shall have passed the following tests:
  - 1. ASTM E330 – Uniform Structural Load Test
  - 2. ASTM E283-04 – Air Leakage Test
  - 3. ASTM E331-00 – Water Penetration Test
  - 4. ASTM B117-09 Salt Spray Test
  - 5. TAS 100-95 Wind and Wind Driven Rain Test

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Remove all existing roofing down to the roof deck.

- B. Verify that the deck is dry, sound, clean and smooth. It shall be free of any depressions, waves, and projections. Cover with sheet metal, all holes over 1 inch in diameter, cracks over 1/2 inch in width, loose knots and excessively resinous areas.
- C. Replace damaged deck in-kind with new materials.
- D. Clean deck surfaces thoroughly prior to installation of eaves protection membrane and underlayment.
- E. Eaves:
  - 1. Install Ice and Water Barrier Membrane up the slope from eaves edge a full 36 inches . Lap ends 6 inches and bond.
- F. Wall and Roof Interface:
  - 1. Where a roof line butts up against a vertical wall, install Ice and Water Barrier Membrane over step flashing along entire wall/roof interface. Extend membrane up wall a minimum of 6” and 12 inches on to roof surface. Step flashing and membrane shall be installed behind the existing building wrap material. Lap ends 6 inches and bond. Lap membrane over the roof deck underlayment.
- G. Valleys:
  - 1. Install Ice and Water Barrier Membrane at least 36 inches wide and centered on the valley. Lap ends 6 inches and seal.
  - 2. Where valleys are indicated to be "open valleys", install metal flashing over Ice and Water Barrier Membrane; do not nail through the flashing. Secure the flashing by nailing at 18 inches on center just beyond edge of flashing so that nail heads hold down the edge.
- H. Hips and Ridges:
  - 1. Install Ice and Water Barrier Membrane along entire lengths. If ridge vents are to be installed, position the Ice and Water Barrier Membrane so that the ridge slots will not be covered.
- I. Roof Deck:
  - 1. Install one layer of roof deck underlayment over the entire area not protected by Ice and Water Barrier Membrane. Install underlayment horizontally so water sheds and nail in place.
  - 2. On roofs sloped at more than 4:12, lap horizontal edges at least 2 inches and at least 2 inches over Ice and Water Barrier Membrane.
  - 3. On roofs sloped less than 4:12, lap horizontal edges at least 19 inches and at least 19 inches over Ice and Water Barrier Membrane.

4. Lap ends at least 4 inches. Stagger end laps of each layer at least 36 inches.
5. In valleys, lap roof deck underlayment over Ice and Water Barrier Membrane at least 6 inches.

J. Penetrations:

1. Vent pipes: Install a 24 inch square piece of Ice and Water Barrier Membrane lapping over roof deck underlayment; seal tightly to pipe.
2. Chimneys: Install Ice and Water Barrier Membrane around entire chimney extending at least 6 inches up the wall and 12 inches on to the roof surface. Lap the membrane over the roof deck underlayment.

### 3.2 METAL DRIP EDGE

- A. Install metal drip edge directly on the deck at eaves and over the underlayment at rakes. Extend back from edge of deck a minimum of 3 inches, and secure with nails spaced a maximum of 10 inches o.c. along inner edge.

### 3.3 STARTER STRIP

- A. Install starter strip over underlayment along all eaves and rakes. Set starter strip in a 4" wide strip of asphalt plastic roof cement. Place starter strip flush with the metal drip edge.

### 3.4 SHINGLES

- A. Placement and Nailing: Install shingles in accordance with the manufacturer's instructions.
1. Secure with 6 nails per shingle.
  2. Nails shall be driven flush with the shingle surface. Do not overdrive or under drive the nails.
  3. Install valleys using the "closed cut valley" method:
    - a. Run the first course of shingles from the higher roof slope across the valley at least 12 inches.
    - b. Run succeeding courses of shingles from the lower roof slope across the valley at least 12 inches and nail not closer than 6 inches to center of valley.
    - c. Run shingles from the upper roof slope into the valley and trim 2 inches from the center line.

### 3.5 FIELD QUALITY CONTROL

- A. Before Substantial Completion, inspect roof to verify shingles self-sealed from exposure to prevent wind uplift. Apply plastic cement to secure shingles that failed to seal. Report results of inspection and required corrective measures.

### 3.6 PROTECTION

- A. Protect installed products from foot traffic until completion of the project.
- B. Any roof areas that are not completed by the end of the workday are to be protected from moisture and contaminants.

END OF SECTION



## DIVISION 07 – THERMAL AND MOISTURE PROTECTION

### SECTION 07 51 13 BUILT-UP ASPHALT ROOFING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes vapor retarder over structural deck surface; sheathing over metal deck surface; and insulation, membrane roofing, [gravel] [protective coating], base flashings, roofing membrane, expansion joints [and cant strips].

##### 1.2 REFERENCES

- A. ASTM International:
1. ASTM C79/C79M - Standard Specification for Gypsum Sheathing Board.
  2. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
  3. ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board.
  4. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation.
  5. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
  6. ASTM C726 - Standard Specification for Mineral Fiber Roof Insulation Board.
  7. ASTM C728 - Standard Specification for Perlite Thermal Insulation Board.
  8. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
  9. ASTM C1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.
  10. ASTM C1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
  11. ASTM D41 - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
  12. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
  13. ASTM D312 - Standard Specification for Asphalt used in Roofing.

14. ASTM D1227 - Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
15. ASTM D1863 - Standard Specification for Mineral Aggregate Used on Built-Up Roofs.
16. ASTM D2178 - Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing.
17. ASTM D2626 - Standard Specification for Asphalt-Saturated and Coated Organic Felt Base Sheet Used in Roofing.
18. ASTM D3909 - Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules.
19. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
20. ASTM D4601 - Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
21. ASTM D4897 - Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing.
22. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
23. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
24. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.
25. ASTM E408 - Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques.
26. ASTM E903 - Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres.
27. ASTM E1918 - Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field.
28. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

B. FM Global:

1. FM DS 1-28 - Wind Loads to Roof Systems and Roof Deck Securement.
2. FM 4450 - Approval Standard for Class 1 Insulated Steel Deck Roofs.

C. Intertek Testing Services (Warnock Hersey Listed):

1. WH - Certification Listings.

D. National Fire Protection Association:

1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

E. National Roofing Contractors Association:

1. NRCA - The NRCA Roofing and Waterproofing Manual.

F. Underwriters Laboratories Inc.:

1. UL - Fire Resistance Directory.
2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
3. UL 790 - Tests for Fire Resistance of Roof Covering Materials.
4. UL 1256 - Fire Test of Roof Deck Construction.
5. UL 1897 - Uplift Tests for Roof Covering Systems.

G. U.S. Environmental Protection Agency:

1. ENERGY STAR - ENERGY STAR Voluntary Labeling Program.

### 1.3 SUBMITTALS

- A. Refer to Section 01 33 00 - Submittal Procedures for overall submittal procedures and specific requirements associated with each type of submittal listed below.
- B. Product Data: Submit data indicating material characteristics, performance criteria, and limitations for each item listed in Part 2, Paragraph 2.2 – Components.
- C. Samples: Submit one samples of asphalt saturated organic felt.
- D. Manufacturer's Installation Instructions: Submit installation criteria and procedures.
- E. Manufacturer's warranty.

### 1.4 QUALITY ASSURANCE

- A. Refer to the List of Submittals document at the end of Division I for a detailed list of every submittal required for the products and workmanship covered under this Section.

### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.
- B. Store products in weather protected environment, clear of ground and moisture.
- C. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope to drain.

- D. Prevent contact with materials during storage capable of causing discoloration, staining, or damage.

## PART 2 PRODUCTS

### 2.1 BUILT-UP ASPHALT ROOFING

- A. Product Description:
  - 1. Multi-ply, built-up asphalt roofing.

### 2.2 COMPONENTS

- A. Asphalt Saturated Organic Felts: ASTM D226; Type II, No. 30 perforated asphalt felt.
- B. Base Sheet: ASTM D2626, perforated organic felt, asphalt saturated and coated base sheet.
- C. Mineral Surfaced Felts: ASTM D3909; black colored mineral granules.
- D. Dry Sheathing Paper: Red rosin paper, unsaturated.
- E. Asphalt Bitumen: ASTM D312 Type III
- F. Asphalt Primer: ASTM D41.
- G. Plastic Cement: ASTM D4586, Type I or II, Asphalt type with mineral fiber components, free of toxic solvents, capable of setting within 24 hours at temperatures of 75 degrees F.
- H. Asphalt Emulsion: ASTM D1227; Type II

### 2.3 ACCESSORIES

- A. Roofing Nails: Galvanized, hot dipped type, size and configuration as required to suit application.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Section 01 14 16 - Coordination
- B. Verify surfaces and site conditions are ready to receive work.
- C. Verify deck is supported and secure.
- D. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped to gutters, valleys, or eaves, and suitable for installation of roof system.
- E. Verify deck surfaces are dry and free of snow or ice.
- F. Confirm dry deck by moisture meter with moisture content acceptable to roofing manufacturer.
- G. Verify adjacent plywood sheets do not vary more than 1/4 inch in height.
- H. Verify roof openings, curbs, and penetrations through roof are solidly set, and wood cant strips, wood nailing strips, and reglets are in place.

### 3.2 PREPARATION

- A. Wood Deck:
  - 1. Verify flatness and tight joints of wood decking. Seal joints of plywood with tape when hot bitumen application is to follow. Fill knot holes with latex filler.

### 3.3 APPLICATION

- A. Membrane Application:
  - 1. Lay one ply coated base sheet, coated side down. Lap sides 2 inches; lap ends 6 inches.
  - 2. Equiviscous Temperature (EVT) at Point of Application: In accordance with manufacturer's recommendations and NRCA.
  - 3. Apply 4 plies of roof felt weather lap edges and ends, mopped with 20 lb/100 square foot of bitumen per ply. Apply felt 2 on 2 in same opposite direction.
  - 4. Apply felts smooth, free from air pockets, wrinkles, fish-mouths, or tears.

5. Extend base ply and membrane felts up cant strips minimum of 6 inches onto vertical surfaces and under gravel stops. Mop on two additional plies of felt and one ply of granular surfaced felt as base flashings over roofing membrane plies. Secure to nailing strips at 6 inches oc.
  6. Install two plies membrane and bitumen glaze coat for cut-off at end of day's operation. Glaze felts exposed at end of working day. Remove cut-off before resuming roofing.
  7. Mop and seal two additional plies of felt around roof penetrations.
- B. Flashing and Accessories Installation:
1. Apply granular surfaced felt base flashings to seal membrane to vertical elements.
  2. Coordinate installation of roof related flashings to NRCA Drawing W-1.
  3. Mop in and seal flashings and flanges of items penetrating membrane with two plies of felt.
- C. Aggregate Surfacing Installation:
1. Apply uniform flood coat of bitumen at rate of 60 lb/100 square ft and while hot, embed single application of roofing aggregate at rate of 600 lb/100 square ft.

### 3.4 CLEANING

- A. Section 01 74 00 – General Cleanup and Site Restoration of Work Areas
- B. Remove bituminous markings from finished surfaces.
- C. In areas where finished surfaces are soiled by bitumen or other source of soiling caused by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to their [documented] instructions.
- D. Repair or replace defaced or disfigured finishes caused by Work of this section.

END OF SECTION

## DIVISION 07 – THERMAL AND MOISTURE PROTECTION

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

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. This section includes the fabrication and installation of various sheet metal work required to provide a complete weather tight roofing system.
- B. Related Sections:
  - 1. Section 07 92 00 – Joint Sealants

##### 1.2 REFERENCES

- A. American National Standards Institute
  - 1. ANSI/SPRI RD-1 – Standard Retrofit Roof Drains
- B. ASTM International
  - 1. ASTM A167 - 99(2009) Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
  - 2. ASTM A308 / A308M - 06 Standard Specification for Steel Sheet, Terne (Lead-Tin Alloy) Coated by the Hot-Dip Process
  - 3. ASTM B32 - 08 Standard Specification for Solder Metal
  - 4. ASTM B69 - 08 Standard Specification for Rolled Zinc
  - 5. ASTM B209 - 07 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
  - 6. ASTM B221 - 08 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
  - 7. ASTM B370 - 09 Standard Specification for Copper Sheet and Strip for Building Construction
  - 8. ASTM D41 - 05 Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
  - 9. ASTM D226 / D226M - 09 Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
  - 10. ASTM D1784 - 08 Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds
  - 11. ASTM D4586 - 07 Standard Specification for Asphalt Roof Cement, Asbestos-Free
- C. American Welding Society
  - 1. AWS D1.2 – Structural Welding Code- Aluminum.
- D. Sheet Metal and Air Conditioning Contractors National Association
  - 1. SMACNA – Architectural Sheet Metal Manual

### 1.3 PERFORMANCE REQUIREMENTS

- A. Finished sheet metalwork will form a weathertight construction without waves, warps, buckles, fastening stresses or distortion, which allows for expansion and contraction. Sheet metal mechanic is responsible for cutting, fitting, drilling, and other operations in connection with sheet metal required to accommodate the work of other trades. Coordinate installation of sheet metal items used in conjunction with roofing with roofing work to permit continuous roofing operations.
- B. Fabrication and installation shall conform to the applicable standards and/or requirements of the following:
  - 1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
  - 2. AMERICAN WELDING SOCIETY (AWS)
  - 3. ASTM INTERNATIONAL (ASTM)
  - 4. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

### 3.5 SUBMITTALS

- A. Refer to Section 01 33 00 - Submittal Procedures for overall submittal procedures and specific requirements associated with each type of submittal listed below.
- B. Product Data: Submit data indicating material characteristics, performance criteria, and limitations for each item listed in Part 2, Paragraph 2.2 – Components of this section.
- C. Shop Drawings: Indicate metal flashings, jointing methods and locations, flashing methods and locations, and installation details.
- D. Refer to the List of Submittals document at the end of Division I for a detailed list of every submittal required for the products and workmanship covered under this Section.

### 1.4 DELIVERY, HANDLING, AND STORAGE

- A. Package and protect materials during shipment. Uncrate and inspect materials for damage, dampness, and wet-storage stains upon delivery to the job site. Remove from the site and replace damaged materials that cannot be restored to like-new condition. Handle sheet metal items to avoid damage to surfaces, edges, and ends. Store materials in dry, weather-tight, ventilated areas until immediately before installation.

### 1.5 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

## PART 2 PRODUCTS



## 2.1 MATERIALS

- A. Use any metal specified below for a particular item, unless otherwise specified or indicated. Conform to the requirements specified and to the thicknesses and configurations established in SMACNA Architectural Sheet Metal Manual for the materials.
- B. Provide sheet metal items in 8 to 10 foot lengths. Single pieces less than 8 feet long may be used to connect to factory-fabricated inside and outside corners, and at ends of runs. Factory fabricate corner pieces with minimum 12 inch legs. Provide accessories and other items essential to complete the sheet metal installation. Provide accessories made of the same or compatible materials as the items to which they are applied. Fabricate sheet metal items of the materials specified below and to the gage, thickness, or weight shown in Table I at the end of this section. Provide sheet metal items with mill finish unless specified otherwise. Where more than one material is listed for a particular item in Table I, each is acceptable and may be used except as follows:
1. Exposed Sheet Metal Items: Must be of the same material.
  2. Drainage: Do not use copper for an exposed item if drainage from that item will pass over exposed masonry, stonework or other metal surfaces. In addition to the metals listed in Table I, lead-coated copper may be used for such items.
  3. Copper, Sheet and Strip: ASTM B 370, cold-rolled temper, H 00 (standard).
  4. Steel Sheet, Zinc-Coated (Galvanized): ASTM A 653/A 653M.
    - a. Finish: Exposed exterior items of zinc-coated steel sheet must have a baked-on, factory-applied color coating of polyvinylidene fluoride or other equivalent fluorocarbon coating applied after metal substrates have been cleaned and pretreated. Provide finish coating dry-film thickness of 0.8 to 1.3 mils and color to match existing.
  5. Zinc Sheet and Strip: ASTM B 69, Type I, a minimum of 0.024 inch thick.
  6. Stainless Steel: ASTM A 167, Type 302 or 304, 2D Finish, fully annealed, dead-soft temper.
  7. Terne-Coated Steel: Minimum of 14 by 20 inch with minimum of 40 pound coating per double base box. ASTM A 308/A 308M.
  8. Aluminum Alloy Sheet and Plate: ASTM B 209M, ASTM B 209, color bronze form alloy, and temper appropriate for use.
    - a. Alclad: When fabricated of aluminum, fabricate the items Alclad 3003, Alclad 3004, Alclad 3005, clad on both sides unless otherwise indicated.
    - b. Finish: Exposed exterior sheet metal items of aluminum must have a baked-on, factory-applied color coating of polyvinylidene fluoride (PVF2) or other equivalent fluorocarbon coating applied after metal substrates have been cleaned and pretreated. Provide finish coating dry-film thickness of 0.8 to 1.3 mils, and color to match existing.
    - c. Thickness:
      - 1) Aluminum Drip Edge: 16 Ga.

- 2) Aluminum Cleats: 14 Ga.
9. Aluminum Alloy, Extruded Bars, Rods, Shapes, and Tubes: ASTM B 221M ASTM B 221.
10. Solder: ASTM B 32, 95-5 tin-antimony.
11. Polyvinyl Chloride Reglet: ASTM D 1784, Type II, Grade 1, Class 14333-D, 1.9 mm 0.075 inch minimum thickness.
12. Bituminous Plastic Cement: ASTM D 4586, Type I.
13. Roofing Felt: ASTM D 226 Type II.
14. Asphalt Primer: ASTM D 41.
15. Fasteners: Use the same metal or a metal compatible with the item fastened. Use stainless steel fasteners to fasten dissimilar materials.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Workmanship
  1. Make lines and angles sharp and true. Free exposed surfaces from visible wave, warp, buckle, and tool marks. Fold back exposed edges neatly to form a 1/2 inch hem on the concealed side. Make sheet metal exposed to the weather watertight with provisions for expansion and contraction.
  2. Make surfaces to receive sheet metal plumb and true, clean, even, smooth, dry, and free of defects and projections. For installation of items not shown in detail or not covered by specifications conform to the applicable requirements of SMACNA Architectural Sheet Metal Manual. Provide sheet metal flashing in the angles formed where roof decks abut walls, curbs, ventilators, pipes, or other vertical surfaces and wherever indicated and necessary to make the work watertight. Join sheet metal items together as shown in Table II.
- B. Nailing
  1. Confine nailing of sheet metal generally to sheet metal having a maximum width of 18 inch. Confine nailing of flashing to one edge only.
  2. Space nails evenly not over 3 inch on center and approximately 1/2 inch from edge unless otherwise specified or indicated. Face nailing will not be permitted. Where sheet metal is applied to other than wood surfaces, include in shop drawings, the locations for sleepers and nailing strips required to secure the work.
- C. Cleats
  1. Provide continuous cleats for sheet metal drip edge. Cleats shall extend a minimum of 1" below the top of the roof deck. Secure cleats into face of wood at centerline using ring shank nails. Nails shall be spaced a maximum of 6" on center.
- D. Aluminum Drip Edge
  1. Provide continuous sheet metal drip edge. Drip edge shall extend a minimum of 1" below the top of the roof deck. Secure drip edge into top

of wood using ring shank nails. Nails shall be spaced a maximum of 4” on center.

- E. Bolts, Rivets, and Screws
  - 1. Provide bolts, rivets, and screws where indicated or required. Provide compatible washers where required to protect surface of sheet metal and to provide a watertight connection. Provide mechanically formed joints in aluminum sheets 0.040 inch or less in thickness.
  
- F. Seams
  - 1. Straight and uniform in width and height.
    - a. Flat-lock Seams: Finish not less than 3/4 inch wide.
    - b. Lap Seams: Overlap seams not less than 3 inches.
    - c. Loose-Lock Expansion Seams: Not less than 3 inch wide; provide minimum one inch movement within the joint. Completely fill the joints with the specified sealant, applied at not less than 1/8 inch thick bed.
    - d. Standing Seams: Not less than one inch high, double locked.
    - e. Flat Seams: Make seams in the direction of the flow.
  
- G. Mechanical Fastening
  - 1. Aluminum must be butted and the space backed with formed flashing plate; or lock joined, mechanically fastened, and filled with sealant as recommended by the aluminum manufacturer.
  - 2. Mechanical Fastening of Aluminum: Use No. 12, aluminum alloy, sheet metal screws or other equivalent aluminum alloy or stainless steel fasteners. Drive fasteners in holes made with a No. 26 drill in securing side laps, end laps, and flashings. Space fasteners 12 inch maximum on center. Where end lap fasteners are required to improve closure, locate the end lap fasteners not more than 2 inch from the end of the overlapping sheet.
  
- H. Protection from Contact with Dissimilar Materials
  - 1. Copper or Copper-bearing Alloys
    - a. Paint with heavy-bodied bituminous paint surfaces in contact with dissimilar metal, or separate the surfaces by means of moisture proof building felts.
  - 2. Aluminum
    - a. Do not allow aluminum surfaces in direct contact with other metals except stainless steel, zinc, or zinc coating. Where aluminum contacts another metal, paint the dissimilar metal with a primer followed by two coats of aluminum paint. Where drainage from a dissimilar metal passes over aluminum, paint the dissimilar metal with a non-lead pigmented paint.
  - 3. Metal Surfaces
    - a. Paint surfaces in contact with mortar, concrete, or other masonry materials with alkali-resistant coatings such as heavy-bodied bituminous paint.
  - 4. Wood or Other Absorptive Materials

- a. Paint surfaces that may become repeatedly wet and in contact with metal with two coats of aluminum paint or a coat of heavy-bodied bituminous paint.

I. Expansion and Contraction

- 1. Provide expansion and contraction joints at not more than 32 foot intervals for aluminum and at not more than 40 foot intervals for other metals. Provide an additional joint where the distance between the last expansion joint and the end of the continuous run is more than half the required interval. Space joints evenly. Join extruded aluminum fascias by expansion and contraction joints spaced not more than 12 feet apart.

J. Base Flashing

- 1. Extend up vertical surfaces of the flashing not less than 8 inch and not less than 4 inch under the roof covering. Where finish wall coverings form a counterflashing, extend the vertical leg of the flashing up behind the applied wall covering not less than 6 inch. Overlap the flashing strips with the previously laid flashing not less than 3 inch. Fasten the strips at their upper edge to the deck. Horizontal flashing at vertical surfaces must extend vertically above the roof surface and fastened at their upper edge to the deck a minimum of 6 inch on center with hex headed, galvanized shielded screws a minimum of 2-inch lap of any surface. Solder end laps and provide for expansion and contraction. Extend the metal flashing over crickets at the up-slope side of vertical surfaces extending through sloping roofs, the metal flashings. Extend the metal flashings onto the roof covering not less than 4.5 inch at the lower side of vertical surfaces extending through the roof decks. Provide and fit the flashings so as to be completely weathertight. Provide factory-fabricated base flashing for interior and exterior corners.

K. Counterflashing

- 1. Except where indicated or specified otherwise, insert counterflashing in reglets located from 9 to 10 inch above roof decks, extend down vertical surfaces over upturned vertical leg of base flashings not less than 3 inch. Fold the exposed edges of counter flashings 1/2 inch. Where stepped counter flashings are required, they may be installed in short lengths a minimum 8 inch by 10 inch or may be of the preformed one-piece type. Provide end laps in counter flashings not less than 3 inch and make it weathertight with plastic cement. Do not make lengths of metal counter flashings exceed 10 feet. Form the flashings to the required shapes before installation. Factory-form the corners not less than 12 inch from the angle. Secure the flashings in the reglets with lead wedges and space not more than 18 inch apart; on short runs, place wedges closer together. Fill caulked-type reglets or raked joints which receive counterflashing with caulking compound. Turn up the concealed edge of counter flashings built into masonry or concrete walls not less than 1/4 inch and extend not less than 2 inch into the walls. Provide counterflashing to provide a spring action against base flashing.

L. Metal Reglets

1. Provide factory fabricated caulked type or friction type reglets with a minimum opening of 1/4 inch and a depth of 1 1/4 inch, as approved.
  2. Caulked Reglets: Provide with rounded edges and metal strap brackets or other anchors for securing to the concrete forms. Provide reglets with a core to protect them from injury during the installation. Provide built-up mitered corner pieces for internal and external angles. Wedge the flashing in the reglets with lead wedges every 18 inch, caulked full and solid with an approved compound.
  3. Friction Reglets: Provide with flashing receiving slots not less than 5/8 inch deep, one inch jointing tongues, and upper and lower anchoring flanges installed at 24 inch maximum snaplock receiver. Insert the flashing the full depth of the slot and lock by indentations made with a dull-pointed tool, wedges, and filled with a sealant. For friction reglets, provide flashing snaplock receivers at 24 inch on center maximum. When the flashing has been inserted the full depth, caulk the slot and lock with wedges and fill with sealant.
  4. Prefabricated Spring Lock Flashing System: Provide two part reglet and flashing system consisting of reusable counter flashing which snaps into reglet. Provide prefabricated interior and exterior corners and splice plates. Install reglets in accordance with manufacturer's product data, level and true to line. Following installation of roofing, install counter flashing by snapping into reglet in accordance with manufacturer's product data. Overlap adjacent lengths 6 inches minimum, to allow for expansion and contraction. Caulk top edge of reglet using exterior sealant.
- M. Sheet Metal Covering on Flat, Sloped, or Curved Surfaces
1. Except as specified or indicated otherwise, cover and flash all minor flat, sloped, or curved surfaces such as crickets, bulkheads, dormers and small decks with metal sheets of the material used for flashing; maximum size of sheets, 16 by 18 inch. Fasten sheets to sheathing with metal cleats. Lock seams and solder. Lock aluminum seams as recommended by aluminum manufacturer. Provide an underlayment of roofing felt for all sheet metal covering.
- N. Flashing at Roof Penetrations and Equipment Supports
1. Provide metal flashing for all pipes, ducts, and conduits projecting through the roof surface and for equipment supports, guy wire anchors, .goose-necks, rainhoods, power roof ventilators and similar items supported by or attached to the roof deck
- O. Single Pipe Vents
1. See Table I, footnote (d). Set flange of sleeve in bituminous plastic cement and nail 3 inch on center. Bend the top of sleeve over and extend down into the vent pipe a minimum of 2 inch. For long runs or long rises above the deck, where it is impractical to cover the vent pipe with lead, use a two-piece formed metal housing. Set metal housing with a metal sleeve having a 4 inch roof flange in bituminous plastic cement and nailed 3 inch on center. Extend sleeve a minimum of 8 inch above the roof deck and lapped a minimum of 3 inch by a metal hood secured to

the vent pipe by a draw band. Seal the area of hood in contact with vent pipe with an approved sealant.

- P. Metal Edge Repair
    - 1. Provide metal drip edge at locations shown on the contract drawings. Cross section shall match existing. Remove existing deteriorated metal. Extend repair section 3 inches beyond deteriorated area. Properly prepare areas for welding or soldering. Weld new section to existing. Solder new section if welding is not practical. If required, seal joint between old and new material.
- 3.2 PAINTING
- A. Field-paint sheet metal for separation of dissimilar materials.
  - B. Aluminum Surfaces
    - 1. Shall be solvent cleaned and given one coat of zinc-molybdate primer and one coat of aluminum paint.
- 3.3 CLEANING
- A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, handling marks, contamination from steel wool, fittings and drilling debris, and scrub-clean. Free the exposed metal surfaces of dents, creases, waves, scratch marks, and solder or weld marks.
- 3.4 REPAIRS TO FINISH
- A. Scratches, abrasions, and minor surface defects of finish may be repaired in accordance with the manufacturer's printed instructions and as approved. Repair damaged surfaces caused by scratches, blemishes, and variations of color and surface texture. Replace items which cannot be repaired.
- 3.5 FIELD QUALITY CONTROL
- A. Establish and maintain a Quality Control Plan for sheet metal used in conjunction with roofing to assure compliance of the installed sheet metalwork with the contract requirements. Remove work that is not in compliance with the contract and replace or correct. Include quality control, but not be limited to, the following:
    - 1. Observation of environmental conditions; number and skill level of sheet metal workers; condition of substrate.
    - 2. Verification that specified material is provided and installed.
    - 3. Inspection of sheet metalwork, for sizes and thicknesses, fastening and joining, and installation in accordance with manufacturer's requirements.

TABLE I. SHEET METAL WEIGHTS, THICKNESSES, AND GAGES

Sheet Metal Items	Copper, Ounces Per Square Foot	Aluminum, Inch	Stainless Steel, Inch	Terne- Coated Steel, Inch	Zinc Coated Steel, U.S. Std. Gage
Covering on minor flat, pitched or curved surfaces.....	20	.040	.018	.018	-
Flashings:					
Base.....	20	.040	.018	.018	24
Cap (Counter-flashing)	16	.032	.015	.015	26
Bond barrier.....	16	-	.015	.015	-
Pipe vent sleeve(d) Coping.....	16	-	-	-	-
Sheets, smooth.....	20	.050	.018	.018	24
Edge strip.....	24	.050	.025	-	-
Fascia	-	.050	-	-	-
Reglets (c).....	10	-	.010	.010	-
Roof/Facade Edge	-	-	-	-	24

- (a) Brass.
- (b) May be lead weighing 4 pounds per square foot.
- (c) May be polyvinyl chloride.
- (d) 2.5 pound minimum lead sleeve with 4 inch flange. Where lead sleeve is impractical, refer to paragraph entitled "Single Pipe Vents" for optional material.

TABLE II. SHEET METAL JOINTS  
TYPE OF JOINT

Item Designation	Copper, Terne Coated Steel, Zinc-Coated Steel and Stainless Steel	Aluminum	Remarks
Flashings Base	One inch 3 inch lap for expansion joint	One inch flat locked, soldered; sealed 3 inch lap for expansion joint	Aluminum producer's recommended hard setting sealant for ; locked aluminum joints. Fill each metal expansion joint with a joint sealing compound
Cap-in reglet	3 inch lap	3 inch lap	Seal groove with joint sealing compound.
Reglets	Butt joint		Seal reglet groove with joint sealing compound
Sheet, smooth	Butt with 1/4 inch space	Butt with 1/4 inch space	Use sheet flashing backup plate.
Metal Edge	3 inch lap	-	Seal gaps not covered Weld or solder.

- (a) Provide a 3 inch lap elastomeric flashing with manufacturer's recommended sealant.
- (b) Seal polyvinyl chloride reglet with manufacturer's recommended sealant.

END OF SECTION



## DIVISION 7 – THERMAL AND MOISTURE PROTECTION

### SECTION 07 71 23 MANUFACTURED GUTTERS AND DOWNSPOUTS

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes pre-finished aluminum gutters and downspouts.
  - 1. Provide precast concrete splash pads.

##### 1.2 REFERENCES

- A. American Architectural Manufacturers Association:
  - 1. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
  - 2. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
  - 3. AAMA 2604 - Voluntary specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
  - 4. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- B. ASTM International:
  - 1. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- C. Federal Specification Unit:
  - 1. FS TT-C-494 - Coating Compound, Bituminous, Solvent Type, Acid Resistant.
- D. Sheet Metal and Air Conditioning Contractors:
  - 1. SMACNA - Architectural Sheet Metal Manual

##### 1.3 SUBMITTALS

- A. Refer to Section 01 33 00 - Submittal Procedures for overall submittal procedures and specific requirements associated with each type of submittal listed below.

- B. Product Data: Submit data indicating material characteristics, performance criteria, and limitations for each item listed in Part 2, Paragraph 2.2 – Components of this section.
- C. Samples: Submit one 6” sample segment of both gutter and downspout as specified in this section.
- D. Refer to the List of Submittals document at the end of Division I for a detailed list of every submittal required for the products and workmanship covered under this Section.

#### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with SMACNA Manual.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope to drain.
- B. Prevent contact with materials during storage capable of causing discoloration, staining, or damage.

### PART 2 PRODUCTS

#### 2.1 GUTTERS AND DOWNSPOUTS

- A. Product Description:
  - 1. Gutters: Aluminum, K Style, 6 inch, Seamless.
  - 2. Downspouts: Aluminum, Rectangular 3”x4”, Corrugated.

#### 2.2 COMPONENTS

- A. Pre-Finished Aluminum Sheet: ASTM B209, manufacturer’s standard alloy and temper for specified finish; factory applied Kynar 500 finish.
  - 1. Thickness:
    - a. Gutters: 0.032 inch thick
    - b. Downspouts: 0.024 inch thick
  - 2. Color: White

#### 2.3 ACCESSORIES

- A. Anchors and Supports: Profiled to suit gutters and downspouts.
  - 1. Gutter Supports: Aluminum Bracket, hidden type with screw fastener.
  - 2. Downspout Supports: Aluminum Straps.

- B. Fasteners: Same material and finish as gutters and downspouts.
- C. Sealer: All joints, corners, seams, downspout leaders to be sealed with factory recommended sealer.
- D. Gutters shall be provided complete with end caps, outlets, strainers and other accessories necessary for installation.
- E. Splash Pads: Precast concrete type.

## 2.4 FABRICATION

- A. Form gutters and downspouts of profiles and size indicated.
- B. Gutters shall be fabricated in one piece continuous sections.
- C. Form sections to shape indicated on Drawings, square, and accurate in size, free of distortion or defects detrimental to appearance or performance.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify surfaces are ready to receive gutters and downspouts.

### 3.2 INSTALLATION

- A. Gutters shall be supported with brackets at points not more than 30 inches on center.
- B. Pitch gutters towards a downspout in accordance with industry standards.
- C. Downspouts shall be spaced at a maximum of twenty feet and within 12 inches of the end of gutter, set plumb and not less than 1 inch from the wall. Leaders shall connect gutters to downspouts. Leaders shall be set with a slope not less than 1/16 inch per foot or more than 30 degrees below a horizontal line. Leaders shall fit over the eave tube in the gutter bottom and shall fit into and be riveted to the downspout. Elbow fittings shall be used to make connections with downspout and eaves tube. Rivet spacing shall be not more than 2 inches.
- D. Strainers shall be set loosely in the eave tube opening in the gutter.
- E. Support downspouts with straps. One strap shall be provided adjacent to the joint at the top of each section of the downspout except that the bottom section shall have an additional strap adjacent to the bottom joint.

F. Set splash pads under downspouts.

END OF SECTION

## DIVISION 07 – THERMAL AND MOISTURE PROTECTION

### SECTION 07 92 00 JOINT SEALANTS

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes sealants and caulking to provide a positive barrier against passage of water, moisture and air.
- B. Related Sections:
  - 1. Section 07 60 00 – Sheet Metal Flashing and Trim

##### 1.2 REFERENCES

- A. ASTM International
  - 1. ASTM C920 – Standard Specification for Elastomeric Joint Sealants.
  - 2. ASTM C1193 - Standard Guide for Use of Joint Sealants.

##### 1.3 SUBMITTALS

- A. Refer to Section 01 33 00 - Submittal Procedures for overall submittal procedures and specific requirements associated with each type of submittal listed below.
- B. Product Data: Submit data indicating material characteristics, performance criteria, and limitations for each item listed in Part 2, Paragraph 2.2 – Components of this section.
- C. Manufacturer's Installation Instructions: Submit installation criteria and procedures for each item listed in Part 2, Paragraph 2.2 – Components of this section.
- D. Refer to the List of Submittals document at the end of Division I for a detailed list of every submittal required for the products and workmanship covered under this Section.

## 1.4 QUALITY ASSURANCE

- A. Use skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for performance of the work of this Section.
- B. All work shall be in strict accordance with the manufacturer's instructions. All joint sealers are required to establish and maintain air tight and watertight continuous seals on a permanent basis, within recognized limitations of wear and aging for each application. Failures of installed sealers to comply with the requirement will be recognized as failures of material and workmanship.
- C. Perform Work in accordance with the International Building Code, latest edition.

## 1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not proceed with installation of sealants under unfavorable weather conditions. Provide sealants when temperature is in the range recommended by manufacturer for installation.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. All components, except those listed under accessories, shall be from one manufacturer.

### 2.2 COMPONENTS

- A. Roofing Sealant:
  - 1. Exterior Sealant shall be pursuant to roofing manufacturer's requirements. Sealant used shall not void any roofing manufacturer's warranties.
- B. Edge and Soffit Sealant:: Non-sagging, Neutral-curing, One-Part, Silicon Sealant; ASTM C920, Type S, Grade NS, Class 50, Uses NT, G, A, and O.
  - 1. Color: Standard colors matching finished surfaces.
  - 2. Movement Capability: Plus 50 percent, Minus 50 percent

### 2.3 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round, soft, non-gassing, chemically inert, polyolefin foam backer rod compatible with sealant; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify joint openings are ready to receive work.
- B. Verify joint backing and release tapes are compatible with sealant.

### 3.2 PREPARATION

- A. Remove all existing joint sealant. Remove loose materials and foreign matter impairing adhesion of new sealant.
- B. Clean and prime joints.
- C. Perform preparation in accordance with ASTM C1193.
- D. Protect elements surrounding Work of this section from damage or disfiguration.

### 3.3 INSTALLATION

- A. Perform installation in accordance with ASTM C1193.
- B. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.
- C. Install bond breaker where joint backing is not used.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- F. Tool joints concave.

### 3.4 CLEANING

- A. Clean adjacent soiled surfaces.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Protect sealants until cured.

END OF SECTION



