PROJECT TITLE:

SCIENCE CENTER ROOF REPLACEMENT

FOR:

ROWAN UNIVERSITY
40 North Academy Street, Glassboro, NJ
Camden County

PROJECT SITES:
Stratford Campus
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SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of designated building equipment and fixtures.
B. Removal of designated construction.
C. Disposal of materials.
D. Identification of utilities.
E. By definition, for the purposes of this Section, "Demolition" shall include work described as "Removals", "Removal and Salvage" and may include cutting and patching as described in another Section.

1.02 RELATED SECTIONS

A. Section 01100 - Summary: Work sequence, continued occupancy of the building and handling of regulated materials.
B. Section 01450 - Cutting and Patching
C. Section 01500 - Temporary Facilities and Controls: Temporary enclosures.
D. Section 01700 - Execution Requirements: Re-installation of removed components.
E. Section 01780 - Closeout Submittals: Project record documents.

1.03 DEMOLITION PLANS

A. The Demolition Plan(s) included in the Drawings shows only the general extent of the demolition required for the Project. Additional demolition and removals, not specifically indicated on the construction documents may be necessary for the proper execution of the Work and shall be assumed to be included in the Work of this Section.

B. Prior to proceeding with any demolition, review the Demolition Plan comparing it to the new Work indicated in the other Contract Documents to ascertain the specific extent and nature of the demolition.
   1. Determine the need for temporary shoring, bracing or other form of stabilization which may be necessary to support the remaining structure until new work is installed or until work of future Phases of the project are completed.
   2. Determine the relationship of the new work to the demolition to ascertain where new structural support or reinforcement may be required to accommodate the new work and which is necessary to support the existing structure to remain.
   3. Determine the relationship of existing Plumbing, HVAC, Electrical, Communications and Security systems to the requirements of the new work to ascertain what portions of the existing system must be maintained for incorporation into the new work. Review, where applicable, demolition drawings for the Plumbing, HVAC and Electrical Work and refer to notes regarding demolition which may be contained in the Drawings or Specifications.
C. Coordinate the demolition work required for each stage of the Project with the requirements for future stages in order to identify the extent of the demolition for each stage.
   1. Provide temporary support or other provisions to maintain the integrity of the existing structure until the work of future phases is complete.

1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate demolition, removal sequence, and location of salvageable items; location and construction of temporary facilities.
   1. Failure to provide a Demolition Shop Drawing shall not relieve the contractor of compliance with the project requirements.

C. Project Record Documents: Accurately record actual locations of capped utilities.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable codes for demolition work, dust control, products requiring electrical disconnection and reconnection, and mechanical (HVAC and plumbing) equipment requiring disconnection and reconnection.

B. Obtain required permits from authorities.

C. Do not close or obstruct egress from any building exit or site exit.

D. Do not disable or disrupt building fire or life safety systems without 3 days prior written notice to Owner.

E. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.
   1. In buildings where Asbestos Containing Materials (ACM) have been identified, review the Owner's documents and coordinate work according such that no ACM is disturbed during the course of demolition.
   2. Where asbestos abatement is to be performed as part of this project, coordinate the scheduling of the demolition work so that the asbestos abatement work has been completed prior to the commencement of the demolition work.
   3. Follow provisions of the specifications and applicable laws regarding asbestos and lead paint if these materials are encountered.

1.06 SEQUENCING

A. Sequence work under the applicable provisions of Section 01100.

B. In areas of the building which are currently in use, perform demolition immediately prior to the time when new work is scheduled thereby permitting the Owner the maximum time to use the existing portions of the building.

C. Coordinate planned sequence of the demolition with the Owner's Asbestos Abatement Plan.

1.07 SCHEDULING

A. Schedule work under the provisions of Section 01325 Construction Progress Schedule.

B. Schedule work to coincide with new construction.
C. Schedule work to permit the Owner access to and use of all part of the existing building up to the time where the Project Schedule indicates that new work shall commence.

D. Describe demolition removal procedures and schedule.

E. Perform noisy, malodorous, or dusty work which is deemed disruptive to the operation of the occupied portions of the building:
   1. “OFF Hours” unless other arrangements are approved, in writing, by the Owner's Representative.
      a. Comply with the provisions for work outside of “OFF Hours” as described in Section 01100 Summary.
      b. Do not perform such work during periods of after school or evening activities, unless permitted, in writing, by the Owner's Representative.
      c. Obtain, from the Owner's Representative, the school's schedule of such activities and schedule the demolition accordingly.

1.08 PROJECT CONDITIONS

A. Conduct demolition to minimize interference with adjacent and occupied building areas.

B. Cease operations immediately if, in the opinion of the Owner's Representative, the work is disruptive to, or in conflict with the use of the occupied portions of the building.

C. Cease operations immediately if structure appears to be in danger and notify Architect. Do not resume operations until directed.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PREPARATION

A. Provide, erect, and maintain temporary barriers at locations indicated and at other locations as may be required to isolate the area of demolition and allow the balance of the building to be used by the Owner.

B. Erect and maintain weatherproof closures for exterior openings.

C. Erect and maintain temporary partitions to prevent spread of dust, odors, and noise to permit continued building occupancy.

D. Protect existing construction, finishes, plumbing, mechanical, electrical, communication, fire detection and other building systems that are not to be demolished.
   1. Where demolition disrupts the operation of an essential safety related building systems (communications, fire detection, security, emergency lighting, etc.) provide temporary means to maintain the operation of the system until the operation of the system(s) is restored.

E. Prevent movement of structure; provide bracing and shoring.

F. Notify affected utility companies before starting work and comply with their requirements.
G. Mark location and termination of utilities.
H. Provide appropriate temporary signage including signage for exit or building egress.

3.02 DEMOLITION

A. Disconnect, remove or cap as indicated on the drawings, and identify designated utilities within demolition areas.
   1. Where existing utilities are not identified on the drawings as being capped or removed, terminate or relocate same in a code complying manner as required to accommodate the new work.

B. Demolish in an orderly and careful manner. Protect existing supporting structural members and maintain the structural integrity of all structure which shall remain.

C. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.

D. Remove materials as demolition progresses. Upon completion of demolition, leave areas in clean condition.

E. Remove temporary facilities.

3.03 SCHEDULES

A. Remove, store and protect the following materials and equipment:
   1. Items identified on the drawings or on schedules.

B. Remove the following equipment and materials for Owner’s retention. Deliver to location designated by Architect.
   1. Items identified on the drawings or schedules to be removed or salvaged and returned to the Owner.

C. Owner will remove and keep the following material and equipment:
   1. Existing unfixed furniture, furnishings, wall mounted items, furnishings, unfixed finish materials and similar items.

D. Protect the following materials and equipment to remain in place:
   1. Items identified as to remain in place, or if not so identified, which, in their existing condition, do not conflict with the new work.

END OF SECTION
SECTION 04310

RE-POINT MASONRY

PART 1  GENERAL

1.01  DESCRIPTION OF WORK

A. This Section includes, but is not limited to, the following:

Provide, other masonry Work as specified herein, as shown on the Drawings, and as needed for a complete and proper installation.

1.02  DESIGN REQUIREMENTS

A. No air-entraining admixtures or material containing such shall be permitted in the mortar. Also, no anti-freeze compounds, calcium chloride, or other compounds, unless expressly permitted otherwise, shall be permitted in the mortar.

1.03  REFERENCES

References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.


  A615  Standard Specification for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement.

  A706  Standard Specifications for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.


  C67   Standard Methods of Sampling and Testing Brick and Structural Clay Tile.

  C90   Standard Specification for Hollow, Load-Bearing Concrete Masonry Units.


  C129  Standard Specification for Non-Load-Bearing Concrete Masonry Units.
C140 Standard Methods of Sampling and Testing Concrete Masonry Units.
C144 Standard Specifications for Aggregate for Masonry Mortar.
C270 Standard Specification for Mortar for Unit Masonry.
C404 Standard Specifications for Aggregates for Masonry Grout.
C780 Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
C1019 Method of Sampling and Testing Grout

1.04 SUBMITTALS

A. Shop Drawings:  
   1. Submit placing drawings for areas being repointed.
B. Product Data: Catalog sheets, specifications, and installation instructions.

C. Quality Control Submittals:  
   1. Test Reports: Certified test reports for concrete masonry units showing that materials for delivery to the Project meet the requirements of these Specifications.

1.05 QUALITY ASSURANCE

A. Pre-Installation Meeting: After approval of all submittals and a minimum of 14 days prior to the start of Work, a meeting will be held at the Site for the purpose of reviewing mortar colorations, reviewing the Contract Documents, and discussing the requirements and procedures for the Work. The following persons must attend the meeting: The Contractor, the person Supervising this phase of the Work, the Commissioner, and the Design Structural Engineer. The Commissioner will provide a meeting agenda and administer the meeting.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store units off the ground on platforms that allow air circulation under units.
B. Cover and protect units against wetting prior to use.

1.73 PROJECT CONDITIONS

A. Environmental Requirements; Cold Weather Conditions:
1. At temperatures below 40 degrees F, maintain mortar temperature between 40 degrees F and 120 degrees F. If necessary, heat mixing water and sand to produce the required results.
2. At temperatures between 40 degrees F and 32 degrees F, protect masonry from rain and snow for 24 hours after laying.
3. At temperatures between 32 degrees F and 20 degrees F, provide wind breaks and cover the masonry to prevent wetting and freezing. Maintain masonry above freezing for not less than 24 hours using auxiliary heat or insulating blankets.
4. At temperatures below 20 degrees F, provide heated enclosures for laying the masonry. At the end of the workday, maintain the enclosures and keep the Work from freezing for not less than 24 hours.
5. Do not lower freezing point of mortar by use of antifreeze, calcium chloride or other additives.
6. Do not use frozen materials or materials coated with ice or frost.

PART 2 PRODUCTS

2.01 ACCESSORIES

A. Control Joint Filler: For vertical control joints, close cell neoprene, 1/2 inch thick by 3 inch wide, conforming to ASTM D 1056, RE41 or ASTM D 2056, RE41;
   1. NS - Closed Cell Neoprene Sponge by Hohman & Barnard Inc., 30 Rasons Ct., Hauppauge, NY 11788, (800) 645-0616, www.h-b.com; or

PART 3 EXECUTION

3.01 PREPARATION

A. Protection:
   1. Protect face materials against staining.
   2. Remove misplaced mortar immediately.
   3. Protect ledges, off-sets, and similar items from mortar drippings and other damage during construction.
   4. Protect newly laid masonry from exposure to precipitation, excessive drying, freezing, soiling, backfill, and other harmful elements.
   5. Cover top of walls with non-staining waterproof covering when Work is not in progress. Place with minimum 2-foot overhang of protective covering on each side of wall and securely anchor.

3.02 JOINTS

A. Horizontal and Vertical Face Joints:
   1. Nominal Thickness: 3/8 inch, unless otherwise indicated.
   2. Construct uniform joints.
   3. Point joints tight.
B. Remove mortar protruding into cells or cavities to be reinforced or filled.

3.03 HORIZONTAL JOINT REINFORCEMENT

A. Reinforce horizontal joints of concrete unit masonry with continuous masonry wall reinforcement

B. Install masonry wall reinforcement in horizontal joints as follows:
   1. Space reinforcement every 16 inches vertically, except space 8 inches in parapet walls.
   2. Straighten kinks or bends in the wires caused by handling, without injury to the material, before placing in masonry.
   3. Place longitudinal wires over face shell mortar beds.
   4. Embed entire length of longitudinal wires fully in mortar.
   5. Provide minimum mortar cover of 5/8 inch.
   6. Lap ends of adjoining strips of reinforcement 6 inches or more.
   7. Install factory fabricated corner and tee sections at corners and wall intersections respectively.
   8. Cut reinforcement one inch short of each side of control and expansion joints.

3.04 BONDING WITH MASONRY

A. Bonding of Abutting or Intersecting Walls and Partitions:
   1. External Corners: Where partitions and walls form external corners, bond together by alternate lapping of each course of corner unit.

B. Bonding Pilasters: Lay every second course in masonry bond. Reinforce every second course with masonry wall reinforcement.

c. Fill vertical joint at abutted walls and partitions solid with mortar at intersection. If a control joint is located at the intersection, rake out both sides of joint to a depth of 3/8 inch.

3.05 CONTROL JOINTS

A. Install control joints at locations shown on the Drawings. If locations of control joints are not shown, provide vertical control joints spaced not to exceed 35 feet; locate joints at points of natural weakness in the masonry Work.

B. Mortar Control Joints: Fill abutting cells of masonry units with mortar after installing asphalt felt at one side of joint to break the bond. Rake out joints to a depth of 3/8 inch.

C. Premoulded Control Joint Strips: Install joint strip as the Work progresses. Compress strips as masonry units are laid.

3.06 EXPANSION JOINTS

A. Install expansion joints at locations shown on the Drawings. Keep joints free of mortar and debris.
B. Build flanges of metal expansion strips into masonry. Lap joints between metal strips 4 inches in direction of flow. Solder joints between metal strips below grade and at junctures with horizontal expansion joints.

3.07 POINTING AND CLEANING

A. Cut off mortar projections remaining from tooling joints.

B. Dry brush masonry Work after mortar has set, at end of each day’s Work and after final pointing.

C. At completion of masonry Work, fill holes in joints (except weep holes) and tool.

D. Remove and replace CMU that are loose, chipped, broken, stained, or otherwise damaged, or if units do not match adjacent units. Install new units to match adjoining units in fresh mortar, point joints to eliminate any evidence of block replacement.

E. Cut out and repoint defective joints.

F. Leave Work and surrounding surfaces clean and free of mortar spots and droppings.

END OF SECTION
SECTION 05513

METAL STAIRS AND LADDERS

PART 1 GENERAL

1.1 SECTION INCLUDES
A. Aluminum fixed vertical ladders.

1.2 RELATED SECTIONS
A. Section 05500 - Metal Fabrications: Miscellaneous metal supports.
B. Section 06100 - Rough Carpentry: Roof framing and opening support.
C. Section 07553 – Modified Bituminous Roofing: Roof curb flashing.

1.3 REFERENCES
B. OSHA 1910.27: Fixed Ladders.

1.4 SUBMITTALS
A. Submit under provisions of Section 01300.
B. [ Product Data ]: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
C. Shop Drawings for Ladders:
   1. Plan and section of ladder installation.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Store products in manufacturer's unopened packaging until ready for installation.
B. Store products until installation inside under cover. If stored outside, under a tarp or suitable cover.

1.6 WARRANTY
A. Limited Warranty: Five years against defective material and workmanship, covering parts only, no labor or freight. Defective parts, if deemed so by the manufacturer, will be replaced at no charge, freight excluded, upon inspection at manufacturer's plant which warrants same.

PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Acceptable Manufacturer: Specification based on Precision Ladders, LLC, which is located at: P. O. Box 2279 ; Morristown, TN 37816-2279; Toll Free Tel: 800-225-7814; Tel: 423-586-2265; Email: info@PrecisionLadders.com; Web: www.PrecisionLadders.com
B. Other manufacturers will be considered if in strict accordance with the minimum standards as set forth in this specification.
C. Obtain all Aluminum fixed vertical ladder and components from a single manufacturer and single source.

### 2.2 ALUMINUM FIXED VERTICAL LADDER

**A. Aluminum Fixed Vertical Ladder and Components:** Ladder, cage, rest platforms, floor mounting brackets, security doors, walk-thru, and side rails.

1. **Model:** Model FL-*** (***= vertical height in inches) Aluminum Fixed Vertical Ladder as manufactured by Precision Ladders LLC.
2. **Capacity:** Unit shall support a 1000 lb (454 kg) loading without failure.
3. **Performance Standard:** Units designed and manufactured to meet or exceed ANSI A14.3 and OSHA 1910.27.

**B. Components:**

1. **Ladder Stringer:** 2-1/2 inch by 1-1/16 inch by 1/8 inch (64 mm by 27 mm by 3 mm) extruded 6005-T5 aluminum channel. Pitch: 90 degrees.
2. **Ladder Tread:** 2-1/4 inch by 3/4 inch by 1/4 inch (57 mm by 19 mm by 6 mm) extruded 6005-T5 aluminum with deeply serrated top surface.
3. **Ladder Mounting Bracket:** 8-1/2 inch by 2 inch by 3 inch by 1/4 inch thick (216 mm by 51 mm by 76 mm by 6 mm) aluminum angle.
4. **Rest Platform (if applicable):**
   a. 1/8 inch (3 mm) aluminum tread plate.
   b. Platform Size: 30” inches by 48 inches (762 mm by 1219 mm) standard.
   c. Toe Boards. 6005 T-5 aluminum.
   d. Handrails: 1-1/4 inch (32 mm) aluminum square tube 42 inches (1067 mm) high.
5. **Security Door (if applicable):** 0.125 inch (3 mm) 3003-H14 aluminum panel 84 inches (2134 mm) tall with padlock provision.
6. **Security Gate (if applicable):** Hinged gate at bottom of cage with padlock provision.
7. **Fall Prevention System (if applicable):** Complete system with rail, sleeves, and harness to limit any fall to 6 inches (152 mm) or less.
8. **Floor Brackets:** Floor bracket at foot of each stringer, 3 by 2 by 1/4 inch (76 by 51 by 6 mm).
9. **Finishes:**

### 2.3 FABRICATION

**A.** Completely fabricate ladder ready for installation before shipment to the site.

**B.** Completely fabricate handrail components, if applicable, and ship to site ready for field assembly and attachment to ladder.

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**PART 3 EXECUTION**

### 3.1 EXAMINATION

**A.** If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

**B.** Examine materials upon arrival at site. Notify the carrier and manufacturer of any damage.

### 3.2 INSTALLATION

METAL STAIRS AND LADDERS 12.28.15
A. Install in accordance with manufacturer's instructions.

3.3 PROTECTION
A. Protect installed products until completion of project.
B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 05513
SECTION 06100
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preservative treatment of wood.
B. Miscellaneous framing, shims, battens, blocking and sheathing.

1.02 RELATED SECTIONS

A. Section 07530 - Elastomeric Membrane Roofing

1.03 REFERENCES

B. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association.
C. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce).
D. SPIB (GR) - Standard Grading Rules for Southern Pine Lumber; Southern Pine Inspection Bureau, Inc..

1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide technical data on wood preservative materials, and application instructions.
C. Manufacturer’s Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
B. Exposed-to-View Rough Carpentry: Submit manufacturer’s certificate that products meet or exceed specified requirements, in lieu of grade stamping.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
PART 2 PRODUCTS

2.01 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).
B. Sizes: Nominal sizes as indicated on drawings.
C. Moisture Content: Kiln-dry or MC15.
D. Specie and Grade: No. 2 Select Structural or Dense Select Structural, Southern Yellow Pine; preservative treated.
E. Miscellaneous Blocking, Furring, and Nailers; preservative treated.
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.02 EXPOSED DIMENSION LUMBER

A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).
B. Sizes: Nominal sizes as indicated on drawings.
C. Moisture Content: Kiln-dry or MC15.
D. Specie and Grade: For all other exposed applications No. 2 Select Structural or Dense Select Structural, Southern Yellow Pine; preservative treated.

2.03 ACCESSORIES

A. Fasteners and Anchors:
   1. Fasteners: Hot-dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
B. Joist Hangers and other metal anchors or connection devices: Hot dipped galvanized steel, sized to suit framing conditions. Provide recommended devices manufactured by Simpson or equal.

2.04 FACTORY WOOD TREATMENT

A. Pressure Treatment of Lumber Above Grade: AWPA Treatment C2 using waterborne preservative to 0.25 lb/cu ft retention.
   1. Kiln dry after treatment to maximum moisture content of 15 percent.
   2. Treat all wood to be used in an exterior environment.
   3. Treat wood in contact with masonry or concrete.
   4. Treat wood less than 18 inches above grade.
   5. Treat wood in contact with grade.
B. Pressure Treatment of Lumber in Contact with Soil: AWPA Treatment C2 using waterborne preservative designated in AWPA C2 as suitable for ground contact use to 0.4 lb/cu ft retention.

PART 3 EXECUTION

3.01 INSTALLATION
A. Set wood members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance or application.

B. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA WCD 1 T11.

C. Provide miscellaneous members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.02 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.

B. Allow preservative to dry prior to erecting members.

3.03 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors or Walkways): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

END OF SECTION
SECTION 07531

THERMOPLASTIC SINGLE-PLY MEMBRANE ROOFING

PART 1  GENERAL

1.01  SECTION INCLUDES

A.  Thermoplastic Single-Ply Roofing

B.  Insulation, TAPERED AND FLAT.

1.02  RELATED SECTIONS

A.  Section 06100 - Rough Carpentry

B.  Section 07595 - Preparation for Re-Roofing

1.03  REFERENCES

A.  Factory Mutual (FM Global) – Approved Guide.

B.  Underwriters Laboratories (UL) – Roofing Systems and Materials Guide (TGFU R1306)


E.  National Roofing Contractors Association (NRCA)

F.  American Society of Civil Engineers (ASCE)

1.04  DEFINITIONS

A.  Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.05  PERFORMANCE REQUIREMENTS

A.  Provide an installed roofing membrane and base flashing system that does not permit the passage of water and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.

B.  All primary roofing materials that are to be physically and chemically compatible when installed in accordance with manufacturers current application requirements.

1.06  SUBMITTALS

A.  See Section 01300 - Administrative Requirements, for submittal procedures.
B. Product Data: Manufacturer's product specifications, installation instructions, and general recommendations for each product.

C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, setting plan for insulation including slopes, and details at roof penetrations and mechanical equipment.

D. Details shown on the Drawings reflect the specified manufacturer’s recommended details for some of the typical conditions, which may be encountered when installing the roof system. Not all conditions may be indicated.
   1. Prior to preparing the shop Drawings, the installer shall assess the existing conditions and the conditions that will occur due to the new work.
   2. Shop drawings shall identify every roofing condition, which is applicable for the new work whether or not such condition is detailed on the Drawings.
   3. Shop drawing details may deviate from the details indicated on the Drawings provided the proposed detail complies with the manufacturer's requirements for obtaining the specified warranty, will produce a watertight assembly and meets the minimum performance criteria as specified herein.

E. Samples for Verification:
   1. Provide samples of insulations, fasteners, membrane materials and accessories for verification of quality.

F. Manufacturer’s Installation Instructions: Indicate membrane seaming precautions, special procedures, and perimeter conditions requiring special attention.

G. Manufacturer’s Certificate: Installer shall provide written documentation from the manufacturer of their authorization to install the roof system and eligibility to obtain the warranty specified in this section.

H. Manufacturer’s Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, supplementary instructions given, and assessment of existing roofs to be re-roofed.
   1. Submit report by manufacturer’s technical representative evaluating the existing roofs to be reroofed under this project. Include recommendations for testing, substrate preparations and repairs and installation details.

I. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner’s name and registered with manufacturer.

1.07 QUALITY ASSURANCE

A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.
   1. Maintain one copy on site.

B. System components shall be selected to comply with the roofing manufacturer's specifications for a Wind Speed Zone 2 based on ASCE 7-88 for speeds between 80-89 mph.

C. Roofing manufacturer’s technical representative shall inspect the existing roofs, which are scheduled for new elastomeric membrane roof and prepare a report evaluating the conditions including recommendations for the new work.

D. Contractor shall perform pull out testing, as per the manufacturer's specifications for mechanical insulation fasteners.
E. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

F. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years documented experience and approved by manufacturer.
   1. Applicator (Installer) must have a performance rating from the Manufacturer which is equivalent to a better than average rating for the installation of the specified roof system.

G. Source Limitations: All components listed in this section shall be provided by a single manufacturer or approved by the primary roofing manufacturer.

H. Final Inspection: Manufacturer’s representative shall provide a comprehensive final inspection after completion of the roof system. All application errors must be addressed and final punch list completed.

1.08 PRE-INSTALLATION CONFERENCE

A. Prior to scheduled commencement of the roofing installation and associated work, conduct a meeting at the project site with the installer, architect, owner, and roofing manufacturer’s representative and any other persons directly involved with the performance work. The installer shall record conference discussions to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to roofing work.

1.09 REGULATORY REQUIREMENTS

A. All work shall be performed in a safe, professional manner, conforming to all federal, state and local codes.

1.10 DELIVERY, STORAGE, AND PROTECTION

A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact. Comply with manufacturer’s written instructions for proper material storage.

B. Store products in weather protected environment, clear of ground and moisture.

C. Protect foam insulation from direct exposure to sunlight. Slit or remove packaging to permit ventilation and cover with breathable tarpaulin or other suitable waterproof coverings. Stack insulation on pallets above ground or roof deck and tightly covered with waterproof materials. Manufacturer’s wrap does not provide sufficient waterproofing.

D. Materials shall be stored above 55 degrees F a minimum of 24 hours prior to application.

1.07 PROJECT COORDINATION

A. Coordinate and sequence the removal and installation of the work with installation of roof insulation, membrane covering and associated roof penetrations and counterflashings installed by other sections as work of this section proceeds.

B. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.

1.08 ENVIRONMENTAL REQUIREMENTS
A. Do not apply roofing membrane during unsuitable weather.

B. Do not apply roofing membrane when ambient temperature is below 40 degrees F or above 90 degrees F.

C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

E. Do not install insulation on roof deck when water of any type is present. Do not apply roofing materials when substrate is damp or wet or when proper adhesive temperature cannot be maintained.

1.09 SAFETY

A. The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related.

B. Safety shall be the responsibility of the roofing contractor. All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility’s occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

1.10 WARRANTY

A. Provide Manufacturer’s standard guarantee with single source coverage and no monetary limitation where the manufacturer agrees to repair or replace components in the roofing system, which cause a leak due to a failure in material or workmanship.

1. Duration: Twenty (20) years from the date of completion.*

*Materials and workmanship of listed products within this section when installed in accordance with current manufacturer’s application and specification requirements

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. GENERAL: All components of the specified roofing system shall be products of the selected membrane manufacturer or accepted by the membrane manufacturer as compatible. Unless otherwise approved by the Architect and accepted by the membrane manufacturer, all products (including insulation, fasteners, fastening plates and edgings) must be manufactured and supplied by the roofing system manufacturer and covered by the warranty.

B. EPDM Membrane Materials: This project has been designed according to the roofing system manufactured by:

1. GAF Everguard TPO Induction welding
   a. System: EverGuard TPO 60 Mil fleeceback (20 Year Warranty)

2. Equal roofing systems by the following manufacturers may be submitted for review.
   a. Firestone Building Products Co.
   b. GenFlex Roofing Systems.


C. Rigid Roof Insulation: Insulation shall be tapered and non-tapered polyisocyanurate as
supplied by GAF. Equal insulation systems by the following manufacturers may be submitted for review with written acceptance for use and warranty by membrane manufacturer:
1. Apache Products Co.
2. Dow Chemical Co.
3. Owens Corning Corp.
4. Substitutions: See Section 01600 - Product Requirements.

2.02 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

A. Membrane: A smooth type, polyester scrim reinforced thermoplastic polyolefin membrane with a nominal 0.060 inch (60 mil) thickness, for use as a single-ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D6878. UL Listed, FM Approved.

B. Flashing Material: A smooth type, polyester scrim reinforced thermoplastic polyolefin membrane with a nominal 0.060 inch (60 mil) thickness, for use as a single-ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D6878. UL Listed, FM Approved.

C. Adhesives, Sealants and Primers:
   1. Low VOC Solvent-based Bonding Adhesive: Solvent based rubberized adhesive for use with TPO membranes. Contains less than 250 grams per liter of Volatile Organic Content (VOC) and has been formulated using a blend of VOC exempt and non-exempt solvents to be in compliance with air quality regulations for single ply roofing adhesive.
   2. Acrylic emulsion copolymer based adhesive for use with TPO membranes.
   3. Solvent based liquid, required to protect field cut edges of TPO membranes. Applied directly from a squeeze bottle.
   4. Solvent based seam cleaner used to clean exposed or contaminated seam prior to heat welding.
   5. One part butyl based high viscosity sealant suitable for sealing between flashing membrane and substrate surface behind exposed termination bars and for sealing between roofing membrane and drain flange.
   6. 100% solids epoxy based two-part sealant suitable for filling sealant pans at irregularly-shaped penetrations. Epoxy is part A. Polyamide is part B.

2.03 INSULATION

A. FLAT INSULATION: Type: ASTM C1289, Type II/FS HH-I-1972, rigid polyisocyanurate faced both sides with glass fiber mat facings; faces finished with glass fiber, with the following characteristics:
   1. Board Thickness: 2 inch min.
   2. Thermal Resistance (LTTR value) of: 11.4
   4. Manufacturer: roofing membrane manufacturer or a products approved by the roofing membrane manufacturer.

B. TAPERED INSULATION: Type: ASTM C1289, Type II/FS HH-I-1972, rigid polyisocyanurate faced both sides with glass fiber mat facings; faces finished with glass fiber, with the following characteristics:
   1. Board Thickness: varies
   2. Thermal Resistance (LTTR value) of: 11.4
   4. Manufacturer: roofing membrane manufacturer or a products approved by the roofing membrane manufacturer.

2.04 ACCESSORIES
A. Mechanical Fasteners.
   1. HD Screws: Heavy gauge alloy steel fastener with CR-10 coating with a .245” diameter thread. Factory Mutual Standard 4470 Approved, #3 Phillips truss head for use on wood, concrete and steel decks.
   2. Insulation Plates: Galvalume, 3” diameter, specially coated for use in Induction welding attachment systems.

B. Extruded aluminum termination bar with angled lip caulk receiver and lower leg bulb stiffener. Pre-punched slotted holes at 6” on center or 8” on center. ¾” x 10 with 0.090” cross section.

C. A smooth type, unreinforced thermoplastic polyolefin based membrane for use as an alternative flashing/reinforcing material for penetrations and corners. Required whenever preformed vent boots cannot be used, 0.055 inches, nominal thickness.

D. An 8 inch wide smooth type, polyester scrim reinforced thermoplastic polyolefin membrane strip for use as a cover strip over coated metal and stripping in coated metal flanges and general repairs: 0.045 inches nominal thickness.

E. A 6 inch wide, smooth type, heat-weldable polyester scrim reinforced thermoplastic polyolefin membrane strip. Designed for use as a cover strip over non-coated metal edges and flanges.

F. 24 gauge stell with 0.025” thick TPO based film. Factory supplied in sheets and required for fabrication into metal gravel stop and drip edge profile, metal base and curb flashings, sealant pans, and scupper sleeves.

G. 0.075” thick molded TPO membrane sized to accommodate most common pipe and conduits, (1” to 6” diameter pipes), including square tube. Hot-air welded directly to TPO membrane, supplied with stainless steel clamping rings.

H. 0.45” thick molded TPO membrane boots are split to accommodate most common pipes and conduits and available in three standard sizes.

I. 0.060” thick molded TPO membrane designed to accommodate both inside and outside corners of base and curb flashing. Hot-air welded directly to TPO membrane. Size 4”x4” with 6” flange.

J. 0.055” thick smooth type, unreinforced thermoplastic polyolefin membrane designed for use as a conforming membrane seal over T-joints in 60 mil membrane applications.

K. Universal style expansion joint covers fabricated to accommodate both wall and field applications, made of .060” thick reinforced TPO membrane.

L. 0.045” reinforced TPO membrane with pressure sensitive adhesive, to be installed on horizontal surfaces using pplates and fasteners as a base attachment in fully adhered systems.

M. 0.045” thick reinforced TPO membrane fabricated corners.

N. 8” diameter, nominal 0.050” unreinforced TPO membrane for use in flashing outside corners of base and curb flashing.

O. 1/8” thick extruded and embossed TPO roll 30”x50’ heat welds directly to roofing membrane. Unique herringbone traction surface.
PART 3 EXECUTION

3.01 EXAMINATION - AT INSTALLATION OVER ROOF DECK

A. Verify that surfaces and site conditions are ready to receive work.
B. Coordinate with work of Section 07595 - Preparation For Re-roofing
C. Verify deck is supported and secure.
D. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
E. Verify deck surfaces are dry and free of snow or ice.
F. Verify that roof openings, curbs, and penetrations through roof are solidly set and nailing strips and reglets are in place.
G. Verify that substrate and installation conditions are in compliance with recommendations indicated in the report prepared by the Manufacturer's technical representative

3.02 MANUFACTURER'S SPECIFICATIONS

A. This roofing system shall be furnished and installed to comply with the requirements for a 20-year total system warranty from the manufacturer.
B. Where the details or requirements of the Contract Documents conflict with the manufacturer's details or requirements for the specified system, the manufacturer's requirements shall govern
C. Some details on the drawings may be keyed back to applicable manufacturer details and may or may not be completely drawn and noted. By reference to a manufacturer's detail, the Drawings are requiring the complete compliance with the referenced detail(s).
D. Details and materials not specifically indicated on the Contract Documents, but necessary for the furnishing of the specified roofing system, shall be included and executed as if specified or indicated on the Drawings.

3.03 EXISTING ROOF SURFACE

A. Prepare surface as described in Section 07595 - Preparation for Re-Roofing
B. Install membrane as described herein for a fully adhered roofing system

3.04 INSULATION - UNDER MEMBRANE

A. Do not apply roof insulation or roofing until all other work trades have completed jobs that require them to transverse the deck on foot or with equipment. A vapor retarder coated lightly with asphalt may be applied to protect the inside of the structure prior to the insulation and final roofing installation. Before the application of the insulation, any damage or deterioration to the vapor retarder must be repaired.
B. Do no install wet, damaged or warped insulation boards.
C. Overlay/recover boards may be installed using all full-size overlay boards in a non-staggered manner. These overlay/recover include gypsum. If plywood or OSB is specified, it must be a minimum thickness of ¾".
D. When installing the Induction welding Attachment System over tapered insulation, it is critical the Induction welding plates are flat and flush against the insulation surface to ensure proper welding of the plate to the membrane. For this reason, it is preferable to install the tapered insulation first and cover the tapered system with a overlay/recover board.

E. Do not install any more insulation than will be completely waterproofed each day.

F. Do not align seams with rows of plates, as the step down that is created will cause an incomplete weld of the Induction welding plate.

G. Do not straddle plates over insulation joints as the gaps will create an incomplete weld of the Induction welding plate.

H. Use the appropriate length and type of fastener for the structural deck.

I. Mechanical attachment for the three distinct areas or zones of a roof.
   1. Roof areas have three distinct areas or zones. They are corners (either inside or outside), roof perimeter, and the field of the roof. Each of these areas have their own attachment rates.
   2. These zones or areas have to be determined before the insulation, cover or overlay board’s fasteners are installed. A building’s perimeter edges and corners areas or zones are determined by the height and width and other conditions referenced by ASCE 7 and FM 1-19.

J. Securing the Plate and Fasteners
   1. Insulation, overlay/recover boards are to be mechanically attached to the structural deck in accordance with the manufacturer’s attachment table.
   2. Install the proper number of fasteners per insulation overlay/recover board per roof zone or area.
   3. Fasten to the substrate in an appropriate grid pattern as established by the attachment table. Using chalk lines to make the grids on the substrate is the easiest way to make sure the grid is consistent and plates are easy to find.
   4. Fasteners must be tight enough that the plate does not turn or rock.
   5. Over-driven fasteners that distort the face or top of the plate must be removed and discarded. A new plate and fastener must be reinstalled next to the original, but not into the same space and hole.
   6. Under driven or “high fasteners” must be redriven to proper depth.
   7. When installation of plates and fasteners are complete, the area should be blown or broomed clean to remove any dirt or debris from the substrate surface or contaminates from the plate’s bonding surface. This is critical so as not to puncture the membrane from beneath or to impair the welding of the membrane to the plate.

3.05 INDUCTION WELDING OF MEMBRANE

A. Equipment:
   1. Portable bonding machine ( a minimum of two machines is recommended per project)
   2. Minimum 5000 watt, continuous generator per two portable bonding machines.
   3. 100’ max length, #12 minimum gauge electrical cords.
   4. 6 cooling clamps ( stand-up magnets that put pressure on the newly welded plates.
   5. Pliers
   6. Heavy duty plunger
   7. Lumber crayon

A. Equipment settings: See manufacturer requirements.

3.06 MEMBRANE APPLICATION
A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Fully Adhered Application: Refer to manufacturer’s requirements and systems details.

D. Mechanical Attachment: Apply membrane and mechanical attachment devices in accordance with manufacturer’s instructions.
   1. Where indicated, run membrane up the inside surface of parapets and over top over wall below coping material.
      a. Mechanically fasten end of membrane to top of coping according to manufacturer’s recommendations; apply sealant to tops of fasteners
      b. Seal penetrations through membrane for masonry or stone anchors with sealant approved by manufacturer.

E. Around roof penetrations, use preformed flashing accessories or, where preformed are not suitable, seal with flexible flashing.

F. Coordinate installation of scuppers and related flashings.

G. Install walkway pads as indicated on the drawings; installation as recommended by manufacturer.

3.07 DAILY SEAL

A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.

B. Complete an acceptable membrane seal in accordance with the manufacturer’s requirements.

3.08 FIELD QUALITY CONTROL

A. See Section 01400 - Quality Requirements, for general requirements for field quality control and inspection.

B. Require site attendance of roofing material manufacturer’s technical representative daily during installation of the Work.

C. Prior to acceptance by the Owner, the manufacturer’s technical representative shall perform a detailed inspection of the installation identifying, in writing, all defects or unacceptable work.
   1. The installer shall immediately correct all unacceptable work and shall provide an installation, which shall receive the specified manufacturer’s warranty.

3.09 CLEANING

A. Remove markings from finished surfaces.

B. Remove errant adhesives or other surface irregularities from the membrane and flashings.

C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

D. Repair or replace defaced or damaged finishes caused by work of this section.
3.10 PROTECTION OF FINISHED WORK

A. Protect installed roofing and flashings from construction operations. Refer to manufacturer's recommendations for temporary protections required during construction operations.

B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION 07530
SECTION 07532

EPDM MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single-Ply, Elastomeric (EPDM) roofing membrane, fully-adhered conventional application.
B. Rigid Roof Insulation.
C. Flashings.
D. Expansion Joint Covers
E. Roofing walkway pads and flashing accessories.

1.02 RELATED SECTIONS

A. Section 06100 - Rough Carpentry
B. Section 07595 - Preparation for Re-Roofing
C. Section 07620 - Sheet Metal Flashing and Trim

1.03 REFERENCES


1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.
B. Product Data: Manufacturer's product specifications, installation instructions, and general recommendations for each product.

C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, setting plan for insulation including slopes, and details at roof penetrations and mechanical equipment.

D. Details shown on the Drawings reflect the specified manufacturer's recommended details for some of the typical conditions, which may be encountered when installing the roof system. Not all conditions may be indicated.
   1. Prior to preparing the shop Drawings, the installer shall assess the existing conditions and the conditions that will occur due to the new work.
   2. Shop drawings shall identify every roofing condition, which is applicable for the new work whether or not such condition is detailed on the Drawings.
   3. Shop drawing details may deviate from the details indicated on the Drawings provided the proposed detail complies with the manufacturer's requirements for obtaining the specified warranty, will produce a watertight assembly and meets the minimum performance criteria as specified herein.

E. Samples for Verification:
   1. Submit three samples of EPDM membrane, 12” x 12” in size illustrating system installation.
   2. Two samples of roof insulation, 6” x 6” in size.
   3. Insulation fastener plates, 2 of each
   4. 2 samples, 4” in length, piece of expansion joint cover

F. Manufacturer's Installation Instructions: Indicate membrane seaming precautions, special procedures, and perimeter conditions requiring special attention.

G. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

H. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, supplementary instructions given, and assessment of existing roofs to be re-roofed.
   1. Submit report by manufacturer's technical representative evaluating the existing roofs to be re-roofed under this project. Include recommendations for testing, substrate preparations and repairs and installation details.

I. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.
   1. Maintain one copy on site.

B. System components shall be selected to comply with the roofing manufacturer's specifications for a Wind Speed Zone 2 based on ASCE 7-88 for speeds between 80-89 mph.

C. Roofing manufacturer's technical representative shall inspect the existing roofs, which are scheduled for new elastomeric membrane roof and prepare a report evaluating the conditions including recommendations for the new work.

D. Contractor shall perform pull out testing, as per the manufacturer's specifications for mechanical insulation fasteners.

E. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.
F. **Applicator Qualifications:** Company specializing in performing the work of this section with minimum five years documented experience and approved by manufacturer.
   1. Applicator (Installer) must have a performance rating from the Manufacturer which is equivalent to a better than average rating for the installation of the specified roof system.

G. Provide adequate number of experienced workmen regularly engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and an experienced superintendent on the job at all times roofing work is in progress.

H. There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the specifier. Any deviation from the manufacturer's installation procedures must be supported by written certification on manufacturer's letterhead and presented for the specifier's consideration.

I. Upon completion of the installation, the applicator shall arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to determine whether or not corrective work will be required before the warranty will be issued. Notify the building owner seventy-two (72) hours prior to the manufacturer's final inspection.

### 1.06 PRODUCT DELIVERY, STORAGE, PROTECTION AND HANDLING

A. Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.

B. Comply with the manufacturer’s written instructions for proper material storage.
   1. Store FleeceBACK membrane in a dry area. Moisture absorbed by the fleece backing must be removed using a wet-vac system prior to membrane adhesive.
   2. Store other materials between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.
   3. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.

C. Insulation must be on pallets, off the ground and tightly covered with waterproof materials.

D. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

### 1.07 PROJECT COORDINATION

A. Coordinate and sequence the removal and installation of the work with installation of roof insulation, membrane covering and associated roof penetrations and counterflashings installed by other sections as work of this section proceeds.

B. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.

C. Do not disrupt activities in occupied spaces.

### 1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not apply roofing membrane during unsuitable weather.

B. Do not apply roofing membrane when ambient temperature is below 40 degrees F or above 90 degrees F.
C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

E. Do not install insulation on roof deck when water of any type is present. Do not apply roofing materials when substrate is damp or wet or when proper adhesive temperature cannot be maintained.

1.09 JOB CONDITIONS, CAUTIONS AND WARNINGS

Refer to Carlisle's FleeceBACK Adhered Roofing System specification for General Job Site Considerations.

A. Material Safety Data Sheets (MSDS) must be on location at all times during the transportation, storage and application of materials.

B. Do not apply FAST Adhesive when surface and/or ambient temperatures are below 25°F.

C. Drums of Flexible FAST and FAST 100-LV Adhesive must be a minimum of 70°F at the time of use. Use drum band heaters when necessary.

D. The addition of FAST Adhesive Catalyst (to Part B side) is recommended to speed up reaction time when temperatures are below 50°F.

E. The contractor must exercise caution during spraying adhesive to avoid overspray.

F. Use a non-atomizing spray tip such as the Graco Spatter Tip and reduce spray pressure to 500 – 800 psi to increase adhesive droplet size and reduce airborne mist. Maintain hand held wind screens on-site for use as necessary. Extruding FAST Adhesive is also recommended for the elimination of overspray concerns.

G. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.

H. When loading materials onto the roof, the Carlisle Authorized Roofing Applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.

I. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.

J. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.

K. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.

L. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.

M. New roofing shall be complete and weather tight at the end of the work day. Care must be taken to avoid wicking water though the fleece by properly sealing exposed edges of the membrane.
N. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.

1.10 SAFETY

A. The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related.

B. The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related. Safety shall be the responsibility of the roofing contractor. All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

1.11 JOB SITE PROTECTION

C. The roofing contractor shall adequately protect building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. Provide canvas, boards and sheet metal (properly secured) as necessary for protection and remove protection material at completion. The contractor shall repair or be responsible for costs to repair all property damaged during the roofing application.

D. During the roofing contractor's performance of the work, the building owner will continue to occupy the existing building. The contractor shall take precautions to prevent the spread of dust and debris, particularly where such material may sift into the building. The roofing contractor shall provide labor and materials to construct, maintain and remove necessary, temporary enclosures to prevent dust or debris in the construction area(s) from entering the remainder of the building.

E. Do not overload any portion of the building, by either use of or placement of equipment, storage of debris, or storage of materials.

F. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.

G. Take precautions to prevent drains from clogging during the roofing application. Remove debris at the completion of each day's work and clean drains, if required. At completion, test drains to ensure the system is free running and drains are watertight. Remove strainers and plug drains in areas where work is in progress. Install flags or other telltales on plugs. Remove plugs each night and screen drain.

H. Store moisture susceptible materials above ground and protect with waterproof coverings.

I. Remove all traces of piled bulk material and return the job site to its original condition upon completion of the work.

1.12 WARRANTY

A. See Section 01780 - Closeout Submittals, for additional warranty requirements.

B. Contractor to warranty his work against defect for a period of two years after Date of Substantial Completion.

C. Provide manufacturer's 20-year Total System Warranty covering both labor and material with no dollar limitation. The maximum wind speed coverage shall be peak gusts of 80 mph measured at 10 meters above ground level. Certification is required with bid submittal indicating the manufacturer has reviewed and agreed to such wind coverage.
D. Warranty shall also cover leaks caused by accidental punctures:
   1. 16 man-hours per year for 115-mil FleeceBACK

E. Warranty shall also cover leaks caused by hail:
   1. 2” diameter hail when 115-mil FleeceBACK installed

F. Pro-rated System Warranties shall not be accepted.

G. Evidence of the manufacturer's warranty reserve shall be included as part of the project submittals for the specifier's approval.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. All components of the specified roofing system shall be products of Carlisle SynTec or accepted by Carlisle SynTec as compatible.

B. Unless otherwise approved by the specifier and accepted by the membrane manufacturer, all products (including adhesives, insulation, fasteners, fastening plates and edgings) must be manufactured and supplied by the roofing system manufacturer and covered by the warranty.

2.02 ROOFING MEMBRANE

A. Furnish Carlisle Sure-Seal FleeceBACK 115-mil reinforced EPDM (Ethylene, Propylene, Diene Terpolymer) membrane (White). The membrane shall conform to the minimum physical properties of ASTM D4637-96, Type III (Fabric-backed membrane). Membrane sheets are 10’ wide and 50’ or 100’ long and incorporate factory-applied splice tape (FAT) along the length of the membrane. Smaller 5’ x 40’ rolls are also available in the 100-mil and 115-mil thicknesses.


C. Static Puncture Resistance (ASTM D120) of 19 lbf for 115-mil.

D. Seaming Materials: As recommended by membrane manufacturer.

E. Flexible Flashing Material: as recommended by the manufacturer; conforming to the following and matching the membrane color. Use preformed accessories wherever practical; used field formed flashings only in applications where preformed are not suitable.
   1. Preformed flashing accessories: Manufacturer's standard accessories as required by field conditions including but not limited to the following:
      a. EPDM molded pipe flashing; cured, premolded base flashing for pipes up to 6” diam.
      b. EPDM corner flashing; inside or outside corner with pre-applied adhesive.
      c. Pre-formed Sealer Pocket; with pre-applied adhesive backing
   2. Cured EPDM flashing; 60 mil thick, non-reinforced for wall, curbs, gravel stops, metal edgings, and other applications as recommended by the manufacturer
   3. Uncured EPDM flashing; 60 mil, non-reinforced for applications where manufacturer’s preformed flashing accessories are not suitable and at conditions with unusual shapes and configurations.

2.03 INSULATION / UNDERLAYMENT

A. When applicable, insulation shall be installed in multiple layers and mechanically fastened or secured with Carlisle FAST Adhesive to the substrate in accordance with manufacturer's published specifications.
B. Insulation shall be **Carlisle SecurShield HD Composite** as supplied by Carlisle SynTec. Minimum R-value required is R-21.

C. **Carlisle SecurShield HD Composite** – Composite insulation panel comprised of ½-inch high-density Polyiso cover board laminated during the manufacturing process to SecurShield rigid Polyiso roof insulation meeting ASTM C1289 Type II, Class2, Grade 2 (20 psi) or Grade 3 (25 psi). Available in 4’ x 8’ boards with thickness from 2” to 4.5”. 4’ x 4’ panels are also available.

D. Tapered Insulation: Type: ASTM C1289, Type II, rigid polyisocyanurate faced both sides with glass fiber mat facings; faces finished with glass fiber, with the following characteristics:
   1. Board Size: 48 x 96 inch.
   2. Board Thickness: 2 inch min. in tapered insulation systems.
   4. Thermal Conductivity (k factor): 0.16.
   5. Board Density: 1.8 lb/cu ft.
   6. Manufacturer: roofing membrane manufacturer or a products approved by the roofing membrane manufacturer.

### 2.04 ACCESSORIES

A. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.

B. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
   1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
   2. Contractor shall provide for on-site pull out testing of fasteners as per the requirements of the manufacturer.

C. Membrane Adhesive: As recommended by membrane manufacturer.

D. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.

E. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.

F. Insulation Adhesive: As recommended by insulation manufacturer.

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

H. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.

I. Insulation Perimeter Restraint: Stainless steel edge device configured to restrain insulation boards in position and provide top flashing over ballast.

J. Sealants: As recommended by membrane manufacturer.

K. Walkway Pads: where required, manufacturer's molded rubber pads with slip resistant surface, rounded corners, 30” x 30” x 3/16” thick, adhered to the roof membrane.

L. Expansion Joint Covers:
   1. Type: Bellows type roof/roof and roof/wall (as required) EPDM expansion joint cover over closed cell foam insulation, bonded to aluminum flanges, with preformed corners and intersections.
   2. Obtain expansion joints approved by roofing membrane manufacturer and that are a part of roofing membrane warranty.
M. Nailers and Curbs:
   1. Preservative treated wood, specified in Section 06100.
   2. Nailers: 3-1/2 inch face dimension x insulation thickness.

N. Metal Flashings: Specified in Section 07620.

O. Provide any other accessories as may be required by the roofing manufacturer to provide the specified warranted roofing system whether or not such items are indicated on the documents.

PART 3 EXECUTION

3.01 EXAMINATION - AT INSTALLATION OVER ROOF DECK

A. Verify that surfaces and site conditions are ready to receive work.

B. Coordinate with work of Section 07595 - Preparation For Re-roofing

C. Verify deck is supported and secure.

D. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.

E. Verify deck surfaces are dry and free of snow or ice.

F. Verify that roof openings, curbs, and penetrations through roof are solidly set and nailing strips and reglets are in place.

G. Verify that substrate and installation conditions are in compliance with recommendations indicated in the report prepared by the Manufacturer's technical representative

3.02 MANUFACTURER'S SPECIFICATIONS

A. This roofing system shall be furnished and installed to comply with the requirements for a 30-year total system warranty from the manufacturer.

B. Where the details or requirements of the Contract Documents conflict with the manufacturer's details or requirements for the specified system, the manufacturer's requirements shall govern

C. Some details on the drawings may be keyed back to applicable manufacturer details and may or may not be completely drawn and noted. By reference to a manufacturer's detail, the Drawings are requiring the complete compliance with the referenced detail(s).

D. Details and materials not specifically indicated on the Contract Documents, but necessary for the furnishing of the specified roofing system, shall be included and executed as if specified or indicated on the Drawings.

3.03 EXISTING ROOF SURFACE

A. Prepare surface as described in Section 07595 - Preparation for Re-Roofing

B. Install membrane as described herein for a fully adhered roofing system

3.04 INSULATION - UNDER MEMBRANE

A. Perform pull out testing and other testing as recommended by report prepared by manufacturer's technical representative.
   1. Perform corrective work and install fasteners in compliance with the recommendations of
the report.

B. Attachment of Insulation:
   1. Mechanically fasten first layer of insulation to deck in accordance with insulation manufacturer's instructions and Factory Mutual requirements.

C. Lay subsequent layers of insulation with joints staggered minimum 6 inch from joints of preceding layer.

D. Place insulation in accordance with manufacturer's instructions.

E. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

F. Tape joints of insulation in accordance with insulation manufacturer's instructions.

G. At scuppers, use factory-tapered boards to slope down to roof drains over a distance of 18 inches or greater distance as per the manufacturer's recommendations.

H. Do not apply more insulation than can be covered with membrane in same day.

3.05 EXPANSION JOINT APPLICATION

A. Comply with manufacturer's instructions for handling and installing roof joint covers and materials, except where more stringent requirements are indicated.

B. Coordinate installation of roof joint covers and associated work so that complete assemblies comply with assembly performance requirements.

C. Extend roof joint covers over curbs, parapets, fascia and other elements in the construction profile, with factory-fabricated corners, transitions, intersections and terminations to provide continuous, uninterrupted, waterproof assemblies.

D. Provide uniform profile throughout length of each installation; do not stretch elastomeric sheets.

E. Nail anchorage flanges securely to curbs, cant strips and other substrates as recommended by manufacturer. Coordinate installation of joint covers with adjacent construction for weathertight assembly.

F. Flash flanges into roof system per roof system manufacturer requirements.

G. Splice adjoining sections, corners, transitions, intersections, terminations, and expansion slots using expansion joint manufacturer furnished splice kit. Clean splice area to assure proper adhesion of splice strip. Adjacent sections shall be aligned and uniform in profile.

H. Membrane Covered, Bellows-Type Roof Expansion Joint Cover with Concealed Attachment Flanges: Allow 1/2 inch (13mm) spacing at splices. Adhere membrane cover to substrate with compatible adhesive or mastic. Set termination bar in water cut off mastic and secure with termination bar fasteners.

3.06 MEMBRANE APPLICATION

A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Fully Adhered Application: Apply adhesive to substrate at rate of 1 gal/square for each surface,
membrane and substrate. Fully embed membrane in adhesive except in areas directly over or within 3 inches of expansion joints. Fully adhere one roll before proceeding to adjacent rolls.

D. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.

E. Mechanical Attachment: Apply membrane and mechanical attachment devices in accordance with manufacturer’s instructions.
   1. Where indicated, run membrane up the inside surface of parapets and over top over wall below coping material.
      a. Mechanically fasten end of membrane to top of coping according to manufacturer’s recommendations; apply sealant to tops of fasteners
      b. Seal penetrations through membrane for masonry or stone anchors with sealant approved by manufacturer.

F. At intersections with vertical surfaces:
   1. Extend membrane over cant strips and up a minimum of 4 inches onto vertical surfaces.
   2. Fully adhere flexible flashing over membrane and up to nailing strips.
   3. Secure flashing to nailing strips at 4 inches on center.
   4. Insert flashing into reglets and secure.

G. Around roof penetrations, use preformed flashing accessories or, where preformed are not suitable, seal with flexible flashing.

H. Coordinate installation of scuppers and related flashings.

I. Install walkway pads as indicated on the drawings; set in cement as recommended by manufacturer.

3.07 DAILY SEAL

A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.

B. Complete an acceptable membrane seal in accordance with the manufacturer’s requirements

3.08 FIELD QUALITY CONTROL

A. See Section 01400 - Quality Requirements, for general requirements for field quality control and inspection.

B. Require site attendance of roofing material manufacturer’s technical representative daily during installation of the Work.

C. Prior to acceptance by the Owner, the manufacturer’s technical representative shall perform a detailed inspection of the installation identifying, in writing, all defects or unacceptable work.
   1. The installer shall immediately correct all unacceptable work and shall provide an installation, which shall receive the specified manufacturer’s warranty.

3.09 CLEANING

A. Remove markings from finished surfaces.

B. Remove errant adhesives or other surface irregularities from the membrane and flashings.

C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
D. Repair or replace defaced or damaged finishes caused by work of this section.

3.10 PROTECTION OF FINISHED WORK

A. Protect installed roofing and flashings from construction operations.

B. Perform daily clean up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.

C. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

D. Prior to the manufacturer’s inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

E. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION
SECTION 07595
PREPARATION FOR RE-ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of existing membrane roofing membrane in selected areas in preparation for a new roofing and insulation.

B. Temporary protection

1.02 RELATED SECTIONS

A. Section 02223 - Selective Demolition
B. Section 06100 - Rough Carpentry; for repairs to substrate
C. Section 07530 - Elastomeric Membrane Roofing
D. Section 07620 - Sheet Metal Flashing And Trim

1.03 REFERENCES


1.04 DEFINITIONS

A. Flat Roof: for the purposes of this Project a flat roof shall be defined as a roof surface which has a pitch of up to 1 inch in 12 inches.

1.05 QUALITY ASSURANCE

A. This work shall be performed by the roofing applicator as specified in Section 07530 - Elastomeric Membrane Roofing

1.06 PROJECT CONDITIONS

A. Schedule work according to the Construction Schedule for the Project. Schedule work to coincide with commencement of installation of new membrane roofing system.

B. Coordinate the work with other affected mechanical and electrical work associated with roof penetrations.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not remove existing roofing membrane when weather conditions threaten the integrity of the building contents or intended continued occupancy.

B. Do not remove existing roofing when adequate protection measures cannot be completed before the end of the workday or before precipitation, whichever comes first.

C. Perform work of this section during periods when no precipitation is forecasted by the National
Weather Service for at least 24 hrs. after the commencement of the work.
1. Have, on site, and readily accessible sufficient tarps, other related protective materials and sufficient manpower to immediately cover and protect the building interior should unanticipated precipitation be encountered prior to the completion of any portion of the roofing removal or replacement work.

D. Maintain continuous temporary protection prior to and during installation of new roofing system.
1. Protection includes, but is not limited to, temporary membranes, supporting structure and decking required to direct precipitation off the roof, away from the building and maintaining a dry building interior.

PART 2 PRODUCTS

2.01 MATERIALS

A. Temporary Protection: Sheet fiber reinforced plastic; provide weights to retain sheeting in position.

B. Sheathing materials and framing as may be required for temporary protection below protection sheeting for openings and other conditions where sheeting alone is not suitable.
1. Minimum Sheathing: 1/2 inch. CDX Plywood
2. Minimum Framing: 2" x 6" wood framing @ 16" o.c. Size and spacing of framing to be determined by structural requirements of opening.

C. Protection Board: ASTM C 208 cellulose fiberboard, one face finished with mineral fiber, asphalt and kraft paper, with the following characteristics:
2. Board Size: 48 x 48 inch.
3. Board Thickness: 1/2 inch.
4. Thermal Conductivity: K factor of 0.36.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing roof surface is clear and ready for work of this section.

3.02 PREPARATION

A. Sweep roof surface clean of loose matter.

B. Remove loose refuse and dispose off site.

C. Coordinate work of this section with the demolition work of other elements of the building.

D. Coordinate with the installation of any roof mounted equipment and the construction of curbs and roof openings.

3.03 MATERIAL REMOVAL - AT EXISTING FLAT ROOFS TO REMAIN

A. Remove existing membrane, cant strips, base flashing, and flashing for roof penetrations.
B. Remove metal counter flashing only where indicated and where counter flashing is deemed unsuitable for new work.

C. Remove existing roofing, insulation, fasteners, blocking, dunnage, and curbs down to existing sheathing.

D. Remove any other items, which are unsuitable or incompatible with the specified roofing system. Where applicable, replace such items with new materials or devices, which are compatible and suitable for specified roofing system.

E. Dispose of non-asbestos materials as per Section 02223 - Selective Demolition

3.04 FIELD QUALITY CONTROL

A. At the discretion of the Owner, independent agency inspection and testing may be engaged to evaluate the quality and compliance of the work.
   1. The Owner may elect to perform testing as a result of the manufacturer's technical representative's inspection report or for any other reason.
   2. The Owner shall pay for such testing, except in instances where non-complying work is discovered by testing or other means.

B. Testing will identify the conditions of existing materials and their reuse, repair or removal and the compliance of the new work with the project requirements.

C. Any new work found to be in non-compliance shall be immediately removed and corrected.
   1. In the instance of finding non-complying work, the contractor shall be responsible for the cost of the initial testing as well as any re-testing as may be required to verify compliance.

3.05 TEMPORARY PROTECTION

A. Provide temporary protective sheeting over uncovered deck surfaces.

B. Where protective sheeting alone is insufficient, provide structural support such as framing, bracing and sheathing as may be necessary.

C. Turn sheeting up and over parapets and curbing. Retain sheeting in position with temporary fasteners. Do not use weights.

D. Provide for surface drainage from sheeting to existing drainage facilities or to areas where drainage will be directed away from the building.

E. Inspect temporary protection as required, but, never less than once a day immediately prior to the end of the workday. Correct any inadequate conditions.

F. Do not permit traffic over unprotected or repaired deck surface.

END OF SECTION
SECTION 07620

SHEET METAL FLASHING, COPINGS AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flashings, counterflashings and fabricated sheet metal items.
B. Copings.
C. Lead flashing.
D. Lead coated copper flashing.
E. Reglets and accessories.

1.02 RELATED SECTIONS

A. Section 06100 - Rough Carpentry
B. Section 07530 - Elastomeric Membrane Roofing
C. Section 07595 - Preparation For Re-Roofing
D. Section 07900 – Joint Sealers

1.03 REFERENCES


1.04 PERFORMANCE REQUIREMENTS
A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction, and will not allow water infiltration into building assemblies or the building interior.

B. FM Approvals' Listing: Manufacture and install copings roof-edge flashings that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-60. Identify materials with FM Approvals' markings.

C. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.05 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

C. Samples: Submit two samples, 12-inch square in size illustrating material, finish, and fabrication details of typical counterflashing. Copings: 8 inches long. Reglets and Counterflashing: 8 inches long.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.

B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials which may cause discoloration or staining.

1.08 PROJECT CONDITIONS

A. Coordinate with work of Related Sections

PART 2 PRODUCTS
2.01 MANUFACTURERS: PRE-FORMED ITEMS

A. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:
   1. Architectural Products Co.
   2. B & B Sheet Metal Co
   4. W. P. Hickman Co
   5. Or approved substitute. See Section 01600 - Product Requirements

2.02 SHEET MATERIALS: CUSTOM FORMED AND PRE-FORMED ITEMS

A. Flashings, Copings, Counterflashing, Splice Connectors, Brakemetal and misc. exposed trim: Pre-Finished Aluminum ASTM B 209 (ASTM B 209M); 0.050 inch thick; plain finish shop precoated with fluoropolymer coating.

B. Lead for Flashing at Vent Pipes: ASTM B 749, 2.5 lb/sq ft thick.

2.03 FINISHES

A. Aluminum Flashings, Copings, Counterflashing, Splice Connectors, Brakemetal and misc. exposed aluminum trim (where exposed to public view, shall match existing flashing finish):
   1. 70 Percent Kynar 500(R) Coating (PermaColor 2000): Top Side.
      a. Color: as selected from manufacturer’s standards.
   2. Welded or factory assembled components shall be finished after assembly.
   3. Aluminum Sheet:
      a. ASTM B209, alloy 3003, temper H14, 0.032 inch thick.
      b. Finish: Natural

2.04 ACCESSORIES

A. Fasteners: Stainless steel, with soft neoprene washers.


C. Primer: Type as recommended by flashing manufacturer and, where sealant comes in contact with roofing materials, acceptable to the roofing manufacturer.

D. Protective Backing Paint: Zinc chromate alkyd.

E. Sealant: Type as recommended by flashing manufacturer and, where sealant comes in contact with roofing materials, acceptable to the roofing manufacturer.

F. Plastic Cement: ASTM D 4586, Type I.

G. Reglets: Recessed type, rigid extruded PVC; face and ends covered with plastic tape.

H. Solder: ASTM B 32; Sn50 (50/50) type.

2.05 FABRICATION:

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Fabricate copings from aluminum sheet material as specified above unless otherwise
recommended by manufacturer. Length and size shall be as indicated on drawings.

C. Fabricate cleats of [24 gauge galvanized steel] type sheet metal. Cleats shall run continuously, except where manufacturer recommends otherwise, interlocking with formed flashing or gravel stop.

D. Form pieces in longest possible lengths.

E. Vertical leg of counterflashing shall be a minimum of 4 inches long except where otherwise indicated.

F. Hem exposed edges on underside 1/2 inch; miter and seam corners.

G. Form counterflashing material with manufacturer's recommended watertight seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet type or interlocking hooked seams.

H. Tin edges of sheet material to be soldered. Solder shop formed metal joints. After soldering, remove flux. Wipe and wash solder joints clean. Weather seal joints.

I. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip. Form leg to lock onto cleat where indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. For counterflashings, verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Sawcut new reglets in masonry where counterflashing is indicated. Cut to a depth of 3/4"; insert reglet strip and seal.

C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

A. Conform to drawing details; comply with applicable SMACNA details where details for special conditions are not shown on Drawings.

1. Procedures which affect Elastomeric Roofing and /or where, flashing materials come in contact with Elastomeric Roofing shall be approved by the roofing system manufacturer prior to execution.

B. Insert flashings and/or roof membrane into roof terminations to form tight fit. Seal all terminations as per manufacturer’s recommendations.

C. Secure flashings in place using concealed fasteners. Use exposed fasteners only where
permitted.

D. Apply plastic cement compound between metal flashings and felt flashings as approved by roofing system manufacturer.

E. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

F. Seal metal joints watertight.

3.04 FIELD QUALITY CONTROL

A. See Section 01400 - Quality Requirements, for field inspection requirements.

B. Roofing Manufacturer’s Technical Representative shall inspect and evaluate the work of this Section as it may impact upon the performance of the roofing system and the eligibility of obtaining the specified roofing warranties. See Section 07530 - Elastomeric Membrane Roofing

B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

3.05 SCHEDULE

A. Use Aluminum counter flashings where roofing terminates at a location where the exterior wall is above the plane of the roof.

B. At mechanical equipment curbs and roof hatch curbs, run base flashing up bottom of curb and over top of curb; reset equipment over base flashing with new counterflashing where indicated.

D. At other pipe or vents, flash as per details on the Drawings.

END OF SECTION
SECTION 07720

ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Roof curbs.
2. Equipment supports.
3. Roof hatches.

B. Related Sections include the following:

1. Division 6 Section "Rough Carpentry" for roof sheathing, wood cants, and wood nailers.
2. Division 7 Section "Sheet Metal Flashing and Trim" for shop- and field-fabricated metal flashing and counterflashing, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.

1.3 QUALITY ASSURANCE

A. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Pack, handle, and ship roof accessories properly labeled in heavy-duty packaging to prevent damage.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify required openings for each type of roof accessory by field measurements before fabrication and indicate measurements on Shop Drawings.

1.6 COORDINATION

A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
1. With Architect’s approval, adjust location of roof accessories that would interrupt roof drainage routes OR roof expansion joints.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers listed in other Part 2 articles.

2.2 METAL MATERIALS

A. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 coated and mill FINISH
B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, AZ50 coated.
C. Aluminum Sheet: ASTM B 209, alloy and temper recommended by manufacturer for type of use and mill finish.
D. Stainless-Steel Shapes or Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304 or Type 316, No. 2D finish.
E. Steel Shapes: ASTM A 36/A 36M, hot-dip galvanized to comply with ASTM A 123/A 123M, unless otherwise indicated.

2.3 MISCELLANEOUS MATERIALS

A. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
C. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
D. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by roof accessory manufacturer. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners.
E. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, or PVC; or flat design of foam rubber, sponge neoprene, or cork.
F. Elastomeric Sealant: ASTM C 920, silicone sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
G. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, and heavy bodied for hooked-type expansion joints with limited movement.

H. Roofing Cement: ASTM D 4586, nonasbestos, fibrated asphalt cement designed for trowel application or other adhesive compatible with roofing system.

2.4 ROOF CURBS

A. Roof Curbs: Provide metal roof curbs, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported on roof curbs. Fabricate with welded or sealed mechanical corner joints, with stepped integral metal cant raised the thickness of roof insulation and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1. Manufacturers:
   a. FLAT (1/4" PER FOOT) INSULATED ROOF DECKS
      1) GREENHECK MODEL GPR or ATS/ATR/ATE/ATI
      2) APPROVED EQUAL.
   b. SLOPED (ABOVE ¼" PER FOOT) INSULATED ROOF DECKS:
      1) GREENHECK MODEL GPIP
      2) APPROVED EQUAL

2. Material: WELDED ALUMINUM OR GALVANIZED CANTED CONSTRUCTION.

3. Curb height may be determined by adding thickness of roof insulation and minimum base flashing height recommended by roofing membrane manufacturer. Fabricate units to minimum height of 18 inches, unless otherwise indicated.

2.5 EQUIPMENT SUPPORTS

A. Equipment Supports: Provide metal equipment supports, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported. Fabricate with welded or sealed mechanical corner joints, with stepped integral metal cant raised the thickness of roof insulation and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1. Manufacturers:
   a. GREENHECK, MODEL GESS/GESR/ES
   b. APPROVED EQUAL

2. Material: WELDED ALUMINUM OR GALVANIZED CANTED CONSTRUCTION.

3. Fabricate units to minimum height of 18 inches, unless otherwise indicated.
2.6 ROOF HATCHES

A. Roof Hatches: Fabricate roof hatches with insulated double-wall lids and insulated double-wall curb frame with integral deck mounting flange and lid frame counterflashing. Fabricate with welded or mechanically fastened and sealed corner joints. Provide continuous weathertight perimeter gasketing and equip with corrosion-resistant or hot-dip galvanized hardware.

1. Manufacturers:
   a. Bilco Company (The). TYPE S
   b. APPROVED EQUAL.


3. Type and Size: Single-leaf lid, 30 by 36 inches.

4. Curb and Lid Material: 14 GAUGE PAINT BOND GALVANIZED STEEL.
   a. Finish: ALKYD BASED RED OXIDE PRIMER.

5. Insulation: Glass-fiber board.

6. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.

7. Fabricate units to minimum height of 12 inches, unless otherwise indicated OR REQUIRED FOR ROOF WARRANTY.

8. Hardware: Galvanized steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.

1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive roof accessories.

2. Verify dimensions of roof openings for roof accessories.

3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install roof accessories according to manufacturer’s written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants, and other miscellaneous items as required for completing roof accessory installation. Install roof accessories to resist exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Install roof accessories to fit substrates and to result in watertight performance.

C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
1. Coat concealed side of uncoated aluminum AND stainless-steel roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.

2. Underlayment: Where installing exposed-to-view components of roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene underlayment.


D. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.

E. Roof Curb Installation:

1. Set roof curb so top surface of roof curb is level.

F. Equipment Support Installation:

1. Set equipment support so top surface of equipment support is level.

G. Roof Hatch Installation:

1. Check roof hatch for proper operation. Adjust operating mechanism as required. Clean and lubricate joints and hardware.

H. Seal joints with elastomeric sealant as required by manufacturer of roof accessories.

3.3 TOUCH UP

A. Touch up factory-primed surfaces with compatible primer ready for field painting in accordance with Division 9 painting Sections.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.4 CLEANING

A. Clean exposed surfaces according to manufacturer’s written instructions.

END OF SECTION 07720
SECTION 07840
FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Firestopping materials.

B. Firestopping of all penetrations and interruptions to fire rated assemblies, whether indicated on drawings or not, and other openings indicated.
   1. Firestopping shall be applied where required by code and/or where required by authorized code officials.
   2. Firestopping shall be applied to all penetrations through fire rated assemblies including, but not limited to, pipes, conduits, structural members, ducts, cables, and similar items.
   3. The application of firestopping is understood and typical for penetrations through fire rated assemblies, floors, walls, chases and otherwise, and is, generally, not specifically identified on the Drawings.
   4. Firestopping shall be applied to all such penetrations whether or not it is indicated on the Drawings.

1.02 RELATED SECTIONS

A. Section 01450 - Cutting and Patching

B. Section 01700 - Execution Requirements

1.03 REFERENCES


1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, firestopping test or design number, and type of firestopping which is appropriate for each type of penetration. Provide in all locations where required by code and whether or not “firestopping” is indicated on the Drawings.

C. Product Data: Provide data on product characteristics.

D. Manufacturer’s Installation Instructions: Indicate preparation and installation instructions.

E. Manufacturer’s Certificate: Certify that products meet or exceed specified requirements.
1.05 QUALITY ASSURANCE

A. Fire Testing: Provide firestopping assemblies of designs which provide the scheduled fire ratings when tested in accordance with methods indicated and ASTM E 119.
   1. Listing in the current classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report.
   2. Current evaluation reports published by CABO, ICBO, or BOCA will be considered as constituting an acceptable test report.
   3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years experience.

1.06 MOCK-UP

A. Install one firestopping assembly representative of each fire rating design required on project.
   1. Where one design may be used for different penetrating items or in different wall constructions, install one assembly for each different combination.

B. Obtain approval of authority having jurisdiction before proceeding.

C. If accepted, mock-up will represent minimum standard for the Work.

D. If accepted, mock-up may remain as part of the Work. Remove and replace mock-ups not accepted.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Comply with firestopping manufacturer’s recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.

B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.01 FIRESTOPPING ASSEMBLIES

A. Firestopping: Any material meeting the requirements and which will be inconspicuous when used in conjunction with scheduled finishes and architectural details.
   1. Coordinate selection of materials with scheduled finishes to be applied to the surface.
   2. Do not use firestopping materials or methods which will conflict with finish systems.
   3. Fire Ratings: See Drawings for required systems and ratings.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify openings are ready to receive the work of this section.

B. Verify if firestopping will be used in conjunction with an architectural detail and/or finish. Select firestopping method which will be inconspicuous.

C. Verify method of firestopping to be used for each penetration. Drawings do not indicate type of firestopping.

D. Verify what finishes, if any, are scheduled for each area and coordinate firestopping work so as not to conflict with the scheduled finishes.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter which may affect bond of firestopping material.

B. Remove incompatible materials which may affect bond.

C. Install backing materials to arrest liquid material leakage.

3.03 INSTALLATION

A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

B. Do not cover installed firestopping until inspected by authority having jurisdiction.

C. Coordinate installation to permit the installation of finishes and other subsequent work

D. Install labeling required by code.

3.04 CLEANING AND PROTECTION

A. Clean adjacent surfaces of firestopping materials.

B. Protect adjacent surfaces from damage by material installation.

C. Remove excess materials which may conflict with subsequent work and which are not necessary to provide required fire rating

END OF SECTION
SECTION 07900

JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing.
B. Pre-compressed foam sealers.

1.02 RELATED SECTIONS

A. Section 07840 - Firestopping: Firestopping sealants.

1.03 REFERENCES


1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data indicating sealant chemical characteristics.
C. Samples: Submit three samples, 3/8 x 6 inch in size illustrating sealant colors for selection.
D. Manufacturer’s Installation Instructions: Indicate special procedures.
E. Schedule: Installer/applicator shall submit a detailed schedule of all conditions requiring sealant and the proposed sealant assembly to be used for each condition.

1.05 QUALITY ASSURANCE

A. Maintain one copy of each referenced document covering installation requirements on site.
B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
C. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years experience.

1.06 MOCK-UP
A. Provide mock-up of sealant joints in conjunction with window under provisions of Section 01400.

B. Construct mock-up with specified sealant types and with other components noted.
   1. Provide mock-up for all exterior wall assemblies
   2. Provide mock-up for interior assemblies where sealant will be visible.

C. Locate where directed.

D. Mock-up may remain as part of the Work wherever the particular mock-up may remain part of the Work.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.08 COORDINATION

A. Coordinate the work with all sections referencing this section.

1.09 WARRANTY

A. See Section 01780 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five-year period after Date of Substantial Completion.
   1. Where the manufacturer, as a standard feature, provides a warranty which exceeds five years, that warranty shall become the warranty which shall apply to this Project.

C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, watertight seal, and acoustical, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Silicone Sealants:
   7. Substitutions: See Section 01600 - Product Requirements.

B. Polyurethane Sealants:
   5. Substitutions: See Section 01600 - Product Requirements.

C. Polysulfide Sealants:
4. Substitutions: See Section 01600 - Product Requirements.

D. Acrylic Sealants:
   2. Substitutions: See Section 01600 - Product Requirements.

E. Butyl Sealants:

F. Acrylic Emulsion Latex Sealants:
   5. Substitutions: See Section 01600 - Product Requirements.

G. Preformed Compressible Foam Sealers:
   4. Substitutions: See Section 01600 - Product Requirements.

2.02 SEALANTS

A. Type E2 - General Purpose Exterior Sealant: Acrylic, solvent release curing; ASTM C 920, Grade NS, Class 12-1/2, Uses M, G, and A; single or multi- component; paintable. To be used where sealant is to be painted along with the adjacent materials, otherwise use Type E1.
   1. Applications: Use for Joints which will be field painted:

B. Type E3 - Exterior Expansion Joint Sealer: Precompressed foam sealer; urethane with water-repellent;
   2. Size as required to provide weathertight seal when installed.
   3. Provide product recommended by manufacturer for traffic-bearing use.
   4. Applications: Use for:
      a. Exterior wall expansion joints.

C. Type I-1 - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C 834, Type OP, Grade NF single component, paintable.
   1. Color: Standard colors matching finished surfaces, except where sealant is to be painted.
      a. Color where sealant is to be painted: off-white color.
   2. Applications: Use for:
      a. Interior wall and ceiling control joints.
      b. Joints between door and window frames and wall surfaces.
      c. Joints between countertops, without sinks, and wall surfaces.
      d. Other interior joints for which no other type of sealant is indicated.

D. Type I-2 - Shower/Tile Sealant: White silicone; ASTM C 920, Uses M and A; single component, mildew resistant.
   1. Applications: Use for:
      a. Joints between plumbing fixtures and floor and wall surfaces.
      b. Joints between countertops with sinks and wall surfaces.
      c. Joints in tile work.
E. Type A-1 - Acoustical Sealant: Butyl or acrylic sealant; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.
   1. Applications: Use for concealed locations only at assemblies which have acoustical insulation or sound resistant doors and frames.
      a. Sealant bead between top stud runner and structure and between bottom stud track and floor.
      b. Seal electrical, mechanical and other items which penetrate partitions identified to have acoustical insulation.

   1. Approved by manufacturer for wide joints up to 1-1/2 inches.
   3. Applications: Use for:
      a. Expansion joints in floors.

G. Type S-1 - Silicone Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, solvent curing, non-sagging, non-staining, fungus resistant, non-bleeding.
   3. Service Temperature Range: -65 to 180 degrees F (-54 to 82 degrees C).
   5. Applications: Use for:
      a. Glazing applications, except where otherwise recommended by manufacturer of glazing or glazing framing system.

H. Unspecified Sealants

I. Provide sealants for each application which is not indicated in this Section but which is encountered during the Work. Provide sealants which are recommended by the manufacturer as the "best" product for the application.
   1. Where a sealant is not specified for a condition, provide a product which is compatible with the materials to be sealed and which is recommended by the sealant manufacturer for the specific application
      a. Provide colors sealants for applications which will be exposed to view. Furnish products from manufacturer's standard colors; Architect to select colors.
      b. Provide paintable sealant for applications which are scheduled for field painting.

2.03 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 foam rod compatible with sealant; ASTM D 1667, closed cell PVC; 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

3.01 EXAMINATION
A. Identify each assembly to be sealed and assign the proper sealant to the assembly.
   1. Verify if finished assembly will be painted, concealed or exposed and assign appropriate products

B. Verify that substrate surfaces are ready to receive work.

C. Verify that environmental conditions are suitable for sealant installation

D. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Remove loose materials and foreign matter which might impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C 1193.

C. Perform acoustical sealant application work in accordance with ASTM C 919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Install bond breaker where joint backing is not used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

H. Tool joints concave.

I. Precompressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch (3 to 6 mm) below adjoining surface.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION OF FINISHED WORK

A. Protect sealants until fully cured and, where applicable, painted.

3.06 SCHEDULE
A. Applications of sealant shall be according to the general guidelines as indicated by the descriptions in Part 2 of this Section.

B. Installer/applicator shall furnish a schedule as identified in Part 1 of this Section, under "Submittals".

END OF SECTION