
Project: CATA Roofing Replacements
Date: December 1, 2021
Project No.: 75820015
To: CATA – Rick Moore, Norm VanAlstine, Nicole Wilson
Progressive AE – Seth Horton
All Plan Holders

AD1-1 NOTICE

- A. This Addendum to the specifications and drawings for the above-captioned project adds to or supersedes all contrary or conflicting information in specifications and drawings which is amended in the following paragraphs. This Addendum is to become part of bidding documents as originally issued.
- B. Each trade shall review the entire Addendum, including work of other trades, for revisions or clarifications regarding their own work.
- C. This Addendum includes Specification Section 07 5400 revised and reissued December 1, 2021.

AD1-2 ARCHITECTURAL WORK (EEB)

A. SPECIFICATION ITEMS

- 1. **Section 07 5400 Thermoplastic Membrane Roofing (Reissued):**
 - a. Remove all references to Cover Board and Parapet Sheathing in specification.
 - b. Add paragraph 2.04.A. Note that deck sheathing is only required to the extent that replacement is needed on the CTC building.
 - c. Add paragraph 3.03 (Installation of insulation under membrane).
 - d. Remove paragraph 3.03.D (Mechanical attachment).
 - e. Add paragraph 3.04.C (Fully adhered application).
- 2. **Section 07 0150.74 (Not Reissued):** Revise line 2.04.A.1.b to read reinforced (in lieu of non-reinforced).

B. DRAWING ITEMS

- 1. **Drawings A101 and A102 (Not Reissued):**
 - a. Modify General Note 6 to eliminate the word 'Raise'. Intent is to reuse drains at existing locations. Based on their existing height, raising the drains will not be required as factory-tapered insulation boards may be used.
 - b. In Roof Legend(s) remove the word 'Raised' in description of roof drains.

CATA Questions and Progressive AE Responses

CTC new membrane roof:

Is the intent for a complete removal of all existing membrane and insulation down to the deck or do you wish to reuse any existing insulation?

Progressive AE response: Per the bidding documents, the intent is not to reuse insulation.

Is the intent for a fully adhered roof system? If yes, is cover board such as DensDeck to be included? (Note that most systems will require a complete tear off to receive a warranty).

Progressive AE response: The intent is fully adhered systems. No Cover Board required. Refer to Addendum No. 1 for reissued specification section 07 5400 which includes clarifications.

The scope calls for “existing drains to be raised as required” What is the “required” that will necessitate raising the drains?

Progressive AE response: Sumps can be used to keep drains at current elevation. Intent is to reuse existing drains. Refer to Addendum No. 1 for documentation of this clarification.

Is it your intent that the warranty will extend and include the perimeter internal gutter?

Progressive AE response: Yes

Per the A101 Roof Legend the center area consists of taper insulation over of constant thickness roof insulation. In fact, at the time of the original installation it was determined that adequate slope in the deck existed and Granger deleted taper by change order. The center section has two layers of 1.5” iso.

Progressive AE response: If the deck is in fact adequately sloped, then tapered will not be needed to maintain a constant slope (which is the design intent).

Tranter new membrane roof:

Are there HVAC being added to the roof via separate bid package that we will need to flash?

Progressive AE response: All curbs within work area shall be flashed.

The existing insulation is 1.5” thick at the drains. You call for a full tear off and adding a base layer of 2.5”. Is it your intent to raise the drains by one inch? The cost to do so is going to be expensive!

Progressive AE response: Sumps can be used to keep drains at current elevation. Intent is to reuse existing drains. Refer to Addendum No. 1 for documentation of this clarification.

Is it your intent to install a fully adhered roof system? if yes, is cover board such as DensDeck to be included? Will the base layers of insulation be mechanically attached? (Note that an adhered system requires more fasteners than a mechanically attached roof system)

Progressive AE response: The intent is fully adhered systems. No Cover Board required. Refer to Addendum No. 1 for reissued specification section 07 5400 which includes clarifications.

SECTION 07 5400 THERMOPLASTIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Adhered system with thermoplastic roofing membrane.
- B. Insulation, flat and tapered.
- C. Deck sheathing.
- D. Flashings.
- E. Roofing cant strips, stack boots, roofing expansion joints, and walkway pads.

1.02 REFERENCE STANDARDS

- A. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.
- B. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2016.
- C. ASTM D4434/D4434M - Standard Specification for Poly(Vinyl Chloride) Sheet Roofing; 2012.
- D. FM DS 1-28 - Wind Design; 2007.
- E. NRCA (RM) - The NRCA Roofing Manual; 2017.
- F. NRCA (WM) - The NRCA Waterproofing Manual; 2005.
- G. UL (DIR) - Online Certifications Directory; Current Edition.
- H. UL (FRD) - Fire Resistance Directory; current edition.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.
 - 1. Review preparation and installation procedures and coordinating and scheduling required with related work.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, and fasteners.
- C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, and setting plan for tapered insulation.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
- F. Manufacturer's qualification statement.
- G. Installer's qualification statement.
- H. Warranty Documentation:
 - 1. Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
 - 2. Submit installer's certification that installation complies with warranty conditions for waterproof membrane.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum ten years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of this section with at least five years of documented experience.
- C. Single-Source Responsibility for Vegetated Roof Assemblies Over Waterproofing: Provide and install products from a single source.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact.

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- B. Store materials in weather protected environment, clear of ground and moisture.
- C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.
- D. Protect foam insulation from direct exposure to sunlight.

1.07 FIELD CONDITIONS

- 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 120 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. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.
- C. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.
 - 1. Warranty Term: 20 years.
 - 2. Limit of Liability: No dollar limitation.
 - 3. Scope of Coverage: Repair leaks in the roofing system caused by:
 - a. Ordinary wear and tear of the elements.
 - b. Manufacturing defect in materials.
 - c. Defective workmanship used to install these materials.
 - d. Damage due to winds up to 72 mph.
 - 4. Not Covered:
 - a. Damage due to winds in excess of 72 mph.
 - b. Damage due hurricanes or tornadoes.
 - c. Hail.
 - d. Intentional damage.
 - e. Unintentional damage due to normal rooftop inspections, maintenance, or service.
 - 5. For repair and replacement include costs of both material and labor in warranty.
- D. Metal Roof Edging: Full-system warranty for roof edge system, covering blow-off from winds up to 72 mph.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Thermoplastic Polyvinyl Chloride (PVC) Membrane Roofing Materials:
 - 1. Carlisle Roofing Systems, Inc: www.carlisle-syntec.com/#sle.
 - 2. IB Roof Systems: www.ibroof.com/#sle.
 - 3. Johns Manville: www.jm.com/#sle.
 - 4. Sika Corporation Roofing; Sikaplan PVC: usa.sika.com/sarnafil/#sle.
 - 5. Duro-last Inc.: www.duro-last.com.; Basis of Design
 - 6. Substitutions: Not permitted.
- B. Insulation:
 - 1. Single source approved by roof system manufacturer.

2.02 ROOFING

- A. Thermoplastic Membrane Roofing: One ply membrane, fully adhered, over insulation.
- B. Roofing Assembly Requirements:
 - 1. Roof Covering External Fire Resistance Classification: UL (DIR) or UL (FRD) Class A.

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2. Factory Mutual Classification: Class I and windstorm resistance of I-75, in accordance with FM DS 1-28.
3. Insulation Thermal Value (R), minimum: 30; provide insulation of thickness required.
- C. Acceptable Insulation Types - Constant Thickness Application:
 1. Minimum 2 layers of polyisocyanurate board.
 2. Bottom layer of polyisocyanurate board covered with single layer of polyisocyanurate board.
- D. Acceptable Insulation Types - Tapered Application:
 1. Tapered polyisocyanurate board.
 - a. Tapered polyisocyanurate board can be used as the second layer over the constant thickness bottom layer of polyisocyanurate board.
- E. Acceptable Insulation Types - Tapered Application: Saddles and Crickets.
 1. Tapered polyisocyanurate board.
 - a. See drawings for saddle locations and proportions. Use 2 to 1 length to width ratio (27 degree angle) and 3 to 1 length to width ratio (19 degree angle).

2.03 MEMBRANE ROOFING AND ASSOCIATED MATERIALS

- A. Membrane Roofing Materials:
 1. PVC: Polyvinyl chloride (PVC) complying with ASTM D4434/D4434M, Type III, sheet contains reinforcing fibers or reinforcing fabrics.
 - a. Thickness: 60 mil, 0.060 inch, minimum.
 2. Sheet Width: Factory fabricated into widest possible sheets.
 3. Solar Reflectance: 0.75, minimum, initial, and 0.65, minimum, 3-year, certified by Cool Roof Rating Council.
 4. Thermal Emissivity: 0.80, minimum, initial, and 0.79, minimum, 3-year, certified by Cool Roof Rating Council.
 5. Color: Gray.
- B. Seaming Materials: As recommended by membrane manufacturer.
- C. Flexible Flashing Material: Same material as membrane.

2.04 DECK SHEATHING

- A. Deck Sheathing: Glass-mat faced gypsum panels complying with ASTM C1177/C1177M.
 1. Thickness to match existing for flush finish, fire-resistant.

2.05 INSULATION

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, complying with ASTM C1289.
 1. Classifications:
 - a. Type II:
 - 1) Class 2 - Faced with coated polymer-bonded glass fiber mat facers on both major surfaces of core foam.
 - 2) Compressive Strength: Classes 1-2-3, Grade 2 - 20 psi (138 kPa), minimum.
 - 3) Thermal Resistance, R-value: At 1-1/2 inches thick; Class 1, Grades 1-2-3, 8.4 (1.48), minimum, at 75 degrees F.
 1. Board Size: 48 by 96 inches.
 2. Board Thickness: 2.5 inch.
 3. Tapered Board: Slope as indicated; minimum thickness .5 inch; fabricate of fewest layers possible.
 4. Board Edges: Square.

2.06 ACCESSORIES

- A. Prefabricated Roofing Expansion Joint Flashing: Sheet butyl over closed-cell foam backing seamed to galvanized steel flanges.
- B. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.
- C. Cant Strips: Wood; pressure preservative treated.
- D. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.

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1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
- E. Membrane Adhesive: As recommended by membrane manufacturer.
- F. Insulation Adhesive: As recommended by insulation manufacturer.
- G. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.
- H. Sealants: As recommended by membrane manufacturer.
- I. Walkway Pads: Suitable for maintenance traffic, contrasting color or otherwise visually distinctive from roof membrane.
 1. Composition: Roofing membrane manufacturer's standard.
 2. Surface Color: White or Yellow.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.
- E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and nailing strips are in place.

3.02 INSTALLATION, GENERAL

- A. Perform work in accordance with manufacturer's instructions, NRCA (RM), and NRCA (WM) applicable requirements.
- B. Do not apply roofing membrane during cold or wet weather conditions.
- C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.
- D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

3.03 INSTALLATION - INSULATION, UNDER MEMBRANE

- A. Attachment of Insulation:
 1. Mechanically fasten first layer of insulation to deck in accordance with roofing manufacturer's instructions.
 2. Embed second layer of insulation into full bed of adhesive in accordance with roofing and insulation manufacturers' instructions.
- B. Lay subsequent layers of insulation with joints staggered minimum 6 inches from joints of preceding layer.
- C. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
- D. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.
- E. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- F. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 24 inches.
- G. Do not install more insulation than can be covered with membrane in same day.

3.04 INSTALLATION - MEMBRANE

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

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- B. Shingle joints on sloped substrate in direction of drainage.
- C. Fully Adhered Application: Install adhesive to substrate at rate of 2 gal/sq ft. 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 heat welding, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.
- E. At intersections with vertical surfaces:
 - 1. Extend membrane up a minimum of 8 inches onto vertical surfaces.
 - 2. Fully adhere flexible flashing over membrane and up to reglets.
 - 3. Insert flashing into reglets and secure.
- F. At gravel stops or copings, extend membrane under gravel stop or coping and to the outside face of the wall. Cover nailers a minimum of 1/2 inch.
- G. Around roof penetrations, seal flanges and flashings with flexible flashing.
- H. Install roofing expansion joints where indicated. Make joints watertight.
 - 1. Install prefabricated joint components in accordance with manufacturer's instructions.
- I. Coordinate installation of roof drains and sumps and related flashings.

3.05 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for additional requirements.
- B. Owner will provide testing services in accordance with Section 01 4000 - Quality Requirements. Contractor to provide temporary construction and materials for testing.
- C. Provide daily on-site attendance of roofing and insulation manufacturer's representative during installation of this work.

3.06 CLEANING

- A. See Section 01 7000 - Execution and Closeout Requirements for additional requirements.
- B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- C. Repair or replace defaced or damaged finishes caused by work of this section.

3.07 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION