CD DESIGN RELEASE PACKAGE 3 - ADDENDUM 03

PROJECT: SBC No. 166/005-08-2013 CM | MHM No. 15035 ETSU Fine Arts Classroom Building
DATE: December 21, 2017

Addendum 03 forms a part of CD Design Release Package 3 and modifies the original drawings and specifications issued on October 16, 2017.

DRAWINGS:

1. Unless noted otherwise, replace the following sheets with the attached updated sheets.
3. A111: Added detail annotations at orchestra pit.
4. A114: Revised wall type.
5. A121: Revised interior elevation tag references for SLL 207A/B/C/D.
8. A301: Updated scupper locations.
10. A311: Updated scupper locations and added dimensions.
11. A312: Updated scupper locations and added dimensions. Clarified notes and references.
17. A416: Added roof assembly and ceiling cloud notes.
18. A417: Updated roof and balcony fascia dimensions and notes.
19. A418: Revised roof assembly notes.
23. A424: Revised roll-up door housing size, details, and notes. Revised damp-proofing notes.
26. A452: Removed note about weather barrier. Revised horizontal masonry reinforcement notes and drawings to coordinate with specs. Revised proscenium jamb detail.
27. A461: Revised flashing details and notes for wall cavity. Updated detail references.
   Added air vents to MCM canopy. Revised/added notes for MCM wet-seal joints.
30. A472: Added sheet and detail through roof access ladder/hatch.
31. A504: Revised section through roof access ladder/hatch.
34. A603: Added notes about threshold assembly. Revised threshold detail.
35. A604: Revised cavity flashing details and notes.
36. A613: Revised cavity flashing details and notes.
37. A615: Revised cavity, sill, and curtain wall sealant/flashing details and notes.
38. A616: Revised cavity, sill, and curtain wall sealant/flashing details and notes.

**Specifications and Narratives:**

1. 03 45 00: Delete this section. Precast roof pavers have been eliminated from the design.
2. 04 16 00: Part 2.03 Anchoring Devices for Masonry:
   a. Paragraph C. Brick Ties to Exterior Wall Metal Studs: Change the brick wire ties material to hot-dipped galvanized.
   b. Paragraph D. Brick Ties to Exterior Wall Masonry: Change the joint reinforcing and brick ties material to hot-dipped galvanized. Change the model number to 170-2X-SH and wire size per application.
3. 07 53 23: Replace this section with the attached updated section. Changed membrane thickness and warranty requirements. Added cover board. Replaced paver reference with decorative ballast.

**End of Addendum 03**
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Adhered roof system with ethylene propylene diene terpolymer (EPDM) roofing membrane.
   B. Insulation, flat and tapered.
   C. Vapor retarder over concrete deck.
   D. Flashings.
   E. Roofing stack boots, roofing expansion joints, and walkway pads.

1.02 RELATED REQUIREMENTS
   A. Section 03.45.00 - Precast Architectural Concrete: Roof pavers on pedestals where indicated
   B. Section 06.10.00 - Rough Carpentry: Wood nailers and curbs.
   C. Section 07.62.00 - Sheet Metal Flashing and Trim: Flashings, Counterflashings, reglets and Copings.
   D. Section 07.71.00 - Roof Specialties: Prefabricated roofing expansion joint flashing.

1.03 REFERENCE STANDARDS
   F. FM DS 1-29 - Roof Deck Securement and Above-Deck Roof Components; Factory Mutual System; 2006.

1.04 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.

1.05 SUBMITTALS
   A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.
   B. Product Data: Provide manufacturer's written information listed below.
      1. Product data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, and fasteners.
2. Preparation instructions and recommendations.
3. Storage and handling requirements.

C. Manufacturer's Qualification Statement.

D. Installer's Qualification Statement.

E. Specimen Warranty: Mock-up of the Total Roofing System Warranty for the State of Tennessee, as provided on the form of Section 07.50.36, as per the instructions in Section 07.50.35.

F. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, setting plan for tapered insulation, and paver layout.

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

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

I. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and supplementary instructions given.

J. Warranty:
   1. Total Roofing System Warranty: All roofing materials and installation shall be included in the Total Roofing System Warranty for the State of Tennessee, as provided on the form of Section 07.50.36, as per the instructions in Section 07.50.35.

K. Installer's Qualification Statement.

1.06 TENNESSEE HIGH PERFORMANCE BUILDING REQUIREMENTS (HPBR) COMPLIANCE DOCUMENTATION

A. Reference document - State of Tennessee High Performance Building Requirements Manual, Version 1.01, as referenced in Section 01.78.50 HPBr Reporting and as tracked by the Section 01.78.50 HPBr CHECKLIST/TRACKING FORM.

B. Provide documentation of construction waste diverted from landfills:
   1. Compliance with Credit MR2.1 - Construction Waste Management - 50%

C. Submit documentation demonstrating HPBr compliance for the following:
   1. Compliance with Credit MR3.1: Sustainable Materials - Recycled content 10%.
   2. Compliance with Credit EQ6.1: Material VOC Limits - Adhesive and sealants

D. Submit documentation of quantity and material cost with monthly Application for Payment to the Contractor.

1.07 QUALITY ASSURANCE

A. Perform work in accordance with 1.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum twenty (20) years of documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section:
   1. With minimum five (5) years documented experience.
   2. Approved by membrane manufacturer.
   3. Extend manufacturer's labor and materials guarantee.
   4. Extend manufacturer's No Dollar Limit guarantee.

D. Single Source Responsibility: Provide and install products from single source.

1.08 DELIVERY, STORAGE, AND HANDLING

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

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

C. Protect foam insulation from direct exposure to sunlight.
D. Keep Material Safety Data Sheets (MSDS) at the project site at all times during transportation, storage, and installation of materials.
E. Comply with all requirements of Owner to prevent overloading or disturbance of the structure when loading materials onto the roof.

1.09 FIELD CONDITIONS
A. Do not apply roofing membrane during unsuitable weather. Refer to manufacturer’s written instructions.
B. Do not apply roofing membrane when ambient temperature is below 40 degrees F or above ____ 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. Proceed with work so new roofing materials are not subject to construction traffic as work progresses.
F. Do not allow grease, oil, fats, or other contaminants to come into direct contact with membrane.

1.10 WARRANTY
A. See Section 01.78.00 - Closeout Submittals, for additional warranty requirements.
B. Total Roofing System Warranty: All roofing materials and installation shall be included in the Total Roofing System Warranty for the State of Tennessee, as provided on the form of Section 07.50.36, as per the instructions in Section 07.50.35.
   1. Warranty Term: 30 years.
   2. For repair and replacement include costs of both material and labor in warranty.
   3. Include damage caused by 2 inch maximum diameter hail.
   4. Exceptions NOT Permitted:
      a. Damage due to roof traffic.
      b. Damage due to wind of speed greater than 56 mph but less than 90 mph.

PART 2 PRODUCTS
2.01 ROOFING APPLICATIONS
A. EPDM Membrane Roofing: 90 mil non-reinforced single ply membrane, fully adhered, over insulation.
B. Roofing Assembly Performance Requirements and Design Criteria:
   1. Wind Uplift:
      a. Designed to withstand wind uplift forces calculated with ASCE 7.
      b. Design Wind Speed: 90 miles per hour.
   2. Thermal Performance: Roof system insulation thermal value (R), minimum: R-25; provide insulation of thickness required.
   3. Drainage: No standing water within 48 hours after precipitation.

2.02 ROOFING MEMBRANE AND ASSOCIATED MATERIALS
A. Air & Vapor Barrier Base Sheet, over concrete decks: Self-adhering, rubberized asphalt membrane laminated to spun-bonded polyester fabric; 40 mils (0.040 inch) thick, minimum.
   1. Tensile Strength: 250 psi, when tested per ASTM D412.
   2. Elongation: 250%, when tested per ASTM D412.
   3. Puncture Resistance: 60 lbs, when tested per ASTM E154.
   4. Permeability: 0.015 perms, when tested per ASTM D1970.
   5. Air Permeance: 0.000 L*Sq M / 75 Pa, when tested per ASTM E2178
B. Membrane:
1. Material: Ethylene propylene diene terpolymer (EPDM); ASTM D4637/D4637M, Type I (non-reinforced).
2. Thickness: 90 mils (0.090 inch), minimum.
3. Tensile Strength: 1400 psi minimum, when tested by ASTM D412
4. Elongation: 465%, when tested per ASTM D412.
5. Tear Strength: 200 lbf/in, when tested per ASTM D624.
6. Factory Seam Strength: Membrane rupture, when tested per ASTM D816.
7. Sheet Width: Factory fabricated into largest sheets possible.

C. Seaming and Splicing Materials: As recommended by membrane manufacturer.
D. Membrane Fasteners: As recommended and approved by membrane manufacturer.
E. Flexible Flashing Material: Same material as membrane.
F. Base Flashing: Provide waterproof, fully adhered base flashing system at all penetrations, plane transitions, and terminations.

2.03 DECK SHEATHING AND COVER BOARDS
A. Coverboard: High-density, closed-cell polyisocyanurate foam core board for use as a coverboard over insulation, meeting ASTM C1289 Type II, Class 1, Grade 3.
   1. Thickness: 1/2".
   2. Insulation Value: LTTR R-2.5
   3. Compressive Strength: 100 psi minimum, when tested per ASTM D 1621.
   4. Density: 5 pcf, when tested per ASTM D 1622.
   5. Dimensional Stability: <0.5%, when tested per ASTM D 2126.
   6. Water Absorption: <3% by volume, when tested per ASTM C209.
   7. Hail Resistance: 2 inch minimum.

2.04 INSULATION
A. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, fiber reinforced felt both faces; Grade 2 and with the following characteristics:
   1. Compressive Strength: 20 pounds per square inch, when tested per ASTM D 1621.
   2. Density: 2 pcf, when tested per ASTM D 1622.
   3. Water Absorption: <1 % by volume, when tested per ASTM C 209.
   4. Tapered Board: Slope as indicated; minimum thickness 1/4 inch; fabricate of fewest layers possible.

2.05 BALLAST MATERIALS

2.06 ACCESSORIES
A. Prefabricated Flashing Accessories:
   1. Corners and Seams: Same material as membrane, in manufacturer's standard thicknesses.
   2. Penetrations: Same material as membrane, with manufacturer's standard cut-outs, rigid inserts, clamping rings, and flanges.
   3. Sealant Pockets: Same material as membrane, with manufacturer's standard accessories, in manufacturer's standard configuration.
   4. Manufacturer's Pressure-Sensitive Reinforced Universal Securement Strip:
      a. 9 inch wide, 45 mils (0.045 inch) thick, reinforced EPDM membrane with 3 inch wide, 30 mils (0.030 inch) thick cured synthetic rubber with pressure-sensitive adhesive laminated to both edges.
B. Insulation Adhesive: Two component polyurethane, expanding foam.
C. Insulation Joint Tape: Glass fiber reinforced type if and as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.

D. 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 or as required for attachment to walls, with metal washers 3" diameter.

E. Membrane Adhesive: As recommended by membrane manufacturer.

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

G. Strip Reglet Devices: Extruded plastic, maximum possible lengths per location, with attachment flanges.

H. Sealants: As recommended by membrane manufacturer.

I. Cleaner: Manufacturer's standard, clear, solvent-based cleaner.

J. Primer: Manufacturer's recommended product.

K. Edgings and Terminations: Manufacturer's approved edge and termination accessories. Also see Section 07.62.00.
   1. Edge System: As indicated.
   2. Anchor Bar Fascia System: As indicated.
   3. Drip Edge: As indicated.
   4. Coping: As indicated.
   5. Termination Bar.

L. Walkway Pads: Pressure-Sensitive Molded EPDM Walkway Pads
   1. Provide at all locations indicated on the Drawings and at all traffic concentration points.
   2. Size: 30" x 30" typical. Trim to fit where needed. Beaded surface.
   3. Thickness: 0.375" +/- 10%.
   4. Tensile Strength: 500 psi when tested per ASTM D412.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL
   A. Perform work in accordance with manufacturer's instructions.
   B. Do not apply roofing membrane during unsuitable weather.
   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.
   F. Coordinate the work with installation of associated counterflashings installed by other sections as the work of this section proceeds.
   G. When substrate preparation is responsibility of another installer, notify Architect of unsatisfactory conditions before proceeding.

3.02 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 cant strips are in place.

3.03 PREPARATION, GENERAL
A. Clean substrate thoroughly prior to roof application.
B. Do not begin work until other work that requires foot or equipment traffic on roof is complete.
C. Apply manufacturer's recommended vapor retarder or temporary roof before roof installation.

3.04 CONCRETE DECK PREPARATION
A. Fill surface honeycomb and variations with latex filler.
B. Confirm dry deck by moisture meter with 12 percent moisture maximum when tested per ASTM D4263.

3.05 INSULATION APPLICATION
A. Apply vapor retarder to concrete deck surfaces with adhesive in accordance with manufacturer's instructions.
   1. Extend vapor retarder under cant strips and blocking to deck edge.
   2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.
B. Ensure vapor retarder is clean and dry, continuous, and ready for application of insulation.
C. Attachment of Insulation over Metal Deck:
   1. Mechanically fasten insulation to deck in accordance with roofing manufacturer's instructions and Factory Mutual requirements.
   2. Embed coverboard insulation into full bed of adhesive in accordance with roofing and insulation manufacturers' instructions.
D. Attachment of Insulation over Concrete Deck Vapor Barrier: Embed insulation and coverboard in adhesive in full contact, in accordance with roofing and insulation manufacturers' instructions.
E. Do not install wet, damaged, or warped insulation boards.
F. Lay subsequent layers of insulation with joints staggered minimum 6 inch from joints of preceding layer.
G. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
H. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.
I. Lay boards with edges in moderate contact without forcing, and gap between boards no greater than 1/4 inch. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
J. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches.
K. Do not apply more insulation than can be completely waterproofed in the same day.

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 at manufacturer's recommended rate. 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.
E. At intersections with vertical surfaces:
   1. Extend membrane to vertical surfaces 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.
F. At edge metal, extend membrane under the edge metal to the outside face of the wall.
G. At copings, extend membrane under the copings to the outside face of the wall.
H. Install roofing expansion joints where indicated. Make joints watertight.
I. Install prefabricated joint components in accordance with manufacturer’s instructions.
J. Coordinate installation of roof drains and sumps and related flashings. Locate all field splices away from low areas and roof drains. Lap upslope sheet over downslope sheet.
K. Install walkway pads at areas of concentrated traffic and as shown on Drawings. Space pad joints to permit drainage.
L. Lay concrete pavers pedestals and shims over manufacturer approved protection sheet and according to manufacturer’s instructions.
M. Daily Seal: Install daily seal per manufacturers instructions at the end of each work day. Prevent infiltration of water at incomplete flashings, terminations, and at unfinished membrane edges.

3.07 FIELD QUALITY CONTROL
A. Require site attendance of roofing and insulation material manufacturers daily during installation of the Work.

3.08 CLEANING
A. Remove wrappings, empty containers, paper, and other debris from the roof daily. Dispose of debris in compliance with local, State, and Federal regulations.
B. Remove bituminous markings from finished surfaces.
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.

3.09 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 07.53.23
AUDITORIUM ROOF LADDER SECTION DETAIL

- 11" STL RAILING
- 16'-0" HATCH ACCESS DOOR
- 4X4 STL TUBE SPANS BETWEEN CATWALK HANGER BEYOND AND COLUMN @ G-4
- 4'-8" STL RUNG LADDER
- 11"
- 2'-5" 3'-0" 5'-2 3/4" 1'-4"

Scale: 1 1/2" = 1'-0"