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ECUA Administration Building Envelope Restoration

Pensacola, FL

Exterior Restoration

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DIVISION 4 – BRICK MASONRY

SECTION 04 21 13 BRICK MASONRY

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

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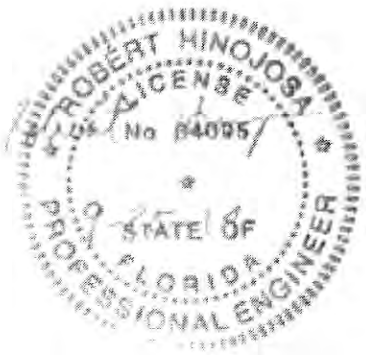

SECTION 04 21 13 – BRICK MASONRY

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 unit masonry assemblies consisting of the following:

1. Decorative concrete masonry units (Smooth faced. colored CMU).
2. Face brick.
3. Mortar and grout.
4. Masonry joint reinforcement.
5. Ties and anchors.
6. Embedded flashing (see Section 7270 for thru wall flashings specified as a component of Air & Vapor Barrier Systems.)
7. Miscellaneous masonry accessories.

B. Related Sections:

1. Section 07 05 00 – Underlayment
2. Section 07 11 60 – Membrane Waterproofing
3. Section 07 24 13 – Portland Based Exterior Insulating Finish System
4. Section 07 41 00 – Metal Roofing Panels
5. Section 07 54 10 – Feltback Adhered Termoplastic Membrane Roofing
6. Section 07 62 00 – Sheet Metal Flashing and Trim
7. Section 07 62 50 – Aluminum Gutter and Downspouts
8. Section 07 92 00 – Joint Sealants

C. Products installed. but not furnished, under this Section include the following:

1. Manufactured reglets in masonry joints for metal flashing furnished under Division 7 Section "Sheet Metal Flashing and Trim."

1.3 DEFINITIONS

A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For the following:

1. Decorative concrete masonry units in the form of small-scale units.
2. Face brick, in the form of straps of five or more bricks.

3. Colored mortar.
4. Weep holes and vents.

C. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

1. Submittal is for information only. Neither receipt of list nor approval of mock up constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Engineer and approved in writing.

D. Material Certificates: include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards. Provide for each type and size of the following:

1. Masonry units.

   a. Include material test reports substantiating compliance with requirements.
   b. For bricks, include size-variation data verifying that actual range of sizes falls within specified tolerances.
   c. For exposed brick, include material test report for efflorescence according to ASTM C 67.

2. Cementitious materials. Include brand type and name of manufacturer.
3. Pre-blended dry mortar mixes. Include description of type and proportions of ingredients.
4. Grout mixes. Include description of type and proportions of ingredients.
5. Reinforcing bars.
6. Joint reinforcement.
7. Anchors, ties, and metal accessories.

E. Mix Designs: For each type of mortar and grout, include description of type and proportions of ingredients.

1. Include test reports, per ASTM C 780, for mortar mixes required to comply with property specification.

F. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with cold-weather requirements.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1093 for testing indicated, as documented according to ASTM E 548.

B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics. Through one source from a single manufacturer for each product required.

C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry from a single manufacturer for each cementitious component and from one source or producer for each aggregate.

D. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness or by other means, as acceptable to authorities having jurisdiction.

E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Build mockup of typical wall area as shown on Drawings.
2. Build mockups for typical exterior wall in sizes approximately 48 inches (1200 mm) 60 inches (1500 mm) high by full thickness, including face and backup wythes and accessories. (Coordinate with Section 07270 - Air 8. Vapor Barrier.).
    a. Include a sealant-filled joint at least 16 inches (400 mm) long in each exterior wall mockup.
    b. Include lower corner of window opening at upper comer of exterior wall mockup. Make opening approximately 12 inches (300 mm) wide by 16 inches (400 mm) high.
    c. Include through-wall flashing installed for a 24-inch (600-mm) length in corner of exterior wall mockup approximately 16 inches (400 mm) down from top of mockup, with a 12-inch (300-mm) length of flashing left exposed to view (omit masonry above half of flashing).
3. Clean one-half of exposed faces of mockups with masonry cleaner as indicated.
4. Protect accepted mockups from the elements with weather-resistant membrane.
5. Approval of mockups is for color, texture and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.
    a. Approval of mockups is also for other material and construction qualities specifically approved by Engineer in writing.
    b. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Engineer in writing.

F. Pre-installation Conference: Conduct conference at Project site to comply with Division 1 Requirements.

1.6 DELIVERY, STORAGE. AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver pre blended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store pre blended dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.7 PROJECT CONDITIONS

A. Protection of Masonry: During construction cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of 24 inches (600 mm) down both sides and hold cover securely in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.

E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 – PRODUCTS

1.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists. the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not uses units where such defects including dimensions that vary from specified dimensions by more than stated tolerances, will be exposed in the completed Work or will impair the quality of completed masonry.

2.3 CONCRETE MASONRY UNITS (CMUs)

A. Shapes: Provide shapes indicated and as follows:

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide square-edged units for outside comers, unless otherwise indicated.

B. Decorative Concrete Masonry Units: ASTM C 90.

1. Weight Classification: Normal weight.
2. Pattern and Texture:

a. To match exiting. Standard pattern, smooth finish, colored CMU. For bidding purposes, Decorative CMU to be equivalent to Jefferson Series, 'Weathervane Bronze" as manufactured by Block USA.

2.4 BRICK

A. General: Provide shapes indicated and as follows:

1. For ends of sills and caps and for similar applications that would otherwise exposed unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
2. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including those at comers, movement joints, bond beams, sashes, and lintels.
3. Provide special shapes for applications requiring brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing.
4. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

B. Face Brick: ASTM C 216, Grade SW Type FBS.

1. Initial Rate of Absorption: Less than 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested per ASTM C 67.
2. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."
3. Size (Actual Dimensions): 3-5/8 inches (92 mm) wide by 2-1/4 inches (57 mm) high by 7-5/8 inches (194 mm) long.
4. Color and Texture: Red, wire-cut, to match existing
5. Available Products:

    a. For bidding purposes, Red, Wire cut as manufactured by Palmetto Brick Co., or an equivalent by other manufacturers.

2.5 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type ill, and hydrated lime complying with ASTM C 207, Type S.

D. Colored Cement Product: Packaged blend made from portland cement and lime and mortar pigments, all complying with specified requirements, and containing no other ingredients.

1. Formulate blend as required to produce color to match existing.

    a. Color for Face Brick installation to be "Antique White'
    b. Color for Colored. Smooth Faced CMU to match

2. Pigments shall not exceed 10 percent of portland cement by weight

3. Available Products:

    a. Colored Portland Cement-Lime Mix:

i. Capital Materials Corporation; Riverton Portland Cement Lime Custom Color.
ii. Holcim (US) Inc.; Rainbow Mortamix Custom Color CementlLime.
iii. Lafarge North America, lnc.; Eaglebond.
iv. Lehigh Cement Company; Lehigh Custom Color Portland/Lime Cement.

E. Aggregate for Mortar: ASTM C 144.

1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.

F. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M. Type C, and recommended by manufacturer for use in masonry mortar of composition indicated. Use only with written permission from Engineer

1. Available Products:

a. Addiment Incorporated; Mortar Kick.
b. Grace Construction Products, a unit of W. R. Grace & Co. - Conn.; Morset.
c. Sonnebom. Div. of ChemRex; Trimix-NCA.

G. Water: Potable.

2.6 REINFORCEMENT

A. Masonry Joint Reinforcement, General: ASTM A 951.

1. Exterior Walls: Hot-dip galvanized, carbon steel.
2. Wire Size for Side Rods: W1.7 or 0.148-inch (3.8-mm) diameter.
3. Wire Size for Cross Rods: W1.7 or 0.148-inch (3.8-mm) diameter.
4. Wire Size for Veneer Ties: W2.8 or 0.188-inch (4.8-mm) diameter.
5. Spacing of Cross Rods. Tabs, and Cross Ties: Not more than 16 inches (407 mm) o.c.
6. Provide in lengths of not less than 10 feet (3 m), with prefabricated comer and tee units.

B. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

2.7 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply with eight subparagraphs below, unless otherwise indicated

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153/A 153M, Class B-2 coating.

B. Wire Ties. General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer with a minimum of 5/8-inch (16-mm) cover on outside face.

C. Adjustable Masonry-Veneer Anchors

1. General: Provide anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over insulation with CMU back-up and as follows:

a. Veneer anchors shall have a triangular wire anchor section that is inserted into a backplate that seals against the face of the insulation. The wire tie is made from 3/16-inch (4.8-mm), hot-dip galvanized wire. The backplate is made from carbon steel with legs that extend through the insulation to bear on the face of the CMU back-up wall and is hot-dip galvanized.

2. Products:

a. Hohmann & Barnard, lnc.: X-Seal Anchor.
b. Hohmann & Barnard, Inc. Vee Byna Tie.
c. Approved equivalent.

2.8 MISCELLANEOUS ANCHORS

A. Postinstalled Anchors: Provide torque-controlled expansion anchors, with capability to sustain, without failure. a load equal to six times the load imposed when installed in solid or grouted unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

1. Corrosion Protection: Stainless-steel components complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Alloy Group 1 or 4) for bolts and nuts; ASTM A 666 or ASTM A 276, Type 304 or 316, for anchors.

2.9 EMBEDDED FLASHING MATERIALS

A. Reference Sheet Metal and Flashing section.

2.10 MISCELLANEOUS MASONRY ACCESSORIES

A. Mesh Weep Vent: Free-draining mesh; made from polyethylene strands, full height and width of head joint and depth 1/8 inch (3 mm) less than depth of outer wythe; in color selected from manufacturer's standard.

1. Available Products:

a. Mortar Net USA. Ltd.; Mortar Net Weep Vents.

2.11 MASONRY CLEANERS

A. Proprietary Acidic Cleaner Manufacturers standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned. Use only with written approval of Engineer.

1. Available Manufacturers:

a. Diedrich Technologies, Inc.
b. EaCo Chem, Inc.
c. ProSoCo, inc.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

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

3.2 INSTALLATION. GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. if cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

1. Mix units from several pallets or cubes as they are placed.

F. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30g/194 sq. cm) per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

G. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:

1. For conspicuous vertical lines, such as external corners, door jambs. reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
2. For vertical alignment of exposed head joints. do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.
3. For conspicuous horizontal lines, such as lintels, sills. parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6m), or 1/2 inch (12 mm) maximum.
4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm). Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).
5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3 mm).
6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.
7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch (1.5 mm) from one masonry unit to the next.

3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Match the existing bond pattern. Unless otherwise indicated, lay exposed masonry in running bond and bond pattern indicated on Drawings; do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches (100-mm). Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4»inch (100-mm) horizontal face dimensions at comers or jambs.

D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that

are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

3.4 MORTAR BEDDING AND JOINTING

A. Lay concrete masonry units as follows:

1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Set cast-stone trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.

1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
2. Allow cleaned surfaces to dry before setting.
3. Wet joint surfaces thoroughly before applying mortar.

D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.

E. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

3.5 ANCHORING MASONRY VENEERS

A. Anchor masonry veneers to concrete and masonry backup with masonry-veneer anchors to comply with the following requirements:

1. Embed tie sections in masonry joints. Provide not less than 2 inches (50 mm) of air space between back of masonry veneer and face of sheathing.

2. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
3. Space anchors as indicated. but not more than 18 inches (458 mm) o.c. vertically and 24 inches (610 mm) o.c. horizontally, with not less than 1 anchor for each 2 sq. ft. (0.2 sq.m) of wall area. Install additional anchors within 12 inches (305 mm) of openings and at intervals not exceeding 8 inches (203 mm), around perimeter.

3.6 CONTROL AND EXPANSION JOINTS

A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in plane wall or partition movement.

B. Form control joints in concrete masonry as follows:

1. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.

C. Form expansion joints in brick made from clay or shale as follows:

1. Build flanges of metal expansion strips into masonry. Lap each joint 4 inches (100 mm) in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.

2. Form open joint full depth of brick wythe and of width indicated, but not less than 3/8 inch (10 mm) for installation of sealant and backer rod specified in Division 7 Section "Joint Sealants" and indicated on the drawings as 'CJ".

3.7 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

A. General: install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges and other obstructions to upward flow of air in cavities, and where indicated.

B. Install flashing as follows, unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Install stainless steel drip edge flashing. Install flexible flashing to extend onto the stainless steel drip edge flashing. Hold the flexible flashing back 1-1/2 inches minimum from the exterior face of the brick. Install the flashing manufacturers approved mastic/sealant over all laps and termination in the flexible flashing (this includes the lap onto the drip edge).
2. At masonry-veneer walls, extend flashing through veneer, across air space (taking care to eliminate sags) behind veneer, and up face of sheathing at least 8 inches (200 mm); with upper edge mechanically fastened with a termination bar (T2 type), and tucked under building paper or building wrap, lapping a minimum of 4 inches (100 mm).

3. At lintels and shelf angles, extend flashing to the first head joint a minimum of 6 inches (150 mm) past the end of the lintel or shelf angle. At heads and sills, extend flashing 6 inches (150 mm) at ends and turn up not less than 2 inches (50 mm) to form end dams.
4. Hold flexible flashing back 1-1/2inches from the exterior face of the brick.

C. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

D. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:

1. Use specified weep/vent products to form weep holes.

2. Space weep holes 24 inches (600 mm) o.c. unless otherwise indicated.

3. Place a weep at every end dam location.

3.8 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Engineer's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and non masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
6. If approved in writing by Engineer, clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

7. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.9 FIELD QUALITY CONTROL

A. Salvageable Materials: Unless otherwise indicated excess masonry materials are Contractor's property. At completion of unit masonry work remove from Project site.

B. Masonry Waste: Remove masonry waste and legally dispose of off Owner's properly.

END OF SECTION 04 21 13

SECTION 07 05 00 – UNDERLAYMENT

PART 1 – DESCRIPTION

1.1 SUMMARY

A. Provide all labor, materials, equipment, supervision and incidentals as needed to install a complete POLYGLASS® reinforced modified bituminous underlayment over a new or accepted, prepared existing roof substrate. All details of installation shall conform to POLYGLASS® Specifications, Details and General Recommendations.

B. Provide similar products manufactured by W.R. Grace. Product must be high temperature resistant to minimum 260 degrees F.

C. Related Sections;

1. Section 04 21 13 – Brick Masonry
2. Section 07 11 60 – Membrane Waterproofing
3. Section 07 24 13 – Portland Based Exterior Insulating Finish System
4. Section 07 41 00 – Metal Roofing Panels
5. Section 07 54 10 – Feltback Adhered Termoplastic Membrane Roofing
6. Section 07 62 00 – Sheet Metal Flashing and Trim
7. Section 07 62 50 – Aluminum Gutter and Downspouts
8. Section 07 92 00 – Joint Sealants

1.2 QUALITY ASSURANCE

A. Products used in the work of this Section shall be manufactured by POLYGLASS® or accepted for use in conjunction with the products manufactured by POLYGLASS®.

B. The Roofing Contractor and his personnel shall be currently accepted by POLYGLASS® as qualified to install the materials of this section.

NOTE: Do not apply roofing during inclement weather. Do not apply roofing membrane to damp frozen, dirty or dusty surfaces.

PART 2 – MATERIALS

2.1 GENERAL

A. UNDERLAYMENT - POLYSTICK MTS underlayment. Homogeneous, rubberized asphalt waterproofing compound, glass fiber reinforced, with a non-wicking surface and skid resistant.

B. Rubberized asphalt seals around correctly installed nails, on the weathering surface. Split/perforated release backing film aids in easy positioning of sheets to maintain proper line. Material is packaged in a roll of 200 sq. Ft. (Finished roof coverage). Weight is 70 lbs.

C. TRADENAME: POLYSTICK MTS

D. FINISHED ROOFING SURFACE – Metal roofing by others.

2.2 PRODUCT HANDLING

A. All materials, except those that are shop fabricated shall be delivered to the job site with their original labels intact. Bulk materials, shall be identified by the manufacturer as to specification issued

B. All materials shall be stored in accordance with the instructions of the manufacturer prior to their application or installation. No wet or damaged materials will be used in the application. Materials stored on the job site shall be a minimum 4" off the ground or the roof.

C. Application of all roofing shall be accomplished in such a way that each area will be complete at the end of each day's work.

D. All roof edges and incomplete flashing shall be protected against water entry, particularly between work periods.

E. When ambient temperature is below 40 DEG. F, care must be exercised in handling and storing POLYGLASS® membrane.

F. Only rolls for immediate application shall be exposed to the elements.

G. All masonry, concrete and sheet metal surfaces incorporated into the roof system shall be primed with asphalt primer meeting ASTM D-41 specification and allowed to dry prior to installing bituminous roofing materials.

H. Wood curbs or nailers, where required, shall be pressure treated with accepted pressure treatment meeting AWAP Standard P-5.

PART 3 - APPLICATION

3.1 PREPARATION

A. Substrate, shall be smooth, clean, free from loose gravel, dirt and debris, dry and structurally sound.

3.2 FOR REROOFING APPLICATIONS

A. Remove existing roofing down to the roof substrate. Remove existing flashings at roof details and roof penetrations.

B. Remove all wet or deteriorated roofing substrate materials. Provide a smooth, even surface for application of underlayments.

C. Existing roof surfaces shall be primed as necessary with asphalt primer meeting ASTM D-

41 specification and allowed to dry prior to installing the POLYGLASS® underlayment.

3.3 INSTALLATION

A. Decks: Prime where required, in accordance with requirements and recommendations of the primer & deck manufacturer (if applicable).

3.4 MEMBRANE

A. Directly over the acceptable substrate / roofing surface install one ply of POLYSTICK MTS underlayment with minimum 3" side laps and 6" end laps, without wrinkles or fish-mouths. Unless the substrate surface is flat, voids may occur which will be hard to seal and may not render a permanent, waterproof roof. It is the installer's responsibility to ensure that substrate conditions permit a wrinkle and void-free installation. Any voids occurring may have to be sealed with a heat gun or other suitable mastic.

B. Cut and unroll the POLYSTICK MTS underlayment to a suitable desired length (depending on conditions etc.). Position the material in the desired location on the substrate and proceed as follows; align the membrane at the lowest edge of the roof.

C. Fold the material back onto itself (width wise) and remove the split back release paper from the exposed side, gradually push/roll the material into place (do not lift and drop the material into place, air pockets may occur that will be difficult to remove).

D. Apply even pressure along the entire length of the membrane, from center to outer edges, to avoid air inclusions or wrinkles. Repeat for other side. Position the next sheet by overlapping seams to lineup the overlap of the top sheet edge with the inside of the bottom sheet, (3" overlap). Overlap cut end laps minimum 6".

E. Repeat the above procedure for all subsequent sheets. At seam overlaps, apply even pressure to seam area. After adhering roll, it is recommended that uniform pressure be applied to the entire roll area by a weighted roller or water-filled lawn roller. Care must be taken during rolling on sloped roofs.

END OF SECTION 07 50 00

SECTION 07 11 60 – MEMBRANE WATERPROOFING AT ELEVATED PAVER SYSTEM

PART 1 – GENERAL

1.1 SUMMARY

A. Description of scope and intent:

1. Contractor to provide all material, labor, and tools required to complete the installation of specified system.
2. Any omission of reference to items required to complete the full operational and functional system specified in the section does not relieve the contractor of the obligation to provide same.
3. Installation shall be accomplished by workers skilled in their craft that will perform their work in a professional manner and will leave the premises safe, orderly and clean.
4. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section
5. In the event of a conflict between the design drawings, referenced standards and these Specifications, the more stringent shall govern unless directed otherwise by the Engineer.

B. Related Sections

1. Section 04 21 13 – Brick Masonry
2. Section 07 05 00 – Underlayment
3. Section 07 24 13 – Portland Based Exterior Insulating Finish System
4. Section 07 41 00 – Metal Roofing Panels
5. Section 07 54 10 – Feltback Adhered Termoplastic Membrane Roofing
6. Section 07 62 00 – Sheet Metal Flashing and Trim
7. Section 07 62 50 – Aluminum Gutter and Downspouts
8. Section 07 92 00 – Joint Sealants

C. This Section includes the following:

1. To provide a complete feltback adhered thermoplastic membrane waterproofing system, including membrane, flashings and other components.
2. The work includes but is not limited to the installation of:

    a. Fasteners
    b. Adhesive for Flashings
    c. Waterproofing Membrane Flashings
    d. Sealants

D. Upon successful completion of work the following warranties shall be maintained:

1. Manufacturer's Twenty (20) Year Warranty (JohnsManville)
2. Installer's Five (5) Year Warranty

1.2 QUALITY ASSURANCE

A. This waterproofing system shall be applied only by a Roofing Contractor authorized by Manufacturer.

B. Upon completion of the installation and the delivery to Manufacturer by the Applicator of a certification that all work has been done in strict accordance with the contract specifications and Manufacturer's requirements, an inspection shall be made by a Technical Representative of Manufacturer to review the installed waterproofing system.

C. There shall be no deviation made from the Project Specification or the approved shop drawings without prior written approval by the Owner, the Engineer and Manufacturer.

1. All work pertaining to the installation of the flashings shall only be completed by Applicator personnel trained and authorized by Manufacturer in those procedures.

1.3 SUBMITTALS

A. At the time of award of contract, the Applicator shall submit for approval to the Architect the following:

1. Copies of Specification.
2. Samples of each primary component to be used in the system and the manufacturer's current literature for each component.
3. Sample copy of Applicator's warranty.
4. Dimensioned shop drawings which shall include:

    a. Outline of elevated deck with elevated deck size and elevations shown.
    b. Details of flashing methods for perimeter walls and penetrations.
    c. Technical acceptance from manufacturer.

5. Certifications by manufacturers of roofing and insulating materials that all materials supplied comply with all requirements of the manufacturer to maintain the existing warranty.
6. Certification from the Applicator that the system specified meets all identified code and insurance requirements as required by the Specification.
7. Material Safety Data Sheets (MSDS).

1.4 CODE REQUIREMENTS

A. The applicator shall submit evidence that the proposed waterproofing flashing system meets all the requirements of the Florida Building Code.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All products delivered to the job site shall be in the original unopened containers or wrappings bearing all seals and approvals.

B. Handle all materials to prevent damage. Place all materials on pallets and fully protect from moisture.

C. Membrane rolls shall be stored lying down on pallets and fully protected from the weather with clean canvas tarpaulins..

D. As a general rule all adhesives shall be stored at temperatures between 40° F (5° C) and 80° F (27° C). Read instructions contained on adhesive canister for specific storage instructions.

E. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/supplier.

F. All materials which are determined to be damaged by the Owner's Representative or Manufacturer are to be removed from the job site and replaced at no cost to the Owner.

1.6 JOB CONDITIONS

A. Manufacturer's materials may be installed under certain adverse weather conditions but only after consultation with Manufacturer, as installation time and system integrity may be affected.

B Only as much of the waterproofing system as can be made weathertight each day, including all flashing and detail work, shall be installed. All seams shall be heat welded before leaving the job site that day.

C. All surfaces to receive flashings shall be dry. Should surface moisture occur, the Applicator shall provide the necessary equipment to dry the surface prior to application.

D. All new and temporary construction, including equipment and accessories, shall be secured in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.

E. A substantial protection layer shall be provided for all areas that receive traffic during construction.

F. Prior to and during application, all dirt, debris and dust shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air and/or similar methods.

G. The Applicator shall follow all safety regulations as required by OSHA and any other applicable authority having jurisdiction.

H. All waste material (i.e., scrap membrane, empty cans of adhesive) shall be immediately removed from the site by the Applicator and properly transported to a legal dumping area authorized to receive such material.

I. The Applicator shall take precautions that storage and/or application of materials and/or equipment does not overload the roof deck or building structure.

J. Flammable adhesives and deck primers shall not be stored and not be used in the vicinity of open flames, sparks and excessive heat.

K. All contamination that is anticipated or that is occurring shall be reported to Manufacturer to determine the corrective steps to be taken.

L. The Applicator shall verify that all drain lines are functioning correctly (not leaking, clogged or blocked) before starting work. Applicator shall report any such blockages in writing to the Engineer for corrective action prior to the installation of the membrane flashing system.

M. Applicator shall immediately stop work if any unusual or concealed condition is discovered and shall immediately notify Owner and Engineer of such condition in writing for correction.

N. Site cleanup, including both interior and exterior building areas that have been affected by construction, shall be completed to the Owner's satisfaction.

O. All landscaped areas damaged by construction activities shall be repaired at no cost to the Owner.

P. The membrane shall not be installed under the following conditions without consulting Manufacturer's Technical Dept. for precautionary steps:

1. The assembly permits air to pressurize the membrane underside.
2. The wall/deck intersection permits air entry into the wall flashing area.

Q. Precautions shall be taken when using adhesives at or near air intakes. Adhesive odors could enter the building. Coordinate the operation of vents and air intakes in such a manner as to avoid the intake of adhesive odor while ventilating the building. Keep lids on unused cans at all times.

R. Protective wear shall be worn when using solvents or adhesives or as required by job conditions.

S. Membranes are slippery when wet or covered with snow, frost, or ice. Working on surfaces under these conditions is hazardous. Appropriate safety measures must be implemented prior to working on such surfaces. Always follow OSHA and other relevant fall protection standards when working on roofs.

1.7 WARRANTIES

A. Manufacturer's 20-Year Standard Warranty; Upon successful completion of the work to Manufacturer's satisfaction and receipt of final payment, the Manufacturer, Johns Manville, shall certify in writing to the owner that the existing warranty is valid and shall remain in effect for the duration of the warranty period providing other standard manufacturer requirements are met.

B. Installation Contractors 5-Year Warranty; The Applicator shall supply the Owner with a separate workmanship warranty. In the event any work related to membrane, flashing, or adhesive is found to be within the Applicator warranty term, defective or otherwise not in accordance with the Contract Documents, the Applicator shall repair that defect at no cost to the Owner. The Applicator's warranty obligation shall run directly to the Owner, and a copy shall be sent to Manufacturer.

C. All Warranties referenced in this Specification shall have been submitted and have

been accepted at time of contract award.

D. Owner Responsibility; Owner shall notify both Manufacturer and the Applicator of any leaks as they occur during the time period when both warranties are in effect.

PART 2 – PRODUCTS

2.1 GENERAL

A. Basis of Design: The components of the adhered membrane waterproofing system are to be products of Johns Manville.

2.2 MEMBRANE

A. Johns Manville fiberglass reinforced membrane.

B. Membrane shall conform to ASTM D4434 (latest version), "Standard for Polyvinyl Chloride Sheet Roofing". Classification: Type II, Grade I.

1. Johns Manville feltback, 80 mil, thermoplastic membrane with fiberglass reinforcement and a factory applied 9 oz. felt backing.

C. Certified Polymer Thickness:

1. Membrane manufacturer shall certify that the polymer thickness is of the polymer thickness specified. Certification shall be signed by the membrane manufacturer's quality control manager. ASTM +/- tolerance for membrane thickness shall not be accepted. Membrane felt not included to meet required membrane thickness.

D. Color of Membrane:

1. Feltback (white), initial reflectivity of 0.83, initial emissivity 0.90, solar reflective index (SRI) of >104.

E. Typical Physical Properties (1)

Parameters	ASTM Test Method	Minimum ASTM Requirement	Required Physical Properties
Reinforcing Material	-		Fiberglass
Overall Thickness, min., inches (mm)	D638	0.045 (1.14)	[0.0 80 inches)]
Tensile Strength, min., psi (MPa)	D638	1500 (10.4)	1600 (11.1)
Elongation at Break, min. (machine x tranverse)	D638	250% / 230%	270% / 250%
Seam strength(2), min. (% of tensile strength)	D638	75	80
Retention of Properties After Heat Aging	D3045	-	-
Tensile Strength, min., (% of original)	D638	90	95
Elongation, min., (% of original)	D638	90	90

Tearing Resistance, min., lbf (N)	D1004	10 (45.0)	14 (63.0)
Low Temperature Bend, -40° F (-40° C)	D213	Pass	Pass
Accelerated Weathering Test (Xenon Arc)	D2565	5,000 Hours	Pass
Cracking (7x magnification)	-	None	None
Discoloration (by observation)	-	Negligible	Negligible
Crazing (7 x magnification)	-	None	None
Linear Dimensional Change	D120	0.10 %	0.02%
Weight Change After Immersion in Water	D570	±3.0%	2.5%
Static Puncture Resistance, 33 lbf (15 kg)	D560	Pass	Pass
Dynamic Puncture Resistance, 7.3 ft-lbf (10 J)	D563 5	Pass	Pass
*Notes (1) Physical properties without felt backing. (2) Failure occurs through membrane rupture not seam failure.			

2.3 FLASHING MATERIALS

A. Wall/Curb Flashing:

1. Membrane; A fiberglass reinforced 80 mill membrane adhered to approved substrate using manufacturer provided adhesive. Consult Product Data Sheets for adhesive options and additional information.
2. Clad Metal; PVC-coated, heat-weldable sheet metal capable of being formed into a variety of shapes and profiles, 25 gauge, G90 galvanized metal sheet with a 20 mil unsupported membrane laminated on one side.

B. Miscellaneous Flashing

1. Corners – Universal: Prefabricated outside and inside flashing corners made of 0.060 inch thick membrane that are heat-welded to membrane or clad base flashings.
2. Multi-Purpose Sealant: Sealant used at flashing terminations.
3. Adhesive: A solvent-based reactivating-type adhesive used to attach membrane to flashing substrate.

2.4 ATTACHMENT COMPONENTS

A. Membrane Adhesive; Solvent-based reactivating-type adhesive used to attach the membrane to the substrate, either horizontally or vertically. Application rates are as follows:

APPLICATION RATES FOR FELTBACK MEMBRANE						
	Adhesive Rates - Gallons/100 Ft² *(Liters/Meter²)*					Approximate Sq. Ft./Pail
	Substrate 1st		Substrate 2nd		Total	
Isocyanurate Paper Facer	1.25	+	1.00	=	2.25	222
Smooth Plywood	1.00	+	1.00	=	2.00	250
Metal	0.75	+	1.00	=	1.75	285
Concrete Deck	1.00	+	1.00	=	2.00	250
Concrete Wall	1.00	+	1.00	=	2.00	250
Masonry Wall	1.00	+	1.00	=	2.00	250
Cellular Concrete	1.25	+	1.00	=	2.25	222
GP DensDeck®	1.00	+	1.00	=	2.00	250
GP DensDeck Prime® GP DensDeck® DuraGuard™	0.75	+	1.00	=	1.75	285

APPLICATION RATES FOR MEMBRANE FLASHINGS								
	Adhesive Rates - Gallons/100 Ft² *(Liters/Meter²)*							Approximate Sq. Ft./Pail
	Substrate (1st coat)		Substrate (2nd coat)		Membrane		Total	
Smooth Plywood	1.00	+	1.00	+	0.50	=	2.50	167
Concrete Wall	1.00	+	1.00	+	0.50	=	2.50	167
Masonry Wall	1.00	+	1.00	+	0.50	=	2.50	167
Granular Bitumen	1.00	+	1.00	+	0.50	=	2.50	167
Smooth Aged Bitumen	1.00	+	1.00	+	0.50	=	2.50	167

Notes: Use a water-filled, foam-covered lawn roller to consistently and evenly press the membrane into the adhesive layer.

Alternative Adhesive: A water-based adhesive used to attach the membrane to horizontal or near-horizontal substrates. Consult Product Data Sheets of Manufacturer for additional information. Application rates are as follows:

APPLICATION RATES FOR FELTBACK MEMBRANE						
	Adhesive Rates - Gallons/100 Ft²					Approximate Sq. Ft./Pail
	Substrate		Membrane		Total	
Isocyanurate Paper Facer	1.75	+	0	=	1.75	285
Smooth Plywood	1.75	+	0	=	1.75	285
Concrete Deck	2.00	+	0	=	2.00	250
Cellular Concrete	2.00	+	0	=	2.00	250
GP DensDeck	1.75	+	0	=	1.75	285
GP DensDeck Prime	1.50	+	0	=	1.50	333

Note: Use water filled, foam covered lawn roller to consistently and evenly press the membrane into the adhesive layer.

2.5 MISCELLANEOUS ACCESSORIES

A. Aluminum Tape; 2 inch wide pressure-sensitive aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as a bond-breaker under the coverstrip at clad metal joints.

B. Sealing Tape Strip; Compressible foam with pressure-sensitive adhesive on one side. Used with metal flashings as a preventive measure against air and wind blown moisture entry.

C. Multi-Purpose Tape; High performance sealant tape used with metal flashings as a preventive measure against air and wind blown moisture entry.

D. Welding Equipment; 220 volt, self-propelled, hot-air welding machine used to seal membrane seams.

E. Solvent; High quality solvent cleaner used for the general cleaning of residual asphalt, scuff marks, etc., from the membrane surface and to clean seam areas prior to hot-air welding in tear off or dirty conditions or if the membrane is not welded the same day it is unrolled.

2.6 PROTECTION LAYER

A. Fiberglass reinforced, 0.051 inch thick (1.3mm) PVC used to protect waterproofing membrane from mechanical damage

B. Installed continuously over all waterproofing membrane per manufacturers' recommendations.

C. To be equal to Sarnafil GG445:

2.7 MISCELLANEOUS FASTENERS AND ANCHORS

A. All fasteners, anchors, nails, straps, bars, etc. shall be aluminum or stainless steel. Mixing metal types and methods of contact shall be assembled in such a manner as to avoid galvanic corrosion. Fasteners for attachment of metal to masonry shall be expansion type fasteners with stainless steel pins. All concrete fasteners and anchors shall have a minimum embedment of 1¼ inch (32 mm) and shall be approved for such use by the fastener manufacturer. All miscellaneous wood fasteners and anchors used for flashings shall have a minimum embedment of 1 inch (25 mm) and shall be approved for such use by the fastener manufacturer.

PART 3 – EXECUTION

3.1 SUBSTRATE CONDITION

A. Applicator shall be responsible for acceptance or provision of proper substrate to receive new waterproofing materials.

B. Applicator shall verify that the work done under related sections meets the following conditions:

1. Roof drains and/or scuppers have been installed properly.
2. All surfaces are smooth and free of dirt, debris and incompatible materials.
3. All roof surfaces shall be free of water.

3.2 SUBSTRATE PREPARATION

A. The deck and existing construction must be structurally sound to provide support for the new system. The Applicator shall load materials on the deck in such a manner as to eliminate risk of deck overload due to concentrated weight. The Contractor shall ensure that the deck is secured to the structural framing according to Florida Building Code, 2006 and in such a manner as to resist all anticipated wind loads in that location.

3.3 SUBSTRATE INSPECTION

A. A dry, clean and smooth substrate shall be prepared to receive adhered roof system.

B. The Applicator shall inspect the substrate for defects such as excessive surface roughness, contamination, structural inadequacy, or any other condition that will adversely affect the quality of work.

C. The substrate shall be clean, smooth, dry, free of flaws, sharp edges, loose and foreign material, oil and grease. Installation shall not start until all defects have been corrected.

D. All surfaces shall be free of water.

E. Membrane shall be applied over compatible and accepted substrates only.

3.4 INSTALLATION OF MEMBRANE IF REQUIRED

A. The surface of the substrate shall be inspected prior to installation of the membrane. The substrate shall be clean, dry, free from debris and smooth with no surface roughness or contamination.

B. Adhesive:

1. Over the properly installed and prepared substrate surface, adhesive shall be applied using solvent-resistant 3/4 inch nap paint rollers. The adhesive shall be applied to the substrate at a rate according to manufacturer's requirements. No adhesive is applied to the back of the feltback membrane. The adhesive shall be applied in smooth, even coats with no gaps, globs, puddles or similar inconsistencies. Only an area which can be completely covered in the same day's operations shall be coated with adhesive. The first layer of adhesive shall be allowed to dry completely prior to installing a second layer of adhesive and the membrane.
2. The feltback membrane is unrolled immediately into a second layer of wet adhesive. Adjacent to that first installed roll of membrane, another second layer of wet adhesive is applied and the second roll of membrane is immediately unrolled into it, overlapping the first roll by 3 inches (75 mm). This process is repeated

throughout the area. Immediately after application into adhesive, each roll shall be pressed firmly in place with a water- filled, foam-covered lawn roller by frequent rolling in two directions. **Do not allow the second application of adhesive to dry.**

3. Weld coverstrips at all feltback seams that do not have a factory selvage edge.

3.5 HOT-AIR WELDING OF SEAM OVERLAPS

A. General

1. All seams shall be hot-air welded. Seam overlaps should be 3 inches wide when automatic machine-welding and 4 inches wide when hand-welding, except for certain details.
2. Welding equipment shall be provided by or approved by manufacturer. All mechanics intending to use the equipment shall have successfully completed a training course provided by a Manufacturers Technical Representative prior to welding.
3. All membrane to be welded shall be clean and dry.

B. Quality Control of Welded Seams

1. The Applicator shall check all welded seams for continuity using a rounded screwdriver. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark grey material from the underside of the top membrane. On-site evaluation of welded seams shall be made daily by the Applicator at locations as directed by the Owner's Representative or Manufacturer's Representative. One inch wide cross-section samples of welded seams shall be taken at least three times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Each test cut shall be patched by the Applicator at no extra cost to the Owner.

3.6 MEMBRANE FLASHINGS

A. All flashings shall be installed concurrently with the roof membrane as the job progresses. If water is allowed to enter under the newly completed waterproofing, the affected area shall be removed and replaced at the Applicator's expense. Flashing shall be adhered to compatible, dry, smooth, and solvent-resistant surfaces. Use caution to ensure adhesive fumes are not drawn into the building.

B. Adhesive for Membrane Flashings

1. Over the properly installed and prepared flashing substrate, adhesive shall be applied according to instructions found on the Product Data Sheet. The adhesive shall be applied in smooth, even coats with no gaps, globs or similar inconsistencies. Only an area which can be completely covered in the same day's operations shall be flashed. The bonded sheet shall be pressed firmly in place with a hand roller.
2. No adhesive shall be applied in seam areas that are to be welded. All panels of membrane shall be applied in the same manner, overlapping the edges of the

panels as required by welding techniques.

C. Manufacturer's requirements and recommendations and the specifications shall be followed. All material submittals shall have been accepted by Architect prior to installation.

D. All flashing membranes shall be consistently adhered to substrates. All interior and exterior corners and miters shall be cut and hot-air welded into place.

E. All flashings shall be terminated according to recommended details.

3.7 COMPLETION

A. Prior to demobilization from the site, the work shall be reviewed by the Engineer and the Applicator.

B. All defects noted and non-compliances with the Specifications or the recommendations of manufacturer shall be itemized in a punch list. These items shall be corrected immediately.

3.8 SCHEDULE:

A. Contractor shall provide, but is not limited to providing, the following:

B. Check roof drain installation for acceptability.

C. Verify concrete substrate.

D. Provide membrane sheet and flashing.

E. Provide fasteners and sealants, as required.

F. Provide protection membrane.

END OF SECTION 07 11 60

SECTION 07 24 13 PB EXTERIOR INSULATION AND FINISH SYSTEM

SECTION 1 – GENERAL

1.1 SUMMARY

A. Section includes removing and replacing the damaged exterior insulation finish system (EIFS) on the building as necessary, as described in the details and drawings, or as directed by the engineer. New EIF cladding system to be installed throughout the project shall include all related accessories.

B. Drawings and general provisions of the contract, including general and supplementary conditions apply to this section

C. Related Sections

1. Section 04 21 13 – Brick Masonry
2. Section 07 05 00 – Underlayment
3. Section 07 11 60 – Membrane Waterproofing
4. Section 07 41 00 – Metal Roofing Panels
5. Section 07 54 10 – Feltback Adhered Termoplastic Membrane Roofing
6. Section 07 62 00 – Sheet Metal Flashing and Trim
7. Section 07 62 50 – Aluminum Gutter and Downspouts
8. Section 07 92 00 – Joint Sealants

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM C1397: Standard Practice for Application of class PB exterior insulation and finish systems

1.3 SUBMITTALS

A. Product Data:

1. Submit three (3) copies of product manufacturer's specifications, recommendations, "letter of intent" to warrant and installation instructions for concrete rehabilitation materials.
2. Submit three (3) copies of manufacturer's published data, letter of certification or certified test laboratory report which states that each material complies with requirements and is intended for application shown.

B. Shop Drawings:

1. If required by the Engineer, provide supplementary details as may be necessary for special conditions at this project.

1.4 QUALITY ASSURANCE

A. Qualifications.

1. Work performed under this section shall only be by installers with minimum five (5) years documented experience in the application of specified products and systems on projects of similar size and scope.
2. Each contractor shall be approved by manufacturer for installation of their products.
3. Contractors shall submit the names of two prior successful installations to engineer.

B. Pre-Installation Conference

1. Meet with owner, engineer, and related trades to discuss concrete rehabilitation sequencing and installation procedures.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver products to job site in original unopened packages with labels identifying manufacturer, product identification and batch numbers when appropriate

B. Store products in manufacturer's unopened packaging until ready for installation

1.6 MOCK-UP

A. At the start of the project, Contractor shall perform mock-up of required deck coatings Work in a pre- selected area of the building, as directed by the Engineer. A minimum of one mock-up shall be required.

B. Mock-up will be reviewed for conformance with the contract documents, color, texture, milage requirements, uniformity appearance and workmanship. If mock-up is not satisfactory, prepare additional mock-ups until Owner's approval is obtained.

C. Manufacturer's representative or designated representative will review technical aspects; surface preparation, application, and workmanship.

D. Obtain Owner's and Engineer's written approval of mock-up before start of material application elsewhere, including approval of aesthetics, color, texture, and appearance.

E. Mock-up shall serve as standard for judging workmanship on remainder of project. Therefore, mock-up should be maintained during construction.

1.7 PROJECT CONDITIONS

A. Contractor shall accept the conditions of the job site as they exist and perform his work accordingly.

B. Any adverse condition which might affect the performance of work described in these specifications must be brought to the attention of the owner in writing immediately upon its discovery.

C. Comply with manufacturer's recommended minimum and maximum installation temperatures.

D. Contractor shall be held responsible for protecting all adjacent construction from damage. Existing structures or installations which are destroyed or damaged by operations connected with this work including landscaping, shall be replaced and/or repaired by the contractor to the satisfaction of the owner at no additional expense.

E. Contractor shall secure field measurements required for proper installation of work covered by this section. Exact measurements are contractor's responsibility.

1.8 SEQUENCING AND SCHEDULING

A. Contractor shall coordinate each portion of this work with the owner's representative to minimize annoyance and inconvenience to building occupants.

B. Coordinate each portion of the Work with other trades to ensure that all work can be completed once it has commenced, and to provide for appropriate interfacing with other work

1.9 WARRANTY

A. Manufacturer Warranty: Provide a warranty from the manufacturer against defective materials for a minimum period of three (3) years after completion and final acceptance of the work. Material related defects shall be corrected at no expense to the Owner during the warranty period.

B. Contractor Warranty: Provide a written warranty agreeing to repair defects in material and workmanship for a minimum period of two (2) years after completion and final acceptance of the work. Material and workmanship related defects shall be corrected at no expense to the Owner during the warranty period.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide products from one of the following manufacturers:

1. BASF Building System
   889 Valley Park Drive
   Shakopee, MN 55379
   Contact Name: Russell Smith
   Contact Number: (205) 586-8500
   www.BASFBuildingSystem.com

2. Sto Corporation
3800 Camp Creek Parkway SW
Building 1400, Suite 120
Atlanta, Georgia 30331
Phone: (800) 221-2397
Fax: (404) 346-3119

2.1 MATERIALS

A. Rigid Insulation Board:

1. Expanded Polystyrene (EPS) Insulation Board
2. Classification: Type 1.

B. Adhesive:

1. Acrylic – based, fiber reinforced flexible adhesive and waterproofing adhesive

a. Acceptable products: Acrobase NC.

C. Base Coat

1. Acrylic – based, fiber reinforced adhesive and base coat

a. Acceptable products: Acrobase NC.

2. Water: clean and portable without any foreign matter.
3. Bonding agent: surface applied bonding agent and additive as required by the manufacturer.
4. Reinforcing mesh: coated glass fiber fabric.
5. Primer: water based primer for stucco.

a. Acceptable products: Stucco Primer

D. Finish Coat

1. 100% acrylic stucco finish coat to match existing texture and color.

a. Acceptable products: Acrocrete Acrotex

PART 3 – EXECUTION

3.1 GENERAL REPAIR PROCEDURE

A. Mark the area to be patched. Even if the area to be repaired is small, make the patch large enough for ease of application. If possible, line up the edge of the patch with some type of feature or protrusion, which will help in concealing the patch

B. Grind off the finish from the wall approximately 6 inches around the damaged areas or above the cut area. Take care not to damage the base coat and mesh.

C. Remove the damaged area by cutting out EPS around the damaged area, making sure to leave a minimum 3 inch strip of the exposed mesh and insulation board. Cut in such a manner that the shape can easily be filled with replacement insulation.

D. Scrape any remaining adhesive off the face of the substrate.

E. Cut a piece of insulation board to fit the opening or removed area. Make sure that the fit is tight and there are no gaps that exceed 1/16th of an inch. (1/16"). Use slivers or spray foam to fill any gaps that exceed the 1/16th of an inch.

F. Rasp the insulation board to match the thickness of the existing adjacent insulation board, before adhering it to the substrate.

G. Apply adhesive to the back of the insulation board, properly back wrap a minimum of 2", and install with firm pressure. Allow sufficient time to dry before proceeding with final repair procedures.

H. Cut a new piece of mesh to properly back wrap and cover the new insulation board and overlap the existing base coat and mesh by at least 2-1/2". Apply the new base coat over the patch and embed the mesh into the base coat and feather the edges into the existing surface. Allow to dry.

I. If any sealants are to be installed, install the sealants to the base coat only prior to installation of the finish coat.

J. Prepare the area to receive the finish by masking and protecting the existing finish, apply the new finish and float to match existing texture.

K. Remove masking material and use paint brush to blend the new wet finish into the existing finish.

3.2 CORNER REPAIR

A. In making corner repair, materials must be removed from both sides of the corner in order to affect the repair. Sufficient amount of materials are to be removed so that proper adhesion of the insulation beard can be achieved.

B. Follow steps in the repair procedure above for the proper method of repair. Make sure that a double layer of new mesh is embedded in the base coat for the proper corner reinforcement.

3.3 CRACK REPAIR

A. If cracks develop in a class PB EIFS, they can be repaired by the methods described below. Before the repairs are made, the cause for cracks must be determined and addressed, and an assessment made as to whether the cracks are active or dormant.

B. Cracks may occur because of one or more of the following reasons:

1. Excessive structural movement
2. Failure to install the system in accordance with specifications, for example:

    a. Expansion joints not provided where required.
    b. Insulation board joints not butted
    c. Insulation board joints aligned with sheathing board joints.

C. Surfaces to be repaired must be properly prepared to remove all contaminants.

D. Hairline surface cracks in the EIFS textured coating less than 1/32 of an inch can be bridged with coating installed at a dry film thickness as specified by the contract documents.

E. Cracks deeper than hairline surface cracks can be repaired in the following manner:

1. Isolated cracks that align with the EPS board joints, for example, can be repaired in the same manner as the puncture repair described hereinbefore.
2. Cracks that align with a structural component such as a floor line in a multi-story construction must be repaired by installing an expansion joint, which coincides with the crack along the entire length of the floor line. Refer to sealant restoration and repair specified hereinafter.
3. Widespread cracking may be an indication of a serious defect in the EIFS installation and/or the underlying construction. Repair only after a thorough investigation of the problem and corrective action is taken to address the defects in the substrate or EIFS installation.

3.4 TEXTURED FINISH REPAIR

A. Grind off the damaged finish and remove approximately 1 inch around the damaged area.

B. Mask and protect the existing finish surrounding the area to be repaired.

C. Apply new finish tinted to appropriate color, and float finish to match existing texture.

D. Remove protection and masking and use a dry paint brush to blend the wet finish into the existing finish. (Note: use of a wet paint brush may cause color variations with darker colors.)

3.5 FIELD QUALITY CONTROL

A. Inspection for complete coverage should be made to ensure all holes, cracks, and voids have been filled, and all joints and cracks have been properly treated. Finished work is to be inspected by the engineer to verify compliance with project specifications.

3.6 CLEANING

A. General:

1. Do not allow accumulation of empty containers or other excess items except in areas set aside for the purpose. Remove and properly discard all used material,

packagers, containers and debris from the project site caused by the application of plaster coating.

2. Prevent accidental spilling of coating materials; in the event of a spill:

   a. Remove spilled material and waste or other equipment used to clean up spill.
   b. Clean surfaces to their original undamaged conditions

B. Adjacent surfaces:

1. Upon completion, remove all coating stains, splatters, etc., from any surface not designated to be coated. Any stained or ruined surface, including landscaping, shall be repaired or replaced to the satisfaction of the owner at no additional expense.

3.7 PROTECTION

A. Freshly coated surfaces located in trafficable areas shall be legibly posted as such immediately following their completion. Provide barricades to protect work, if necessary.

B. Remove temporary protection and enclosure of other work. Repair surfaces which have been stained, marred, or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers, and equipment and clean area of plaster debris.

C. Installer shall advise the contractor of requirements for the protection of plaster from deterioration and damage during the remainder of the construction period.

END OF SECTION 07 24 13

SECTION 07 41 00 PREFORMED METAL STANDING SEAM ROOFING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. This section covers the pre-finished, pre-fabricated standing seam roof system. All accessories, fasteners, and sealants indicated on the drawings as part of this section.

B. Drawings and general provisions of the Contract, including general and Supplementary Conditions and Division 01 Specifications, apply to this section.

C. Related Work Specified Elsewhere

1. Section 04 21 13 – Brick Masonry
2. Section 07 05 00 – Underlayment
3. Section 07 11 60 – Membrane Waterproofing
4. Section 07 24 13 – Portland Based Exterior Insulating Finish System
5. Section 07 54 10 – Feltback Adhered Termoplastic Membrane Roofing
6. Section 07 62 00 – Sheet Metal Flashing and Trim
7. Section 07 62 50 – Aluminum Gutter and Downspouts
8. Section 07 92 00 – Joint Sealants

1.2 SUMMARY

A. Section Includes; factory formed Standing Seam metal roof panels

1.3 DEFINITIONS

A. Metal Roof Panel Assembly: Metal roof panels, attachment system components, miscellaneous framing, thermal, and accessories necessary for a complete weather tight roofing system.

B. References:

1. American Society for Testing and Materials (ASTM)
   a. ASTM A 653: Steel Sheet, Zinc Coated by the Hot Dip Process
   b. ASTM A 792: Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot Dip Process
   c. ASTM B 209: Aluminum and Aluminum Alloy Sheet and Plate
2. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
   a. SMACNA Architectural Sheet Metal Manual, 1993 edition
3. American Iron and Steel Institute (AISI)
   a. AISI Cold Formed Steel Design Manual
4. Aluminum Association

a. Aluminum Design Manual

5. Code References

a. ASCE, Minimum Loads for Buildings and Other Structures
b. IBC International Building Code
c. FBC Florida Building Code. Roof to be installed in accordance with Florida Product Approval

1.4 QUALITY ASSURANCE

A. Fabral Engineered Products, Inc., Goodlettsville, TN, 615-855-1885 products establish a minimum of quality required.
B. Manufacturer and erector shall demonstrate experience of a minimum of five (5) years in this type of project.
C. Panels shall be factory-produced only. No portable, installer-owned or installer-rented machines will be permitted.

1.5 SUBSTITUTIONS

A. The material, products and equipment specified in this section establish a standard for required function, dimension, appearance and quality to be met by any proposed substitution.
B. Equal products will be approved provided they meet the Design Uplift Pressures and are submitted a minimum of ten (10) days prior to bid, meet physical requirements of the system and show acceptable proof of installed performance.

1.6 SYSTEM DESCRIPTION

A. Material to comply with:

1. ASTM A 792: Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot Dip Process.

1.7 ROOF SYSTEM PERFORMANCE TESTING

A. General Performance: Metal roof panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation or other defects in construction.

B. Roof System shall be designed to meet Florida Building Code Wind Load requirements.

1.8 WARRANTIES

A. Weather-tight warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing seam metal roof panel assemblies that fail to remain weather tight, including leaks, within specified warranty period.

1. Warranty Period: 20 Years from date of Substantial Completion

B. Finish warranty: Manufacturer's standard form in which manufacturer agrees to repair finish or replace standing seam metal roof panels that show evidence of deterioration of factory-applied finish within specified warranty period.

1. Exposed Panels Finish - deterioration includes the following:

a. Color fading more than 5 hunter units when tested according to ASTM D 2244
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214
c. Cracking, checking, peeling or failure of a paint to adhere to a bare metal.

2. Warranty Period: 20 Years from the date of substantial completion

C. Applicator shall furnish written warranty for a two (2) year period from date of substantial completion of building covering repairs required to maintain roof and flashings in watertight condition.

1.9 SUBMITTALS

A. Furnish detailed drawings showing profile and gauge of exterior sheets, location and type of fasteners, location, gauges, shape and method of attachment of all trim locations and types of sealants, and any other details as may be required for a weather-tight installation.

B. Provide finish samples of all colors specified.

C. Shop drawings: Show fabrication and installation layouts of metal roof panels, details of edge conditions, side-seam joints, panel profiles, corners, anchorages, trim, flashings, closures and accessories, and special details. Distinguish between factory and field-assembled work

D. Coordination Drawings: Roof plans, drawn to scale, on which the following are shown and coordinated with each other, based on input from installer of the items involved:

1. Roof panels and attachments

2. Steel deck, insulation and underlayment

3. Roof-mounted items including items mounted on roof curbs. Provide drawings for installation of roof mounted fans including crickets to provide drainage.

1.10 DELIVERY, STORAGE AND HANDLING

A. Ordering: Comply with manufacturer's ordering instruction and lead time requirements to avoid construction delays.

B. Deliver components, sheets, metal roof panels and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.

C. Unload, store and erect metal roof panels in a manner to prevent bending, warping, twisting and surface damage.

D. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Plastic sheeting and tarps are not acceptable. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting or other surface damage.

E. Protect strippable protective coating on any metal coated product from exposure to sunlight and high humidity, except to the extent necessary for material installation.

1.11 PROJECT CONDITIONS

A. Weather Limitations: proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed.

B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.12 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports and roof penetrations with actual equipment provided.

B. Coordinate metal roof panels with rain drainage work, flashing, trim and construction of decks and other adjoining work to provide a leak-proof, secure and noncorrosive installation.

PART 2 - PRODUCTS

2.1 PANEL DESIGN

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with mechanically seamed joint type indicated and mechanically attaching panels to steel deck using concealed clips in side laps. Include clips, cleats, pressure plates and accessories required for a weather-tight installation.

B. Roof panels shall be Fabral IP Seam 3, mechanically seamed, 22 gauge, Pre-Painted Galvalume AZ 50

C. Panels to be produced with Factory supplied hot melt mastic in the seams.

D. Panels to be produced Smooth – Three Minor Ribs - Factory Standard.

E. Panels to be designed for attachment with concealed fastener clips, spaced as required by the manufacturer to provide for both positive and negative design loads, while allowing for the expansion and contraction of the entire roof system resulting from variations in temperature.

F. Forming: Use continuous end rolling method. No end laps on panels. No portable roll-forming machines will be permitted on this project, no installer-owned or installer-rented machines will be permitted. It is the intent of the Engineer to provide Factory-Manufactured panel systems only for this project.

2.2 ACCEPTABLE MANUFACTURERS

A. This project is detailed around the roofing product of Fabral Engineered Products, Inc, 1000 Northchase, Suite 203, Goodlettsville, TN. Product IP Seam 3.

B. Approved equal manufacturers subject to prior approval of submittals before bid.

2.3 MATERIALS AND FINISHES

A. Preformed roofing panels shall be fabricated of 22 gauge Pre-Painted Galvalume AZ-50.

B. Color shall be selected by the owner from manufacturer's standard colors to closely match existing "Champagne" color panels and gutters.

C. Finish shall be Kynar 500 or Hylar 5000 Fluorocarbon coating with a top side film thickness of 0.70 to 0.90 mil over a 0.25 to 0.3 mil prime coat to provide a total dry film thickness of 0.95 to 1.25 mil, to meet AAMA 621. Bottom side shall be coated with a primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesions, flexibility and longevity as specified by Kynar 500 or Hylar 5000 finish supplier.

D. Strippable film to be applied on the pre-finished panels to the top side to protect the finish during fabrication, shipping and handling, film shall be removed before installation.

E. Trim: Trim shall be fabricated of the same material and finish to match the profile, and will be press broken in lengths of 10 to 12 feet. Trim shall be formed only by the manufacturer or if factory fabrication would compromise watertightness during construction or would un-reasonably delay installation fabrication to be by their approved dealer. Trim to be erected in overlapped condition. Use lap strips only as indicated on drawings. Miter conditions shall be factory welded material to match the sheeting.

F. Closures: Use metal profiled closures at the top of each elevation to close ends of the panels. Metal closures to be made in the same material and finish as face sheet.

G. Fasteners: Fasteners shall be of type, material, size, corrosion resistance, holding power and other properties required to fasten miscellaneous framing members to substrates.

H. Plumbing vent stack flashing shall be Decktite installed in accordance with manufacturer's printed installation instructions.

I. Roofing Underlayment

1. On all surfaces to be covered with roofing material, furnish and install a 40 mil "Peel & Stick membrane", required as outlined by metal panel manufacturer. Membrane to be a minimum of 40 mil thickness, smooth, non-granular, by one of the following manufacturers:

a. Polystick MTS by Polyglass
b. W.R Grace "Ice & water Shield"

2. Underlayment shall be laid in horizontal layers with joints lapped toward the eaves a minimum of 6", and well secured along laps and at ends as necessary to properly hold the membrane in place. All underlayment shall be preserved unbroken and whole.

3. Self-adhering underlayment shall lap all hips and ridges at least 12" to form double thickness and shall be lapped 6" over the metal of any valley and shall be installed as required by the Standing Seam Panel Manufacturer to attain the desired 20 Year Weathertightness Warranty.

J. Sealants

1. Exterior grade silicone sealant recommended by roofing manufacturer or

2. One part non-sag, gun grade exterior type polyurethane recommended by the roofing manufacturer.

2.4 FABRICATION

A. Comply with dimensions, profile limitations, gauges and fabrication details shown and if not shown, provide manufacturer's standard product fabrication.

B. Fabricate components of the system in factory, ready for field assembly.

C. Fabricate components and assemble units to comply with fire performance requirements specified.

D. Apply specified finishes in conformance with manufacturer's standard, and according to manufacturer's instructions.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine alignment of structural framing and related supports, primary and secondary roof framing, solid roof sheathing, prior to installation.

B. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of the Work.

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

3.2 PREPARATION

A. Remove existing metal roof panels, flashing and trim. Properly dispose of all removed materials and debris.

B. Remove any loose existing self-adhering membrane. Properly dispose of all removed membrane and debris.

C. Install new self-adhering membrane in accordance with Section 07 05 00, Underlayment.

3.3 INSTALLATION

A. Panels shall be installed plumb and true in a proper alignment and in relation to the structural framing. The erector must have at least five years successful experience with similar applications.

B. Install metal panels, fasteners, trim and related sealants in accordance with approved shop drawings and as may be required for a weather-tight installation.

C. Remove all strippable coating and provide a dry-wipe down cleaning of the panels as they are erected.

D. Clean all drill shavings from the roof surface each day prior to rain or leaving the site. Any panel or trim showing rust specs after installation will be replaced by the contractor at no additional cost to the owner.

3.4 DAMAGED MATERIAL

A. Upon determination of responsibility, repair or replace damaged metal panels and trim to the satisfaction of the Engineer and Owner.

END OF SECTION 07 41 00

SECTION 07 54 10 – FELTBACK ADHERED THERMOPLASTIC MEMBRANE ROOFING

PART 1 – GENERAL

1.1 SUMMARY

A. Description of scope and intent:

1. Contractor to provide all material, labor, and tools required to complete the installation of specified system.
2. Any omission of reference to items required to complete the full operational and functional system specified in the section does not relieve the contractor of the obligation to provide same.
3. To provide installation of all items, including delivery, dispersing to the proper locations within the building, and affixing in place.
4. Installation shall be accomplished by workers skilled in their craft that will perform their work in a professional manner and will leave the premises safe, orderly and clean.
5. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section
6. Contractor is responsible for coordination of work included in this specification with all other specification sections related to furnishing of all materials, labor, permits, fees and services necessary for completion of work in this section.
7. In the event of a conflict between the design drawings, referenced standards and these Specifications, the more stringent shall govern unless directed otherwise by the Engineer. Contractor shall strictly adhere to OSHA requirements and local codes or those of any regulatory agency or body with jurisdiction.

B. Related Sections

1. Section 04 21 13 – Brick Masonry
2. Section 07 05 00 – Underlayment
3. Section 07 11 60 – Membrane Waterproofing
4. Section 07 24 13 – Portland Based Exterior Insulating Finish System
5. Section 07 41 00 – Metal Roofing Panels
6. Section 07 62 00 – Sheet Metal Flashing and Trim
7. Section 07 62 50 – Aluminum Gutter and Downspouts
8. Section 07 92 00 – Joint Sealants

C. This Section includes the following:

1. To provide a complete feltback adhered thermoplastic membrane roofing system, including membrane, flashings and other components.
2. The work includes but is not limited to the installation of:

    a. Substrate Preparation
    b. Scupper tie-in into roofing systems
    c. Wood Blocking
    d. Insulation
    e. Roof Membrane (Fully Adhered to achieve the required wind loading)

f. Fasteners
g. Adhesive for Flashings
h. Roof Membrane Flashings
i. Metal Flashings
j. Sealants

D. Upon successful completion of work the following warranties shall be provided or maintained.
1. Manufacturer's Twenty (20) Year Warranty - Maintained
2. Roofing Contractor's Five (5) Year Warranty-Provide

1.2 QUALITY ASSURANCE

A. This roofing system shall be applied only by a Roofing Contractor authorized by Manufacturer, Johns Manville Corp.

B. Upon completion of the installation and the delivery to Manufacturer by the Applicator of a certification that all work has been done in strict accordance with the contract specifications and Manufacturer's requirements, an inspection shall be made by a Technical Representative of Manufacturer to review the installed roof system.

C. There shall be no deviation made from the Project Specification or the approved shop drawings without prior written approval by the Owner, the Engineer and Manufacturer.

1. All work pertaining to the installation of the feltback membrane and flashings shall only be completed by Applicator personnel trained and authorized by Manufacturer in those procedures.

1.3 SUBMITTALS

A. At the time of award of contract, the Applicator shall submit for approval to the Architect the following:

1. Copies of Specification.
2. Samples of each primary component to be used in the roof system and the manufacturer's current literature for each component.
3. Sample copy of Applicator's warranty.
4. Dimensioned shop drawings which shall include:

a. Outline of roof with roof size and elevations shown.
b. Details of flashing methods for penetrations.
c. Technical acceptance from manufacturer.

5. Certifications by manufacturers of roofing and insulating materials that all materials supplied comply with all requirements of the identified ASTM and other industry standards or practices.
6. Certification from the Applicator that the system specified meets all identified code and insurance requirements as required by the Specification.
7. Material Safety Data Sheets (MSDS).
8. Submit Florida Product Approval number for composite system specified herein.

1.4 CODE REQUIREMENTS

A. The applicator shall submit evidence that the proposed roof system meets all the requirements, including wind loading, of the Florida Building Code, 2010 and has been tested and approved or listed by the following test organizations. These requirements are minimum standards and no roofing work shall commence without written documentation of the system's compliance, as required in the "Submittals" section of this specification.

B. The roof wind load design requirements for this facility are to be in accordance with ASCE 7 -10.

1. Underwriters Laboratories, Inc. – Northbrook, IL

a. Class A assembly

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All products delivered to the job site shall be in the original unopened containers or wrappings bearing all seals and approvals.

B. Handle all materials to prevent damage. Place all materials on pallets and fully protect from moisture.

C. Membrane rolls shall be stored lying down on pallets and fully protected from the weather with clean canvas tarpaulins..

D. As a general rule all adhesives shall be stored at temperatures between 40° F (5° C) and 80° F (27° C). Read instructions contained on adhesive canister for specific storage instructions.

E. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/supplier.

F. All materials which are determined to be damaged by the Owner's Representative or Manufacturer are to be removed from the job site and replaced at no cost to the Owner.

1.6 JOB CONDITIONS

A. Manufacturer's materials may be installed under certain adverse weather conditions but only after consultation with Manufacturer, as installation time and system integrity may be affected.

B Only as much of the new roofing as can be made weathertight each day, including all flashing and detail work, shall be installed. All seams shall be heat welded before leaving the job site that day.

C. All surfaces to receive new insulation, membrane or flashings shall be dry. Should surface moisture occur, the Applicator shall provide the necessary equipment to dry the surface prior to application.

D. All new and temporary construction, including equipment and accessories, shall be secured in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.

E. Uninterrupted waterstops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work. Waterstops shall not emit dangerous or unsafe fumes and shall not remain in contact with the finished roof as the installation progresses. Contaminated membrane shall be replaced at no cost to the Owner.

F. The Applicator is cautioned that certain membranes are incompatible with asphalt, coal tar, heavy oils, roofing cements, creosote and some preservative materials. Such materials shall not remain in contact with membranes. The Applicator shall consult Manufacturer regarding compatibility, precautions and recommendations.

G. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, the Applicator shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. A substantial protection layer consisting of plywood over Manufacturer's roofing or plywood over insulation board shall be provided for all roof areas that receive rooftop traffic during construction.

H. Prior to and during application, all dirt, debris and dust shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air and/or similar methods.

I. The Applicator shall follow all safety regulations as required by OSHA and any other applicable authority having jurisdiction.

J. All new roofing waste material (i.e., scrap roof membrane, empty cans of adhesive) shall be immediately removed from the site by the Applicator and properly transported to a legal dumping area authorized to receive such material.

K. The Applicator shall take precautions that storage and/or application of materials and/or equipment does not overload the roof deck or building structure.

L. Flammable adhesives and deck primers shall not be stored and not be used in the vicinity of open flames, sparks and excessive heat.

M. All rooftop contamination that is anticipated or that is occurring shall be reported to Manufacturer to determine the corrective steps to be taken.

N. The Applicator shall verify that all roof drain lines are functioning correctly (not clogged or blocked) before starting work. Applicator shall report any such blockages in writing (letter copy to Manufacturer) to the Architect for corrective action prior to the installation of the roof system.

O. Applicator shall immediately stop work if any unusual or concealed condition is discovered and shall immediately notify Owner of such condition in writing for correction (letter copy to Manufacturer).

P. Site cleanup, including both interior and exterior building areas that have been affected by construction, shall be completed to the Owner's satisfaction.

Q. All landscaped areas damaged by construction activities shall be repaired at no cost to the Owner.

R. The membrane shall not be installed under the following conditions without consulting Manufacturer's Technical Dept. for precautionary steps:

1. The roof assembly permits interior air to pressurize the membrane underside.
2. Any exterior wall has 10% or more of the surface area comprised of opening doors or windows.
3. The wall/deck intersection permits air entry into the wall flashing area.

S. Precautions shall be taken when using adhesives at or near rooftop vents or air intakes. Adhesive odors could enter the building. Coordinate the operation of vents and air intakes in such a manner as to avoid the intake of adhesive odor while ventilating the building. Keep lids on unused cans at all times.

T. Protective wear shall be worn when using solvents or adhesives or as required by job conditions.

U. Membranes are slippery when wet or covered with snow, frost, or ice. Working on surfaces under these conditions is hazardous. Appropriate safety measures must be implemented prior to working on such surfaces. Always follow OSHA and other relevant fall protection standards when working on roofs.

1.7 WARRANTIES

A. Manufacturer's 20-Year Standard Warranty to be maintained.

B. Upon successful completion of the work to Manufacturer's satisfaction and receipt of final payment, the Manufacturer shall issue letter signed by an officer of the corporation certifying that the existing warranty will remain in full force for the original duration. Warranty to provide full replacement coverage for 140 mph winds

C. Applicator/Roofing Contractor 5-Year Warranty. The Applicator shall supply the Owner with a separate workmanship warranty. In the event any work related to roofing, flashing, or metal is found to be within the Applicator warranty term, defective or otherwise not in accordance with the Contract Documents, the Applicator shall repair that defect at no cost to the Owner. The Applicator's warranty obligation shall run directly to the Owner, and a copy shall be sent to Manufacturer. The work covered by this warranty shall apply to the work performed in the repair/restoration only.

D. All Warranties referenced in this Specification shall have been submitted and have been accepted at time of contract award.

E. Owner Responsibility. Owner shall notify both Manufacturer and the Applicator of any leaks as they occur during the time period when both warranties are in effect.

PART 2 – PRODUCTS

2.1 GENERAL

A. Basis of Design: The components of the adhered roof system are to be products of Johns Manville Corporation.

2.2 MEMBRANE

A. Johns Manville SD Plus Feltback polyester reinforced membrane.

B. Membrane shall conform to ASTM D4434 (latest version), "Standard for Polyvinyl Chloride Sheet Roofing". Classification: Type II, Grade I.

1. JM SD Plus feltback, 80 mil, thermoplastic membrane with polyester reinforcement and a factory applied 9 oz. felt backing.

C. Certified Polymer Thickness:

1. Membrane manufacturer shall certify that the polymer thickness is of the polymer thickness specified. Certification shall be signed by the membrane manufacturer's quality control manager. ASTM +/- tolerance for membrane thickness shall not be accepted. Membrane felt not included to meet required membrane thickness.

D. Color of Membrane:

1. Feltback (white), initial reflectivity of 0.83, initial emissivity 0.90, solar reflective index (SRI) of >104.

E. Typical Physical Properties [1]

Parameters	ASTM Test Method	Minimum ASTM	Required Physical Properties
Reinforcing Material	-		Fiberglass
Overall Thickness, min., inches (mm)	D638	0.045 (1.14)	[0.0 80 inches)]
Tensile Strength, min., psi (MPa)	D638	1500 (10.4)	1600 (11.1)
Elongation at Break, min. (machine x tranverse)	D638	250% / 230%	270% / 250%
Seam strength[2], min. (% of tensile strength)	D638	75	80
Retention of Properties After Heat Aging	D3045	-	-
Tensile Strength, min., (% of original)	D638	90	95
Elongation, min., (% of original)	D638	90	90
Tearing Resistance, min., lbf (N)	D1004	10 (45.0)	14 (63.0)
Low Temperature Bend, -40° F (-40° C)	D2136	Pass	Pass
Accelerated Weathering Test (Xenon Arc)	D2565	5,000 Hours	Pass
Cracking (7x magnification)	-	None	None
Discoloration (by observation)	-	Negligible	Negligible
Crazing (7 x magnification)	-	None	None
Linear Dimensional Change	D1204	0.10 %	0.02%
Weight Change After Immersion in Water	D570	±3.0%	2.5%
Static Puncture Resistance, 33 lbf (15 kg)	D5602	Pass	Pass
Dynamic Puncture Resistance, 7.3 ft-lbf (10 J)	D5635	Pass	Pass
*Notes (1) Physical properties without felt backing. (2) Failure occurs through membrane rupture not seam failure.			

2.3 FLASHING MATERIALS

A. Wall/Curb Flashing:

1. Membrane; A polyester reinforced membrane adhered to approved substrate using adhesive. Consult Product Data Sheets for adhesive options and additional information.

2. Clad Metal; PVC-coated, heat-weldable sheet metal capable of being formed into a variety of shapes and profiles, 25 gauge, G90 galvanized metal sheet with a 20 mil unsupported membrane laminated on one side.

B. Miscellaneous Flashing

1. Flashing of roof expansion joint to wall expansion joint consisting of Clad Metal and polyester reinforced membrane.
2. Flashing where brick walls intersect with membrane covered parapet walls consisting of Clad Metal and polyester reinforced membrane.

3. Flashing of new overflow through wall scuppers consisting of Clad Metal and polyester reinforced membrane.

2.4 MISCELLANEOUS ACCESSORIES

A. Aluminum Tape; 2 inch wide pressure-sensitive aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as a bond-breaker under the coverstrip at Clad Metal joints.

B. Sealing Tape Strip; Compressible foam with pressure-sensitive adhesive on one side. Used with metal flashings as a preventive measure against air and wind blown moisture entry.

C. Multi-Purpose Tape; High performance sealant tape used with metal flashings as a preventive measure against air and wind-blown moisture entry.

D. Welding Equipment; 220 volt, self-propelled, hot-air welding machine used to seal membrane seams.

E. Solvent High quality solvent cleaner used for the general cleaning of residual asphalt, scuff marks, etc., from the membrane surface and to clean seam areas prior to hot-air welding in tear off or dirty conditions or if the membrane is not welded the same day it is unrolled.

2.5 SEALANTS AND PITCH POCKET FILLERS

A. Multi-Purpose Sealant (for termination details).

B. Adhesive (two-component urethane adhesive for pitch pocket toppings).

2.6 MISCELLANEOUS FASTENERS AND ANCHORS

A. All fasteners, anchors, nails, straps, bars, etc. shall be post-galvanized steel, aluminum or stainless steel. Mixing metal types and methods of contact shall be assembled in such a manner as to avoid galvanic corrosion. Fasteners for attachment of metal to masonry shall be expansion type fasteners with stainless steel pins. All concrete fasteners and anchors shall have a minimum embedment of 1¼ inch (32 mm) and shall be approved for such use by the fastener manufacturer. All miscellaneous wood fasteners and anchors used for flashings shall have a minimum embedment of 1 inch (25 mm) and shall be approved for such use by the fastener manufacturer.

2.7 WALKWAY PROTECTION

A. Polyester reinforced, 0.096 inch (96 mil/2.4 mm), weldable membrane with surface embossment, used as a protection layer from rooftop traffic. Supply in rolls of 39.3inches (1.0m) wide.

PART 3 – EXECUTION

3.1 SUBSTRATE CONDITION

A. Applicator shall be responsible for acceptance or provision of proper substrate to receive new roofing materials.

B. Applicator shall verify that the work done under related sections meets the following conditions:

1. Roof drains and/or scuppers have been installed properly.
2. All surfaces are smooth and free of dirt, debris and incompatible materials.
3. All roof surfaces shall be free of water.

3.2 SUBSTRATE PREPARATION

A. The roof deck and existing roof construction must be structurally sound to provide support for the new roof system. The Applicator shall load materials on the rooftop in such a manner as to eliminate risk of deck overload due to concentrated weight

3.3 SUBSTRATE INSPECTION

A. A dry, clean and smooth substrate shall be prepared to receive adhered roof system.

B. The Applicator shall inspect the substrate for defects such as excessive surface roughness, contamination, structural inadequacy, or any other condition that will adversely affect the quality of work.

C. The substrate shall be clean, smooth, dry, free of flaws, sharp edges, loose and foreign material, oil and grease. Roofing shall not start until all defects have been corrected.

D. All roof surfaces shall be free of water.

E. Membrane shall be applied over compatible and accepted substrates only.

3.4 HOT-AIR WELDING OF SEAM OVERLAPS

A. General

1. All seams shall be hot-air welded. Seam overlaps should be 3 inches wide when automatic machine-welding and 4 inches wide when hand-welding, except for certain details.
2. Welding equipment shall be provided by or approved by manufacturer. All mechanics intending to use the equipment shall have successfully completed a training course provided by a Manufacturers Technical Representative prior to welding.
3. All membrane to be welded shall be clean and dry.

B. Quality Control of Welded Seams

1. The Applicator shall check all welded seams for continuity using a rounded screwdriver. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark grey material from the underside of the top membrane. On-site evaluation of welded seams shall be made daily by the Applicator at locations as directed by the Owner's Representative or Manufacturer's Representative. One inch wide cross-section samples of welded seams shall be taken at least three times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Each test cut shall be patched by the Applicator at no extra cost to the Owner.

3.5 MEMBRANE FLASHINGS

A. All flashings shall be installed concurrently with the roof membrane as the job progresses. If water is allowed to enter under the newly completed roofing, the affected area shall be removed and replaced at the Applicator's expense. Flashing shall be adhered to compatible, dry, smooth, and solvent-resistant surfaces. Use caution to ensure adhesive fumes are not drawn into the building.

B. Adhesive for Membrane Flashings

1. Over the properly installed and prepared flashing substrate, adhesive shall be applied according to instructions found on the Product Data Sheet. The adhesive shall be applied in smooth, even coats with no gaps, globs or similar inconsistencies. Only an area which can be completely covered in the same day's operations shall be flashed. The bonded sheet shall be pressed firmly in place with a hand roller.
2. No adhesive shall be applied in seam areas that are to be welded. All panels of membrane shall be applied in the same manner, overlapping the edges of the panels as required by welding techniques.

C. Install stops, bars, cords, and etc. according to the approved Shop Drawings with approved fasteners into the structural deck at the base of parapets, walls and curbs.

D. Manufacturer's requirements and recommendations and the specifications shall be followed. All material submittals shall have been accepted by Engineer prior to installation.

E. All flashings shall extend a minimum of 8 inches above roofing level.

F. All flashing membranes shall be consistently adhered to substrates. All interior and exterior corners and miters shall be cut and hot-air welded into place.

G. All flashing membranes shall be mechanically fastened along the counter-flashed top edge with stops at 6-8 inches on center.

H. All flashings shall be terminated according to recommended details.

I. All flashings that exceed 30 inches in height shall receive additional securement. Provide method for securement.

3.6 METAL FLASHINGS

A. Metal details, fabrication practices and installation methods shall conform to the applicable requirements of the following:

1. Factory Mutual Loss Prevention Data Sheet 1-49 (latest issue).
2. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - latest issue.

B. Metal, shall be provided by roof manufacturer, and covered under the warranty, no exceptions.

C. Complete all metal work in conjunction with roofing and flashings so that a watertight condition exists daily.

D. Metal shall be installed to provide adequate resistance to bending to allow for normal thermal expansion and contraction.

E. Metal joints shall be watertight.

F. Metal flashings shall be securely fastened into solid wood blocking. Fasteners shall penetrate the wood nailer a minimum of 1 inch.

G. Airtight and continuous metal hook strips are required behind metal fascias. Hook strips are to be fastened 12 inches on center into the wood nailer or masonry wall.

H. Counter flashings shall overlap base flashings at least 4 inches.

I. Hook strips shall extend past wood nailers over wall surfaces by 1-1/2 inch minimum and shall be securely sealed from air entry.

3.7 CLAD METAL BASE FLASHINGS/EDGE METAL

A. All flashings shall be installed concurrently with the roof membrane as the job progresses. If water is allowed to enter under the newly completed roofing due to incomplete flashings, the affected area shall be removed and replaced at the Applicator's expense.

B. Clad metal flashings shall be formed and installed per the Detail Drawings.

1. All metal flashings shall be fastened into solid wood nailers with two rows of post galvanized flat head annular ring nails, 4 inches on center staggered. Fasteners shall penetrate the nailer a minimum of 1 inch.
2. Metal shall be installed to provide adequate resistance to bending and allow for normal thermal expansion and contraction.

C. Adjacent sheets of clad metal shall be spaced ¼ inch apart. The joint shall be covered with 2 inch wide aluminum tape. A 4 inch minimum wide strip of flashing membrane shall be hot-air welded over the joint.

3.8 TEMPORARY CUT-OFF

A. All flashings shall be installed concurrently with the roof membrane in order to maintain a watertight condition as the work progresses. All temporary waterstops shall be constructed to provide a 100% watertight seal.

B. If any water is allowed to enter under the newly-completed roofing, the affected area shall be removed and replaced at the Applicator's expense.

3.9 COMPLETION

A. Prior to demobilization from the site, the work shall be reviewed by the Architect and the Applicator.

B. All defects noted and non-compliances with the Specifications or the recommendations of manufacturer shall be itemized in a punch list. These items shall be corrected immediately.

END OF SECTION 07 54 10

SECTION 07 62 00 – SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes labor, materials, equipment, insurance and incidents as required to remove existing sheet metal, as well as fabricate and install new sheet metal indicated by the Drawings, Details, and Specifications. Work shall include, but is not limited to, flashings, counter flashings, etc., installed in conjunction with the exterior cladding system.

B. Related Sections:

1. Section 04 21 13 – Brick Masonry
2. Section 07 05 00 – Underlayment
3. Section 07 11 60 – Membrane Waterproofing
4. Section 07 24 13 – Portland Based Exterior Insulation Finish System
5. Section 07 41 00 – Metal Roofing
6. Section 07 54 10 – Feltback Adhered Thermoplastic Membrane Roofing
7. Section 07 62 50 – Aluminum Gutter and Downspouts
8. Section 07 92 00 – Joint Sealants

1.2 REFERENCES

A. General:

1. National Roofing Contractors Association (NRCA) – "Roofing and Waterproofing Manual".
2. Sheet Metal and Air Conditioning Contractors Association (SMACNA), "Architectural Sheet Metal Manual".

B. American Society for Testing and Materials (ASTM):

1. ASTM A505: General Requirements for Specification for Steel Sheet and Strip, Alloy, Hot-Rolled and Cold-Rolled.
2. ASTM A653: Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
3. ASTM B32: Specification for Solder Metal.

1.3 SUBMITTALS

A. Submittals shall be provided in three bound and labeled sets.

B. Product Data:

1. Three (3) copies of manufacturer's descriptive literature, color charts, installation instructions, and warranties for manufactured items and procedures to be followed during installation.
2. Letters from manufacturers, or published information verifying compatibility

o f materials specified within this section, as well as substrate materials.

C. Materials List:

1. List of materials proposed to be furnished and installed under this portion of the Work.
2. This shall in no way be constructed as permitting substitution of materials for those specified, except otherwise submitted for review.

D. Samples:

1. For each shop or field fabricated item designated by the Engineer or Owner's Representative, submit sample showing joints, connections, types and location of fasteners, and shapes.

E. Shop Drawings:

1. Shop drawings showing complete installation layouts, details required to explain component assemblies and installation requirements, weights, gauges or thickness of materials, joining and expansion joint spacing, etc., as required for this Project.
2. Shop drawings shall not consist of a reproduction of Engineer's details, but rather shall provide supplemental information pertaining to specific dimensions, sequencing requirements, joints and laps, as may be required for completion of the Work.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Work to be performed by a Contractor regularly engaged for at least ten (10) years in commercial fabrication and installation of sheet metal.
2. Contractor must be currently doing business with, or have satisfactorily completed recent projects for a minimum of ten (10) projects.
3. Submit proof of time performing work and projects to Engineer for review.

B. Pre-Installation Conference:

1. Meet with Owner's Representative, Owner, Engineer, and related trades to discuss sheet metal sequencing and installation procedures, and in accordance with Division 00.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to job site with packages and labels intact identifying manufacturer, product name and lot numbers when appropriate.

B. Store materials in accordance with applicable manufacturer's recommendations.

C. Store approved materials in a suitable and designated area at the jobsite. Support

materials off the ground and cover.

D. Use necessary means to ensure safe storage and use of materials, as well as prompt and safe disposal of waste.

1.6 SITE CONDITIONS

A. Environmental Requirements:

1. Do not proceed with work under threatening or during unfavorable weather conditions.
2. If work is interrupted by weather, provide the necessary protection for new materials and to keep building watertight.

B. Existing Conditions:

1. Coordinate the Work with existing construction not included within this Section.
2. Sequence the Work in order to provide proper interfacing with adjoining building elements, as well as ensuring the waterproofing integrity of the Work.
3. Contractor shall secure field measurements required for proper installation of Work covered by this Section. Exact measurements are Contractor's responsibility.

1.7 SEQUENCING AND SCHEDULING

A. Coordinate each portion of this Work with other trades to ensure that all construction can be completed once it is begun.

B. Coordinate each portion of this Work with the Owner, Owner's Representative and the Engineer, in order to minimize annoyance and inconvenience to the building occupants.

1.8 WARRANTY

A. Provide a written two (2) year Contractor's warranty against defective materials and workmanship.

B. Manufacturer's warranty for polyvinylidene fluoride resin finish.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Stainless Steel:

1. Type: 304
2. Thickness: As shown on drawings; minimum 24 gage if not specified.
3. Finish: Mill Type 2B
4. All exposed metal flashing edges shall have a 1/2 inch wide180 degree bend

that is turned down at a 30 degree angle to form a drip edge.

B. Solder:

1. Type: 40% lead, 60% tin for stainless steel.
2. Type: 50% lead, 50% tin for galvanized steel, conforming to ASTM B23.

C. Pre-Finished Sheet Metal

1. Type: Pre-finished aluminum sheet metal.
2. Thickness: As shown on drawings; minimum .032" if not specified.
3. Finish: Smooth surface with a minimum of 70% polyvinylidene fluoride resin finish applied over a chrome phosphate pretreatment. Also, install protective clear coat over finish.
4. Color: As selected by Owner from manufacturer's standard colors.
5. Acceptable Product: "Kynar 500"

D. Self-Adhering Membrane

1. Type: Self-Adhering, modified bitumen, cold-applied membrane.
2. Accessories: Proprietary primer and mastic/sealant as required.
3. Acceptable Product: "Blueskin TWF," as manufactured by Henry or Approved Equivalent.

E. Fasteners:

1. Masonry: Mushroom head expansion type with zinc sheath and stainless steel drive nail; Rawl "Zamac Nailin" or equal.
2. Wood: Pan head type, #12 stainless steel wood screws.
3. Metal: Hex head type, #12, stainless steel sheet metal screws.
4. Fasteners made of other materials will not be acceptable for this project unless approved by the Engineer.

F. Where sheet metal is required and no material or gauge is indicated within Project Documents, submit to Engineer and Owner's Representative, the highest quality and gauge commensurate with the referenced standards.

2.2 FABRICATION

A. Form sections true to shape, accurate in size, square, free from distortion and defects, to profiles indicated, in accordance with manufacturer's standard methods, and using the SMACNA "Architectural Sheet Metal Manual" (latest edition) as a guide.

B. Shop fabricated components ready for field assembly, as per Drawings, Details and Specifications, and as per approved shop drawings for the particular installations and conditions indicated. Shop fabricate to allow for adjustments in the field for proper anchoring and joining.

C. Form sheet metal in longest practical lengths on bending brake. Do shaping,

trimming and hand seaming in the shop to the greatest extent practicable.

D. Fabricated units, as well as pre-manufactured units, shall be formed and sized to fit the substrate indicated.

E. Work shall be fabricated for waterproof and weather-resistant performance with expansion provisions for running work.

F. Non-moving seams in sheet metal shall be fabricated with flat, single-lock seams, unless otherwise noted.

1. Expansion provisions shall be formed of intermeshing hooked flanges a minimum of one inch deep and filled with butyl sealant concealed with the joint.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Contractor shall accept the conditions of the job site as they exist and perform his work accordingly. Any adverse condition which might affect performance of the Work described in these specifications must be brought to the attention of the Owner's Representative and Engineer in writing immediately upon its discovery.

B. Beginning of the Work constitutes Contractor's acceptance of existing conditions. Do not start the Work until conditions are satisfactory.

3.2 PREPARATION

A. Contractor shall be held responsible for protecting all adjacent construction from damage. Existing structures or installations which are destroyed or damaged by operations connected with this Work, shall be replaced or repaired by the Contractor to the satisfaction of the Owner at no additional expense.

3.3 INSTALLATION

A. General:

1. Perform all Work in accordance with the best standards of practice relating to the trade. Plan and carefully layout Work as required to carry out the intent of the specifications and to properly accommodate the Work of other trades.
2. Furnish and install sheet metal work to provide weatherproof installation warranted against leaks and weather damage through severe temperature and weather conditions. Seams shall overlap in direction of water flow.
3. In addition to weatherproofing requirements specified above, sheet metal work exposed to view from any point around or within building shall present finished appearance which is neat, uniform and with aesthetic characteristics of good architectural sheet metal work.
4. Provide all miscellaneous sheet metal work not specifically assigned to other

trades. Furnish miscellaneous sheet metal work, accessories or other items essential to completeness of sheet metal installation.

5. Flashing and sheet metal work shall be installed in accordance with the manufacturer's installation instructions and the applicable details in the SMACNA Architectural Sheet Metal Manual and NRCA Roofing and Waterproofing Manual.

   a. Anchor units of Work securely in place by methods indicating, providing for thermal expansion of metal units.
   b. Conceal fasteners where possible, and set units true to line and level as indicated.
   c. Install Work, with laps, joints and seams that will be permanently water tight and weatherproof.
   d. Exposed fasteners shall be complete with neoprene washers.

6. The installation of flashing and sheet metal Work shall be coordinated with the Work of interfacing trades. Cutting, fitting and drilling required to accommodate the Work of the interfacing trades shall be performed by the sheet metal installer at no additional cost.
7. Perform soldering (where necessary) slowly with well-heated base metals, so as to heat thoroughly the seam and sweat the solder through its full width.
8. Ample solder shall be used and seam shall show at least one full inch of evenly flowed solder. Wherever possible, all soldering shall be done in flat position. Protect underlying roof membrane from dripping solder.

C. Windows

1. Install new head flashing at each window as depicted or noted in the Details.

D. Galvanic Corrosion:

1. Contractor shall take extreme caution and care to eliminate dissimilar metal contact where possible. This shall include not only bimetallic joints, but also fasteners which pass through new and existing flashing metals.
2. Fasteners and pop rivets for sheet metal flashings and accessories shall be of like material, respectively.

3.4 CLEANING

A. After installation, all exposed sheet metal shall be cleaned of all substances which may cause corrosion of metal or deterioration of the finishes.

B. Upon completion of all work, or ongoing during construction (as required), Contractor shall examine surrounding areas and remove all scrap metal, metal shavings, stray fasteners, pop-rivet stems, etc., from the surface of all surrounding areas.

3.5 PROTECTION

A. Completed Work:

1. Construction traffic around completed sheet metal Work shall be kept at an absolute minimum.
2. Where construction traffic is unavoidable, all Work shall be adequately planked or boarded, or otherwise protected, as required for proper service.

END OF SECTION 07 62 00

SECTION 07 62 50 – ALUMINUM GUTTERS AND DOWNSPOUTS

PART 1 - GENERAL

1.1 SUMMARY

A. Description of scope and intent:

1. Contractor to provide all material, labor, and tools required to complete the installation of specified system.
2. Any omission of reference to items required to complete the full operational and functional system specified in the section does not relieve the contractor of the obligation to provide same.
3. To provide installation of all items, including delivery, dispersing to the proper locations within the building, and affixing in place.
4. Installation shall be accomplished by workers skilled in their craft who will perform their work in a professional manner and will leave the premises safe, orderly and clean.
5. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section
6. Contractor is responsible for coordination of work included in this specification with all other specification sections related to furnishing of all materials, labor, permits, fees and services necessary for completion of work in this section.
7. In the event of a conflict between the design drawings, referenced standards and these Specifications, the more stringent shall govern unless directed otherwise by the Architect. Contractor shall strictly adhere to OSHA requirements and local codes or those of any regulatory agency or body with jurisdiction

B. Section Includes:

1. Gutters and downspouts.
2. Fasteners and attachment devices.

C. Related Sections

1. Section 04 21 13 – Brick Masonry
2. Section 07 05 00 – Underlayment
3. Section 07 11 60 – Membrane Waterproofing
4. Section 07 24 13 – Portland Based Exterior Insulation Finish System
5. Section 07 41 00 – Metal Roofing
6. Section 07 54 10 – Feltback Adhered Thermoplastic Membrane Roofing
7. Section 07 62 00 – Sheet Metal Flashing and Trim
8. Section 07 92 00 – Joint Sealants

1.2 SUBMITTALS

A. Shop Drawings: Detailed drawings clearly indicating component profiles, joints, transitions, fastening methods, and relationship of flashing materials to adjacent construction.

B. Samples: Submit 6-inch-square samples of each type of metal, color and finish required.

C. References: Provide references meeting requirements in Section 1.3, A.

1.3 QUALITY ASSURANCE

A. Installer: A company familiar with installing products included in this section and which has completed at least 20 installations similar in scope to work included in this section with successful installations at least five (5) years old.

B. Quality Standard:

1. Fabricate and install sheet metal work in accordance with Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA) "Architectural Sheet Metal Manual," unless specifically indicated otherwise.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Prefinished Aluminum Sheet: ASTM B 209, manufacturer's standard alloy and temper for indicated applications.

1. Minimum thickness: 18 B & S gage (0.040 inch).
2. Finish: 70 percent "Kynar 500" or "Hylar 5000" resin finish over epoxy primer; minimum system thickness 1.0 mil. Provide manufacturer's standard prime coat on underside. Color to match existing gutter system and standing seam roof color.

3. Provide strippable plastic protective film on prefinished surface.

4. Re-use existing gutters and downspouts to greatest extent possible.

2.2 ACCESSORY MATERIALS

A. Fasteners: Corrosion-resistant metal of same material as the material being fastened or stainless steel. Match finish and color of exposed fastener heads to finish and color of sheet material being fastened.

B. Sealant: As specified in Division 7.

1. Use non-curing type for concealed joints.
2. Use non-sag elastomeric type for exposed joints.

C. Joint Adhesive: Aluminum pigmented gutter seal by Alcoa/Ply Gem or approved equal.

D. Gutter metal hangers and brackets.

E. Downspout metal hangers.

2.3 FABRICATION - GENERAL

A. Form sheet metal to match profiles indicated, substantially free from oil-canning, fish-mouths,

and other defects.

B. Comply with SMACNA "Architectural Sheet Metal Manual" for applications indicated.

C. Conceal fasteners and expansion provisions wherever possible.

D. Form a 1/2-inch hem on underside of exposed edges.

E. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

1. Gage: As recommended by SMACNA or metal manufacturer for application, but in no case less than gage of metal being secured, or as otherwise noted.

2.4 GUTTERS AND DOWNSPOUTS

A. Fabricate to cross-sections indicated and from prefinished aluminum sheet, in minimum 96-inch long sections. Mount gutter sections to drain to downspouts with minimum slope being observable.

B. Form sheet metal to profile dimensions indicated, free from distortions and defects detrimental to water-tight system.

1. Seam and seal metal joints.
2. Provide reinforced emergency overflow openings in gutter face, one per section of gutter between expansion joints. Submit layout for engineer approval prior to installation.

C. Provide built-in expansion joints in gutters at spacing and locations shown on drawings, but not to exceed 40 feet apart.

D. Provide removable debris screens for gutters, fabricated from 1/4 inch mesh wire cloth of same material used for gutters or approved compatible material. Re-use existing to maximum extent possible, fabricate additional if needed to match existing.

E. Provide sheet metal baffles 6 inches high with legs 18 inches long at gutter corners below roof valleys.

F. Provide connection transitions of metal, matching downspout material to securely connect downspouts to 45-degree angle elbow at grade when existing.

G. Gutter Supports: Hangers and brackets fabricated from metal matching gutters, of size recommended by SMACNA, but not less than twice the gage of the gutter thickness. Provide supports at maximum of 4 feet on center.

H. Downspout Supports: Metal brackets fabricated from same metal as downspouts of thickness recommended by SMACNA, but not less than twice the downspout thickness, and as detailed on drawings. Provide one at top and one at bottom plus one at any intermediate point and in no case shall distance between downspout brackets be greater than ten feet.

I. Miter all gutter corner joints and downspout elbows.

J. Note drawing for change in downspout size at short gutter runs at gable roof areas.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which products of this section are to be installed and verify that work may properly commence. Do not proceed with the work until unsatisfactory conditions have been fully resolved.

1. Remove existing gutters and downspouts and protect for re-installation.

2. Verify that nailers, blocking, and other attachment provisions for sheet metal work are properly located and securely fastened to resist effects of wind and thermal stresses.

3.2 PREPARATION

A. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

3.3 INSTALLATION

A. General: Comply with sheet metal manufacturer's installation methods and recommendations in the SMACNA "Architectural Sheet Metal Manual."

B. Sealed Joints: Form joints as noted below. Apply sealant specifically manufactured for sealing gutter joints between each section of metal being sealed so that in no case metal directly touches metal.

1. Lap gutter joints three (3) inches. Apply two bands of sealant spaced one (1) inch in from each end of the lap.
2. Install two rows of rivets through the beads of sealant. Space rivets two (2) inches apart in each row with rivets staggered so that in no instance rivets will be more than one (1) inch apart.
3. Seal interior side of rivets with specified gutter sealant.

3.4 CLEANING AND PROTECTION

A. Remove protective film from prefinished sheet metal immediately after installation.

B. Repair or replace work that is damaged or defaced, as directed by the architect.

1. Refinish marred and abraded areas of prefinished sheet using finish manufacturer's recommended methods and materials. Replace units which, in the opinion of the architect, cannot satisfactorily be refinished in place.

C. Protect sheet metal work as required so that completed work will be clean, secured, and without damage at substantial completion.

END OF SECTION 07 62 50

SECTION 07 92 00 –JOINT SEALANTS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Section includes preparing and sealing all joints where referenced on the Drawings and elsewhere as required to provide a positive barrier against passage of air and moisture.

B. Related Sections:

1. Section 02 41 19 – Selective Demolition
2. Section 03 01 30 – Concrete Repair
3. Section 04 21 13 – Brick Masonry
4. Section 04 72 00 – Cast Stone
5. Section 07 18 13 – Pedestrian Traffic Coating
6. Section 07 25 00 – Weather Barrier
7. Section 07 62 00 – Sheet Metal Flashing and Trim
8. Section 09 91 13 – Acrylic Coating
9. Section 09 96 53 – Elastomeric Coating

1.2 References

A. American Society for Testing and Materials (ASTM):

1. ASTM C 717: Terminology of Building Seals and Sealants.
2. ASTM C 920: Standard Specification for Elastomeric Joint Sealants.
3. ASTM C 1016: Test Method for Determination of Water Absorption by Sealant Backup (Joint Filler) Material.
4. ASTM C 1193: Standard Guide for Use of Elastomeric Joint Sealants.

1.3 SUBMITTALS

A. Product Data:

1. Submit three (3) copies of product manufacturer's specifications, recommendations, "letter of intent" to warrant and installation instructions for concrete rehabilitation materials.
2. Submit three (3) copies of manufacturer's published data, letter of certification or certified test laboratory report which states that each material complies with requirements and is intended for application shown.
3. Submit two (2) copies of the manufacturer's standard color samples. Owner to select color.

B. Shop Drawings:

1. If required by the Engineer, provide supplementary details as may be necessary for special conditions at this project.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A company with not less than three (3) years successful documented experience in joint sealer applications similar in type and size to that of this Project.

B. Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to job site in original unopened packages with labels identifying manufacturer, product identification, and batch numbers when appropriate.

B. Store materials in accordance with manufacturer's recommendations with proper precautions to ensure the fitness of material when installed.

1.6 MOCK UP

A. At the start of the project, Contractor shall perform mock-up of required sealant repair work in a pre-selected area of the building, as directed by the Engineer. These mock-ups will be required to be performed immediately at the beginning of the project during the first week of construction during mobilization for approval.

B. Submit to joint sealant manufacturer samples of actual materials that will contact or affect their joint sealants in the Work for compatibility and adhesion testing.

C. This testing will not be required where sealant manufacturer is able to furnish data acceptable to Architect based on previous testing for adhesion and compatibility to materials matching those of the Work.

D. In jobsite field samples prior to general installation, conduct field-tests for adhesion of joint sealants to actual joint substrates using proposed joint preparation methods recommended by manufacturer.

E. Conduct tests for each type of sealant and substrate.

F. Locate field-test joints where inconspicuous or as approved by Engineer.

G. Include areas typical of those requiring removal of existing sealants and utilize methods proposed for sealant removal that have been pre-approved by Engineer.

H. Test method: Use manufacturer's standard field adhesion test methods and methods proposed for joint preparation to verify proper priming and joint preparation techniques required to obtain optimum adhesion of joint sealants to joint substrate.

I. Evaluate and report results of field adhesion testing.

J. Do not use joint preparation methods or sealants that produce less than satisfactory adhesion to joint substrates during testing.

K. Manufacturer's representative or designated representative will review technical aspects; surface preparation, application, and workmanship.

L. Obtain Engineer's written approval of mock-up before start of material application elsewhere, including approval of aesthetics, texture, and appearance.

M. Mock-up shall serve as standard for judging workmanship on remainder of project. Therefore, mock-up should be maintained during construction.

1.7 PROJECT CONDITIONS

A. Contractor shall accept the conditions of the job site as they exist and perform his work accordingly.

B. Any adverse condition which might affect the performance of the work described in these specifications must be brought to the attention of the Owner in writing immediately upon its discovery.

C. Comply with manufacturer's recommended minimum and maximum installation temperatures. These temperatures shall be maintained with adequate air ventilation and circulation for a minimum of 24 hours after, or until the products are completely dry. Refer to published product data sheets for more specific information.

D. Contractor shall be held responsible for protecting all adjacent construction from damage.

E. Existing structures or installations which are destroyed or damaged by operations connected with this Work, including landscaping, shall be replaced and/or repaired by the Contractor to the satisfaction of the Owner at no additional expense.

F. Contractor shall secure field measurements required for proper installation of work covered by this Section. Exact measurements are Contractor's responsibility.

1.8 SEQUENCING AND SCHEDULING

A. Contractor shall coordinate each portion of this work with other trades to ensure that all construction can be completed once it is begun.

B. Sufficient manpower and equipment shall be employed to ensure a continuous operation, free of cold joints, scaffold lines, texture variations, etc.

C. Contractor shall coordinate each portion of this work with the Owner's Representative, to minimize annoyance and inconvenience to building occupants.

1.9 WARRANTY

A. Manufacturer Warranty: Provide a warranty from the manufacturer against defective materials for a minimum period of ten (10) years after completion and final acceptance of the work. Material related defects shall be corrected at no expense to the Owner during the warranty period.

B. Contractor Warranty: Provide a written warranty agreeing to repair defects in material and workmanship for a minimum period of two (2) years after completion and final acceptance of the work. Material and workmanship related defects shall be corrected at no expense to the Owner during the warranty period.

PART 2 – PRODUCTS

3.1 GENERAL

A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors: Provide color of exposed joint sealers indicated or, if not otherwise indicated, as selected by Owner from manufacturer's standard colors.

C. Acceptable Manufacturers for sealant products:

1. BASF Building Systems
   889 Valley Park Drive
   Shakopee, MN, 55379
2. Other manufacturers and systems will be considered if submitted and approved by the Engineer 48 hours prior to bid deadline.

3.2 ELASTOMERIC JOINT SEALERS

A. Type: Very low modulus, high-movement, nonsag, fast-curring, siyl-terminated polyether sealants. Type S, Grade NS, Class 50, Basis of design:

1. MasterSeal NP 150 (Formerly Sonolastic 150 with VLM Technology by BASF)
2. MasterSeal SL 1 (Formerly Sonolastic SL 1 by BASF)

B. Type: Primers as recommended by the manufacturer for application to concrete and metal substrates.

1. MasterSeal P 179 (Formerly Sonolastic Primer 2000 by BASF)
2. MasterSeal P 173 (Formerly Sonolastic Primer 733 by BASF)

2.3 JOINT SEALANT BACKING

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

B. Plastic Foam Joint Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips flexible, non-gassing plastic foam of material indicated below; non-absorbent to water and gas; and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

PART 3 – EXECUTION

3.1 ELASTOMERIC JOINT SEALERS

A. Examine the areas and conditions under which Work for this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work.

B. Do not proceed until unsatisfactory conditions have been corrected. Beginning of the Work constitutes Contractor's acceptance of existing conditions.

3.2 PREPARATION

A. General
1. Surfaces must be structurally sound, fully cured, dry, clean, free of dirt, moisture, loose particles, oil grease, asphalt, tar, paint, wax, rust, waterproofings, curing, and parting compounds, and membrane materials.
2. Remove all old sealants, primer, and residue. Completely remove existing silicone sealant prior to installation of new sealants. If oils from old sealants have penetrated surfaces, grind to new clean surface.

3. Prime all surfaces to which sealant bonding is intended as required by the manufacturer.
4. Do not apply sealants when the surface temperature is below 40° F. or above 125° F. Do not apply materials when surface is damp or during cold, rainy, or frosty weather.
5. Sealant shall not come in contact with oil-base sealants, silicone sealants, polysulfides, or fillers impregnated with oil, asphalt, or tar.

B. Steel Surfaces
1. Use solvent to remove chemical residence, oil, and grease, wiping the surfaces with clean rags.
2. Remove protective coatings scale, rust, or other contaminants on steel by sandblasting or by a solvent that leaves no residue.
3. Remove all bitumen, coating materials, roof cement, adhesive residue, old sealants, and/or other contaminants from all surfaces to which sealant bonding is intended.

C. Aluminum Surfaces
1. Aluminum surfaces in contact with sealant shall be cleaned of temporary protective coatings, chemical residue, lacquer, dirt, oil, grease, or other contaminants.
2. Remove all bitumen, coating materials, roof cement, adhesive residue, old sealants, and/or contaminants from all surfaces to which sealant bonding is intended.
3. When masking tape is used for a protective cover, remove the tape just prior to applying the sealant.
4. Use only such solvents to remove protective coatings as are recommended for that purpose by the manufacturer of the aluminum work and are non-staining.

3.3 PRIMING

A. Apply primer to the cleaned joint surfaces by brushing on a thin, uniform coat. Use primer as is; do not thin. Too much primer may act as a bondbreaker. Porous surfaces require more primer; however, do not over apply.

B. Primer will be tacky to the touch but will not transfer to the finger when dry.

C. Sealant must be applied the same day as primer.

3.4 INSTALLATION OF BACKER ROD

A. Use only the backer rod material recommended by the manufacturer of the sealant and approved by the Owner's Representative for the particular installation.

B. Compress the backer rod material 25% to 50% to secure a positive and secure fit.

C. Do not twist or stretch backer rod material.

D. Control depth of backer rod installation using a template or roller gauge, as required to ensure proper sealant depth at joint.

E. Install backer rod after joint preparation and after primer has dried.

3.5 JOINT DESIGN

A. Joint depth shall never be greater than width.
   1. Where joint width is ¼" to ½" wide, sealant depth at midpoint shall be ¼".
   2. Where joint width is ½" to 1" wide, sealant depth at midpoint shall be 3/8".
   3. Where joint width is 1" to 2" wide, sealant depth at midpoint shall be ½".

B. Sealant depth shall be controlled by the use of backer rod material to maintain the recommended depth.

3.6 INSTALLATION OF SEALANT

A. Prior to the start of installation in each joint, verify the joint type according to the Details, verify that the required proportion of width of joint to depth of joint has been secured, and verify that the primer has sufficiently dried.

B. Do not open cartridges, sausages, or pails until preparatory work has been completed.

C. Priming and sealant installation must be done in the same workday.

D. Apply sealant under pressure with hand or power-actuated gun or other appropriate means. Guns shall have nozzle of proper size and shall provide sufficient pressure to completely fill joints as designed.

E. Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be objectionable.

F. Install the sealant in strict accordance with the manufacturer's recommendations as approved by the Owner's Representative, thoroughly filling all joints to the recommended depth.

G. Fill joints from the deepest point to the surface by holding a properly sized nozzle against the back of the joint.

H. Dry tool all joints to the profile shown on the Details. Contractor shall create custom tool if required to provide the specified joint profile. Do not use soapy water, or other tooling agents.

I. Tooling to be done immediately after sealant application.

3.7 CLEAN UP

A. Remove masking tape immediately after joints have been tooled.

B. Keep adjacent surfaces clean and free from sealant as the installation progresses. Use solvent or cleaning agent as recommended by the sealant manufacturer.

END OF SECTION 07 92 00

ECUA ADMINISTRATION BUILDING ENVELOPE RESTORATION

2980 OLD CHEMSTRAND ROAD
PENSACOLA, FLORIDA 32533
SEPTEMBER 25, 2014

VICINITY MAP

GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL QUANTITIES, DIMENSIONS AND FIELD CONDITIONS. IF CONDITIONS ARE NOT AS INDICATED IN THESE DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON DISCOVERY. WORK DONE WITHOUT NOTIFYING THE ENGINEER SHALL BE AT THE SOLE RISK OF THE CONTRACTOR

2. CONTRACTOR SHALL NOTIFY AND COORDINATE WITH THE BUILDING OWNER TO SCHEDULE DEMOLITION ACTIVITY AND TEMPORARY SHUTDOWN OF UTILITIES AT LEAST 48 HOURS IN ADVANCE OF THE WORK.

3. CONSTRUCTION MATERIALS AND METHODS SHALL CONFORM TO THE 2010 EDITION OF THE FLORIDA BUILDING CODE (FBC). ACTUAL FINISH MATERIALS AND COLORS SHALL BE SELECTED BY THE OWNER.

4. DO NOT SCALE DRAWINGS.

PROJECT INFORMATION

PREPARED FOR: EMERALD COAST UTILITY AUTHORITY
9255 STURDEVANT STREET
PENSACOLA, FLORIDA 32514
850-476-5110

APPLICABLE BUILDING CODE: (2010) FLORIDA BUILDING CODE (FBC)

PROJECT TEAM

ENGINEER: RJH & ASSOCIATES, INC.
215 GRAND BOULEVARD, SUITE 102
MIRAMAR BEACH, FL 32550
PHONE: (850) 608-6221
FAX: (850) 608-6223

CONTACT: ROBERT HINOJOSA, PE, RRC, RWC, REWC, RBEC
Email: robert@rjhassoc.com

SHEET INDEX

G-1 – TITLE SHEET
A-1 – ROOF PLAN
A-2 – WEST & NORTH ELEVATIONS
A-3 – EAST & SOUTH ELEVATIONS
A-4 – ROOF DETAILS
A-5 – WALL DETAILS
A-6 – WALL DETAILS

REVISIONS:

DESCRIPTION	DATE

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ECUA ADMINISTRATION BUILDING
ENVELOPE RESTORATION
5980 OLD CHEMSTRAND ROAD
PENSACOLA, FLORIDA 32533

CERTIFICATE OF AUTH.
30180

DATE:
SEPT. 26, 2014

TITLE SHEET
COVER SHEET

SHEET NUMBER
G-1

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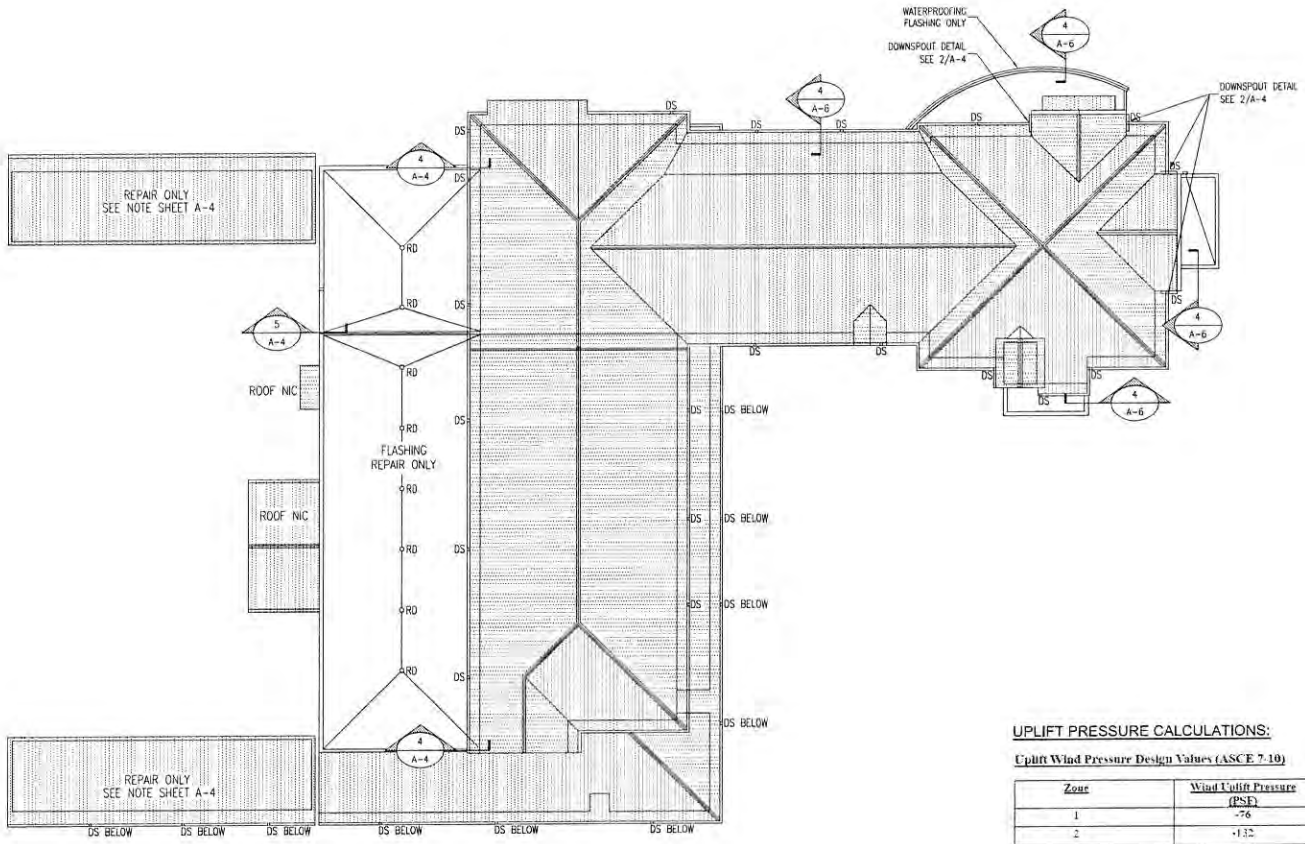

1 / A-1 ROOF PLAN
SCALE: 1/16" = 1'-0"

UPLIFT PRESSURE CALCULATIONS:

Uplift Wind Pressure Design Values (ASCE 7-10)

Zone	Wind Uplift Pressure (PSF)
1	-76
2	-132
3	-154

Positive pressure all zones: 48psf
Wind speed 160mph, Building Category IV
Exposure Category C, Building Height 40'-0"

REVISIONS:

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TITLE SHEET
ROOF PLAN

SHEET NUMBER
A-1

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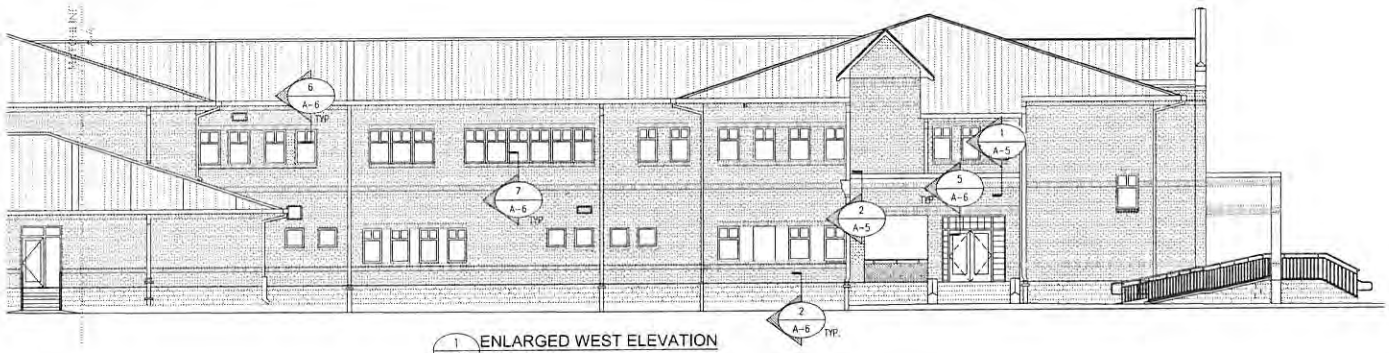
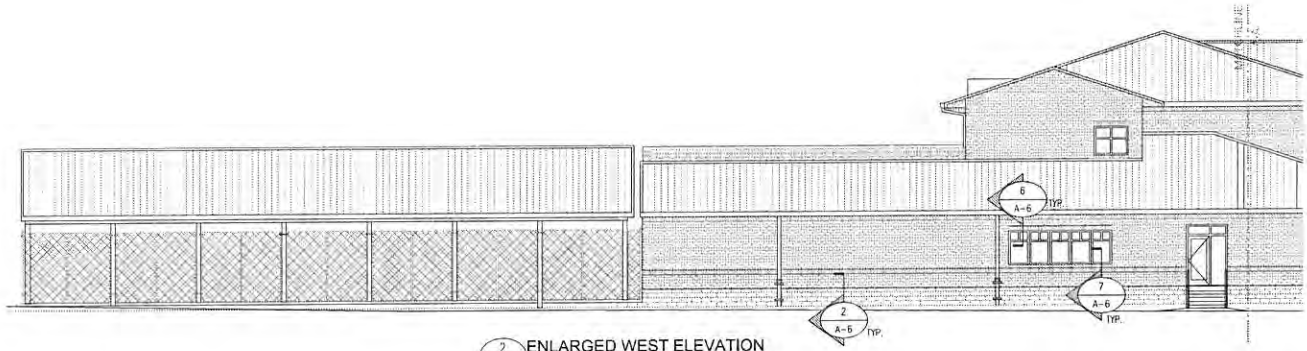


1 / A-2 ENLARGED WEST ELEVATION
SCALE: 1/8" = 1'-0"



2 / A-2 ENLARGED WEST ELEVATION
SCALE: 1/8" = 1'-0"

3 / A-2 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

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TITLE SHEET
WEST & NORTH ELEVATIONS

SHEET NUMBER
A-2

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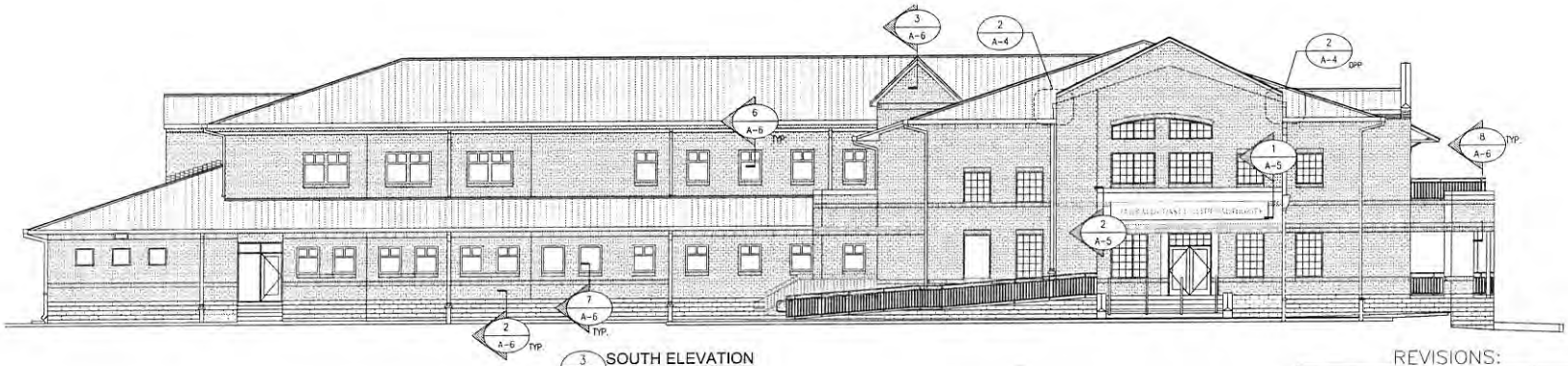
1 A-3 ENLARGED EAST ELEVATION
SCALE: 1/8" = 1'-0"

2 A-3 ENLARGED EAST ELEVATION
SCALE 1/8" = 1'-0"



3 A-3 SOUTH ELEVATION
SCALE 1/8" = 1'-0"

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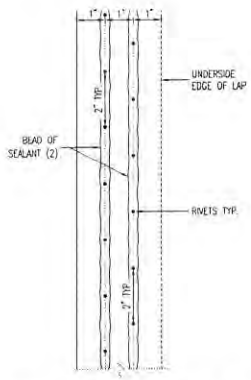
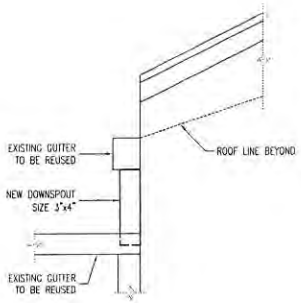
TITLE SHEET
EAST & SOUTH ELEVATIONS

SHEET NUMBER
A-3



1 A-4 GUTTER LAP DETAIL
SCALE: N.T.S.



2 A-4 NEW GUTTER DETAIL
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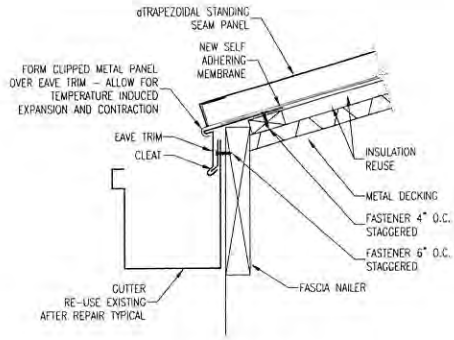

3 A-4 GUTTER DETAIL
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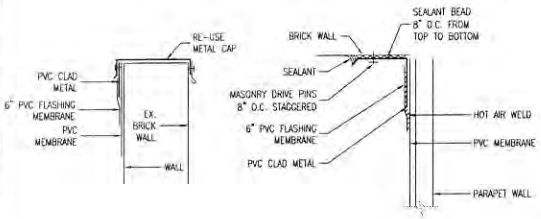
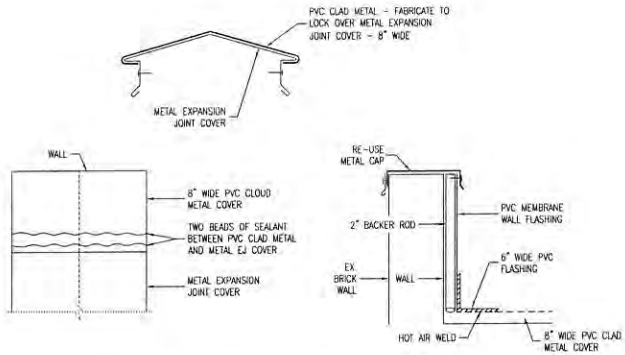


4 A-4 CORNER FLASHING PARAPET WALLS
SCALE: N.T.S.



5 A-4 MEMBRANE ROOFING DETAILS
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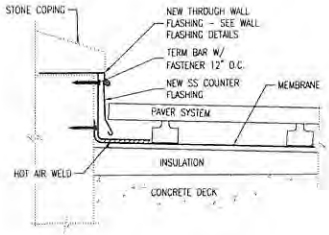

6 A-4 WATERPROOFING FLASHING
SCALE: N.T.S.

NOTE: METAL ROOFING – DETAILS OTHER THAN SHOWN TO BE SUBMITTED FROM MANUFACTURERS DETAILS FOR 20 YEAR WEATHERTITE WARRANTY SYSTEM.

NOTE: METAL ROOF COVERED STORAGE AREAS NOTED "REPAIR ONLY" TO HAVE DEFECTIVE SEAMS OPENED, METAL RE-FORMED FLAT AND SEAMS PROPERLY FOLDED. NOTED WORK IS THE ONLY WORK FOR THIS AREA.

REVISIONS:

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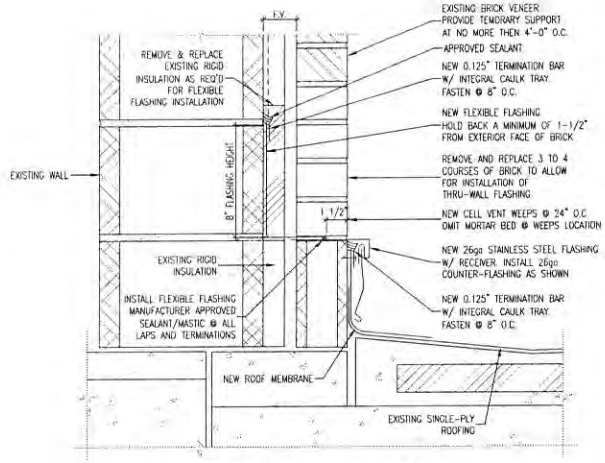
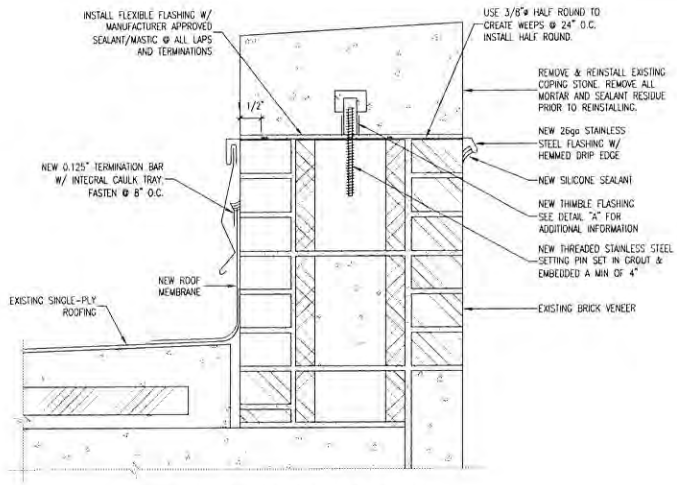
TITLE SHEET
ROOF DETAILS

SHEET NUMBER
A-4



1 A-5 BRICK FLASHING AT SINGLE-PLY ROOF
N.T.S.



2 A-5 BRICK FLASHING AT SINGLE-PLY ROOF
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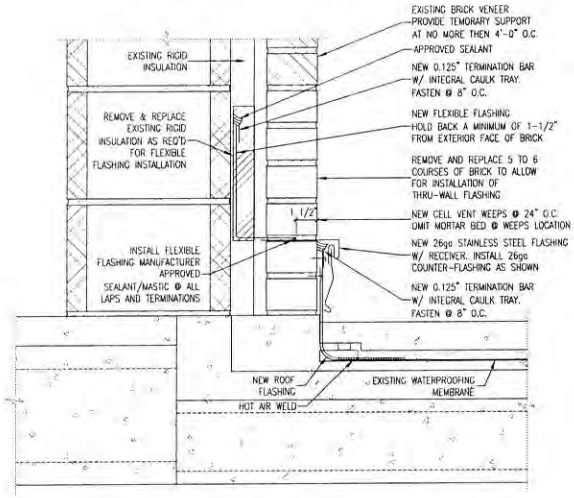
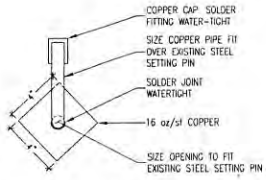


3 A-5 BRICK FLASHING AT PAVER BALCONY
N.T.S.



A A-5 THIMBLE FLASHING
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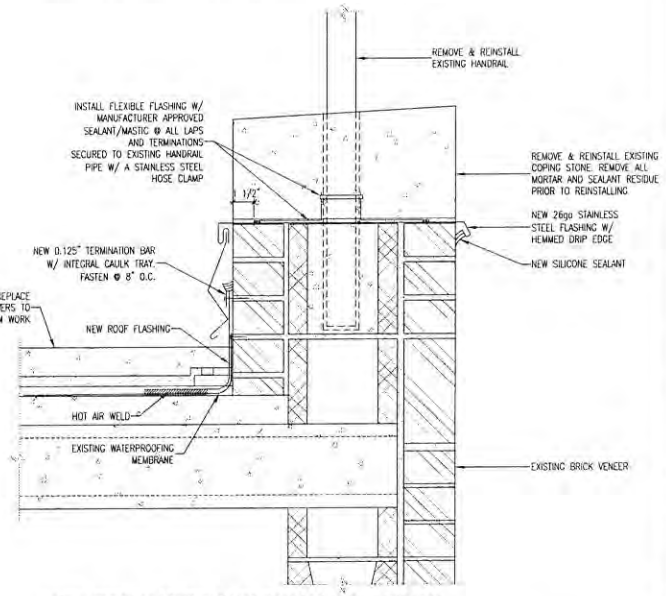

4 A-5 BRICK FLASHING AT PAVER BALCONY W/ RAILING
N.T.S.

REVISIONS:

DESCRIPTION	DATE

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DATE:
SEPT. 26, 2014

TITLE SHEET
WALL DETAILS

SHEET NUMBER
A-5

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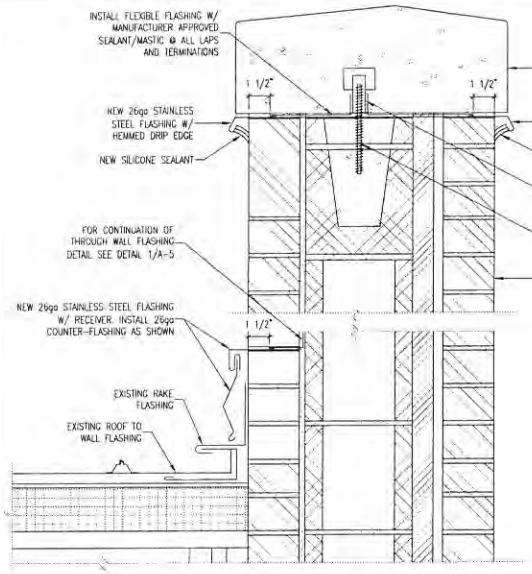
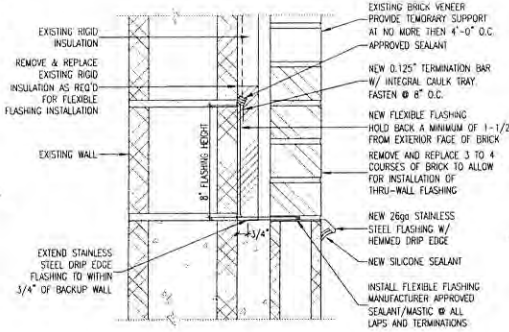
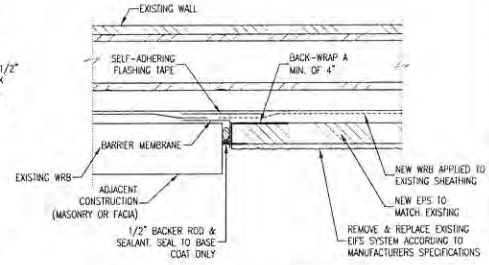


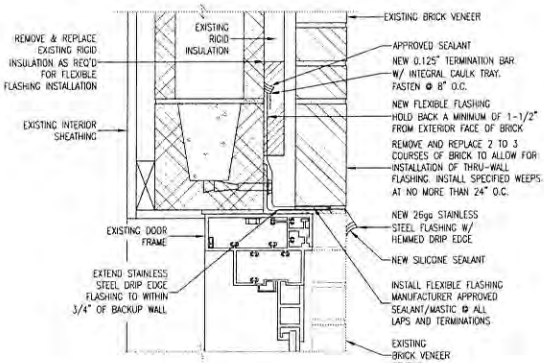
1 / A-6 BRICK FLASHING AT STANDING SEAM METAL ROOF
N.T.S.



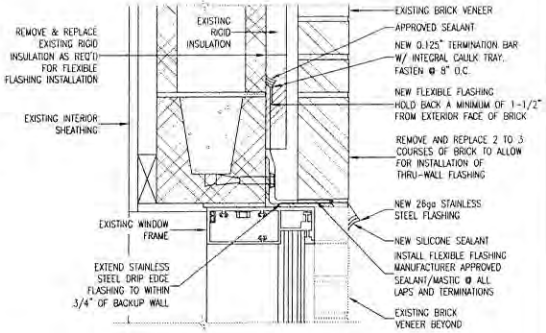
2 / A-6 THRU-WALL FLASHING AT BRICK TO CMU
N.T.S.



3 / A-6 EIFS REPAIR DETAIL
N.T.S.



5 / A-6 TYPICAL STOREFRONT DOOR HEAD
N.T.S.



6 / A-6 TYPICAL FIXED WINDOW HEAD
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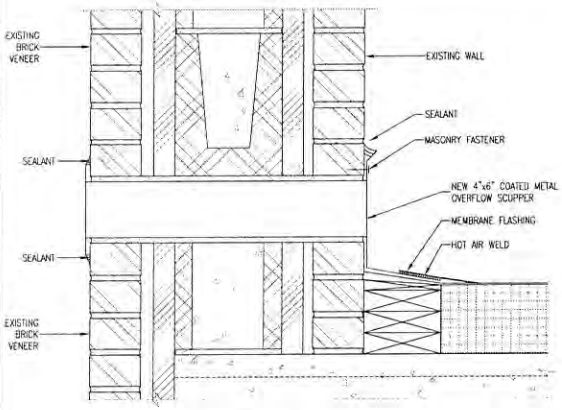

4 / A-6 SCUPPER DETAIL
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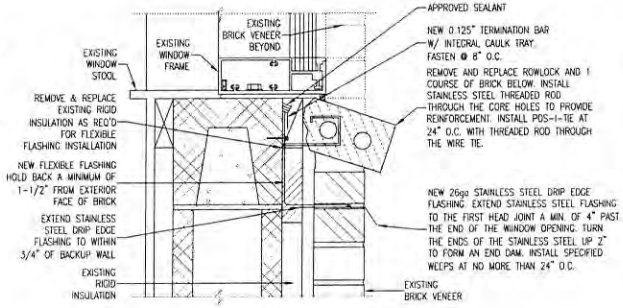
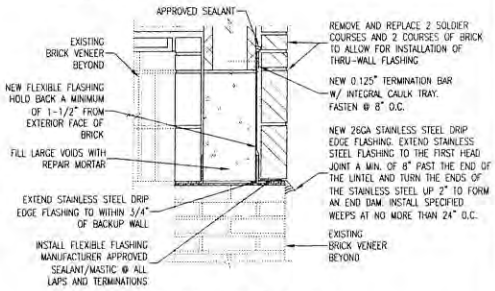


7 / A-6 TYPICAL FIXED WINDOW SILL
N.T.S.



8 / A-6 TYPICAL BRICKED OPENING
N.T.S.

REVISIONS:

DESCRIPTION	DATE

RJH
RJH & Associates , Inc.
215 GRAND BOULEVARD, SUITE 102
MIRAMAR BEACH, FL 32550
PHONE: (850) 608-6221
FAX: (850) 608-6223
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SEAL:

FL PE 64095

ECUA ADMINISTRATION BUILDING ENVELOPE RESTORATION

5980 OLD CHEMSTRAND ROAD
PENSACOLA, FLORIDA 32533

CERTIFICATE OF AUTH.
30180

DATE:
SEPT. 26, 2014

TITLE SHEET
WALL DETAILS

SHEET NUMBER
A-6

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