

- 3.1.5. SPRAY APPLIED INSULATION: APPLY INSULATION ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. DO NOT APPLY INSULATION UNTIL INSTALLATION OF PIPES, DUCTS, CONDUITS, WIRING, AND ELECTRICAL OUTLETS IN WALLS IS COMPLETED AND ITEMS NOT INDICATED TO RECEIVE INSULATION ARE MASKED. AFTER INSULATION IS APPLIED, MAKE FLUSH WITH FACE OF STUDS.
- 3.1.6. EXTEND VAPOR RETARDER TO EXTREMITIES OF AREAS TO BE PROTECTED FROM VAPOR TRANSMISSION. SECURE IN PLACE WITH PRODUCTS OF SPECIES AND ANCHORAGE. LOCATE SEAMS AT FRAMING MEMBERS, OVERLAP, AND SEAL WITH TAPE. SEAL JOINTS CAUSED BY PIPES, CONDUITS, ELECTRICAL BOXES, AND SIMILAR ITEMS WITH TAPE.

--- END OF SECTION 072100 ---

**SECTION 072413 - POLYMER-BASED EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)**

- 1. GENERAL
  - 1.1. SUBMITTALS
    - 1.1.1. PRODUCT DATA: FOR EACH EIFS COMPONENT TRIM, AND ACCESSORY.
    - 1.1.2. SAMPLES: FOR EACH EXPOSED PRODUCT AND FOR EACH COLOR AND TEXTURE SPECIFIED. 9 INCHES (200 MM) SQUARE IN SIZE.
    - 1.1.3. ACCESSORY PRODUCTS INSTALLED WITH EIFS, INCLUDING JOINT SEALANTS, FLASHING, WATER-RESISTANT BARRIERS, TRIM, WHETHER OR NOT FURNISHED BY EIFS MANUFACTURER AND WHETHER OR NOT SPECIFIED IN THIS SECTION, ARE ACCEPTABLE TO EIFS MANUFACTURER.
    - 1.1.4. SAMPLE WARRANTY: FOR MANUFACTURER'S SPECIAL WARRANTY.
    - 1.1.5. MAINTENANCE DATA: FOR EIFS TO INCLUDE IN MAINTENANCE MANUALS.
  - 1.2. DELIVERY, STORAGE, AND HANDLING
    - 1.2.1. DELIVER MATERIALS IN ORIGINAL, UNOPENED PACKAGES WITH MANUFACTURER'S LABELS INTACT AND CLEARLY IDENTIFYING PRODUCTS.
    - 1.2.2. STORE MATERIALS INSIDE AND UNDER COVER; KEEP THEM DRY AND PROTECTED FROM WEATHER, DIRECT SUNLIGHT, SURFACE CONTAMINATION, AGING, CORROSION, DAMAGING TEMPERATURES, CONSTRUCTION TRAFFIC, AND OTHER CAUSES.
    - 1.2.3. STACK INSULATION BOARD FLAT AND OFF THE GROUND.
    - 1.2.4. PROTECT PLASTIC INSULATION AGAINST IGNITION AT ALL TIMES. DO NOT DELIVER PLASTIC INSULATING MATERIALS TO PROJECT SITE BEFORE INSTALLATION TIME.
    - 1.2.5. COMPLETE INSTALLATION AND CONCEALMENT OF PLASTIC MATERIALS AS RAPIDLY AS POSSIBLE IN EACH AREA OF CONSTRUCTION.
  - 1.3. WARRANTY
    - 1.3.1. MANUFACTURER'S SPECIAL WARRANTY: MANUFACTURER AGREES TO REPAIR OR REPLACE EIFS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.
    - 1.3.2. WARRANTY PERIOD: 10 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.
- 2. PRODUCTS
  - 2.1. SOURCE LIMITATIONS: OBTAIN EIFS FROM SINGLE SOURCE FROM SINGLE EIFS MANUFACTURER AND FROM SOURCES APPROVED BY EIFS MANUFACTURER AS TESTED AND COMPATIBLE WITH EIFS COMPONENTS.
  - 2.2. PERFORMANCE REQUIREMENTS
    - 2.2.1. EIFS PERFORMANCE: COMPLY WITH ASTM E 2548 AND WITH THE FOLLOWING WEATHERING TESTS: RESISTANT TO WATER PENETRATION FROM EXTERIOR; BOND INTEGRITY: FREE FROM BOND FAILURE WITHIN EIFS COMPONENTS OR BETWEEN EIFS AND SUBSTRATES, RESULTING FROM EXPOSURE TO FIRE, WIND LOADS, WEATHER, OR OTHER IN-SERVICE CONDITIONS.
    - 2.2.1.3. ABRASION RESISTANCE OF FINISH COAT: SAMPLE CONSISTING OF 1-INCH- (25.4-MM) THICK EIFS MOUNTED ON 1/2-INCH- (12.7-MM) THICK GYPSUM BOARD; CURED FOR A MINIMUM OF 28 DAYS AND SHOWS NO CRACKING, CHECKING, OR LOSS OF FLM INTEGRITY AFTER EXPOSURE TO 528 QUARTS (500 L) OF SAND WHEN TESTED ACCORDING TO ASTM D 968, METHOD A, MILDEW RESISTANCE OF FINISH COAT: SAMPLE APPLIED TO 2-BY-2-INCH (50.8-BY-50.8-MM) CLEAN GLASS SUBSTRATE; CURED FOR 28 DAYS AND SHOWS NO GROWTH WHEN TESTED ACCORDING TO ASTM D 3273 AND EVALUATED ACCORDING TO ASTM D 9274.
  - 2.3. MIXING
    - 2.3.1. COMPLY WITH EIFS MANUFACTURER'S REQUIREMENTS FOR COMBINING AND MIXING MATERIALS. DO NOT INTRODUCE ADMIXTURES, WATER, OR OTHER MATERIALS EXCEPT AS RECOMMENDED BY EIFS MANUFACTURER. MIX MATERIALS IN CLEAN CONTAINERS. USE MATERIALS WITHIN TIME PERIOD SPECIFIED BY EIFS MANUFACTURER OR DISCARD.
- 3. EXECUTION
  - 3.1. EXAMINATION
    - 3.1.1. EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORKMANSHIP.
    - 3.1.2. EXAMINE ROOF EDGES, WALL FRAMING, FLASHINGS, OPENINGS, SUBSTRATES, AND JUNCTURES AT OTHER CONSTRUCTION FOR SUITABLE CONDITIONS WHERE EIFS WILL BE INSTALLED.
    - 3.1.3. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
  - 3.2. PREPARATION
    - 3.2.1. PROTECT CONTIGUOUS WORK FROM MOISTURE DEGRADATION AND SOILING CAUSED BY APPLICATION OF EIFS. PROVIDE TEMPORARY COVERING AND OTHER PROTECTION NEEDED TO PREVENT SPATTERING OF EXTERIOR FINISH COATS ON OTHER WORK.
    - 3.2.2. PROTECT EIFS, SUBSTRATES, AND WALL CONSTRUCTION BEHIND THEM FROM INCLEMENT WEATHER DURING INSTALLATION; PREVENT PENETRATION OF MOISTURE BEHIND EIFS AND DEGRADATION OF SUBSTRATES.
    - 3.2.3. PREPARE AND CLEAN SUBSTRATES TO COMPLY WITH EIFS MANUFACTURER'S WRITTEN INSTRUCTIONS TO OBTAIN OPTIMUM BOND BETWEEN SUBSTRATE AND ADHESIVE FOR INSULATION.
    - 3.2.4. CONCRETE SUBSTRATES: PROVIDE CLEAN, DRY, NEUTRAL-PH SUBSTRATE FOR INSULATION INSTALLATION; PREPARE AND CLEAN SUBSTRATES BY PERFORMING BOND AND MOISTURE TESTS RECOMMENDED BY EIFS MANUFACTURER.
  - 3.3. EIFS INSTALLATION - GENERAL
    - 3.3.1. COMPLY WITH ASTM C 1397, ASTM E 2511, AND EIFS MANUFACTURER'S WRITTEN INSTRUCTIONS FOR INSTALLATION OF EIFS AS APPLICABLE TO EACH TYPE OF SUBSTRATE.
  - 3.4. SUBSTRATE PROTECTION APPLICATION
    - 3.4.1. PRIMER/SEALER: APPLY OVER (GYPSUM SHEATHING) <INSERT SUBSTRATE> SUBSTRATES AND WHERE REQUIRED BY EIFS MANUFACTURER FOR IMPROVING ADHESION OF INSULATION TO SUBSTRATE.
    - 3.4.2. FLEXIBLE-MEMBRANE FLASHING: APPLY AND LAP TO SHED WATER; SEAL AT OPENINGS, PENETRATIONS, TERMINATIONS, AND WHERE REQUIRED BY EIFS MANUFACTURER. PRIME SUBSTRATES, PRIME SUBSTRATES, AND INSTALL FLASHING TO COMPLY WITH EIFS MANUFACTURER'S WRITTEN INSTRUCTIONS AND DETAILS.
  - 3.5. TRIM INSTALLATION
    - 3.5.1. TRIM: APPLY TRIM ACCESSORIES AT PERIMETER OF EIFS. AT EXPANSION JOINTS, AT WINDOW SILLS, AND ELSEWHERE AS INDICATED. COORDINATE WITH INSTALLATION OF INSULATION.
    - 3.5.2. DRAIN SCREWS/TRACK: USE AT BOTTOM EDGES OF EIFS UNLESS OTHERWISE INDICATED.
    - 3.5.3. WINDOW/SILL FLASHING: USE AT WINDOWS UNLESS OTHERWISE INDICATED.
    - 3.5.4. EXPANSION JOINT: USE WHERE INDICATED ON DRAWINGS.
    - 3.5.5. CASING BEAD: USE AT OTHER LOCATIONS.
    - 3.5.6. PARAFET CAP FLASHING: USE WHERE INDICATED ON DRAWINGS.
  - 3.6. INSULATION INSTALLATION
    - 3.6.1. BOARD INSULATION: ADHESIVELY AND MECHANICALLY ATTACH INSULATION TO SUBSTRATE IN COMPLIANCE WITH ASTM C 1397 AND WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
      - 3.6.1.1. SHEATHING: APPLY ADHESIVE INSULATION BY NOTCH-TROWEL METHOD IN A MANNER THAT RESULTS IN COVERING THE ENTIRE SURFACE OF SHEATHING WITH ADHESIVE ONCE INSULATION IS APPLIED. WHERE MANUFACTURER APPLIES ADHESIVE TO A THICKNESS OF 1/8 INCH (3.2 MM), MIXED (1:4) PARTS FACTORY MIXED AND NOT LESS THAN 1/8 INCH (3.2 MM) FINE MIXED, MEASURED FROM SURFACE OF INSULATION BEFORE APPLICATION.
      - 3.6.1.2. CONCRETE OR MASONRY: APPLY ADHESIVE BY RIBBED-TROWEL-DAB METHOD.
      - 3.6.1.3. PRESS AND SLIDE INSULATION TO PLACE INSULATION UNDER PRESSURE OVER THE ENTIRE SURFACE OF INSULATION TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR CONTACT HIGH INTENSITY OF INSULATION TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
    - 3.6.1.4. ALL OTHER SUBSTRATES: INSULATION TO BE UNDISTURBED FOR NOT LESS THAN 24 HOURS BEFORE WALLING MECHANICAL FASTENERS, BEGINNING RASPS, AND SAND INSULATION OR BEFORE APPLYING BASE COAT AND REINFORCING MESH.
    - 3.6.1.5. MECHANICALLY ATTACH INSULATION TO SUBSTRATE. INSTALL TOP SURFACE OF FASTENER HUBS FLUSH WITH PLANE OF INSULATION. INSTALL FASTENERS INTO OR THROUGH SUBSTRATES WITH THE FOLLOWING MINIMUM PENETRATION:
      - 3.6.1.5.1. STEEL FRAMING: 5/16 INCH (8 MM).
      - 3.6.1.5.2. WOOD FRAMING: 1 INCH (25 MM).
      - 3.6.1.5.3. CONCRETE AND MASONRY: 1 INCH (25 MM).
    - 3.6.1.6. APPLY INSULATION OVER DRY SUBSTRATES IN COURSES WITH LONG EDGES OF BOARDS ORIENTED HORIZONTALLY.
    - 3.6.1.7. COORDINATE INSTALLATION OF FLASHING AND INSULATION TO PRODUCE WALL ASSEMBLY THAT DOES NOT ALLOW WATER TO PENETRATE BEHIND

- 3.7. EXPANSION JOINTS: INSTALL AT LOCATIONS INDICATED, WHERE REQUIRED BY EIFS MANUFACTURER, AND AS FOLLOWS:
  - 3.7.1. AT EXPANSION JOINTS IN SUBSTRATES BEHIND EIFS.
  - 3.7.2. WHERE EIFS ADJOIN DISSIMILAR SUBSTRATES, MATERIALS, AND CONSTRUCTION, INCLUDING OTHER EIFS.
- 3.7.3. AT FLOOR LINES IN MULTILEVEL, WOOD-FRAMED CONSTRUCTION, WHERE WALL HEIGHT OR BUILDING SHAPE CHANGES.
- 3.7.4. WHERE EIFS MANUFACTURER REQUIRES JOINTS IN LONG CONTINUOUS ELEVATIONS.
- 3.8. CLEANING AND PROTECTION
  - 3.8.1. REMOVE TEMPORARY COVERING AND PROTECTION OF OTHER WORK. PROMPTLY REMOVE COATING MATERIALS FROM WINDOW AND DOOR FRAMES AND OTHER SURFACES OUTSIDE AREAS INDICATED TO RECEIVE EIFS COATINGS.

--- END OF SECTION 072413 ---

**SECTION 072726 - FLUID-APPLIED MEMBRANE AIR BARRIERS**

- 1. GENERAL
  - 1.1. SECTION REQUIREMENTS
    - 1.1.1. SUBMITTALS: PRODUCT DATA.
  - 2. PRODUCTS
    - 2.1. PERFORMANCE REQUIREMENTS
      - 2.1.1. AIR-BARRIER ASSEMBLY AIR LEAKAGE: MAXIMUM 0.004 CFM X SQ. FT. AT 1.57-LBF/SQ. FT. (0.02 L/S X SQ. M AT 75-PA), WHEN TESTED ACCORDING TO ASTM E 283, ASTM E 783, OR ASTM E 2557.
      - 2.1.2. FLUID-APPLIED MEMBRANE AIR BARRIER: ELASTOMERIC, MODIFIED BITUMINOUS OR SYNTHETIC POLYMER MEMBRANE WITH AIR PERMEANCE NOT GREATER THAN 0.004 CFM X SQ. FT. AT 1.57-LBF/SQ. FT. (0.02 L/S X SQ. M AT 75-PA) PRESSURE DIFFERENCE PER ASTM E 2178 AND WATER-VAPOR PERMEANCE NOT GREATER THAN 0.1 PERM (5.8 NG/PA X S X SQ. M) PER ASTM E 94/E 94M.
      - 2.1.3. ELASTOMERIC, MODIFIED BITUMINOUS MEMBRANE: PRODUCTS: ONE OF THE FOLLOWING:
        - 2.1.3.1.1. CARLISLE COATINGS & WATERPROOFING INC.; BARRISEAL R OR BARRISEAL S.
        - 2.1.3.1.2. EPRO SERVICES, INC.; ECOFLEX-R OR ECOFLEX-S.
        - 2.1.3.1.3. HOFMANN & BARNARD, INC.; TEPXROFLASH LIQUID VP.
        - 2.1.3.1.4. MEADOWS, W. R., INC.; AIR-SHIELD LMP.
        - 2.1.3.1.5. TREMCO INCORPORATED; EXOAIR 120SP/FR.
      - 2.1.4. SYNTHETIC POLYMER MEMBRANE: PRODUCTS: ONE OF THE FOLLOWING:
        - 2.1.4.1.1. GRACE CONSTRUCTION PRODUCTS; W. R. GRACE & CO. - CONN.; PERMA-BARRIER VP.
        - 2.1.4.1.2. HENRY COMPANY; AIR-BLOC 32.
        - 2.1.4.1.3. RUBBER POLYMER CORPORATION, INC.; RUB-R-WALL AIRTIGHT.
      - 2.1.5. FLUID-APPLIED, VAPOR-PERMEABLE MEMBRANE AIR BARRIER, ELASTOMERIC, MODIFIED BITUMINOUS OR SYNTHETIC POLYMER MEMBRANE WITH AIR PERMEANCE NOT GREATER THAN 0.004 CFM X SQ. FT. AT 1.57-LBF/SQ. FT. (0.02 L/S X SQ. M AT 75-PA) PRESSURE DIFFERENCE PER ASTM E 2178 AND WATER-VAPOR PERMEANCE NOT LESS THAN 10 PERMS (580 NG/PA X S X SQ. M) [5.5 PERMS (320 NG/PA X S X SQ. M) PER ASTM E 94/E 94M]. ELASTOMERIC, MODIFIED BITUMINOUS MEMBRANE: PRODUCTS: ONE OF THE FOLLOWING:
        - 2.1.6.1.1. HENRY COMPANY; AIR-BLOC DP.
        - 2.1.6.1.2. HOFMANN & BARNARD, INC.; TEPXROFLASH LIQUID VP.
        - 2.1.6.1.3. MEADOWS, W. R., INC.; AIR-SHIELD LMP.
        - 2.1.6.1.4. TREMCO INCORPORATED; EXOAIR 220R.
      - 2.1.7. SYNTHETIC POLYMER MEMBRANE: PRODUCTS: ONE OF THE FOLLOWING:
        - 2.1.7.1.1. CARLISLE COATINGS & WATERPROOFING INC.; BARRITECH VP.
        - 2.1.7.1.2. GRACE CONSTRUCTION PRODUCTS; W. R. GRACE & CO. - CONN.; PERMA-BARRIER VP.
        - 2.1.7.1.3. RUBBER POLYMER CORPORATION, INC.; RUB-R-WALL AIRTIGHT VP.
        - 2.1.7.1.4. TREMCO INCORPORATED; EXOAIR 230.
    - 2.2. ACCESSORIES
      - 2.2.1. GENERAL
        - 2.2.1.1. FURNISH PRIMERS, TRANSITION AND FLASHING STRIPS, MASTICS, SEALANTS, AND OTHER ACCESSORY MATERIALS RECOMMENDED BY AIR-BARRIER MANUFACTURER TO PRODUCE A COMPLETE AIR-BARRIER ASSEMBLY.
      - 2.2.2. TRANSITION STRIP: ADHESIVE [BUTYL RUBBER] (RUBBERIZED-ASPHALT) COMPOUND, BONDED TO PLASTIC FILM OR SPUNBONDED POLYOLEFIN, WITH AN OVERALL THICKNESS OF 1/32 INCH (0.8 MM).
      - 2.2.3. JOINT REINFORCING STRIP: GLASS-FIBER MESH TAPE.
      - 2.2.4. SUBSTRATE PATCHING MATERIAL: TROWEL-GRADE SUBSTRATE FILLER.
      - 2.2.5. SPRAYED POLYURETHANE FOAM SEALANT: FOAMED-IN-PLACE, POLYURETHANE FOAM SEALANT, 1.5- TO 2.0-LB./CU. FT. (24- TO 32-KG./CU. M) DENSITY; FLAME-SPREAD INDEX OF 25 OR LESS ACCORDING TO ASTM E 1602, WITH PRIMER AND SUBSTRATE CLEANER RECOMMENDED BY FOAM-SEALANT MANUFACTURER.
  - 3. EXECUTION
    - 3.1. INSTALLATION
      - 3.1.1. JOINT TREATMENT: PREPARE AND FILL JOINTS AND CRACKS IN SUBSTRATE ACCORDING TO ASTM C 1193 AND AIR-BARRIER MANUFACTURER'S WRITTEN INSTRUCTIONS.
      - 3.1.2. CONCRETE AND MASONRY: REMOVE DUST AND DIRT FROM JOINTS AND CRACKS; COMPLYING WITH ASTM D 4258 BEFORE COATING SURFACES. PRIME SUBSTRATES AND APPLY A SINGLE THICKNESS OF AIR-BARRIER MANUFACTURER'S RECOMMENDED PREPARATION COAT EXTENDING A MINIMUM OF 3/8 INCH (9.5 MM) ALONG EACH SIDE OF JOINTS AND CRACKS. APPLY A DOUBLE THICKNESS OF FLUID AIR-BARRIER MATERIAL AND EMBED A JOINT REINFORCING STRIP IN PREPARATION COAT.
      - 3.1.3. GYPSUM SHEATHING: APPLY FIRST LAYER OF FLUID AIR-BARRIER MEMBRANE AT JOINTS, TAPE JOINTS WITH JOINT REINFORCING STRIP AFTER FIRST LAYER DRIES, APPLY A SECOND LAYER OF FLUID AIR-BARRIER MEMBRANE OVER JOINT REINFORCING STRIP.
      - 3.1.4. INSTALL TRANSITION STRIPS AND AUXILIARY MATERIALS ACCORDING TO AIR-BARRIER MANUFACTURER'S WRITTEN INSTRUCTIONS FOR M/A SEAL WITH ADJACENT CONSTRUCTION. INSTALL A CONTINUOUS AIR BARRIER. INSTALL TRANSITION STRIPS SO THAT A MINIMUM OF 3 INCHES (75 MM) OF COVERAGE IS ACHIEVED OVER BOTH SUBSTRATES.
      - 3.1.5. FILL GAPS IN PERIMETER FRAMES, SURFACES OF WINDOWS, CURTAIN WALLS, "DOORWAYS" AND OTHER OPENINGS, AND MISCELLANEOUS PENETRATIONS OF BARRIERS WITH TRANSITION STRIPS AT REQUIRED RATE AND ALLOW IT TO DRY. LIMIT PILING TO AREA OF THAT TO BE COVERED BY AIR-BARRIER MEMBRANE IN SAME DAY. PRIME AS FAST AS EXPEDITED FOR MORE THAN 24 HOURS.
      - 3.1.7. APPLY AIR-BARRIER MEMBRANE TO FORM A SEAL WITH TERMINATION STRIPS AND TO ACHIEVE A CONTINUOUS AIR BARRIER ACCORDING TO AIR-BARRIER MANUFACTURER'S WRITTEN INSTRUCTIONS.

--- END OF SECTION 072726 ---

**SECTION 075423 - THERMOPLASTIC POLYOLEFIN (TPO) ROOFING**

- 1. GENERAL
  - 1.1. SECTION REQUIREMENTS
    - 1.1.1. SUBMITTALS: SHOP DRAWINGS OF TAPERED INSULATION.
    - 1.1.2. WARRANTIES: MANUFACTURER'S STANDARD FORM OR CUSTOMIZED, WITHOUT MONETARY LIMITATION, SIGNED BY ROOFING MANUFACTURER AGREEING TO REPAIR LEAKS DUE TO DEFECTS IN MATERIALS OR WORKMANSHIP FOR PERIOD OF 15 YEARS.
  - 2. PRODUCTS
    - 2.1. PERFORMANCE REQUIREMENTS
      - 2.1.1. ACCELERATED WEATHERING: ROOFING SYSTEM SHALL WITHSTAND 2000 HOURS OF EXPOSURE WHEN TESTED ACCORDING TO ASTM G 152, ASTM G 154, OR ASTM G 155.
      - 2.1.2. IMPACT RESISTANCE: ROOFING SYSTEM SHALL RESIST IMPACT DAMAGE WHEN TESTED ACCORDING TO ASTM D 9746 OR ASTM D 4272.
      - 2.1.3. SOLAR REFLECTANCE INDEX: NOT LESS THAN 78 WHEN CALCULATED ACCORDING TO ASTM E 1980.
      - 2.1.4. ENERGY STAR LISTING: ROOFING SYSTEM SHALL BE LISTED ON THE DOE'S ENERGY STAR "ROOF PRODUCTS QUALIFIED PRODUCT LIST" FOR LOW-SLOPE ROOF PRODUCTS.
      - 2.1.5. ENERGY PERFORMANCE: THREE YEAR, AGED, SOLAR REFLECTANCE NOT LESS THAN 0.55 AND EMISSIVITY NOT LESS THAN 0.75 OR AGED, SOLAR REFLECTANCE INDEX OF NOT LESS THAN 64.
      - 2.1.6. EXTERIOR FIRE-TEST EXPOSURE: ASTM E 108.
    - 2.2. ROOFING MATERIALS
      - 2.2.1. MANUFACTURERS: ONE OF THE FOLLOWING:
        - 2.2.1.1. CARLISLE SYNTHETIC INCORPORATED.
        - 2.2.1.2. COOLEY ENGINEERED MEMBRANES.

- 2.2.1.3. CUSTOM SEAL ROOFING.
- 2.2.1.4. FIRESTONE BUILDING PRODUCTS.
- 2.2.1.5. FLEX ROOFING SYSTEMS.
- 2.2.1.6. GAF MATERIALS CORPORATION.
- 2.2.1.7. GOMFLEX ROOFING SYSTEMS.
- 2.2.1.8. JOHNS MANVILLE.
- 2.2.1.9. THE PRODUCTS CO., INC.
- 2.2.1.10. VERSICO INCORPORATED.
- 2.3. FABRIC-REINFORCED TPO SHEET: ASTM D 6878, INTERNALLY FABRIC-OR SCRIEM-REINFORCED, UNIFORM, FLEXIBLE, FABRIC-BACKED TPO SHEET. THICKNESS: 45 MILS (1.1 MM), NOMINAL.
  - 2.3.1. EXPOSED FACE COLOR: WHITE.
  - 2.3.2. AUXILIARY MATERIALS: AS OWNED BY ROOFING SYSTEM MANUFACTURER FOR INTENDED USE AND AS FOLLOWS:
    - 2.4.1. SHEET FLASHING: UNREINFORCED TPO SHEET FLASHING, 55 MILS (1.4 MM) THICK, MINIMUM, OF SAME COLOR AS SHEET MEMBRANE.
    - 2.4.2. BONDING ADHESIVE: MANUFACTURER'S STANDARD (WATER BASED).
  - 2.5. ROOF INSULATION
    - 2.5.1. POLYISOCYANURATE BOARD INSULATION: ASTM C 1289, TYPE II, CLASS 1, GRADE 2 OR 3.
    - 2.5.2. FABRICATE TAPERED INSULATION WITH SLOPE OF 1/4 INCH PER 12 INCHES (1:48) UNLESS OTHERWISE INDICATED.
    - 2.5.3. PROTECTION MAT: WOVEN OR NONWOVEN POLYPROPYLENE, POLYOLEFIN, OR POLYESTER FABRIC; WATER PERMEABLE AND RESISTANT TO UV DEGRADATION.
- 3. EXECUTION
  - 3.1. INSTALLATION
    - 3.1.1. MECHANICALLY FASTEN EACH LAYER OF INSULATION TO DECK.
    - 3.1.2. INSTALL COVER BOARDS OVER INSULATION WITH LONG JOINTS CONTINUOUS AND PERPENDICULAR TO ROOF SLOPES WITH END JOINTS STAGGERED. LOOSELY BUTT COVER BOARDS TOGETHER AND FASTEN TO DECK.
    - 3.1.3. INSTALL TPO SHEET ACCORDING TO ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS AND AS FOLLOWS:
      - 3.1.4. ADHERED SHEET INSTALLATION: APPLY BONDING ADHESIVE TO SUBSTRATE AND UNDERSIDE OF SHEET AND ALLOW TO PARTIALLY DRY. DO NOT APPLY BONDING ADHESIVE TO SPlice AREA OF SHEET.
      - 3.1.5. MECHANICALLY FASTENED SHEET INSTALLATION: SECURE ONE EDGE OF SHEET USING FASTENING PLATES OR BATTENS CENTERED WITHIN THE MEMBRANE SPLICE, AND MECHANICALLY FASTEN SHEET TO ROOF DECK.
      - 3.1.6. LOOSELY LAID AND BALLASTED SHEET INSTALLATION: MECHANICALLY FASTEN OR ADHERE PERIMETER OF SHEET ROOFING ACCORDING TO ANSI/RMA/SPRI RP-4; LOOSELY LAY REMAINDER.
    - 3.1.7. SEAMS: CLEAN SEAM AREAS. COVER LAP MEMBRANE ROOFING, AND HOT-AIR-WELD SPIDE AND END LAP OF MEMBRANE ROOFING AND SHEET FLASHINGS. TEST LAP EDGES WITH PROBE TO VERIFY SEAM WELD CONTINUITY. APPLY LAP SEALANT TO LAP CUT EDGES OF SHEET MEMBRANE.
    - 3.1.8. SPREAD SEALANT BED OVER DECK DRAIN FLANGE AT ROOF DRAINS, AND SECURELY SEAL MEMBRANE ROOFING IN PLACE WITH CLAMPING RING.
    - 3.1.9. FLASH PENETRATIONS AND FIELD-FORMED INSIDE AND OUTSIDE CORNERS WITH CURED OR UNCURED SHEET FLASHING.
    - 3.1.10. TERMINATE AND SEAL TOP OF SHEET FLASHING MECHANICALLY ANCHOR TO SUBSTRATE THROUGH TERMINATION BARS.
    - 3.1.11. MASTIC AND MEMBRANE FLASHING TO BE TRIMMED SO THAT IT IS NOT VISIBLE ONCE WORK IS COMPLETE.

--- END OF SECTION 075423 ---

**SECTION 076200 - SHEET METAL FLASHING AND TRIM**

- 1. GENERAL
  - 1.1. SECTION REQUIREMENTS
    - 1.1.1. SUBMITTALS: PRODUCT DATA AND COLOR SAMPLES.
    - 1.1.2. COORDINATE INSTALLATION OF SHEET METAL FLASHING AND TRIM WITH ADJOINING ROOFING AND WALL MATERIALS, JOINTS, AND MATERIALS TO PREVENT A LEAKPROOF, SECURE, AND NONCORROSIVE INSTALLATION.
    - 1.1.3. FABRICATOR QUALIFICATIONS: FOR COPINGS AND LOW-SLOPE ROOF EDGE FLASHINGS THAT ARE SPRI ES-1 TESTED, SHOP FABRICATED, AND LISTED AS ABLE TO FABRICATE REQUIRED DETAILS AS TESTED AND APPROVED.
    - 1.1.4. WARRANTY ON FINISHES: MANUFACTURER AGREES TO REPAIR OR REPLACE SHEET METAL FLASHING AND TRIM THAT SHOWS EVIDENCE OF WEAR, CORROSION, OR DETERIORATION OF FACTORY-APPLIED FINISHES WITHIN 15 YEARS.
  - 2. PRODUCTS
    - 2.1. PERFORMANCE REQUIREMENTS
      - 2.1.1. STANDARD: COMPLY WITH MCA'S "THE NRC MANUFACTURER'S MANUAL" AND SMACTA'S "SHEET METAL MANUAL" UNLESS OTHERWISE INDICATED. REFER TO DIMENSIONS AND PROFILES SHOWN UNLESS MORE SPECIFIC REQUIREMENTS ARE INDICATED.
      - 2.1.2. APPROVALS: LISTED MANUFACTURE AND INSTALL COPINGS AND ROOF EDGE FLASHINGS THAT ARE APPROVED APPROVALS "ROOFMAN" AND APPROVED FOR WIND UPLIFT CLASSIFICATION BUILDING LOCATION, IDENTIFY MATERIALS WITH NAME, SPECIFICATION AND DESIGN APPROVED BY FM APPROVALS.
      - 2.1.3. SPRI WIND UPLIFT STANDARD: MANUFACTURE AND INSTALL COPINGS AND LOW-SLOPE ROOF EDGE FLASHINGS TESTED ACCORDING TO SPRI ES-1 AND CAPABLE OF RESISTING THE FOLLOWING DESIGN PRESSURE:
        - 2.2. SHEET METAL
          - 2.2.1. ALUMINUM SHEET: ASTM B 209 (ASTM B 209M), ALLOY AS STANDARD WITH MANUFACTURER FOR FINISH REQUIRED, NOT LESS THAN 0.032 INCH (0.8 MM) THICK; FINISHED AS FOLLOWS:
            - 2.2.2. FINISH: MANUFACTURER'S STANDARD THREE-COAT FLUOROPOLYMER SYSTEM WITH COLOR COAT AND CLEAR COAT CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT.
            - 2.2.3. CONCEALED FINISH: MANUFACTURER'S STANDARD WHITE OR LIGHT-COLORED ACRYLIC OR POLYESTER BACKER FINISH.
          - 2.3. ACCESSORIES
            - 2.3.1. FELT UNDERLAYMENT: ASTM D 226, ASPHALT-SATURATED ORGANIC FELTS.
            - 2.3.2. SELF-ADHERING, HIGH-TEMPERATURE SHEET UNDERLAYMENT: BUTYL OR SBS-MODIFIED ASPHALT; SLIP-RESISTING POLYETHYLENE SURFACED; WITH RELEASE PAPER BACKINGS; COLD APPLIED; STABLE AFTER TESTING AT 240 DEG F (114 DEG C) AND PASSES AFTER TESTING AT MINUS 20 DEG F (29 DEG C); ASTM D 1970.
            - 2.3.3. SLIP SHEET: ROSIN-SIZED BUILDING PAPER, 3-LB/1500 SQ. FT. (0.16-KG/SQ. M) MINIMUM.
            - 2.3.4. FASTENERS: WOOD SCREWS, ANNULAR-THREADED NAILS, SELF-TAPPING SCREWS, SELF-LOCKING RIVETS AND BOLTS, AND OTHER SUITABLE FASTENERS.
            - 2.3.5. EXPOSED FASTENERS: HEADS MATCHING COLOR OF SHEET METAL ROOFING USING PLASTIC CAPS OR FACTORY-APPLIED COATING.
            - 2.3.6. SPIRES AND FERRULES: SAME MATERIAL AS GUTTER; WITH SPIKE WITH FERRULE MATCHING INTERNAL GUTTER WIDTH.
            - 2.3.7. FASTENERS FOR ALUMINUM SHEET: ALUMINUM OR SERIES 300 STAINLESS STEEL BUTYL SEALANT; ASTM C 1311, SOLVENT-RELEASE BUTYL RUBBER SEALANT.
            - 2.3.8. BITUMINOUS COATINGS: COLD-APPLIED ASPHALT EMULSION COMPLYING WITH ASTM D 1187.
          - 2.4. FABRICATION
            - 2.4.1. FABRICATE SHEET METAL FLASHING AND TRIM TO COMPLY WITH DETAILS SHOWN AND RECOMMENDATIONS IN CITED SHEET METAL STANDARD THAT APPLY TO THE DESIGN, DIMENSIONS, GEOMETRY, METAL THICKNESS, AND OTHER CHARACTERISTICS OF ITEM INDICATED.
            - 2.4.2. EXPANSION PROVISIONS: WHERE LAPPED EXPANSION PROVISIONS CANNOT BE USED, FORM EXPANSION JOINTS OF INTERMESHING HOOKED FLASHINGS, NOT LESS THAN 1 INCH (25 MM) DEEP, FILLED WITH BUTYL SEALANT CONCEALED WITHIN JOINTS.
            - 2.4.3. FABRICATION TOLERANCES: FABRICATE SHEET METAL FLASHING AND TRIM THAT ARE CAPABLE OF INSTALLATION TO TOLERANCES SPECIFIED IN MCA'S "GUIDE SPECIFICATION FOR RESIDENTIAL METAL ROOFING."
        - 3. EXECUTION
          - 3.1. INSTALLATION
            - 3.1.1. COMPLY WITH CITED SHEET METAL STANDARDS. ALLOW FOR THERMAL EXPANSION; SET TRUE TO LINE AND LEVEL. INSTALL WITH LAPS, JOINTS, AND SEAMS FEASIBLE. PROVIDE WEATHERTIGHT AND WATERPROOF JOINTS. FASTENERS WHERE POSSIBLE.
            - 3.1.2. SEALANT JOINTS: WHERE MOVABLE, NONEXPANSION-TYPE JOINTS ARE REQUIRED, FORM METAL TO PROVIDE FOR PROPER INSTALLATION OF ELASTOMERIC SEALANT ACCORDING TO CITED SHEET METAL STANDARD.
            - 3.1.3. SEAMS: FABRICATE NONMOVING SEAMS WITH FLAT-LOCK SEAMS. FOR ALUMINUM, FORM SEAMS AND SEAL WITH EPOXY SEAM SEALER. RIVET JOINTS FOR ADDITIONAL STRENGTH.
            - 3.1.4. METAL PROTECTION: WHERE DISSIMILAR METALS CONTACT EACH OTHER, PROTECT AGAINST GALVANIC ACTION OR CORROSION BY PAINTING CONTACT SURFACES WITH BITUMINOUS COATING.
            - 3.1.5. COAT CONCEALED SIDE OF ALUMINUM WITH BITUMINOUS COATING WHERE IT CONTACTS WOOD, FERROUS METAL, OR CEMENTITIOUS CONSTRUCTION.

--- END OF SECTION 076200 ---

**SECTION 077100 - ROOF SPECIALTIES**

- 1. GENERAL
  - 1.1. SECTION REQUIREMENTS
    - 1.1.1. SUBMITTALS: PRODUCT DATA, SHOP DRAWINGS, COLOR SAMPLES.
    - 1.1.2. WARRANTIES: PROVIDE MANUFACTURER'S STANDARD WRITTEN WARRANTY, WITHOUT MONETARY LIMITATION, SIGNED BY MANUFACTURER AGREEING TO PROMPTLY REPAIR OR REPLACE PRODUCTS OF SPECIES THAT SHOW EVIDENCE OF DETERIORATION OF FACTORY-APPLIED FINISHES FOR THE PERIOD OF 15 YEARS.
  - 2. PRODUCTS
    - 2.1. PERFORMANCE REQUIREMENTS
      - 2.1.1. SPRI WIND DESIGN STANDARD: MANUFACTURE AND INSTALL COPINGS, ROOF-EDGE SPECIALTIES TESTED ACCORDING TO SPRI ES-1.
    - 2.2. ROOF SPECIALTIES
      - 2.2.1. COPINGS: MANUFACTURED COPING SYSTEM CONSISTING OF FORMED-METAL COPING CAP, CONCEALED ANCHORAGE, CORNER UNITS, END CAP UNITS, AND CONCEALED SPICE PLATES.
        - 2.2.2. GUTTERS AND DOWNSPOUTS:
          - 2.2.2.1. GUTTERS: MANUFACTURED IN UNIFORM SECTION LENGTHS, WITH MATCHING CORNER UNITS, END, OUTLET TUBES, AND OTHER ACCESSORIES. ELEVATE BACK EDGE AT LEAST 1 INCH (25 MM) ABOVE FRONT EDGE. FURNISH EXPANSION JOINTS AND EXPANSION-JOINT COVERS.
          - 2.2.2.2. GUTTER STYLE: RECTANGULAR, ALUMINUM.
          - 2.2.2.3. GUTTER SUPPORTS: GUTTER BRACKETS, STRAPS WITH FINISH MATCHING THE GUTTERS.
          - 2.2.2.4. DOWNSPOUTS: PLAIN RECTANGULAR WITH MITERED ELBOWS. FURNISH WALL BRACKETS OF SAME MATERIAL AND FINISH AS DOWNSPOUTS, WITH ANCHORS, EXTRUDED ALUMINUM, 0.125 INCH (3.18 MM) THICK.
        - 2.2.3. REGLETS: MANUFACTURED UNITS FORMED TO PROVIDE SECURE INTERLOCKING OF SEPARATE REGLET AND COUNTERFLASHING PIECES. PROVIDE REGLETS WITH SLOTTED HOLES FOR FASTENING TO SUBSTRATE, WITH NEOPRENE OR OTHER SUITABLE WEATHERPROOFING WASHERS, AND WITH CHANNEL FOR SEALANT AT TOP EDGE, FORMED ALUMINUM.
        - 2.2.4. COUNTERFLASHINGS: MANUFACTURED UNITS OF HEIGHTS TO OVERLAP TOP EDGES OF BASE FLASHINGS BY 4 INCHES (100 MM) DESIGNED TO SNAP INTO REGLETS OR THROUGH WALL FLASHING RECEIVER AND COMPRESS AGAINST BASE FLASHINGS WITH JOINTS LAPPED, FORMED ALUMINUM.
    - 2.3. MATERIALS
      - 2.3.1. ALUMINUM SHEET: ASTM B 209 (ASTM B 209M), ALLOY AS STANDARD WITH MANUFACTURER FOR FINISH REQUIRED.
      - 2.3.2. ALUMINUM EXTRUSIONS: ASTM B 221 (ASTM B 221M), ALLOY AS STANDARD RECOMMENDED BY MANUFACTURER FOR FINISH REQUIRED.
      - 2.3.3. ALUMINUM FINISH: THREE-COAT FLUOROPOLYMER SYSTEM WITH COLOR COAT AND CLEAR COAT CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT.
      - 2.4. FASTENERS: MANUFACTURER'S RECOMMENDED FASTENERS, SUITABLE FOR APPLICATION AND DESIGNED TO MEET PERFORMANCE REQUIREMENTS.
      - 2.5. ELASTOMERIC SEALANT: ASTM C 920, ELASTOMERIC POLYURETHANE SEALANT.
      - 2.6. BUTYL SEALANT: ASTM C 920, BUTYL RUBBER SEALANT.
      - 2.6.2. BITUMINOUS COATING: COLD-APPLIED ASPHALT EMULSION COMPLYING WITH ASTM D 1187/D 1187M.
  - 3. EXECUTION
    - 3.1. INSTALLATION
      - 3.1.1. GENERAL: INSURE ROOF SPECIALTIES ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. INSURE ROOF SPECIALTIES SECURELY IN PLACE, WITH PROVISIONS FOR PERMANENT STRUCTURAL MOVEMENT.
      - 3.1.2. COAT BACK SIDE OF ALUMINUM ROOF SPECIALTIES WITH BITUMINOUS COATING WHERE THEY WILL CONTACT WOOD, FERROUS METAL, OR CEMENTITIOUS CONSTRUCTION.
      - 3.1.3. SEPARATE METALS WITH A BITUMINOUS COATING OR POLYMER-MODIFIED BITUMINOUS SHEET UNDERLAYMENT.
      - 3.1.4. BED FLASHINGS IN THICK COAT OF ASPHALT ROOFING CEMENT WHERE REQUIRED BY MANUFACTURER OF ROOF SPECIALTIES FOR WATERPROOF PERFORMANCE. SPACE MOVEMENT JOINTS AT A MAXIMUM OF 12 FEET (3.6 M) WITH NO JOINTS WITHIN 18 INCHES (450 MM) OF CORNERS OR INTERSECTIONS UNLESS INDICATED.
      - 3.1.5. FASTENER SIZES: USE FASTENERS OF SIZES THAT WILL PENETRATE SUBSTRATE NOT LESS THAN 1/2 INCH (12.7 MM) DEEP BY FASTENER MANUFACTURER TO ACHIEVE MAXIMUM PULL-OUT RESISTANCE.
      - 3.1.6. GUTTERS: JOIN AND SEAL GUTTER LENGTHS. ALLOW FOR THERMAL EXPANSION. ATTACH GUTTERS TO FIRMLY ANCHORED GUTTER SUPPORTS. ATTACH ENDS WITH RIVETS AND SEAL WITH SEALANT TO MAKE WEATHERTIGHT. SLOPE TO DOWNSPOUTS.
      - 3.1.7. STANDARD: COPING ROOF SPECIALTIES WITH MANUFACTURER'S STANDARD TELES COPINGS JOINTS. PROVIDE HANGERS WITH FASTENERS DESIGNED TO HOLD DOWNSPOUTS SECURELY TO WALLS AND 1 INCH (25 MM) AWAY FROM WALLS; LOCATE FASTENERS AT TOP AND BOTTOM AND AT APPROXIMATELY 60 INCHES (1500 MM) O.C.
      - 3.1.8. REGLETS: INSTALL REGLETS TO RECEIVE FLASHINGS WHERE FLASHING WITHOUT EMBEDDED REGLETS IS INDICATED ON DRAWINGS. INSTALL AT HEIGHT SO THAT INTERSECTING COUNTERFLASHINGS OVERLAP 4 INCHES (100 MM) OVER TOP EDGE OF BASE FLASHING.

--- END OF SECTION 077100 ---

**SECTION 077200 - ROOF ACCESSORIES**

- 1. GENERAL
  - 1.1. SECTION REQUIREMENTS
    - 1.1.1. SUBMITTALS: PRODUCT DATA, SHOP DRAWINGS, AND COLOR SAMPLES.
    - 1.1.2. SHEET METAL STANDARD: COMPLY WITH SMACTA'S "ARCHITECTURAL SHEET METAL MANUAL."
  - 2. PRODUCTS
    - 2.1. MATERIALS
      - 2.1.1. METALLIC-COATED STEEL SHEET: GALVANEATED STEEL, ASTM A 653/A 653M, A250 (2275), OR ALUMINUM-ZINC ALLOY-COATED STEEL, ASTM A 792/A 792M, A250 (A2M150).
      - 2.1.2. PREPAINTED, METALLIC-COATED STEEL SHEET: COIL-COATED WITH MANUFACTURER'S STANDARD 2-COAT, THERMOCOATED SYSTEM CONSISTING OF INHIBITIVE PRIMER AND FLUOROPOLYMER COLOR TOP COAT CONTAINING NOT LESS THAN 70 PERCENT POLYVINYLIDENE FLUORIDE RESIN BY WEIGHT.
      - 2.2. ALUMINUM SHEET: ASTM B 209 (ASTM B 209M), ALLOY AND TEMPER RECOMMENDED BY MANUFACTURER FOR TYPE OF USE AND FINISH. COIL-COAT FINISH AS FOLLOWS:
        - 2.2.1. FACTORY PRIME COATING: PRETREATMENT AND WHITE OR LIGHT-COLORED, FACTORY-APPLIED, BAKED-ON EPOXY PRIMER COAT WITH A MINIMUM DRY FILM THICKNESS OF 0.2 MIL (0.005 MM).
        - 2.2.2. BAKED-ENAMEL FINISH: THERMOSETTING, MODIFIED-ACRYLIC ENAMEL PRIMER/TOPCOAT SYSTEM COMPLYING WITH AAMA 2603 COMPLIANT WITH A MINIMUM DRY FILM THICKNESS OF 1.5 MILS (0.04 MM), MEDIUM GLOSS, HIGH-PERFORMANCE ORGANIC FINISH; MANUFACTURER'S STANDARD 2-COAT, THERMOCOATED SYSTEM CONSISTING OF SPECIALLY FORMULATED INHIBITIVE PRIMER AND FLUOROPOLYMER COLOR TOP COAT CONTAINING NOT LESS THAN 70 PERCENT POLYVINYLIDENE FLUORIDE RESIN BY WEIGHT.
    - 2.3. ROOF ACCESSORIES
      - 2.3.1. ROOF CURBS AND EQUIPMENT SUPPORTS: FABRICATE FROM [0.079-INCH- (2.0-MM)-THICK, METALLIC-COATED STEEL WITH WELDED OR SEALED MECHANICAL CORNER JOINTS.
  - 3. PRODUCTS:
    - 3.1. REFERENCE DETAILS AND FINISH SCHEDULES FOR SPECIFIC ROOF ACCESSORY MATERIALS.
      - 3.1.1. PROVIDE UNITS WITH CANT STRIPS AND BASE PROFILE COORDINATED WITH ROOF INSULATION THICKNESS AND ROOF DECK SLOPE.
      - 3.1.2. PROVIDE PRESERVATIVE-TREATED WOOD NAILERS AT TOPS OF CURBS.
      - 3.1.3. PROVIDE MANUFACTURER'S STANDARD RIGID OR SEMIRIGID INSULATION.
      - 3.1.4. FINISH: PRIME PAINTED.
      - 3.2. ROOF HATCHES: FABRICATE FROM METALLIC-COATED STEEL WITH 9-INCH- (228-MM-) HIGH, INTEGRAL CURB. DOUBLE-WALL CONSTRUCTION WITH 1-1/2-INCH- (38-MM) INSULATION, FORMED CANTS AND CAP FLASHING, WITH WELDED OR SEALED MECHANICAL CORNER JOINTS. PROVIDE DOUBLE-WALL COVER (LID) CONSTRUCTION WITH 1-INCH-THICK INSULATION CORE. PROVIDE GASKETING AND CORROSION-RESISTANT HARDWARE INCLUDING PINTLE HINGES, HOLD-OPEN DEVICES, INTERIOR PADLOCK HASPS, AND BOTH INTERIOR AND EXTERIOR LATCH HANDLES.
      - 3.3. PRODUCTS:
        - 3.3.1. REFERENCE DETAILS AND FINISH SCHEDULES FOR SPECIFIC ROOF ACCESSORY MATERIALS.
        - 3.3.2. FABRICATE UNITS TO WITHSTAND 40-LBF/SQ. FT. (1.9-KPA) EXTERNAL AND 20-LBF/SQ. FT. (0.95-KPA) INTERNAL LOADING PRESSURE.
        - 3.3.3. FINISH: PRIME PAINTED.
    - 4. EXECUTION
      - 4.1. INSTALLATION
        - 4.1.1. INSTALLATION: UNLESS OTHERWISE INDICATED, INSTALL ROOF ACCESSORY ITEMS WITH A CONTINUOUS BEAD OF ACQUISICAL SEALANT AND WATERPROOFING MANUAL. COORDINATE WITH INSTALLATION OF ROOF DECK, VAPOR BARRIERS, ROOF INSULATION, ROOFING, AND FLASHING TO ENSURE

COMBINED ELEMENTS ARE SECURE, WATERPROOF, AND WEATHERTIGHT.  
--- END OF SECTION 077200 ---

**SECTION 078413 - PENETRATION FIRE**