EXAMINE SUBSTRATES, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of EIFS.

EXAMINE ROOF EDGES, wall framing, flashings, openings, substrates, and junctures at other construction for suitable conditions where EIFS will be installed.

PROCEED WITH INSTALLATION only after unsatisfactory conditions have been corrected.

PREPARATION

PROTECT CONTIGUOUS WORK from moisture deterioration and soiling caused by application of EIFS. Provide temporary covering and other protection needed to prevent spattering of exterior finish coats on other work.

PROTECT EIFS, SUBSTRATES, AND WALL CONSTRUCTION behind them from inclement weather during installation. Prevent penetration of moisture behind EIFS and deterioration of substrates.

PREPARE AND CLEAN SUBSTRATES to comply with EIFS manufacturer's written requirements to obtain optimum bond between substrate and adhesive for insulation. Provide clean, dry, neutral-pH substrate for insulation installation. Verify suitability of substrate by performing bond and moisture tests recommended by EIFS manufacturer.

INSTALLATION OF INSULATION:

COMPLY WITH ASTM C 1397 and EIFS manufacturer's written instructions for installation of EIFS as applicable to each type of substrate indicated.

APPLY INSULATION OVER DRY SUBSTRATES in courses with long edges of boards oriented horizontally. Begin first course of insulation from a level base line and work upward. Work from perimeter toward interior of panels if possible.

USE PRE-WRAPPED EDGE BOARDS at all EIFS edges, expansion joints or terminations (vinyl edge trim is not acceptable). Form joints for sealant application with pre-wrapped edge boards for joints within EIFS and at dissimilar adjoining surfaces. Make sealed perimeter joints between pre-wrapped edge boards and adjacent surfaces of minimum 3/8" thickness or larger as noted.

STAGGER VERTICAL JOINTS OF INSULATION BOARDS in successive courses to produce running bond pattern. Locate joints so no piece of insulation is less than 12 inches wide or 6 inches high. Offset joints not less than 6 inches from corners of window and door openings and not less than 4 inches from aesthetic reveals. Offset joints of insulation not less than 6 inches from horizontal and 4 inches from vertical joints in sheathing.

CUT INSULATION TO FIT openings, corners, and projections precisely and to produce edges and shapes complying with details indicated.

ADHESIVELY ATTACH insulation by applying uniform ribbons of adhesive with the manufacturer's approved notched trowel in compliance with ASTM C 1397. Apply to the back side of insulation boards parallel with the short dimension of the board so that when boards are placed on the wall the ribbons will be vertical. Immediately place insulation boards in a running bond pattern on the wall with the long dimension horizontal. Apply firm pressure over the entire surface of the boards to ensure uniform contact of adhesive. Interlock inside and outside corners. Butt all board joints tightly together to eliminate any thermal breaks in the EIFS, without adhesive between the board joints.

VERIFY CONTACT of adhesive by removing individual boards periodically while the adhesive is still wet. An equal amount of adhesive must be on the substrate and the board when they are removed, as an indication of adequate adhesion.

FEATURES AND TRIM: Attach build-up trim elements where designated on drawings with adhesive to the insulation board or sheathing surface. Cut reveals/aesthetic grooves with a hot-knife, router or groove-tool in locations indicated on drawings, leaving not less than 3/4 inch foam substrate. Slope top surface of all trim/features and the bottom of all horizontal reveals to a minimum slope of 1:2 (27 degrees).

INSTALL FOAM SHAPES attached to supporting substrate with adhesive.

SUPPLEMENT ADHESIVE WITH MECHANICAL ATTACHMENT at small areas and other locations where adhesive attachment is not sufficient for secure bonding, by methods complying with EIFS manufacturer's written requirements Do not use any non-thermal type nails or screws. Install top surface of fastener heads flush with plane of insulation. Install fasteners into or through substrates with the following minimum penetration:

- Steel Framing: 5/16 inch
- Wood Framing: 1 inch
- Concrete and Masonry: 1 inch

MECHANICALLY ATTACH all insulation boards mounted over fire-retardant treated plywood, using four (4) anchors per board minimum.

MECHANICALLY ATTACH all insulation boards mounted below glass-mat gypsum soffits.

FILL ALL OPEN JOINTS over 1/16 inch thick after insulation boards are firmly adhered with slivers of insulation or low-expanding spray foam approved for use by EIFS manufacturer.

SAND HIGH AREAS of insulation board surface with a rasp to be smooth and even, and to remove any ultraviolet ray damage.

RASP OR SAND FLUSH ENTIRE SURFACE OF INSULATION to remove irregularities projecting more than 1/32 inch from surface of insulation and to remove yellowed areas due to sun exposure; do not create depressions deeper than 1/16 inch. Cut aesthetic reveals in outside face of insulation with high-speed router and bit configured to produce grooves, rabbets, and other features that comply with profiles and locations indicated. Do not reduce insulation thickness at aesthetic reveals to less than 3/4 inch.

PROVIDE EFIS EXPANSION JOINTS where required by EIFS manufacturer, and as follows:

- Where expansion joints are indicated in substrates behind EIFS.
- Where EIFS adjoin dissimilar substrates, materials, and construction.
- Where wall height changes.

MESH & BASE COAT APPLICATION:

DETAIL MESH APPLICATION: At corners of windows, doors and all finish system penetrations, apply minimum 9x12 inch diagonal strips of detail mesh, and continuous sections at trim, reveals and projecting features. Embed detail mesh in the wet base coat. Trowel from the center to the edges of the mesh to avoid wrinkles, and trowel from the base of reveals to the edge of the mesh.

AT SLOPED SURFACES of trim, reveals, aesthetic bands, cornice profiles, sills or other features that project beyond the vertical wall plane more than 2 inches, apply waterproof base coat with a trowel to the weather exposed sloped surface and minimum four (4) inches above and below. Embed standard mesh in the waterproof base coat and overlap mesh seams a minimum of 2-1/2 inches as indicated below.

INSTALL IMPACT-RESISTANT MESH at all conditions on exterior wall surfaces within SIX (6) feet of finish grade, terminating at the next higher EIFS joint or detail as applicable. Butt high-impact mesh at seams. When the basecoat is completely dry over the high-impact mesh, apply one layer of standard mesh and basecoat over the high-impact mesh as indicated below.

INSTALL MESH by applying a single base coat over the insulation board with a trowel to a uniform thickness of approximately 1/8 inch. Work horizontally or vertically in strips of 40 inches, and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Butt the mesh at seams. Allow the base coat to dry. Overlap mesh not less than 2-1/2 inches at mesh seams and at overlaps of detail mesh. Feather seams and edges. Double wrap all inside and outside corners with minimum 2-1/2 inch overlap in each direction. Avoid wrinkles in the mesh. The mesh must be fully embedded so that no mesh color shows through the base coat when it is dry. Re-skim with additional base coat if mesh color is visible. Allow base coat to thoroughly dry before application of finish coat.

FINISH COAT APPLICATION

APPLY PRIMER over dry base coat according to EIFS manufacturer's written instructions.

APPLY FINISH COAT using sufficient manpower and equipment to insure a continuous operation without cold joints, shadow lines, textural variations or other irregularities. Install finish coat directly over base coat when dry in thickness required by EIFS manufacturer to produce a uniform finish of color and texture. Apply by spraying or troweling depending on the finish texture required, and match texture and finish color of approved sample. Avoid application in direct sunlight. Apply finish in a continuous application, maintaining a wet edge at all times for uniform appearance, and work to a break in the wall.

DO NOT INSTALL separate batches of finish side-by-side. Do not apply finish into or over sealant joints. Do not apply finish over irregular or unprepared surfaces, or surfaces not in compliance with the requirements of the project specifications.

SEALER COAT: Apply over dry finish coat, in number of coats and thickness required by EIFS manufacturer.

INSTALLATION OF EIFS JOINT SEALANTS

PREPARE JOINTS AND APPLY SEALANTS, of type and at locations indicated, to comply with applicable requirements in Division 7 Section "Joint Sealants" and in EIMA's "EIMA Guide for Use of Sealants with Exterior Insulation and Finish Systems, Class PB."

- Clean surfaces to receive sealants to comply with indicated requirements and EIFS manufacturer's written instructions.
- Apply primer recommended in writing by sealant manufacturer for surfaces to be sealed.
- Install sealant backing to control depth and configuration of sealant joint and to prevent sealant from adhering to back of joint.
- Apply masking tape to protect areas adjacent to sealant joints. Remove tape immediately after tooling joints, without disturbing joint seal.
- Recess sealant sufficiently from surface of EIFS so an additional sealant application, including cylindrical sealant backing, can be installed without protruding beyond EIFS surface.
- Apply joint sealants after base coat has cured but before applying finish coat.

CLEANING AND PROTECTION

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.

PROVIDE FINAL PROTECTION and maintain conditions, in a manner acceptable to Installer and EIFS manufacturer, that ensure that EIFS are without damage or deterioration at time of Substantial Completion.

END OF SECTION 07 24 19

FLUID-APPLIED WEATHER-RESISTANT BARRIER (WRB) SECTION 07 27 26

PART 1 - GENERAL

RELATED DOCUMENTS: The Drawings, and general provisions of the Contract, including the General and Supplementary Conditions, and Division-1 Sections of the Specifications, apply to this Section.

WORK INCLUDED: Provide a fluid-applied, vapor-permeable, weather-resistant moisture barrier system over all exterior sheathing (both gypsum or wood based), as specified herein, and as necessary for complete installation. The Work of this Section includes:

- Application over all sheathing (wood or gypsum), with WRB-flashing treatment at rough-openings, penetrations and sheathing joints

RELATED SECTIONS include the following:

- Division-06 Section "Sheathing" for sheathing substrates
- Division-07 Section "Water Drainage EIFS" for compatible insulation and exposed finish coating
- Division-07 Section "Sheet Metal Flashing and Trim" for sheet metal flashings
- Division-07 Section "Joint Sealants" for joint sealant materials and installation

PERFORMANCE REQUIREMENTS: Provide a weather-resistant barrier capable of performing as a continuous vapor-permeable air barrier, and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. The system shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, and transitions at perimeter conditions without deterioration or air leakage not to exceed 0.02 CFM per square foot of surface area at 1.57 lbf/sq. ft. per ASTM E 283.

SUBMIT PRODUCT DATA for each component of the weather-resistant barrier indicated.

DELIVERY, STORAGE, AND HANDLING

DELIVER MATERIALS in original, unopened packages with manufacturers' labels intact and clearly identifying products.

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. Stack insulation board flat and off the ground. Protect plastic insulation against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PROJECT CONDITIONS

WEATHER LIMITATIONS: Maintain ambient temperatures above 40 deg F for a minimum of 24 hours before, during, and after coatings are applied. Do not apply air-moisture barrier coating during rainfall. Proceed with installation only when existing and forecasted weather conditions and ambient outdoor air and substrate temperatures permit materials to be applied, dried, and cured according to manufacturers' written instructions and warranty requirements.

COORDINATION

COORDINATE INSTALLATION of air-barrier components with other trades to provide a continuous air-tight membrane.

COMPATIBILITY: Provide materials that are compatible with one another and approved for use by EIFS or plaster system manufacturer for Project.

PART 2 - PRODUCTS

PRODUCT / MANUFACTURER: This specification is based on products manufactured by one of the following:

- Dryvit Systems Inc.
- STO.
- Senergy Inc.; SKW-MBT Construction Chemicals.

OTHER MANUFACTURERS may be proposed only as a substitution request as required in Division-1 Sections.

WEATHER-RESISTANT BARRIER: Provide manufacture's substrate air and moisture barrier designed to seal substrates from moisture penetration, including the following components:

- ACRYLIC JOINT FILLER: or equal ready-mixed, acrylic based material flexible joint compound.
  - Dryvit's "Backstop Texture" or "Sto Gold Fill" or equal
- ACRYLIC WATERPROOF COATING: ready-mixed, acrylic based waterproofing coating material:
  - Dryvit's "Backstop Smooth"or "Sto Gold Guard" or equal
- SUBSTRATE JOINT REINFORCEMENT: Nominal 4.2 oz/sq. yd. self-adhesive, flexible, symmetrical, interlaced glass fiber fabric, with alkaline resistant coating compatible with other materials:
  - Dryvit "Grid Tape" or "Sto Guard Mesh" or equal

WATER: Clear and potable.

AUXILIARY MATERIALS

PROVIDE AUXILIARY MATERIALS recommended by air-moisture barrier manufacturer for intended use and compatible with air barrier membrane. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

PRIMER: Liquid waterborne or solvent-borne primer recommended for substrate by manufacturer of air barrier material.

COUNTERFLASHING STRIP: Modified bituminous, 40-mil-thick, self-adhering sheet consisting of 32 mils of rubberized asphalt laminated to an 8-mil-thick, crosslaminated polyethylene film with release liner backing.

ADHESIVE AND TAPE: Air barrier manufacturer's standard adhesive and pressure-sensitive adhesive tape.

SPRAYED POLYURETHANE FOAM SEALANT: 1- or 2-component, foamed-in-place, polyurethane foam sealant, 1.5 to 2.0 lb/cu. ft density; flame spread index of 25 or less according to ASTM E 162; with primer and non-corrosive substrate cleaner recommended by foam sealant manufacturer

MODIFIED BITUMINOUS TRANSITION STRIP: Vapor-retarding, 40-mil-thick, smooth-surfaced, self-adhering; consisting of 36 mils of rubberized asphalt laminated to a 4-mil-thick polyethylene film with release liner backing.

JOINT SEALANT: ASTM C 920, single-component, neutral-curing silicone; Class 100/50 (low-modulus), Grade NS. Use NT related to exposure, and as applicable to joint substrates indicated, Use O. Comply with Division 07 Section "Joint Sealants.

MIXING

COMPLY WITH MANUFACTURER'S REQUIREMENTS for combining and mixing materials. Do not introduce admixtures, water, or other materials except as recommended by manufacturer. Mix materials in clean containers. Use materials within time period specified by manufacturer or discard.

PART 3 - EXECUTION

EXAMINE SUBSTRATES, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of air-moisture barrier coating.

EXAMINE ROOF EDGES, wall framing, flashings, openings, substrates, and junctures at other construction for suitable conditions where materials will be installed.

VERIFY that concrete has cured and aged for minimum time period recommended by air barrier manufacturer. Verify that concrete is visibly dry and free of moisture.

VERIFY that masonry joints are flush and completely filled with mortar.

PROCEED WITH INSTALLATION only after unsatisfactory conditions have been corrected.

PROTECT CONTIGUOUS WORK from moisture deterioration and soiling caused by application of air-moisture barrier. Provide temporary covering and other protection needed to prevent spattering of exterior finish coats on other work.

PROTECT SUBSTRATES AND WALL CONSTRUCTION behind them from inclement weather during installation. Prevent penetration of moisture behind sheathing and deterioration of substrates.

SURFACE PREPARATION

CLEAN, PREPARE, TREAT, AND SEAL SUBSTRATE according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air barrier application. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

AT CHANGES IN SUBSTRATE PLANE, apply joint-filler with reinforcing mesh at sharp corners and edges to form a smooth transition from one plane to another.

COVER GAPS IN SUBSTRATE PLANE and form a smooth transition from one substrate plane to another with joint-filler and reinforcing mesh to provide continuous support for the air barrier.

TRANSITION STRIP INSTALLATION

INSTALL TRANSITION STRIPS, AND AUXILIARY MATERIALS according to air barrier manufacturer's written instructions to form a seal with adjacent construction and maintain a continuous air barrier. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier.

INSTALL COUNTER-FLASHING STRIP on roofing membrane or base flashing so that a minimum of 3 inches of coverage is achieved over both substrates.

APPLY PRIMER TO SUBSTRATES at required rate and allow to dry. Limit priming to areas that will be covered by air barrier sheet in same day. Reprime areas exposed for more than 24 hours. Prime glass-fiber-surfaced gypsum sheathing with number of prime coats needed to achieve required bond, with adequate drying time between coats.

CONNECT AND SEAL EXTERIOR WALL WEATHER-RESISTANT BARRIER MEMBRANE continuously to roofing membrane air barrier, concrete below-grade structures, floor-to floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.

APPLY JOINT SEALANTS forming part of air barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

AT WALL OPENINGS, prime concealed perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply transition strip so that a minimum of 3 inches of coverage is achieved over both substrates. Maintain 3 inches of full contact over firm bearing to perimeter frames with not less than 1 inch of full contact. Roll firmly to enhance adhesion.

FILL GAPS IN PERIMETER FRAME SURFACES of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air barrier membrane with foam sealant.

SEAL TOP OF THROUGH-WALL FLASHINGS to air barrier with an additional 6-inch-wide transition strip. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches beyond repaired areas in strip direction.

JOINT TREATMENT

SHEATHING SUBSTRATES: Fill joints greater than 1/4 inch with sealant according to air barrier manufacturer's written instructions. Tape and seal all joints, exposed edges, terminations, and inside and outside corners of sheathing, unless otherwise indicated by manufacturer's written instructions.

APPLY JOINT FILLER with reinforcing mesh at all rough-openings in substrate sheathing, at all joints and penetrations in substrate sheathing (including joints between dissimilar sheathing materials), and at all inside- or outside-corners of substrate sheathing. Place 4 inch wide (minimum) reinforcing-mesh at all sheathing joints and 9 inch wide (minimum) mesh at all rough openings, inside and outside corners. Immediately apply joint-filler by spray or trowel over the mesh and trowel smooth. Protect from rain and freezing until dry.

SPOT-TROWEL all sheathing fasteners, knots, or other voids in sheathing surface wi

AIR - MOISTURE BARRIER INSTALLATION:

APPLY AIR-MOISTURE BARRIER over substrates to protect from degradation and to provide a water-weather-resistive barrier coating. Apply to form a membrane seal with strips and transition strips and to achieve a continuous air barrier according to air barrier manufacturer's written instructions.

APPLY ACRYLIC WATERPROOF COATING over all sheathing after joint-filler is dry. Extend up and over wood blocking at top of all parapets (to be subsequently covered with roofing membrane). Apply with spray equipment or a roller in compliance with manufacturer's recommendations, providing a uniform wet thickness of 10 mils minimum in one single coating. Inspect sheathing surface after application for discontinuities that may be caused by swelling of individual wood strands in OSB or plywood sheathing, and touch up as necessary to provide a continuous void-free coating. Protect from weather until dry:

- Application over glass-mat gypsum or OSB sheathing: use 3/4" nap roller
- Application over plywood: Use a 1/2" nap roller.

APPLY TRANSITION STRIPS over cured air membrane overlapping 3 inches onto each surface according to air barrier manufacturer's written instructions.

CORRECT DEFICIENCIES IN OR REMOVE AIR BARRIER that does not comply with requirements; repair substrates and reapply air barrier components.

WATER PROOFING MEMBRANE BEHIND COMPOSITE DECKING

ALL EXTERIOR SHEATHING SHOWN IN DRAWINGS CALLED OUT TO RECEIVE "WATER PROOFING" LOCATED SPECIFICALLY BEHIND ALL COMPOSITE WOOD DECKING SIDING SHALL RECEIVE THE FOLLOWING:

MANUFACTURER: BASF
(www.master-builders-solutions.basf.us/en-us/products/masterseal/1991)

SPECIFICATION: MASTERSEAL HLM 5000

SUBSTITUTIONS: NOT ALLOWED

INSTALLATION: INSTALL PER MANUFACTURER'S INSTRUCTIONS/SPECIFICATIONS - REF. TO CUT SHEET BELOW

BASF
We create chemistry

Technical Data Guide

07 14 00 Fluid-Applied Waterproofing

MasterSeal® HLM 5000

Liquid, cold-applied elastomeric waterproofing membrane system

FORMERLY SONOSHIELD® HLM 5000

YIELD
25–30 ft²/gal at 55–65 wet mils (0.61–0.74 m²/L at 1.4–1.7 mm wet thickness)

25–30 ft²/gal at 45–55 dry mils (0.61–0.74 m²/L at 1.1–1.4 mm dry thickness)

Coverage may vary with the application technique used. Actual coverage rate and mil thickness depend on finish and porosity of the substrate.

STORAGE
Store in unopened containers in clean, dry conditions at 40 to 80°F (4 to 27°C). During storage, an easily removed skin of HLM 5000 may form, which does not affect performance of the product.

SHELF LIFE
– 1 Year Pails
– 6 Months Drums

VOC CONTENT
– MasterSeal HLM 5000 SL: 183 g/L
– MasterSeal HLM 5000 S: 190 g/L
– MasterSeal HLM 5000 R: 183 g/L
– MasterSeal HLM 5000 T: 132 g/L

DESCRIPTION
MasterSeal HLM 5000 is a one-component, moisture-curing, bitumen-modified polyurethane elastomeric waterproofing membrane for exterior below-grade or between-slab applications. It is available in four grades.
MasterSeal HLM 5000 SL (self-leveling/squeegee)
MasterSeal HLM 5000 S (spray)
MasterSeal HLM 5000 T (trowel)
MasterSeal HLM 5000 R (roller)

PRODUCT HIGHLIGHTS
- Available in standard and high-build systems
- Waterproofing membrane to prevent water penetration
- Elastomeric accommodates expansion and contraction
- Wide service-temperature range, making MasterSeal HLM 5000 suitable for all climates
- Chemical resistance to bacterial attack, select acids, alkalis and salts
- Seamless cold-applied membrane eliminates lapping, seaming and precutting
- Does not require hot-melt equipment

APPLICATIONS
- Concrete
- Plywood (exterior)
- Exterior below grade (on masonry, concrete, and incidental metal)
- Above grade (between two-course concrete and within cavity walls)
- Parking garages and concrete tanks
- Plaza decks and malls
- Fountains and pools
- Balconies and planters
- Below-grade slabs
- Walls and culverts
- Sea walls, dams and reservoirs

PACKAGING
- MasterSeal HLM 5000 SL, HLM 5000 S, and HLM 5000 R: 5 gal (18.95 L) pails, 55 gal (208 L) drums; available special order
- MasterSeal HLM 5000 T: 5 gal (18.95 L) pails
- MasterSeal 966: 300 ft by 37½" (91 by 0.9 m) rolls, yielding 937 ft² (87 m²)
- MasterSeal 977:
  - 50 mil by 40" by 48" (1.3 mm by 1 m by 1.2 m) sheets, 500 per pallet, yielding 1331 ft² (1.2 m²) per sheet or 6,655 ft² (619 m²) per pallet.
  - 120 mil (¼") by 40" by 48" (3 mm by 1 m by 1.2 m) sheets, 500 per pallet, yielding 134 ft² (1.2 m²) per sheet or 6,665 ft² (619 m²) per pallet.

HOW TO APPLY MASTERSEAL HLM 5000
SURFACE PREPARATION
- For best results, all concrete deck surfaces should be lightly steel troweled to a flat, uniform surface. A light broom finish is acceptable. New concrete must be properly water cured at least 14 days. Membrane curing compounds must be mechanically removed.

MASTER® BUILDERS SOLUTIONS

Master Builders Solutions by BASF
www.master-builders-solutions.basf.us

END OF SECTION 07 24 19

TPO MEMBRANE ROOFING SYSTEM SECTION 07 54 23

PART 1 - GENERAL

RELATED DOCUMENTS: The Drawings, and general provisions of the Contract, including the General and Supplementary Conditions, and Division-1 Sections of the Specifications, apply to this Section.

WORK INCLUDED: Provide a mechanically fastened, single-ply TPO membrane roofing system, where indicated on the Drawings, as specified herein, and as necessary for complete installation. The Roofing System includes but is not limited to the following:

- Roof insulation, and
- Mechanically-fastened roof membrane

RELATED SECTIONS include the following:

- Division 6 Section Rough Carpentry " for wood nailers, curbs, and blocking. Division 7 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
- Division 7 Section "Joint Sealants."
- Division 15 Section "Plumbing Specialties" for roof drains.

DEFINITIONS

TPO: Thermoplastic PolyOlefin

ROOFING TERMINOLOGY: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

PERFORMANCE REQUIREMENTS

PROVIDE INSTALLED ROOFING MEMBRANE AND BASE FLASHINGS that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

MATERIAL COMPATIBILITY: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

FM/GLOBAL LISTING: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.

- Fire/Windstorm Classification: Class 1A-90
- Hail Resistance: SH.

SUBMITTALS

PRODUCT DATA: For each type of product indicated.

SHOP DRAWINGS: For roofing system. Include plans, elevations, sections, details, and attachments to other Work:

- Base flashings and membrane terminations.
- Tapered insulation, including slopes.
- Insulation fastening patterns.
- Membrane seaming plan (indicating additional perimeter and corner attachments)

INSTALLER CERTIFICATES: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

MANUFACTURER CERTIFICATES: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article. Submit evidence of meeting performance requirements.

QUALIFICATION DATA: For Installer and manufacturer.

PRODUCT TEST REPORTS: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.

RESEARCH/EVALUATION REPORTS: For components of membrane roofing system.

MAINTENANCE DATA: For roofing system to include in maintenance manuals.

WARRANTIES: Special warranties specified in this Section.

INSPECTION REPORT: Copy of roofing system manufacturer's inspection report of completed roofing installation.

QUALITY ASSURANCE

INSTALLER QUALIFICATIONS: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

MANUFACTURER QUALIFICATIONS: A qualified manufacturer that has FMG approval for membrane roofing system identical to that used for this Project.

SOURCE LIMITATIONS: Obtain components for membrane roofing system either from or approved by the roofing membrane manufacturer.

FIRE-TEST-RESPONSE CHARACTERISTICS: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

EXTERIOR FIRE-TEST EXPOSURE: Class B; ASTM E 108, for application and roof slopes indicated.

SURFACE-BURNING CHARACTERISTICS OF FOAM PLASTIC INSULATION: Provide materials that meet requirements of FM/Global 4450 or UL 1256 (provide written confirmation to authorities having jurisdiction upon request).

PREINSTALLATION CONFERENCE: Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:

- Meet with Owner, Architect, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
- Review methods and procedures related to roofing installation, including manufacturer's written instructions.
- Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
- Review structural loading limitations of roof deck during and after roofing.
- Review base flashings, special roofing details, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
- Review governing regulations and requirements for insurance and certificates if applicable.
- Review temporary protection requirements for roofing system during and after installation.
- Review roof observation and repair procedures after roofing installation.

DELIVERY, STORAGE, AND HANDLING

DELIVER ROOFING MATERIALS to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

STORE LIQUID MATERIALS in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

PROTECT ROOF INSULATION MATERIALS from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

HANDLE AND STORE ROOFING MATERIALS and place equipment in a manner to avoid permanent deflection of deck.

PROJECT CONDITIONS

WEATHER LIMITATIONS: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

WARRANTY

SPECIAL ROOF SYSTEM AND FLASHING WARRANTY: Manufacturer's warranty to include labor and material payment without monetary limitation (NDL), in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks. Special warranty includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, metal edge and associated sheet metal flashings, and other components of the membrane roofing system, and as follows:

- Non-prorated, and fully transferable (not limited to original Owner)
- Warranty limit up to 72 MPH wind speed (calculated at ground level)
- No Owner's signature required for execution of warranty, and
- Dispute settlement to be held in the state where the project is located
- WARRANTY PERIOD: Ten (10) years from date of Substantial Completion.

PART 2 - PRODUCTS

MANUFACTURERS: Subject to compliance with requirements, provide products by the manufacturers specified. Alternative manufacturers must be proposed as "substitutions" per Division-1 requirements.

FABRIC-REINFORCED TPO SHEET: Uniform, flexible sheet formed from a thermoplastic polyolefin, internally fabric or scrim reinforced, and as follows:

MANUFACTURERS:
- Carlisle SynTec Incorporated.
- GenFlex Roofing Systems.
- Firestone Building Products Company
- GAF Material Corporation
- Sarnafil Inc.
- Stevens Roofing Systems; Div. of JPS Elastomerics.

MEMBRANE CHARACTERISTICS:
- Sheet thickness: 60 mils, nominal.
- Exposed Colors:
  - Roof Membrane surface: White, unless otherwise indicated
  - Pparapet wall flashings: Beige or Tan, unless otherwise indicated
- Physical Properties:
  - Breaking Strength: 225 lbf ; ASTM D 751, grab method.
  - Elongation at Break: 15 percent; ASTM D 751.
  - Tearing Strength: 55 lbf minimum; ASTM D 751, Procedure B.
  - Brittleness Point: Minus 22 deg F.
- Ozone Resistance: No cracks after sample, wrapped around a 3-inch- diameter mandrel, is exposed for 166 hours to a temperature of 104 deg F and an ozone level of 100 pphm; ASTM D 1149.
- Resistance to Heat Aging: 90 percent minimum retention of breaking strength, elongation at break, and tearing strength after 166 hours at 240 deg F ; ASTM D 573.
- Water Absorption: Less than 4 percent mass change after 166 hours' immersion at 158 deg F; ASTM D 471.
- Linear Dimension Change: Plus or minus 2 percent; ASTM D 1204.

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project title

CFT NV DEVELOPMENTS, LLC

CFT RETAIL BUILDING

E. 144TH AVENUE AND GRANT STREET
THORNTON, CO 80023

project number
20045.001

drawing issuance

Permit/Bid Set	11.25.20
Construction Set	2.24.21

drawing revisions

No.	Description:	Date:

professional seal

STATE OF COLORADO
HENRY C. KLOVER
C-35519
LICENSED ARCHITECT

Date Signed FEB 25 2021

drawing title

SPECIFICATIONS

drawing number

SP106