

PART 3 - EXECUTION

- All wall penetrations shall have a minimum of double studs each side of the opening, one full height to the top plate and one becoming a cripple stud supporting a header. If the opening width exceeds five (5) feet, provide an additional stud extending to the top plate. If the opening exceeds seven feet (7) provide an additional cripple stud. If a wall height exceeds ten (10) feet, provide 2x bridging, same width as wall, preferably at mid-height, but not to exceed intervals of 8 feet.
- All dimensions and measurements shall be field verified to produce proper fit and function. All members shall be self fitting without fillers. Fasteners and anchors shall bring the members into a tight fit without movement when a dead and live load are superimposed.
- All framing lumber, blocking studs, joists and related members shall be closely fitted with square or shaped ends, accurately set to required lines and level, plumb and true in all dimensions. Members on a slope shall be accurately cut to fit the angles. All wood members shall be nailed or bolted to the abutting material to hold them firmly in place. No framing member shall be diminished in cross sectional area to accommodate pipes, wires, or conduits without the approval of the Architect. Studs are sized to accommodate a 3/4" hole when drilled in the middle of the width. Both holes shall be the same size as the hole in the middle of the stud. Realign all nuts prior to closing in. Pre-drill all holes for 20d and larger nails and all lag bolts. DO NOT bore or notch joists, rafters, headers, or beams. Holes through sills, plates, studs, and double plates in interior/exterior bearing walls and shear wall framing shall not exceed 1/3 the plate or stud width. Center all bored holes in wall framing.
- Provide wood blocking to support wire shelves, casework, paper towel dispensers, toilet paper holders, grab bars, mirrors, and electrical/plumbing/HVAC items as required. Provide solid blocking for all rafters more than 10 inches deep at 10'-0" o.c., and for all floor joists 8 inches or more in depth at 8'-0" o.c. maximum.

END OF SECTION

SECTION 06190 - WOOD TRUSSES

PART 1 - GENERAL

- Pre-engineered wood trusses shall be used for roof framing. Sizing of members and design of system to be by the fabricator. Fabricator to supply necessary engineering certification to comply with Local Building Codes. Truss shop drawings shall be stamped by a Professional Engineer registered in the state of the project construction. Copies will be submitted to the Architect for approval. The Contractor shall submit copies of design shop drawings to local design review departments, if required. The truss configurations indicated on the drawings are shown in nature to show required spans and roof slopes. The truss manufacturer shall be solely responsible for the structural design of the trusses, including fabrication and erection.
- Trusses shall be fabricated by a certified member of the Truss Plate Institute. Design, fabrication and erection shall conform to Truss Plate Institute Standards. Connector plates shall be ICBO approved with a minimum size of 2' x 4". All chord members shall have lumber grade stamps; all web members from the same lumber grade with least a 30% chord section bearing grade stamp.
- Design Truss Loadings - See Plans and/or structural calculations.
 - Verify Design Loads meet or exceed ASCE 7-05 for live and snow loading. Total load deflection shall be limited to L/240.
 - The truss manufacturer shall be responsible for the design of all trusses used as drag struts and shall ensure such trusses are shown on the plans. The amount of load transmitted laterally by the member shall be a minimum of 2000 pounds unless noted otherwise on the framing plans.
- Truss manufacturer to submit erection plan and shop drawings, bearing the seal of an Engineer registered in the state conforming to the design criteria specified herein for approval and prior to fabrication. Submitted data to contain design loadings, allowable stress increases employed, calculated truss member stresses, rated load capacity of the truss member connection size, species, and stress-grade of lumber employed, fabrication details indicating location of connectors, handling and erection instructions, truss to truss connection details, and all bracing requirements of chords and webs.
- Failure to furnish any of the above required data will be regarded as ample reason for the rejection of the shop drawings. The Contractor shall approve fabrication drawings indicating size, shape, and layout prior to submit for review by the Architect.

PART 2 - PRODUCTS

- All lumber shall conform to the stress ratings of for the species and grades as set out in the official grading rules of the appropriate lumber association or as listed in referenced design standards. All top and bottom chords shall be sized to support overhangs and interior attachments. All overhangs greater than 3'-0" shall have 2x6 top chords.
- Connector plates shall be a minimum of 0.036" in thickness and shall be manufactured from material meeting the requirements of ASTM A446 Grade A steel. Plates to be galvanized in accordance with ASTM A525 G60 Coating Class "C" specifications.
- The truss manufacturer shall be responsible for all truss to truss connections, all truss to girder connections, and if the truss is made up of more than one truss, the truss to truss connections.

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- Fabricate all trusses and components in a properly equipped permanent manufacturing facility, by experienced workmen using precision cutting and fabrication equipment under the direct supervision of a qualified foreman.
- Carefully inspect locations where trusses are to be installed. Notify the Architect of any conditions that would adversely affect the installation or structural capacity of the trusses.
- Install trusses true and plumb and securely anchored to the top plate with hurricane ties at each end. Erection and installation shall be in accordance with written instructions from the manufacturer.

SECTION 06 20 00 - FINISH CARPENTRY

PART 1 - GENERAL

- It is the intent of this section to set minimum standards for materials and installation of all interior and exterior finish carpentry, including cabinetwork and tops.
- Provide shop drawings for all casework, shelving, and counters to Architect for approval before installation.

PART 2 - PRODUCTS

- Interior millwork shall conform to the "Standard Grade" criteria of the AWI standards. Where trim will be painted, therefore, finger joint trim will be acceptable.
- All wood and wood trim for exposed exterior finish carpentry shall be clear Hardi trim except as called for on the drawings. Nails shall be as required to hold members securely in place without splitting the material. All nails shall be hot dipped galvanized.
 - Board Siding (where occurs): "Hardiplank" as manufactured by James Hardie Building Products or approved equal. Siding shall be 5/16" thick, 7-1/2" wide (6-1/4" coverage), Woodgrain pattern, 12' long. Product shall have a 50 year limited, transferable warranty. "R" value shall equal .15. Prefinished material with color as noted on Exterior Color Schedule.
 - Fascia, Frieze and Running Trim: Shall be prefinished Hardi-trim with color as noted on Exterior Color Schedule.
 - Interior Running Trim: Painted wood shall be #1 paint grade poplar or fir. Finger joint material is acceptable. Stained material shall be white oak, rift sawn, premium grade or equal.
 - Vinyl Shutters: deleted.
 - Seal all countertops to adjacent surfaces with silicone sealants only.
 - Milwork and Cabinet Work: All casework shown on the drawings shall be provided per the specifications on the drawings and as specified below by one of the following manufacturers (no substitutions).

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| Calhoun Millworks, Inc. 995 W Line St Calhoun, GA, 30701-7913 706-625-2288 706-629-8802 - fax Al Schellhorn - Owner/President HYPERLINK "mailto:alschellhorn@yahoo.com" alschellhorn@yahoo.com | Misko Inc. 171 Phillips Road Exton, PA 19341 610-524-1881 ext. 109 610-524-5225 - fax Dan Sabelta - Project Manager alschellhorn@yahoo.com | 610-312-1830 - |
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Direct Line

- Fabricate, finishing and hardware installation, before shipment to the maximum extent possible.
- All hardware shall be steel or brass with chromium plate finish, ball bearing (KV 1300 or equal) side mount drawer slides; self adjusting and self-closing inside mounted hinges.
- Provide approved securing devices (child-proof) on all drawers and doors (key locks).
- Bottoms of all cabinets below a sink or lavatory shall be constructed of 3/4" marine grade plywood.
- Provide shop drawings to Architect for all casework, counters and shelving for approval prior to installation. Plastic laminate countertops shall have laminate manufactured by Formica, Laminate or Vulkem. Countertops to be ordered and shipped to the site by Owner at Owners sole cost. Seal all countertops to adjacent surfaces with silicone sealants only.
- Owner's millwork and cabinet work contractor shall install all millwork, interior running trim and cabinetry provided by Owner as per the plans.
- Owner and Owners vendor shall coordinate delivery of all millwork and casework to be installed with the Contractor. Owner shall contract with Owners vendor to include the delivery and unloading of all materials into the building. Owner shall also include the material being placed in the location as per the plans. Contractor shall be responsible to unload, unpack or inspect any millwork or cabinetry, unless the Owners vendor is onsite to inspect all materials and materials are delivered and unloaded into the building. Any change in the scope of work or unloading the materials or having to place materials in their respective location will result in additional cost to Owners Contractor.
- Drop Staircase units shall be Werner 3008 with an insulating cover installed which prevents attic air/moisture from infiltrating the heated/cooled area of the building. Insulating unit shall be equivalent to ESS-Energy Products R-39 Energy Guardian. The kit is comprised of a lid and frame. The assembly is formed within the lid fits into the frame. The lid weighs approximately 10 lb. and the frame is less than 5 lb.

PART 3 - EXECUTION

- All interior and exterior corners shall be mitered. No exposed butt cuts will be allowed, except on small shoe mould or quarter round that may be terminated on a 22-1/2 degree angle. Joints shall be held to a minimum on continuous runs of millwork. Glues and adhesives shall be kept off exposed surfaces to receive stain or paint.
- Cracks, splits, mill marks, hammer marks, and related exposed defects shall be corrected by replacing the entire section of millwork.
- All interior and exterior joinery shall be to very close tolerances with good fittings. Fill all joints before finishing. All laminate top seams/splices/joints shall be filled with a filler that matches the laminate color, so the seam/joint is not visible.
- All hanging casework/cabinets shall be caulked on all sides, and underneath the cabinet, where the cabinet abuts the wall surface. Cabinet seams, which are the result two pieces of casework abutting one another should be filled with a caulk/polyurethane that matches the color of the casework, so the seams are not visible.
- Owner shall have cabinet and countertop material supplier to ship the materials onsite, unload and deliver into the appropriate installation location. Owner material supplier shall ensure that all materials fit all openings and that the supplier has confirmed field measurements prior to shipping the materials to the site. Owner nor Contractor shall be liable for cabinets not fitting the openings, cabinets not installed correctly due to materials not being onsite. Additionally, Owner or Contractor not liable for Project schedule delays resulting in the delivery delay of the cabinets by Owners cabinet supplier.

END OF SECTION

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

SECTION 07 13 00 - UNDERSLAB VAPOR BARRIER

PART 1 - GENERAL

- SUMMARY**
 - Products supplied under this section:
 - Vapor barrier, seam tape, and mastic for installation under concrete slabs.
- SUBMITTALS**
 - Quality Control/Assurance:
 - Summary of test results as per ASTM E 1745.
 - Manufacturer's samples, literature, and summary of test results.
 - Manufacturer's instructions for product installation and penetration repair.

PART 2 - PRODUCTS

- MATERIALS**
 - Vapor Barrier/Retarder must exceed the ASTM E 1745 Class A requirements:
 - Water Vapor Permeance: ASTM F 1249 or ASTM E 96 - 0.1 Perm
 - Tensile Strength: ASTM D 882 - 45.0 lb/in²
 - Life Expectancy: ASTM E 154 Indefinite
 - Must Be 100% Virgin Resin Polyethylene/Polyolefin
 - Thickness: 10 mil minimum
- ACCESSORIES**
 - Seam tape:
 - Xtreme Seam Tape, by Tex-Trude LP, 281.452.5961 www.tex-trude.com or approved equal.
 - Penetration Mastic: Xtreme Mastic, by Tex-Trude LP, 281.452.5961 www.tex-trude.com or approved equal.

PART 3 - EXECUTION

PREPARATION

- Level and compact base material.

INSTALLATION

- Install vapor barrier follow the guidelines of the ASTM E 1643 and/or by manufacturer's instructions.
 - Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement.
 - Overlap joints 6 inches and seal with manufacturer's tape.
 - Lap vapor barrier over footings and/or seal to foundation walls.
 - Seal all penetrations (including pipes) per manufacturer's instructions.
 - Repair damaged areas by cutting a patch of vapor barrier, overlapping damaged area 6 inches on all sides and taping all sides with seam tape by manufacturer's recommendations.

END OF SECTION

SECTION 07 20 00 - FIBERGLASS INSULATION

PART 1 - GENERAL

- It is the intent of this section to establish minimum standards for insulation products and their installation.

PART 2 - PRODUCTS

- MATERIALS**
 - Interior Sound Walls:
 - Installer to provide the Owner with a certificate to guarantee the R-Value
 - Maximum flame spread: 10 - Maximum smoke developed: 10
 - Type: Owens Corning Sound Attenuation Batts 2-1/2" thick
 - Comply with ASTM C 865, Type 1 and ASTM E 136, ASTM C 665

PART 3 - EXECUTION

- Installation. Comply with manufacturer's instructions and recommendations. Fill all areas around voids, pipes, pipes, when structural elements and as called for on drawings. Pack all voids completely with insulation. Do not compress as installed.
- Protect insulation from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.
- Do not use unfaced insulation in exposed applications where there is potential for skin contact and irritation. Use of faced insulation is approved in sloped ceilings and under the mechanical plenums, areas that will be insulated prior to drywall. Label insulation packages to include material name, production date and/or production code.
- Kraft and standard foil facings will burn and must not be left exposed. The facing must be in substantial contact with an approved roofceiling construction material. Protect facing from any openings or cut surface.
- Do not rely on insulation or facing to provide an air barrier. Building wrap must be installed over insulation.
- Causing Insulation: Friction fit or staple insulation facing flange to the ceiling joist area. No interference. Tightly but bolts to prevent thermal leaks. Do not install insulation within 3 inches of recessed fixtures unless light fixtures are approved for such use.
- If specified, maintain vapor retarder integrity by tightly abutting adjacent insulation, wall penetrations or tears in vapor retarder facing by taping. Follow tape manufacturer's instructions and recommendations.
- Sound Walls: Seal all perimeter using a non-petroleum-based compound to seal walls at both top and bottom plates. Two layers of proper staggered wall board, with joint compound and tape will effectively seal corners where required.
- Friction-Fit Sound Attenuation units in place until the acrylic finish is applied. When insulation is being applied in continuous runs, its great thickness and weight demands do not fill the cavity depth, supplementary support should be provided to hold the insulation in place.

END OF SECTION

SECTION 07 20 00 - SPRAYED INSULATION

PART 1 - GENERAL

- SUMMARY**
 - Insulation Includes: Renewable-based, low density, open celled, flexible, all water-blown polyurethane foam.
- RELATED REQUIREMENTS:**
- DOCUMENTS:**
 - Drawings and general provisions of the Contract, including Contractual Conditions and Division 01 Specification Sections, apply to this Section.
- REFERENCE STANDARDS:**
 - American Society for Testing and Materials International (ASTM)
 - ASTM C 518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
 - ASTM C 1338: Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
 - ASTM D 6866: Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis
 - ASTM E 84: Test Method for Surface Burning Characteristics of Building Materials
 - ASTM E 96: Standard Test Methods for Water Vapor Transmission of Materials
 - ASTM E 283: Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - ASTM E 2178: Standard Test Method for Air Permeance of Building Materials

PART 2 - PRODUCTS

- QUALITY ASSURANCE**
 - Product Data for each type of insulation product specified.
 - Product test reports performed by a qualified independent testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-test-response characteristics, water-vapor transmission, water absorption, and other properties, based on comprehensive testing of current products.
 - Evaluation Report: Evidence of compliance of foam-plastic insulations with International Building Code (IBC), and International Energy Conservation Code (IECC).
 - Manufacturer's certificate certifying insulation provided meets or exceeds specified requirements.
 - Installer's certificate showing the Icynene installation certification.
- QUALITY ASSURANCE**
 - Manufacturer's Qualifications: Product produced in an ISO 9001 registered factory.
 - Single Source Responsibility: Single source product from one manufacturer.
 - Installer Qualifications: Engage an Icynene Licensed Dealer (installer) who has been trained and certified by Icynene Inc.
 - Fire-Test-Response Characteristics: Provide materials specified as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

- Surface-Burning Characteristics: ASTM E 84
 - Toxicity/Hazardous Materials
 - Provide products that contain no urea-formaldehyde
 - Products and equipment requiring or using CFCs, HCFCs, or HFCs during the manufacturing or installation process will not be permitted.
 - Provide products that contain no PBDE's
 - Provide products that are "Low-emitting"
 - DELIVERY, STORAGE, AND HANDLING
- Comply with manufacturer's written instructions for handling and protection prior to and during installation.
- Store both components in a temperature controlled area between 60 deg F (15 deg C) and 90 deg F (32 deg C). Do not allow product to freeze.
- Use only those components that are supplied by the Manufacturer.

PROJECT CONDITIONS

- Do not expose to sunlight, except to extent necessary for period of installation and concealment.

WARRANTY

- Manufacturer's standard limited lifetime warranty. Refer to www.icynene.com for full warranty terms.

PART 2 - PRODUCTS

- MANUFACTURERS**
 - Polyurethane Spray Insulation: ICYNENE LD-R-50TM by Icynene.
- MATERIALS**
 - General: Provide insulating materials that comply with requirements and with referenced standards.
 - ICYNENE LD-R-50TM Spray Insulation: renewable-based, low-density, open-cell material conforming to the following:
 - Renewable Content: Exceeds 7.0 percent according to ASTM D 6866
 - Renewable based 0.5 lb/cu. ft. all water blown spray foam insulation and air barrier material.
 - Product formulation using high yielding, natural castor oil in place of a portion of the petroleum-based polyol.
 - Thermal Resistance (R-Value/inch @ 75 deg F): ASTM C 518: 3.7 hrs/q ft/deg F/BTU
 - Heat Flow Reduction:
 - Through 1 inch: 75 percent
 - Through 3.5 inches: 93 percent
 - Through 5.5 inches: 95 percent
 - Through 10.5 inches: 98 percent
 - Air Permeance (for 5.5 inches of material): ASTM E 2178: 0.0085 L/s-m² @ 75 Pa
 - Air Permeance (for 3 inches of material): ASTM E 283: less than 0.02 L/s-m² @ 75 Pa
 - Water Vapor Transmission (for 2 inches of material): ASTM E 96: 17 perms
 - Flame Spread and Smoke Developed Rating: ASTM E 84
 - Flame Spread: Less than 25
 - Smoke Development: Less than 450
 - Bacterial and Fungal Growth and Food Value: ASTM C 1338; not a source of food for mold (no growth)
 - Product Description:
 - ICC-ES E-586: (Verification of Attributes Report) VAR-1002
 - Exceeds ICC-SAVE and USDA BioPreferredDM standardized renewable-based product
 - Collaborative for High-Performance Schools (CHPS) "Low-emitting Material" CA 01350 Criteria
 - Effective vapor-permeable ("breathing") air barrier material that can be used with the building to maintain the air barrier characteristic for life of the building.

PART 3 - EXECUTION

EXAMINATION

- Examine substrates and cavities under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.
- Review placement area and determine final location to not be within 3 inches of heat emitting devices where the surface temperature is greater than 200 deg F as per ASTM C 411 or in accordance with applicable code.
- Review placement area to determine final location will not be on the exterior.

PREPARATION

- Substrates and cavities of all materials capable of interfering with insulation installation.

APPLICATION

- Site examine all components manufactured by Icynene Inc. and installed by an Icynene Licensed Dealer.
- Apply in compliance with manufacturer's written instructions.
- Apply insulation to produce thickness required for indicated R Value.
 - R-13 is achieved at 3 1/2 inches
 - R-20 is achieved at 5 1/2 inches
- Extend insulation in thickness indicated to envelop entire area to be insulated.
- Water-Resistive Coatings: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.

REPAIRS

Any repairs must be effected by an Icynene Licensed Dealer.

PROTECTION

- Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation is subject to abuse.

END OF SECTION

SECTION 07 25 00 - WEATHER BARRIERS

PART 1 GENERAL

- SECTION INCLUDES**
 - Air Barriers: Materials that form a system to stop passage of air through exterior walls, joints between exterior walls and roof, joints around frames of openings in exterior walls, and joints at base of wall.
- RELATED REQUIREMENTS:**
- SECTIONS:**

REFERENCE STANDARDS

- Section 04 20 00 - Concrete Masonry Units: Coordination of through wall flashing and masonry ties.
- Section 07 13 00 - Flashing & Sheet Metal: Metal flashings installed in conjunction with weather barriers.
- Section 07 02 00 - Joint Sealants: Sealing building expansion joints.
- STM C297/C297M - Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions; 2016.
- ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension; 2016.
- ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2017.
- ASTM D4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers; 2017.
- ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies; 2017.
- ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018.
- ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2016.
- ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2013.
- ICC-ES AC212 - Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing; 2015.
- NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components; 2012.

SUBMITTALS

- Product Data: Provide data on material characteristics, performance criteria, and limitations.
- Shop Drawings: Provide drawings of special joint conditions.
- Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.
- Air/water-resistive barrier manufacturer shall provide an ICC-ES Evaluation Report confirming compliance with AC212 Acceptance Criteria for Water-Resistive Coatings used as Water-Resistive Barriers over Exterior Sheathing or Masonry or ICF.
- ABAA Manufacturer Qualification: Submit documentation of current evaluation of proposed manufacturer and materials.

DEFINITIONS

- Weather Barrier: Assemblies that form either water-resistive barriers, air barriers, or vapor retarders.
- Air Barrier: Air tight barrier that is relative to air movement but water vapor permeable, both to the degree specified, with sealed seams and with sealed joints to adjacent surfaces. Note: For the purposes of this specification, vapor impermeable air barriers are classified as vapor retarders.

QUALITY ASSURANCE

- Components used in this section shall be sourced from one manufacturer, including membrane, air barrier sealants, primers, mastics, self-adhered flashings and adhesives as listed as an evaluated air barrier assembly by the Air Barrier Association of America.

DELIVERY, STORAGE, AND HANDLING

- Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer and product.
- All pallet goods shall bear the ABAA Evaluated Air Barrier label
- Store roll materials on end in original packaging.
- Keep all products stored at above 40°F. Apply to a substrate with a surface T°F of 40°F and rising. **DO NOT ALLOW PRODUCT TO FREEZE.**
- Protect rolls from direct sunlight until ready for use.
- Do not double stack pallet goods.

FIELD CONDITIONS

- Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

WARRANTY

- Provide manufacturers 10 year material warranty.
 - Ensure all manufacturers installation guidelines, specifications, details and warranty requirements are met.
 - Warranty period shall be 10 years from date of substantial completion.

PART 2 - PRODUCTS

WEATHER BARRIER ASSEMBLIES

- General: Air/water-resistive barrier shall be 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. At wall cladding transitions, the air/water-resistive barrier shall form a continuous air barrier and shall make provision for water drainage, either by creation of an unobstructed drainage plane that extends across the cladding transition or by flashing to discharge to the exterior at the transition. Air barrier assemblies shall be capable of accommodating substrate movement and sealing substrate expansion and control joints, construction material changes, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits, or interruption of the drainage plane.
 - Air Barrier shall be compatible with masonry and exterior wood sheathing wall systems.
 - The weather barrier assembly, including but not limited to, fluid applied air/water-resistive barrier membrane, sheathing fabric, transition membrane and flashing primer shall be obtained or approved as a single-source from the membrane manufacturer to ensure system compatibility and integrity.
 - Air Barrier:
 - On outside surface of inside wythe of exterior masonry cavity walls, air barrier flashing on wall surface and related thru-wall flashings, flashings for rough openings, windows, doors, base flashings and terminations to the roof.
 - On outside surface of sheathing of exterior wall, air barrier flashing on outside surface and related thru-wall flashings, flashings for rough openings, windows, doors, base flashings and terminations to the roof.

AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER RESISTIVE)

- Air Barrier, Fluid Applied: Vapor permeable membrane waterproofing
 - Assembly Performance: Provide a complete air barrier in the form of an assembly tested in accordance with ASTM E 2357
 - Dry Film Thickness (DFT) shall be specified in the manufacturer written instructions for the underlying system applied to provide a smooth pinhole-free surface and as required to meet applicable code requirements.
 - Appearance: 0.006 cubic feet per minute per square foot, maximum, when tested in accordance with ASTM E2178.
 - Water Vapor Impermeance: 10 perms, minimum, when tested in accordance with ASTM E96, Procedure B.
 - Code Acceptance: Weathering Resistance: Approved in writing by manufacturer for up to six (6) months of weather exposure after application.
 - Pull Adhesion: Minimum 110kPa (16psi) or substrate failure in accordance with ASTM D4541
 - Elongation: 50 percent, minimum, when tested in accordance with ASTM D412.
 - Multi-Story Wall Assembly Burn Test: For multi-story buildings where required by code. Air Barrier, as a component of a wall assembly, shall have passed a NFPA 285 complete wall fire test:
 - Flame Spread Index: Minimum 15 psi or exceeds strength of substrate when tested in accordance with ASTM C297/C297M.
 - Pull Adhesion: Minimum 110kPa (16psi) or substrate failure in accordance with ASTM D4541
 - Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.
 - VOC Content: 50 g per L or less.
 - Code Acceptance: Comply with applicable requirements of ICC-ES AC212
 - Sealants, Tapes and Accessories: As recommended by coating manufacturer.
 - Manufacturers:
 - BASF Corporation: www.master-builders-solutions-basf.us.
 - Carlisle Coatings and Waterproofing, Inc: www.carlislecw.com.
 - Dow Corning Corporation: www.dowcorning.com.
 - DuPont Building Innovations: www.dupont.com.
 - GE Silicones: www.siliconebuilding.com.
 - Pecora Corporation: www.pecora.com.
 - PROSOCC, Inc: www.prosocco.com.
 - STS Coatings, Inc.: www.stscoatings.com.
 - W.R. Meadows, Inc: www.wrmeadows.com.

ACCESSORIES

- Sealants, Flashings, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.
- Liquid Flashing: Non-petroleum-based, non-toxic, non-flammable, water-based liquid flashing.
- Transition Membrane, Seam and Window Flashing: Peel and stick flashing membrane film bonded to sealant.
 - Thickness: 40 mils, 0.040 inch overall.
 - Roll Width: 4, 6, 8 inch, as required for application.
 - Coordinate installation with the Masonry Contractor and other provisions as required in Section 04 20 00 - Unit Masonry.
- Thinners and Cleaners: As recommended by material manufacturer.

PART 3 EXECUTION

EXAMINATION

- Verify that surfaces and conditions are ready to accept the work of this section.
 - Substrates
 - Wall sheathing must be securely fastened per applicable building code and sheathing manufacturer's requirements.
 - Examine surfaces to receive air/water resistive barrier and verify that substrate and adjacent materials are dry, clean, sound, free of releasing agents, paint, or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 1/4" in 10'. Verify that no excess mortar exists on masonry ties, shelf angles and other obstructions.
 - Verify that concrete is visibly dry and free of moisture.
 - Flashings
 - All flashings must be installed in accordance with specific design and building code requirements. Where appropriate, end-dams must be provided.
 - Openings must be installed prior to window, HVAC, etc. installation. Windows and openings shall be flashed according to design and building code requirements.
 - Individual windows that are ganged to make multiple units require continuous head flashing and the joints between the units must be fully sealed.
 - Kick-out flashing
 - Kick-out flashing must be installed leak-proof and angled (min 100°) to allow for proper drainage and water diversion.
 - Air Seals
 - Install between the primary air/weather barrier and other wall components (penetrations, etc.) in order to maintain continuity of the air barrier system.
- Report all unsatisfactory conditions to the Contractor. Application of fluid-applied air/water-resistive barrier shall not proceed until all unsatisfactory conditions have been corrected.

PREPARATION

- General: No additives are permitted unless specified in product mixing instructions. Close containers when not in use. Prepare in a container that is clean and free of foreign substances.
- Do not use a container which has contained or been cleaned with a petroleum-based product.
- Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.
- Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper