GEORGIA-PACIFIC GYPSUM
SECTION 07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS, VAPOR PERMEABLE

SPECIFIER NOTE: This specification section is designed to provide guidance when specifying **DensDefy™ Liquid Barrier**

DensDefy™ Liquid Barrier is a fluid-applied single component silyl-terminated polymer (STP) water-resistive and air barrier applied by roller or with spray equipment over many common substrates.

BASIC USE: DensDefy™ Liquid Barrier can be applied to produce a seamless, durable membrane on exterior gypsum sheathing, wood sheathing, CMU, and concrete walls. The robust, elastomeric membrane formed by DensDefy™ Liquid Barrier adheres to most common construction surfaces such as CMU, concrete, glass mat gypsum sheathing, Exposure 1 OSB and plywood, galvanized steel and wood framing and is compatible with a wide range of sealants and waterproofing or air barrier components.

SUMMARY OF BENEFITS: DensDefy™ Liquid Barrier creates a robust barrier that helps keep bulk water out, but remains vapor permeable, which allows water vapor to escape and promote drying. The DensDefy™ Liquid Barrier, when properly installed, is an air barrier, creating a more energy efficient structure. DensDefy™ Liquid Barrier can be applied to dry or damp substrates to help eliminate weather delays and accelerate “dry-in” of new buildings. The DensDefy™ Liquid Barrier may be fully exposed to normal weather conditions for up to 12 months after installation.

IMPORTANT: This specification is for general information and guidance and intended solely for use by architects, engineers and other professionals for planning purposes. This specification may not be appropriate for all projects, assemblies, systems or conditions. Ultimately, the design and detailing of the project, assembly or system is the responsibility of a professional, and all projects must comply with applicable building codes and standards. GP Gypsum makes no representation or warranty, express or implied, concerning this specification and disclaims any responsibility or liability for the use of this specification and for the architecture, design, engineering or workmanship of any project, assembly or system.

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SECTION 07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS, VAPOR-PERMEABLE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fluid-applied, vapor-permeable membrane air barrier

1.2 RELATED SECTIONS

Specifier Note: If including this optional RELATED SECTIONS, please only include the sections included in the project manual.

A. Division 01 Section "Sustainable Design Requirements" for additional requirements, including [LEED] documentation requirements.
B. [Section 014000 Quality Requirements;] [Section 014529 Testing Laboratory Services;] [Section 014533 Code-Required Special Inspections and Procedures;] coordination with owners' independent testing and inspection agency
C. Section 014339 Mock-Ups; exterior wall mock-ups
D. Section 015000 Temporary Facilities and Controls; Work Schedule requirements to prevent weather or sunlight exposure beyond the manufacturer limits; project requirements to protect installed material prior to and during the enclosure work is completed.
E. Section 03300 Cast-In-Place Concrete; requirements for smooth and protrusion free surface
F. Section 042000 Unit Masonry; Requirements for masonry joints are flush and filled with mortar, removal of excess mortar on brick ties.
G. Section 061600 Sheathing for air barrier substrates and joint treatment
H. Section 075000 Roofing Membrane; roof assembly and air barriers interface coordination and sequencing
I. Section 092900 Gypsum Board
J. Exterior wall claddings

1.3 REFERENCE STANDARDS

A. AAMA- American Architectural Manufacturers Association
   1. AAMA 711 Voluntary Specification for Self-Adhering Flashing Products Used for the Installation of Exterior Wall Fenestration Products.
   2. AAMA 714 Voluntary Specification for Liquid Applied Flashing Used to Create a Water Resistive Seal Around Exterior Wall Openings in Buildings
B. ASTM - ASTM International www.astm.org
   1. ASTM C1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
   2. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
   3. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials

4. ASTM E2178 Standard Test Method for Air Permeance of Building Material
5. ASTM E2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
6. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension

C. Building Codes and Standards
1. 2015 ICC-ES AC 212 CIC ES Water-resistive Coatings Used as Water-resistive Barriers over Exterior Sheathing
2. 2021, 2018, 2015, and 2009 IBC International Building Code
3. 2021, 2018, 2015, 2012, and 2009 IRC International Residential Code
4. 2021, 2018, 2015, and 2009 IECC International Energy Conservation Code
5. US Environmental Protection Agency's AIM VOC regulations

D. GA - Gypsum Association
1. GA-253 Application of Gypsum Sheathing

E. NFPA - National Fire Protection Association
1. NFPA 285 Standard Fire Test Method for Evaluating of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components

F. US Department of Commerce (DOC)
1. DOC PS 1 - Structural Plywood
2. DOC PS 2 - Performance Standard for Wood-Based Structural Panels

1.4 SUBMITTALS

A. Submittals: Submit in accordance with Division 1 requirements.

B. Product Data: Submit manufacturer’s product data including accessory material types, composition, descriptions, and properties.

C. Installation instructions and substrate preparation recommendations.

D. Shop Drawings of Mock-Up; Shop drawings of proposed mock-up(s) including plans, elevations, details, and air barrier transitions.

E. Shop Drawings: Submit shop drawings indicating locations and extent of fluid-applied air barrier membrane system, including details of typical conditions, special joint conditions, intersections with other building envelope systems and materials; counter flashings and details showing bridging of envelope at substrate changes, details of sealing penetrations, and detailed flashing around windows and doors

F. Sample warranty: Submit a sample warranty identifying the terms and conditions of the warranty as herein specified.

G. VOC Regulations: Provide products that meet volatile organic emission standards.

H. Evaluation reports: Accredited laboratory testing for materials

1.5 WARRANTY

A. Provide manufacturer's standard warranty for the fluid-applied air barrier membrane to be free of manufacturing defects that make it unsuitable for its intended use. Warranty period shall be Ten (10) years from the date of installation of the product.

B. Provide manufacturer's standard warranty for use as a drainage plane when the cladding systems are properly designed and installed, with a warranty period of 10 years from the date of installation of the product or.

1.6 QUALITY ASSURANCE- PRECONSTRUCTION CONFERENCE

A. Conduct preconstruction conference onsite at project
B. Review air barrier products and installation requirements
C. Mock-up construction and expectations
D. Testing and inspection requirements
E. Sequencing and coordination of air barrier work with other materials and sections
F. Compatibility of materials that will interface with the primary fluid-applied membrane material and accessories.

1.6 QUALITY ASSURANCE- MATERIAL

A. Air-Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft. (0.2 L/s x sq. m of surface area at 75 Pa), when tested according to ASTM E 2357.

1.7 QUALITY ASSURANCE - MOCK UP

A. Provide air barrier for mock-up for each backup wall construction as specified in [Section 014339 Mock-Ups.] [Section _____].
B. Include examples of surface preparation, detailing of penetration, crack and joint treatment, air barrier application, termination conditions, flashing, transitions to roof and foundation materials, and adjacent materials.

1.8 QUALITY ASSURANCE – REGULATORY COMPLIANCE

A. Comply with US Environmental Protection Agency's AIM VOC regulations
B. Comply with 2015 ICC-ES AC 212 CIC ES Water-resistive Coatings Used as Water-resistive Barriers over Exterior Sheathing
C. Comply with 2018 and 2021 IRC requirements for continuous air barrier
D. Comply with 2018 and 2021 air barrier requirements of the IBC and IECC

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver and accept materials to the Project site in original packaging with seals unbroken and label with Manufacturer's name.
B. Protect materials from damage, excessive temperatures, and construction traffic.
C. Store materials in a cool and dry area.
D. Handle materials in accordance with the manufacturer's recommendation,

1.10 FIELD CONDITIONS

A. Temperature: Install the air barrier materials within the range of ambient and substrate temperature recommended by the material manufacturer.

B. Field Conditions: Do not install the air barrier when the temperature of the substrate surface or air temperature are below or above the manufacturer's recommendations.
C. Sequencing: Coordinate installation of the roof assembly to ensure the roof assembly is sufficiently installed to prevent accumulation of water in the interior of the building. Schedule other work requiring interface with the air barrier to ensure proper sequencing.
D. Compatibility. Do not allow air barrier materials to come in contact with chemically incompatible materials.
E. Ultra-violet exposure. Do not expose air barrier materials to sunlight longer than as recommended by the material manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Basis-of-Designs: Provide air barrier products manufactured by Georgia-Pacific Gypsum LLC 1-800-225-6119; email: techservices@gapac.com www.buildgp.com or comparable products approved by the Architect in agreement with Division 1 General Requirements.
B. Source Limitations: Obtain the primary air-barrier materials from a single source manufacturer.

2.2 MATERIALS
A. Primary Air Barrier Material: DensDefy™ Liquid Barrier - single component Silyl-Terminated Polymer (STP) air and water-resistive barrier applied by roller or with spray equipment applied at a minimum of 14 wet mils
B. Air Barrier Accessory Materials
1. Fluid applied flashing for joints, inside and outside corners, material transitions, board to board seams, wall to slab, and penetrations
a. DensDefy™ Liquid Flashing - a waterproofing and detailing compound made with STP Technology
2. Self-Adhering transition membrane for flashing of rough openings, material transitions, and wall to slab
a. DensDefy™ Transition Membrane - 25-mil composite impermeable membrane that is comprised of 16 mils of butyl adhesive and 9 mils of HDPP facer.

2.3 PERFORMANCE
A.Fluid-Applied Membrane Air Barrier Performance
1.Air Performance ASTM E2178; Air Permeance ASTM E2178: ≤0.004 cfm/sg ft of surface area at 1.57-lbf/sq. ft (≤0.02 L/s x sq. m of surface area at 75-Pa)
2. Vapor Performance ASTM E96; Minimum of 14 Perms

3. Tensile Strength of Sandwich Construction ASTM C297: pull strength meeting or exceeding 15 psi.
4. Elongation: ASTM D412 >400% at break
5. Surface Burning Characteristics: ASTM E84; Class A; a flame spread of no greater than 25; smoke development of 10
6. VOC content <30 g/L.
7. Pass Hydrostatic Pressure Test (3-stage) per ICCES AC212
8. Exposed to normal weathering conditions for up to 12 months

B. Fluid Applied Flashing Performance
1. Comply with AAMA 714-19: Voluntary Specification for Liquid-Applied Flashing Used to Create a Water-Resistive Seal Around Exterior Walls in Openings in Buildings

C. Self-Adhering Transition Membrane Performance
1. Comply with AAMA 711: Voluntary Specifications for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products.

PART 3 EXECUTION

3.1 EXAMINATION

A. Before applying the air barrier material ensure the following conditions are met.
1. Verify that the surfaces conditions are suitable prior to commencing installation
2. Concrete: Provide concrete in conformance with applicable building codes
3. Concrete Masonry Units (CMU) are in conformance with the applicable building code and masonry joints are flush and filled.
4. Masonry surfaces have cured for the recommended time period by the membrane manufacturer and are free from release and curing agents, excess mortar, or other contaminates.
5. Gypsum Sheathing is installed in accordance with GA-253 and in compliance with ASTM C1177
6. Substrates are smooth without large voids or sharp protrusions.
7. Structural Plywood meets the established requirements of DOC PS 1 Structural Plywood
8. Oriented Strand Board (OSB) meets the establishes requirements of DOC PS 2 Performance Standard for Wood-Based Structural Panels

B. Test for capillary moisture by plastic sheet method according to ASTM D4263
C. Verify sealants are compatible with air barrier membrane used.
D. Ensure field conditions are met as outlined in Part 1 – General Requirements.
E. Proceed with air barrier installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

A. Clean, prepare, and treat substrate in accordance with the air barrier manufacturers written instructions

B. Apply treatment to board-to-board seams in sheathing and surface cracks in masonry substrates per the air barrier manufacturers written instructions.
C. Remove all bond inhibiting agents, such as dust, mud, oils, curing compounds or any other substances that might prevent placement and bonding of membrane
D. Fill voids with a substrate patching material
E. Mask or cover adjacent areas to protect from over-spray

3.3 GENERAL INSTALLATION AIR BARRIER MEMBRANE

A. Install fluid-applied air barrier membrane and system accessories to achieve a monolithic, void-free, continuous building envelope.
B. Install fluid-applied air barrier and system accessories in accordance with manufacturer's written instructions.
C. Install fluid-applied membrane using equipment and methods in the air barrier written instructions to achieve required free-film thickness by the manufacturer.

3.4 GENERAL INSTALLATION OF ACCESSORY MATERIALS

A. Install accessory materials according to the Air Barrier written instruction to seal and connect air barrier material to adjacent material
B. Transitions: Seal, flash, and connect air barrier material continuously to below-grade structures, roofing membrane, floor-to floor conditions, window and glazing systems including curtain wall and storefront assemblies, door system, and other exterior wall openings.
    1. Self-adhered transition membrane at transitions and rough openings: By the end of each workday, flash all edges of the applied self-adhered membrane with a manufacturer approved liquid flashing. Overlap self-adhere transitional membrane using a shingle lap method and roll-out installed membrane to ensure a secure adhesion to the substrate
C. Penetrations: Seal around all exterior wall penetrations with liquid flashing or manufacture approved sealant to prevent air and water infiltration. For round or square pipe/duct penetrations use specified fluid applied flashing, refer to the air barrier written instructions for proper sealing.

3.5 FIELD QUALITY CONTROL

A. Do not cover installed fluid-applied air barrier membrane assembly until required inspections have been completed and installation has been accepted.
B. Where applicable, allow for owner's inspection and air barrier testing and reporting.
C. If the inspections or testing reveal any deficient application, remediate deficient work promptly

3.6 PROTECTION

A. Protect air barrier membrane assembly from damage during installation and during the construction period.

B. Coordinate to protect air barrier membrane from UV light exposure for a period greater than the acceptable by the air barrier membrane manufacture.
C. Use cleaning agents and procedures recommended by the manufacturer of affected construction to remove spills, stains, and overspray prior to curing.

END OF SECTION