DIVISION 4 – MASONRY

SECTION 04700 – SIMULATED MASONRY - EIFS BRICK VENEER

PART 1 - GENERAL

1.01 SCOPE

A. Provide all labor, materials and equipment necessary to apply the NewBrick veneer over exterior vertical walls of Dryvit Exterior Insulation and Finish Systems (EIFS) and other acceptable substrates.

B. Related Sections
1. Exterior Insulation and Finish Systems
2. Concrete
3. Masonry
4. Sealants
5. Flashing

1.02 REFERENCES

A. Section Includes:
1. ASTM B 117 (Federal Test Standard 141A Method 6061) Standard Practice for Operating Salt Spray (Fog) Apparatus
2. ASTM C 150 Standard Specification for Portland Cement
3. ASTM C 270 Standard Specification for Mortar for Unit Masonry
4. ASTM C 297 Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions
5. ASTM C 578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
6. ASTM D 968 (Federal Test Standard 141A Method 6191) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
7. ASTM D 2247 (Federal Test Standard 141A Method 6201) Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
8. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
9. ASTM D 4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
10. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
11. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
12. ASTM E 2485 (formerly EIMA Std. 101.01) Standard Test Method for Freeze-Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water-Resistive Barrier Coatings
13. ASTM G 155 (Federal Test Standard 141A Method 6151) Standard Practice for Operating-Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
14. DS152, Dryvit Cleaning and Recoating
15. DS181, Backstop® NT™ Application Instructions

16. DS870, NewBrick Data Sheet
17. DS871, NewBrick Application Instructions
18. DS873, NewBrick Installation Details

1.03 DEFINITIONS

A. Contractor: The contractor that applies materials to the substrate.
B. Dryvit: Dryvit Systems, Inc., the manufacturer of the NewBrick units and adhesive.
C. NewBrick: A lightweight insulated brick manufactured by Dryvit Systems, Inc.
D. Mortar: ASTM C 270 Type N or S mortar modified with Dryvit NewBrick Mortar Admix.
E. Substrate: The material to which the NewBrick units are attached.

1.04 DESCRIPTION

A. NewBrick is a lightweight, insulated brick veneer that is applied over approved substrates.
B. Design Requirements
  1. Acceptable substrates for Dryvit NewBrick shall be:
    a. The base coat of any of the Dryvit Outsulation® systems.
    b. The base coat of the Dryvit Cement Board MD Finish System™.
    c. Poured-in-place concrete and precast concrete.
    d. Unglazed brick and masonry units.
    e. Portland cement plaster.
    f. Dryvit Backstop NT air/water resistive barrier applied over acceptable substrate as noted in Section 1.04.B.1.c through e.
    g. Tremco ExoAir 230 air/water resistive barrier applied over acceptable substrate as noted in Section 1.04.B.1.c through e.
  2. Deflection of the substrate system shall not exceed 1/360 times the span (when installed over substrates other than Dryvit Outsulation systems).
  3. Substrate systems shall meet all local building code requirements and shall be approved for use of this project.
  4. Vapor Retarders – The use and location of vapor retarders within a wall assembly is the responsibility of the project designer and shall comply with local building code requirements. The type and location shall be noted on the project drawings and specifications.
    NOTE: Vapor retarders may be inappropriate in certain climates and can result in condensation within the wall assembly. Refer to Dryvit Publication, DS159 for additional information.
  5. NewBrick units are designed for use on exterior vertical wall applications.

6. The substrate shall be clean, smooth, planar and free of surface imperfections that would interfere with application of the NewBrick units.
7. Sealants
   a. Shall be manufactured and supplied by others.
   b. Shall be compatible with Dryvit materials. Refer to current Dryvit publication, DS153 for listing of sealants tested by sealant manufacturers for compatibility.
   c. The sealant backer rod shall be closed cell.
8. The maximum service temperature of the polystyrene core is 165 °F (74°C). Uses near hot surfaces such as combustion exhaust vents should be evaluated by the designer to ensure the product's maximum service temperature is not exceeded.

C. Performance Requirements: Shall be tested as follows:
1. Extruded Polystyrene Insulation

XPS Insulation Physical Properties			
Property	**Test Method**	**Results**	
		XPS	**Type II EPS**
Density	ASTM D 1622	1.5 lb/ft^3 (24 kg/m^3)	1.35 lb/ft^3 (21.6 kg/m^3)
Thermal Resistance	ASTM C 518	5.0 °F·ft^2·h/Btu·in (0.88 m^2·°C/W) @ 75 °F (23.9 °C)	4 °F·ft^2·h/Btu·in (0.70 m^2·°C/W) @ 75 °F (23.9 °C)
Water Absorption	ASTM C 272	0.5 % by volume	<3%
Compressive Strength	ASTM D 1621	20 psi (140 kPa) min.	>15 psi
Shear Strength	ASTM C 273	25 psi (170 kPa)	
Shear Modulus	ASTM C 273	300 psi (2068 kPa)	
Tensile Strength	ASTM D 1623	50 psi (340 kPa) min.	
Flexural Strength	ASTM C 203	40 psi (276 kPa) min.	>35 psi
Flexural Modulus	ASTM C 203	1500 psi (10342 kPa)	
Flame Spread Index	ASTM E 84	15	<10
Smoke Developed Index	ASTM E 84	165	<450
Oxygen Index	ASTM D 2863	Min. 24%	Min 24%

Water Vapor Permeance	ASTM E 96	Max. 1.5 Perm for 1 in (25.4 mm) thickness	2.1 Perm Perm for 1 in (25.4 mm) thickness

2. Brick Testing

NewBrick Testing			
Test	**Test Method**	**Criteria**	**Results**
Accelerated Weathering	ASTM G 155 Cycle 1	No deleterious effects[1] after 2000 hrs.	Passed
Freeze-Thaw	ASTM E 2485	No deleterious effects[1] after 10 cycles	Passed
Water Resistance	ASTM D 2247	No deleterious effects[1] after 14 days exposure	Passed
Salt Spray Resistance	ASTM B 117	No deleterious effects[1] after 300 hrs. exposure	Passed
Tensile Bond – adhesive to underlying substrate	ASTM C 297	Minimum 15 psi	Passed
Surface Burning Characteristics	ASTM E 84	ICC and ANSI/EIMA 99-A-2001 Flame Spread <25 Smoke Developed <450	Passed
Water Vapor Transmission	ASTM E 96 Procedure B	ICC: Vapor Permeable No ANSI/EIMA Criteria	40 Perms
Mildew Resistance	ASTM D 3273	ANSI/EIMA 99-A-2001 28 days: No growth	60 days: No growth
Abrasion Resistance	ASTM D 968 Method A Falling Sand	ANSI/EIMA 99-A-2001 528 quarts (500 liters): No deleterious effects[1]	1057 quarts (1000 liters): No deleterious effects[1]
	ASTM D 4060 Taber Abrasion (1 kg load)	No ICC or ANSI/EIMA Criteria	1000 cycles: .83 mg mass loss
Ignitability	NFPA 268	No ignition at 12.5 kW/m2 at 20 minutes	Passed
Intermediate Multi-Story Fire Test	NFPA 285	1. Resist flame propagation over the exterior surface 2. Resist vertical spread of flame within combustible core/component of	Passed[2]

		panel from one story to the next 3. Resist vertical spread of flame over the interior surface from one story to the next 4. Resist lateral spread of flame from the compartment of fire origin to adjacent spaces	
1. No cracking, checking, rusting, crazing, erosion, blistering, peeling, or delamination when viewed under 5x magnification. 2. NFPA 285 test with 4" EPS. 3. Contact Dryvit for fire-rated assemblies			

1.05 SUBMITTALS

A. Product Data:
1. The contractor shall submit to the owner/architect, manufacturer's product data sheets describing products, which will be used on the project.

B. Samples
1. The contractor shall prepare and submit two (2) 2 ft x 2 ft (.61 m x .61 m) samples of the proposed bricks to the architect and/or owner for approval.

C. Mock-Up
1. A minimum 8 ft x 8 ft (2.4 m x 2.4 m) mock-up wall shall be prepared by the applicator/contractor with the NewBrick materials, with mortar installed, to establish a standard of acceptance by the owner, architect or project manager. **The mock-up may be part of the building or a separate structure.**

1.06 QUALITY ASSURANCE

A. Qualifications
1. Manufacturer shall be Dryvit Systems, Inc.
a. All NewBrick materials shall be manufactured or sold by Dryvit and shall be purchased from Dryvit or its authorized distributors.

1.07 DELIVERY, STORAGE AND HANDLING

A. All Dryvit materials shall be delivered to the job site in the original, unopened packages with labels intact.

B. Upon arrival, materials shall be inspected for physical damage, freezing or overheating. Questionable materials shall not be used.

1. Materials shall be stored at the job site, and at all times, in a cool, dry location, out of direct sunlight, protected from weather and other sources of damage. Storage temperature for liquid products shall be between 40 °F (4°C) - 100 °F (38°C).

C. Protect all products from inclement weather and direct sunlight.

1.08 PROJECT CONDITIONS

A. Environmental Requirements

1. Application of wet materials shall not take place during inclement weather unless appropriate protection is provided. Protect materials from inclement weather until they are completely dry.
2. At the time of NewBrick product application, the air and wall surface temperatures shall be from 40 °F (4 °C) minimum to 100 °F (38 °C) maximum.
3. These temperatures shall be maintained with adequate air ventilation and circulation for a minimum of 24 hours thereafter, or until the products are completely dry. Refer to published product data sheets for more specific information.

B. Existing Conditions: The contractor shall have access to electric power, clean water and a clean work area at the location where the Dryvit materials are to be applied.

1.09 SEQUENCING AND SCHEDULING:

1. Application of the bricks shall be coordinated with other construction trades.
2. Sufficient labor and equipment shall be employed to ensure a continuous operation.

1.10 LIMITED MATERIALS WARRANTY

A. Dryvit Systems, Inc. shall offer a written limited materials warranty against defective materials upon written request. Dryvit shall make no other warranties, expressed or implied. Dryvit is not liable for incidental or consequential damages. Dryvit does not warrant workmanship. Contact Dryvit’s Warranty Services Department for complete details.

B. The applicator shall warrant workmanship separately. Dryvit shall not be responsible for workmanship associated with installation of the NewBrick materials.

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1.11 DESIGN RESPONSIBILITY

A. It is the responsibility of both the specifier and the purchaser to determine if a product is suitable for its intended use. The designer selected by the purchaser shall be responsible for all decisions pertaining to design, detail, structural capability, attachment details, shop drawings etc. Dryvit has prepared guidelines in the form of specifications, installation details and product data sheets to facilitate the design process only. Dryvit is not liable for any errors or omissions in design, detail, structural capability, attachment details, shop drawings, or the like, whether based upon the information prepared by Dryvit or otherwise, or for any changes which purchasers, specifiers, designers, or their appointed representatives may make to Dryvit's published comments.

1.12 MAINTENANCE

A. Maintenance and repair procedures shall be followed in accordance with the Dryvit application instructions for the specific Dryvit system utilized.

B. All Dryvit products are designed to minimize maintenance. However, as with all building products, depending on location, some cleaning may be required. See Dryvit publication DS152, Cleaning and Recoating, for proper procedures.

C. Mortar, sealants, flashings and other building envelope components shall be inspected on a regular basis and repairs made as necessary to maintain in a serviceable condition.

PART 2 – PRODUCTS

2.01 GENERAL

A. All NewBrick products shall be supplied by Dryvit Systems, Inc. or its authorized distributors. Substitutions or additions of other materials will void the warranty.

2.02 MATERIALS

A. Portland Cement: Shall be Type I or II, meeting ASTM C 150, white or gray in color, fresh and free of lumps.

B. Water: Shall be clean and potable.

C. Mortar:

1. Shall meet ASTM C 270 Type N or S mortar modified with minimum 20% Dryvit NewBrick Mortar Admix.
2. Spec Mix PMAVM (does not require NewBrick Mortar Admix).

2.03 Components

A. Air/Water-Resistive Barrier: Shall be Dryvit Backstop NT or Tremco ExoAir 230.

B. Base Coat (if applicable): Genesis® or Genesis® DM
C. Adhesive: Used to adhere the bricks to an acceptable substrate, shall be one of the following:
  1. Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.
    a. Shall be Primus® or Genesis
  2. Ready mixed: A dry blend cementitious, copolymer-based product, field mixed with water.
    a. Shall be Primus® DM or Genesis DM
  3. One-part adhesives.
    a. Shall be Dryvit AP Adhesive™ or TREMGrip®
D. NewBrick: A pre-finished insulated brick product available as follows:
  1. Sizes:
    a. Modular Mosaic
  2. Colors:
    a. Standard blend: Rockland
  3. Effects:
    Not applicable.
  4. Textures:
    a. Velour
  5. Configurations:
    a) Flat Bricks: designed with an integral horizontal mortar spacing feature. Flat Bricks are used in field-of-wall applications.
    b) End Bricks: Used at expansion joints and terminations without returns
    c) Corner Bricks: "L"-shaped bricks designed for use at outside corners, sills and other areas.
    d) 1.5 Flat Brick: Used for Corbel detailing.
    e) 135° Corner Bricks: not applicable.
    f) Edge Cap Bricks: Used at sill, jambs and other areas.
    g) Edge Cap End Brick: Used at sill, jambs and other areas.
    h) Modular mosaic: 12-unit Flat brick panel.
  6. Specials: Contact NewBrick at 1.833.639.2745.
E. Liquid admixture: Shall be Dryvit NewBrick Mortar Admix, a 100% acrylic additive for type N or S mortar.
F. Cement Board MD and Dryvit MD Spacers: provide cement board as approved by manufacturer and fasten into place with spacers into existing concrete masonry substrate with approved fasteners as required by system manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to application of the bricks, the contractor shall ensure that the substrate is of a type listed in Section 1.04.B.1.

B. The architect or general contractor shall ensure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the application of NewBrick materials.

C. The contractor shall notify the general contractor and/or architect and/or owner of all discrepancies. Work shall not proceed until discrepancies have been corrected.

3.02 SURFACE PREPARATION

A. The substrate shall be free of foreign materials such as oil, dust, dirt, form-release agents, efflorescence, paint, wax, water repellents, moisture, frost, and any other materials that inhibit adhesion.

B. The Dryvit Outsulation system shall be installed in accordance with the current published literature up to the base coat.

1. The reinforcing mesh shall be completely embedded in the base coat.
2. The base coat shall be fully dried (a minimum of 24 hours, or longer, depending on weather conditions).
3. The base coat shall be free of any imperfections that would affect the application of the NewBrick materials.

C. Concrete

1. Shall have cured a minimum of 28 days.
2. Air/Water-Resistive Barrier (when specified): Shall be Dryvit Backstop NT applied in accordance with Backstop NT Application Instructions DS181 or DS300 or Tremco ExoAir 230 applied in accordance with ExoAir 230 Application Instructions.

D. Unglazed Brick and Masonry

1. Apply a continuous layer of Genesis or Genesis DM mixture over the entire wall surface to fill voids and provide a smooth level base. Application thickness shall not exceed 1/8 in (3 mm) in a single pass.
2. Air/Water-Resistive Barrier (when specified): Shall be Dryvit Backstop NT applied in accordance with Backstop NT Application Instructions, DS181 or DS300 or Tremco ExoAir 230 applied in accordance with ExoAir 230 Application Instructions.

E. Portland Cement Plaster

1. Shall be dry and cured a minimum of 7 days prior to application of the NewBrick units.
2. When specified, a layer of reinforcing mesh is embedded into the wet Dryvit base coat mixture and troweled smooth.

3. Allow the base coat mixture to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.
4. Air/Water-Resistive Barrier (when specified): Shall be Dryvit Backstop NT applied in accordance with Backstop NT Application Instructions, DS181 or DS300 or Tremco ExoAir 230 applied in accordance with ExoAir 230 Application Instructions.

3.03 INSTALLATION

A. Dryvit NewBrick materials shall be applied in accordance with current NewBrick Application Instructions, DS871.
B. Mortar shall be installed per the mortar manufacturer's requirements.

3.04 Field Quality Control

A. The Contractor shall be responsible for the proper application of the Dryvit materials.
B. Dryvit assumes no responsibility for on-site inspections or application of its products.
C. If required, the contractor shall certify in writing the quality of work performed relative to the substrate system, details, installation procedures, workmanship and as to the specific products used.

3.05 Cleaning

A. All excess NewBrick materials shall be removed from the job site by the contractor in accordance with contract provisions and as required by applicable law.
B. All surrounding areas, where the Dryvit NewBrick materials have been installed, shall be left free of debris and foreign substances resulting from the contractor's work.

3.06 Protection

A. The Dryvit NewBrick materials shall be protected from weather and other sources of damage until permanent protection in the form of flashings, sealants, etc. are installed. Contractor shall take precautions to prevent condensation and/or heat build-up when using a tarp or plastic as protection.

End of Section

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07240a - EXTERIOR WALL INSULATION & FINISH SYSTEM (FULL SYSTEM)

Part 1 - General

1.01 Work Included:
- A. The General Conditions and applicable sections of Division 1 shall apply to this entire section.
- B. All materials, labor, services and incidentals necessary for the completion of this section of the work.

1.02 Related Work Specified Elsewhere:
- A. Flashing and Sheet Metal – Section 07600
- B. Sealants - Section 07900

1.03 Quality Assurance:
- A. Standards:
  1. American Society For Testing and Materials:
     - a. ASTM E-84, Surface Burning Characteristics of Building Materials.
     - b. ASTM C-1177, Standard Specification for Glass Mat Gypsum Substrate for use as Sheathing.
     - c. ASTM C-150, Standard Specification for Portland Cement.
     - d. ASTM E-96, Standard Test Methods for Water Vapor Transmission of Materials.
     - e. ASTM E-2134, Test Method for Evaluating the Tensile-Adhesion Performance of Exterior Insulation and Finish Systems (EIFS).
     - f. ASTM E-2430, Standard Specification for Expanded Polystyrene Thermal Insulation Boards for use in Exterior Insulation and Finish Systems.
     - g. ASTM E-2486, Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems.
     - h. ASTM E-2568, Standard Specification for PB Exterior Insulation and Finish Systems.
     - i. ASTM E96, Water Vapor Transmission.
     - j ASTM G155, Accelerated Weathering, passes 2000 hours.
     - k. Mil Std 810B, Mildew Resistance, passes.
- B. All other standards as required by the system specified.
- C. System Manufacturer shall have a minimum of 10 years of experience in the manufacturing of Exterior Insulation and Finish Systems.
- D. System Installer shall have a minimum of 5 years of experience in the installation of Exterior Insulation and Finish Systems. Installer shall have a current required certification from system manufacturer.
- E. Insulation Board Manufacturer shall be listed by the system

manufacturer as an acceptable supplier.

1.04 Submittals:

A. Submit a 4' x 4' sample panel of the finish system indicting color and texture to be used for this project. Panel shall be prepared using same tools and techniques as for the actual project.

B. Submit complete shop drawings, including erection drawings and details, manufacturer's product data describing materials to be used on this project, and test reports if requested by the Architect.

1.05 Product Delivery, Storage, and Handling:

A. Deliver all materials to the job site in manufacturer's unopened containers, with legible manufacturer's identification.

B. Upon delivery, inspect materials for physical damage, freezing, or overheating. Questionable materials shall not be used.

C. Store materials in a cool, dry place protected from sunlight, and the elements.

D. Manufacturer's environmental requirements for installation shall be strictly adhered to – temperatures, humidity, etc.

1.06 Sequencing and Scheduling:

A. Application of the bricks shall be coordinated with other construction trades.

B. Sufficient labor and equipment shall be employed to ensure a continuous operation.

1.06 Warranty: provide manufacturer's standard limited written warranty.

Part 2 - Products

2.01 General:

A. **Products of Outsulation System as manufactured by Dryvit Systems, Inc. are specified herein to simplify descriptions of design, construction, and materials only. Proprietary names are not intended to imply that products of named manufacturer are required to the exclusion of equivalent products of other manufacturers.**

2.02 Materials - Finish System On Wall Insulation:

A. Air/Water-Resistive Barrier: Shall be Tremco ExoAir 230.

B. Primus/Adhesive: Primus, Genesis, or Genesis FM

C. Portland Cement: ASTM C-150, Type 1, white or gray in color.

D. Insulation Board: 2" thick (except where indicated otherwise or as directed by Architect), expanded polystyrene, ASTM E-84 or UL-723, Flame Spread 0-25.

E. Base Coat: Shall be compatible with the EPS insulation board and reinforcing mesh(es).
F. Reinforcing Fabric (Standard): Standard Reinforcing Mesh, Dryvit.
G. Finish: Dryvit
   1. Color: **Refer to Drawings. Final color selections to be made by Architect to match colors already approved for this project.**
   2. Texture: as selected by the Architect to match texture already approved for this project.
H. Drying Time: drying time is dependent upon the air temperature and relative humidity. Under average drying conditions 70 degrees F / 55% R.H. shall provide an approximate drying time of 4 hours. Protect work from rain for at least 24 hours.
I. Temperature for Application: 45 degrees or higher for a minimum of 24 hours.
J. Water: Clean and potable.
K. Trim and Accessories: As indicated on the Drawings, Dryvit.
L. Sheathing: 1/2" gypsum sheathing, Dens-glass Gold, Georgia Pacific.

2.03 Mixing:
A. Mix factory prepared finish material in strict accordance with manufacturer's recommendations.

Part 3 - Execution

3.01 Application:
A. Before commencing application, inspect all surfaces to receive wall finish system for any irregularities or defects. Substrate shall be free of foreign materials, such as, oil, dust, dirt, form release agents, efflorescence, paint, wax, water replants, moisture, frost, and any other condition that inhibit adhesion. Apply air/vapor barrier to existing concrete masonry wall/substrate over the entire wall surface in accordance with manufacturer’s requirements and instructions.
B. Wall finish system shall be applied in strict accordance with manufacturer's written instruction. Overall minimum base coat thickness shall be sufficient to fully embed the mesh. Sealant shall not be applied directly to textured finishes or base coat surfaces.
C. Materials shall be protected by permanent or temporary means from inclement weather and other sources of damage

prior to, during, and following application until completely dry. Contractor shall take precautions to prevent condensation and/or heat build-up when using a tarp or plastic as protection.

D. Protect adjoining work and property during EIFS installation. All excess EIFS materials shall be removed from the site.

End of Section