

SECTION 07 48 00**RAINSCREEN WITH SINTERED COMPACT SURFACE PANELS**

Neolith Rainscreens, manufactured by TheSize Surfaces, combine beautiful Neolith Sintered Surface panels with a support system to provide versatile, high performance, ventilated wall cladding.

While water will enter through joints between panels, the ventilated cavity in a Neolith rainscreen is based upon the pressure equalization principle and allows water to drain and vapor to vent. (Behind the rain screen, a building's wall may still require protection against vapor and air infiltration.)

For most projects, Contract Documents should show design intent and delegate project engineering – such as size and layout of rainscreen support elements and connections to building wall -- to the rainscreen fabricator and installer.

DRAWING COORDINATION: Show size and orientation of panels; distance from inside face of rainscreen panels to building wall; air gap, insulation, and other items located within rainscreen system; and details of interface between rainscreen and work specified in other sections.

SPECIFICATION COORDINATION: Turn on HIDDEN TEXT to view or print specifier notes. Edit to include only requirements pertinent to Project.

PART 1 - GENERAL**1.1 SUMMARY****A. Section Includes:**

1. Rainscreen support system.
2. [_____].
3. Sintered compact surface panels.

B. Related Requirements:

1. [Section 072100 - Thermal Insulation.]
2. [Section 072500 - Weather Barriers]
3. [Section 076000 - Flashing and Sheet Metal.]
4. [Section 079200 - Joint Sealants.]
5. [Section 084000 - Entrances, Storefronts, and Curtainwalls.]
6. [Section 08500 - Windows.]
7. [Section 089000 - Louvers and Vents.]
8. [_____].

1.2 REFERENCE STANDARDS

- A. AAMA 508 - Pressure Equalized Rain Screen Wall Cladding Systems.
- B. [ASTM B117 - Salt Spray (Fog) Apparatus.]

- C. ASTM C920 – Elastomeric Joint Sealants.
- D. ASTM C1026 - Measuring the Resistance of Ceramic and Glass Tile to Freeze-Thaw Cycling.
- E. ASTM C1184 – Structural Silicone Sealants.
- F. ASTM E283 - Determining Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Difference across the Specimen.
- G. ASTM E330 - Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- H. ASTM E331 - Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference.
- I. ASTM E1233 - Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential.
- J. [CAN/ULC S134 - Fire Test of Exterior Wall Assemblies for the Determination of Combustibility Parameters of Building Material.]
- K. [NFPA 285 - Evaluation of Fire Propagation of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.]
- L. [_____.]

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meetings: Require attendance by installer, manufacturer, architect, [_____] and others affected by work.
- B. Discuss schedules and coordination with related work.

1.4 SUBMITTALS

- A. Delegated Design Submittals:
 - 1. Provide shop drawings showing:
 - a. Attachments to Building: Indicate types, sizes, spacing, and other requirements necessary to attach support system to building.
 - b. Support System: Show materials, dimensions, locations, adhesives, fasteners, and other requirements for components to support panels.
 - c. Panels: Show products, colors, sizes, joint spacing, typical details, and coordination with related work.
 - d. Loads for which system is designed, including wind speed, seismic force, [_____] and other conditions for which system is designed.
 - 2. Shop drawings shall be signed and sealed by professional engineer registered in state where project is located and shall state that design complies with requirements of Contract Documents, manufacturer, and authorities having jurisdiction.
 - 3. Submit copy of ICC-ES Evaluation Report.
- B. Submit product data and manufacturer’s installation instructions for:
 - 1. Support system.
 - 2. Sintered compact surface.
 - 3. Fasteners.
 - 4. [_____.]

- C. [Field-Applied Adhesive: Submit letter from adhesive manufacturer stating that proposed adhesive is acceptable for use on Project. Include product data and installation instructions.]
- D. Samples: Submit [2] [____] samples of following:
 - 1. Sintered Compact Surface: Submit [each] color specified. Samples shall be 20 sq.in. or larger.
 - 2. [Paint: Samples of paint for color evaluation.]

1.5 CLOSEOUT SUBMITTALS

- A. Record Documentation: [_____.]

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Extra Stock Materials:
 - 1. Quantity: Provide [five] [ten] [____] pieces of each color of sintered compact surface used on project.
 - 2. Sizes: Largest size provided for Project.
 - 3. Packaging: Pack in accordance with manufacturer's instructions for long-term storage. Clearly mark contents of each package.
 - 4. Deliver to location indicated by Owner.

1.7 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Fabricators and Installers: Firms with 10 years experience on projects of similar size and nature and acceptable to rainscreen manufacturer.
 - 2. Professional Engineer: Licensed in state where project is located.
 - 3. Manufacturer: Support system and panels shall be manufactured by same company.
- B. Mock-Ups:
 - 1. Construct mock-up [as shown on Drawings.] [at least [100] [____] sq.ft. in size.]
 - 2. Locate on site in location acceptable to Architect.
 - 3. Show proposed appearance and means of construction.
 - 4. Coordinate with mock-ups specified in other sections that are to be installed in or adjacent to work that will be installed in or adjacent to rainscreen.
 - 5. After acceptance of Work, mock-up [shall be removed.] [may remain part of Project.]

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's instructions.

1.9 WARRANTY

- A. Manufacturer Warranty: Provide sintered compact surface manufacturer's 10-year limited warranty.

PART 2 - PRODUCTS

2.1 RAINSCREEN SYSTEMS

- A. Manufacturer:
 - 1. Basis of Design: Provide Neolith Rain Screen by TheSize Surfaces, S.L. (www.thesize.es, info@thesize.es, phone +1 416-471-9082.
 - 2. Substitution:
 - a. [None allowed.]

Choose above or below.

- b. [Manufacturers whose products comply with specifications will be considered if substitution request is submitted prior to bidding and in accordance with Division [00] [01].]
- B. Performance/Design Criteria: Comply with ICC-ES Evaluation Report Number 14-01-08 unless greater criteria are stated below: NUMBERS ARE GIVEN.
1. Structural Loads: [_____] [As shown on Drawings.] [Comply with authorities having jurisdiction.]
 2. Pressure Equalized Rainscreen Performance per AAMA 508: 0.13 cfm/sf maximum leakage at 1.57 psf.
 3. Air Leakage per ASTM E283: 0.62 L/sm² maximum at 300 Pa for 15 minutes.
 4. Structural Performance per ASTM E330: No permanent deformation at 0.01 cfm/ft².
 5. Water Penetration per ASTM E331: No leakage at 15 psf for 15 minutes with 5 gal/sf/hr.
 6. Structural Performance per ASTM E1233: Pass cycled pressure loading from 5 psf to 25 psf for 100 three-second cycles at 0.08 seconds or less.]
 7. Fire Performance per [NFPA 285] [CAN/ULC S134]: 20.3 kW/m² maximum heat flux during 45 minutes of exposure.]
 8. Thermal Expansion and Contraction: $5.2 - 6.3 \times 10^{-6} \times \text{°F}$.

2.2 SUPPORT SYSTEM WITH CONCEALED ADHESIVE

- A. Product: Neolith HC System with concealed adhesive and vertical furring.
- B. Description:
1. Brackets: Extruded aluminum with vertical and horizontal adjustment slots.
 2. Adjustable Furring:
 - a. Material: Extruded aluminum.
 - b. Configuration: L-shaped or T-shaped with ribbed face flange for improved bonding.
 3. [Non-Adjustable Furring: Cold formed steel with [G90] [_____] galvanized coating.]
 4. Mounting Tape: Adhesive on both faces; factory-applied.
 5. Structural adhesive.

2.3 SUPPORT SYSTEM WITH VISIBLE MECHANICAL FASTENING

- A. Product: Neolith VM System with visible mounting clips and vertical stiles.
- B. Description:
1. Brackets: Extruded aluminum with vertical and horizontal adjustment slots.
 2. Adjustable Furring:
 - a. Material: Extruded aluminum.
 - b. Configuration: L-shaped or T-shaped with ribbed face flange for improved bonding.
 3. [Non-Adjustable Furring: Cold formed steel with [G90] [_____] galvanized coating.]
 4. Mounting Clips:
 - a. Clips:
 - 1) Material: Extruded aluminum.
 - 2) Finish:
 - a) [Mill finish.]
 - b) [Anodized: [[Black] [Clear].]
 - c) [Painted: Baked-on 70% PVFD, color to match panels.]
 - b. Resilient pads.
 5. Structural adhesive.

2.4 SUPPORT SYSTEM WITH FACTORY-INSTALLED CLEATS

- A. Product: Neolith Strongfix System with, vertical stiles, horizontal rails, and factory-installed mounting cleats.
- B. Description:
 - 1. Brackets: Extruded aluminum with vertical and horizontal adjustment slots.
 - 2. Adjustable Furring:
 - a. Material: Extruded aluminum.
 - b. Configuration: T-shaped.
 - 3. [Non-Adjustable Furring: Cold formed steel with [G90] [_____] galvanized coating.]
 - 4. Rails:
 - a. Material: Extruded aluminum.
 - b. Configuration: Channels with flanges to engage panel cleats.
 - 5. Cleats:
 - a. Material: Extruded aluminum.
 - b. Locations: Full length of panel, at top and bottom of panels.
 - c. Each cleat shall have two aluminum extrusions.
 - 1) The upper extrusion engages in a downward slanted groove in panel; the lower extrusion part engages upward slanted groove in panel. The extrusions shall be adhered in grooves.
 - 2) The two extrusions snap together to trap panel.

2.5 ALUMINUM

- A. Alloy and Temper: As required by shop drawings.
- B. Finish:
 - 1. Visible Surfaces and Substrates for Adhesives: [Black] [_____] anodized.
 - 2. Other Locations: [Mill finish.] [Clear anodized.]
- C. Recycled Content: 20% post industrial and 30% post consumer.

2.6 SINTERED SURFACE PANELS

- A. Product: Neolith by TheSize Surfaces.
- B. Properties:
 - 1. [_____.]
 - 2. [_____.]
 - 3. [_____.]
 - 4. Composition:
 - a. Quartz, feldspar, silica, and pigments sintered under heat and pressure.
 - b. Ceramic or porcelain products are not acceptable
 - 5. Backing: Glass fiber mesh in polyester resin.
- C. Size:
 - 1. Length and Width: As shown on Drawings.

Use 12 mm thickness where wall is subject to abuse.

- 2. Thickness: [6 mm] [12 mm] [12 mm within [8] [_____] feet of grade and 6 mm elsewhere] [_____].
- D. Finish:
 - 1. Matte: Neolith Satin finish.
 - a. Gloss: [_____.]
 - 2. Glaze: Neolith Silk finish.

- a. Gloss: [_____].
- 3. Raised Texture: Neolith Riverwashed finish.
 - a. Height of Relief: [_____].
- 4. Polish: Neolith Polished finish.
 - a. Gloss: : [_____].

E. Color:

- 1. As shown on [Drawings.] [Schedules.]
- 2. Neolith Colorfeel [Arancio.] [Artic White.] [Avorio.] [Chocolate.] [Cobalto.] [Humo.] [Mela.] [Nero.] [Nieve.] [Perla.] [_____].
- 3. Neolith Fusion [Arena.] [Barro.] [Basalt Beige.] [Basalt Black.] [Basalt Grey.] [Beton.] [Belgium Blue.] [Pierre Bleue.] [Cement.] [Lava.] [Nero Zimbabwe.] [Phedra.] [Pietra di Luna.] [Pietra di Osso.] [Pietra di Piombo.] [_____].
- 4. Neolith Iron [Ash.] [Blue.] [Copper.] [Corten.] [Frost.] [Grey.] [Moss.] [_____].
- 5. Neolith Textil [Black.] [White.] [_____].
- 6. Neolith Timber [La Boheme.] [Ash.] [Ice.] [Night.] [Oak.] [_____].
- 7. Neolith Classtone [Calcatta.] [Calcatta Gold.] [Estatuario.] [Marfil.] [Onyx.] [Pulpis.] [Stata Argentum.] [Travertino Clasico.] [Traertino Navona.] [_____].
- 8. Neolith Steel [Marengo.] [_____].

F. Recycled Content: Not less than [_____] pre-consumer recycled content.

2.7 ACCESSORIES:

- A. Fasteners: Types and sizes shown in shop drawings, [stainless steel] [or] [steel with coating providing 800 hours of salt spray resistance without red rust or visible corrosion per ASTM B117.] [_____].
- B. [Stiffeners for Unsupported Edges and Corners: Aluminum.]
- C. [Structural Adhesives: One-part, neutral-cure, RTV silicone sealant, complying with ASTM C920 Type S, Grade NS, Class 50 and ASTM C1184 type S.]
- D. Shims: [Load bearing plastic.] [_____].
- E. Thermal Breaks: [Load bearing plastic [1/8] [_____] inch thick.]
- F. Joint Backer: Paper.
- G. [_____].

2.8 FABRICATION:

- A. Cut panels to size.
- B. Edge Tolerance: 1 mm.
- C. Edge Finish: Lightly sanded and free of sharp edges. [Edges that will be visible at corners shall be finished to match] [_____] adjacent surfaces.]
- D. Panels with Cleats: Cut panels to size and install cleats in factory.

PART 3 - EXECUTION

3.1 INSTALLERS

A. Installer List:

1. [_____.]
2. [_____.]
3. [_____.]

3.2 EXAMINATION

- A. Verification of Conditions: Verify that items that will be covered by rainscreen are in acceptable condition prior to installing work of this Section.

3.3 INSTALLATION

- A. Install in accordance with manufacturers instructions and approved shop drawings.
- B. Brackets: [Use thermal breaks at thermally-insulated locations.]
- C. Furring:
1. Insulated Walls: Install adjustable furring.
 2. [Uninsulated Walls: Install non-adjustable furring.]
- D. Adhered Components:
1. Surfaces to which adhesives or tapes will be applied shall be clean, dry, and free from contaminants.
 2. Prime substrates where required in accordance with adhesive [and tape] manufacturer's requirements.
 3. Apply adhesive [and tape] in accordance with manufacturer's instructions.
- E. Install Panels.
1. Panel Layout:
 - a. Install panels with direction of manufacture consistent on each facade [unless otherwise required.
 - b. [Layout [as shown on Drawings.] [with [Book match] [slip match] [diamond match] [random] [checkerboard] [_____] pattern.]
 - c. [Panels with Bleed Direction: Install with bleed downward.]
 2. Joints between Panels and Between Panels and Adjacent Materials:
 - a. Vertical Joints: [1/8] [1/4] [_____] inch.
 - b. [Horizontal Joints: [1/8] [1/4] [_____] inch.]
 - c. [Horizontal Joints: [1/2] [_____] inch. Panels shall be installable and removable non-progressively.]
- F. Do not bridge building expansion or movement joints.
- G. Unsupported Edges: Do not exceed 4 inches from nearest support. [Support all edges within [eight] [_____] feet of grade.]

3.4 TOLERANCES

- A. Out of Plane: [_____.]
- B. Plumb and Level: [_____.]
- C. Width of Joints: [_____.]

3.5 CLEANING, REPAIR, AND PROTECTION

- A. Remove excess sealant and other contaminants on surface.
- B. Repair or replace damaged panels to satisfaction of Architect.
- C. Protect installed work from damage.

3.6 CLOSEOUT ACTIVITIES

- A. [_____].

END OF SECTION

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