



DEKKO [EXTERIOR] Cladding Three-Part Specification

07 42 43 [Exterior] COMPOSITE WALL PANELS

Part I - General

1.1 SECTION INCLUDES:

- A. Exterior, factory manufactured lightweight concrete cladding to complete a drained and back ventilated rainscreen or architectural feature.

1.2 RELATED SECTIONS

- A. Section 03 45 00 - Precast Architectural Concrete
- B. Section 05 41 00 - Structural Metal Stud Framing
- C. Section 06 10 00 - Rough Carpentry
- D. Section 06 16 00 - Sheathing
- E. Section 07 20 00 - Thermal Protection
- F. Section 07 25 00 - Weather Barriers
- G. Section 07 60 00 - Flashing and Sheet Metal
- H. Section 07 90 00 - Joint Protection

1.3 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
 - 1. AAMA 501 – Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure
 - 2. AAMA 508 – Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems
 - 3. AAMA 509 – Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems
- B. ASTM International (ASTM):
 - 1. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
 - 2. ASTM 140 - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units

3. ASTM C666 - Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
 4. ASTM C1185 - Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards
 5. ASTM E84 - Standard Test for Surface Burning Characteristics of Building Materials.
 6. ASTM E136 - Standard Test Method for Assessing the Combustibility of Materials Using a Vertical Tube Furnace at 750 °C.
 7. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 8. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 9. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- C. Standards Council of Canada & Underwriters Laboratories Canada (ULC):
1. CAN/ULC S114 – Standard Method of Test for Determination of Non-Combustibility in Building Materials

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product description, storage and handling requirements, and installation instructions.
- C. Product Test Reports and Code Compliance: Documents demonstrating product compliance with local building code, such as test reports or Evaluation Reports from qualified, independent testing agencies.
- D. LEED Credits:
- E. Manufacturer's Details: Submit drawings (dwg, rvt, pdf formats), including plans, sections, showing installation details that demonstrate product dimensions, edge/termination conditions/treatments, compression and control joints, corners, openings, and penetrations.
- F. Samples: Submit 5 x 5 (12 x 12 optional) samples of each product type proposed for use.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:

1. All lightweight concrete panels specified in this section must be supplied by a manufacturer with a minimum of 10 years of experience in fabricating and supplying concrete cladding systems.
2. Provide technical and design support as needed regarding installation requirements and warranty compliance provisions.

B. Installer Qualifications: Installer shall be experienced in performing work of similar type and scope.

C. Pre-Installation Meetings: Prior to beginning installation, conduct conference to verify and discuss substrate conditions, manufacturer's installation instructions and warranty requirements, and project requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Panels must be stored on their edge (thickness) and kept dry before installation. Although the cladding is intended for outdoor installation, please do not allow your crates to be exposed to the elements prior to installation. Doing so may result in water stains, discoloration, and mold. Always store crated panels in a secure, indoor, and climate-controlled location until installation. Do not stack crates. Refer to the information included on each crate.

B. If panels are exposed to water or water vapor prior to installation, it may result in panel staining and such action may void warranty.

C. Panels MUST be carried on edge. Do not carry or lift panels in flat orientation. Improper handling may cause cracking or panel damage.

D. Avoid direct contact between the panels and the ground. It is necessary to keep panels clean during installation process. Where clean gloves while handling.

1.7 PROJECT CONDITIONS

A. Field Measurements:

1. Verify actual measurements/openings by field measurements before material fabrication and show recorded measurements on shop drawings.
2. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.8 WARRANTY

A. Provide manufacturer's 5-year warranty against manufactured defects in DEKKO concrete cladding panels.

C. Warranty provides for the original purchaser. See warranty document for detailed information on terms, conditions, and limitations.

PART II: PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer:

1. DEKKO Inc., 1915 Settrington Dr., Kingsville, ON N9Y2E5, Canada
2. Office: 855.422.0077, www.dekkoconcrete.com.

B. Basis of Design Product: DEKKO Lightweight Concrete Cladding.

1. Colors: Natural, Ash, Limestone, Sandstone, Clay, Charcoal. Color must be "through-color."
2. Profile: [Flat: standard, inset, raised]
3. Dimensions: 24" x 48" (645 mm x 1219 mm), 48" x 48" (1291 mm x 1219 mm), 48 x 96 (1291 mm x 2438 mm), custom sizes available.
4. Panel Thickness: [Flat: 13 mm (1/2")] [Inset: 19 mm (3/4")] [Raised: 63.5 mm (2.5"), hollow back]
5. Finish: raw concrete, flat or fluted.
6. Panel Edges: Square [Beveled] [1/4" or 1/2" mortar line]
7. Corner Options: [Mitered] [Reveal] [Architectural Reveal] [Seamless]
8. Weight: [Flat: 3.2 lbs./ft² (15.6 kg/m²)] [Inset: 4.8 lbs./ft² (23.4 kg/m²), 2.5 lbs./ft² (12.2 kg/m²) inset portion] [Raised: 3.3 lbs./ft² (16.1 kg/m²)]
9. Density: 69 lbs./ft³ (1110 kg/m³)
10. Coverage: 16 sq. ft. per 48" x 48" panel & 32 sq. ft. per 48" x 96" panel.

C. Substitutions: Not permitted.

2.2 MATERIALS

- A. DEKKO concrete cladding panels to be factory hand made.
- B. DEKKO concrete cladding panel surface raw finish.

2.3 PERFORMANCE REQUIREMENTS:

- A. American Architectural Manufacturers Association (AAMA):

1. AAMA 501 – Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure: Meets all requirements; $\leq 4.8\%$ water droplets, no continuous streaming was observed
2. AAMA 508 – Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems
3. AAMA 509 - Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems

B. ASTM International (ASTM):

1. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction: Applied 3000 PA; Pass; CAT 4
2. ASTM 140 - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units: Average Compressive Strength: Dry: 26.3 MPa; Wet: 23.7 MPa
3. ASTM C666 - Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing: Pass, no obvious signs of cracking
4. ASTM C1185 - Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards: As manufactured Flexural Strength: Result: 671 psi; Freeze/thaw, Flexural Strength; Result 711 psi.
5. ASTM E84 - Standard Test for Surface Burning Characteristics of Building Materials: Flame Spread: 0, Smoke Developed: 5, Class A
6. ASTM E136 - Standard Test Method for Assessing the Combustibility of Materials Using a Vertical Tube Furnace at 750 °C: Pass
7. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen: 75 Pa; Infiltration = Exfiltration = 0.06 L/s m² (0.01 cfm/ft²)
8. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference. Wind Load: contact manufacturer for ultimate test pressure data corresponding to framing type, dimensions, fastener type. Maximum lateral deflection: L/180.
9. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference: $\leq 2.5\%$ water droplets, no continuous streaming observed.

10. ASTM E831 - Steady-State Heat Flux and Thermal Transmission Properties: Max 1.0×10^{-5} in./in. F

C. Standards Council of Canada & Underwriters Laboratories Canada (ULC):

1. CAN/ULC S114 – Standard Method of Test for Determination of Non-Combustibility in Building Materials: Confirmed non-combustible.

2.4 FABRICATION

A. DEKKO concrete cladding panels are fabricated in accordance with manufacturers' standards and approved submittals.

B. Panels shall be fabricated to size including all required factory tolerances.

C. Field-cut panels if required and drill face-fastening anchor holes in accordance with the manufacturer's written instructions.

D. Fabricate all panels to profiles, colors and textures selected by the Architect.

2.5 INSTALLATION COMPONENTS

A. System:

1. Adhesive: High adhesion, Low expansion, foam adhesive provided by DEKKO.
2. Brad Nails: 1-1/2" Long, 16-gage, with small heads, used for delicate trim and molding. Stainless Steel Type 316.
3. Screws: 1-1/2" Long, 3-0" Long depending on application or as noted on DEKKO piece-marked installation drawings. Stainless Steel Type 316.

B. Caulk: DEKKO does not recommend caulking panel-to-panel joints allowing for a fully ventilated system. However, it is important to follow local building codes and the guidance of municipalities. If it is determined that caulking will be applied to the panel-to-panel joint connections, DEKKO recommends wet-setting the panels to avoid the needed maintenance of surface caulking. Please discuss with your DEKKO representative for clarification on the process.

C.

PART III: EXECUTION

3.1 MANUFACTURERS' INSTRUCTIONS

A. Compliance: Comply with manufacturers' product data, including technical bulletins, product catalog, piece marked drawings, and installation instructions for installation.

3.2 EXAMINATION

A. Verification of Conditions:

1. DEKKO concrete cladding panels can be installed over existing, secure, level building substrate; uneven surfaces may cause panels to crack. Substrate can be concrete block, plywood, brick, etc.
2. Substrate should be a minimum of 1/2" thickness covered entirely with a waterproofing/moisture membrane/barrier
3. Starting and ending corners are to have 1" x 4" vertical furring/strapping. Check local building codes for local requirements, sizing could vary.
4. Allowable furring/strapping spacing: 16" o/c maximum. Building code requirements can vary. Check with local authorities for building code requirements of strapping/furring centerline spacing for your area and application
5. A weather resistive barrier is required when installing DEKKO concrete cladding. Use an approved weather resistive barrier (WRB) as defined by the IBC or IRC. Refer to local building codes.

B. Examine the site to ensure substrate conditions are within alignment tolerances for proper installation.

C. Do not begin installation until unacceptable conditions have been corrected.

D. Do not install panels or components that appear to be damaged or defective. Do not install wet panels.

3.3 TOLERANCE

A. Wall surface plane must be plumb and level within +/- 1/4 inch in 20 feet in any direction.

3.4 INSTALLATION

A. General: Install products in accordance with the latest installation guidelines of the manufacturer and all applicable building codes and other laws, rules, regulations and ordinances. Review all manufacturer installation, maintenance instructions, and other applicable documents before installation.

1. Consult with your local dealer or DEKKO Technical Department before installing any DEKKO concrete cladding product on a building higher than 45 feet or three stories or for conditions not matching prescribed standard installation guide requirements and methods.
2. Technical Design Review (TDR) process is available to evaluate project feasibility.

B. Panel Cutting

1. Always cut DEKKO concrete panels outside or in a well-ventilated area. Do not cut the products in an enclosed area.
2. Always wear safety glasses and NIOSH/OSHA approved respirator when cutting, drilling, sawing, sanding or abrading the products. Refer to manufacturer SDS for more information.
3. Use a dust-reducing circular saw with a diamond-tipped blade.
4. DEKKO concrete products may contain some amounts of crystalline silica, a naturally occurring, potentially hazardous mineral when airborne in dust form.
5. Immediately clean dust from cut panels as it may bind to the finish.

3.5 CLEANING AND MAINTENANCE

- A. Review manufacturer guidelines for detailed care instructions.
- B. Perform cleaning procedures according to DEKKO's written instructions.
- C. Clean soiled cladding surfaces with non-abrasive cleaners and water, using soft fiber brushes, rags and sponges, and rinse with clean water.
- D. Do not use power washer.

END OF SECTION 07 42 43