**SECTION 07 42 46**

**CEMENTITIOUS WALL PANELS**

**PART 1 – GENERAL**

* 1. **SECTION INCLUDES**
1. Fiber-reinforced cementitious wall panels mounted using the drained and back ventilated (D&BV) rainscreen design principles.
2. Panel fasteners and accessories.
	1. **RELATED SECTIONS**
3. 05 40 00 Cold-Formed Metal Framing (if applicable)
4. 06 10 00 Rough Carpentry (if applicable)
5. 06 16 00 Sheathing
6. 07 05 43 Cladding Support Systems
7. 07 21 00 Thermal Insulation
8. 07 27 00 Air Barriers
9. 07 62 00 Sheet Metal Flashing and Trim
	1. **REFERENCES**
10. Test Standards
	1. ICC AC 90: Acceptance Criteria for Fiber Cement Siding used as Exterior Wall Siding
	2. IBC 1403.2: Reference Standard for Selection of Weather Resistive Barriers
	3. AAMA 509: Test and Classification Method for Drained and Back-Ventilated Rainscreen Wall Cladding Systems
	4. ASTM C120-90: Standard Test Methods of Flexure Testing of Slate (Breaking Load, Modulus of Rupture, Modulus of Elasticity)
	5. ASTM C1185: Standard Test Methods for Sampling and Testing Non Asbestos Fiber Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards
	6. ASTM C1186: Standard Specification for Flat Fiber-Cement Sheets
	7. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials
	8. ASTM E136: Standard Test Method for Behavior or Materials in a Vertical Tub Furnace
	9. ASTM E228: Standard Test Method for Linear Thermal Expansion of Solid Materials with a Push-Rod Dilatometer
	10. ATSM G155: Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials
	11. ASTM E330: Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
	12. ASTM E331: Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
	13. EN12467: European Committee for Standardization: Fiber Cement Flat Sheets. Product Specification and Test Methods
	14. **SUBMITTALS**
11. Refer to Section 01 33 00 – Submittal Procedures
12. Product data: Manufacturer’s data sheets on each product to be used, including, but not limited to:
	1. Preparation instructions and recommendations
	2. Storage and handling requirement and recommendations
	3. Installation methods for the supporting framework and the panels
13. Shop Drawings: Submit detailed shop drawings showing:
	1. Location, layout, and dimensions of panels
	2. Locations of fasteners
	3. Locations of panel fixed and sliding fastening points
	4. Cladding details at top, bottom, corner, windows, doors, etc.
14. Engineering Calculations: Submit engineering calculations as required by local building code
15. Samples
16. 1 inch by 3.25 inch minimum fiber cement color samples for selection by architect
17. One 4 inch by 5.8 inch fiber cement panel in selected color and surface finish
18. Provide samples of each type of panel fastener
19. Provide manufacturer’s Design and Installation Manual
20. Provide manufacturer’s sample warranty
	1. **QUALITY ASSURANCE**
21. Manufacturer Qualifications: Minimum of twenty (20) years’ experience in the production of fiber-reinforced cementitious panels
22. Installer Qualifications: Acceptable to panel manufacturer’s representative, with a minimum of five (5) years of proven experience in the installation of the specified products on projects of a similar size and scope.
23. Mock-up shall incorporate panels and all accessories
	1. **DELIVERY, STORAGE, AND HANDLING**
24. Storage and handling to comply with Design and Installation Manual
	1. **WARRANTY**
25. Manufacturer standard warranty against material failure for a period of ten (10) years from date of delivery. Warranty only available when material installed by certified installation contractor and shop drawings approved by manufacturer
26. Failures include, but are not limited to:
27. Structural failure: Cracking, rupture, warping, spalling, or peeling
28. Surface failure: Efflorescence, fading, discoloration

**PART 2 – PRODUCTS**

**2.1 MANUFACTURER**

1. Basis of Design: Swisspearl®
	1. Swisspearl Fiber Cement Panel
		1. Panel Thickness: {8mm / 12mm}
		2. Color: {Carat / Reflex / Avera / Incora / Texial / Vintago / LL 12/12 / Nobilis / Zenor / Clinar / Clinar Clip}
		3. Panel size: As shown on architectural drawings [Maximum panels size of 1220mm x 3050mm]
	2. Represented locally by: Metro Building Solutions, Inc., Alex Moshenberg, 917.584.7538
2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 – Product Requirements

**2.2 PRODUCT REQUIREMENTS**

1. Provide panels and panel fasteners from a single source.
2. Provide panels and panel supports capable of the following:
	1. Wind Loads:
		1. Field: (30) PSF, positive and negative pressure
		2. Corner: (30) PSF, positive and negative pressure
	2. Deflection Limits: Withstand deflection L/300 maximum
3. Panel Performance
	1. Color Change in accordance with ASTM G155
		1. 2000 Hours: Change in E < 1.9
		2. 5000 Hours: Change in E < 3.6
	2. Frost Resistance: > 1000 cycles
	3. Guaranteed to be free from efflorescence proven by referenced projects a minimum of 5-10 years old

**2.3 MATERIALS**

1. Panels made from:
	1. Portland cement, ground limestone, additives
	2. Polyvinyl alcohol fibers and cellulose fibers
	3. Acrylic coasting to panel face, rear, and all edges
2. Panels must be air cured for a minimum of 4 weeks
3. The following characteristics are not acceptable:
	1. Autoclaved products
	2. Products reinforced with only cellulose fibers
	3. Efflorescence

**2.4 FABRICATION**

1. Fabricate panels by a manufactured approved fabricator
2. Field dimension: Field verify overall dimensions prior to panel fabrication
3. Dimensional tolerances
	1. Overall panel dimensions within 1mm of panel width and height
	2. Squareness within 0.5mm per meter
4. Labeling: Apply identification label to back side of each fabricated panel

**PART 3 – EXECUTION**

**3.1 EXAMINATION**

1. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of drained and back ventilated rain screen cladding
2. Do not proceed with cladding installation until deficiencies have been addressed

**3.2 PREPARATION**

1. Clean substrates of projections and substances detrimental to application
2. Coordinate panel installation with rain drainage work, flashing trim, soffit, roofing, parapet, wall and other adjoining work to provide a leak-proof, secure, and non-corrosive installation
3. Allow for scaffolding or mobile access to all parts of cladding

**3.3 INSTALLATION**

1. Install panels in accordance with manufacturer’s Design and Installation Manual and approved shop drawings.
2. Install panels with appropriate joint layout and configuration. Vertical and horizontal joints shall be open approximately 3/8” (5mm) wide.

**3.4 QUALITY CONTROL**

1. The installing contractor shall perform daily inspections of panel installation to maintain and confirm that tolerances are being met and that panel manufacturer’s DIM is complied with.
2. The owner may engage a third party inspection agency to verify that installed panels meet performance requirements and tolerances.

**3.5 CLEANING AND PROTECTION**

1. Remove and replace broken, chipped, stained, or otherwise damaged panels.
2. Immediately after installing, wipe down panels. Do not use wire brushes, metallic tools, or abrasives for cleaning.
3. Protect cladding from roof run-off, splashed water, mud, sealants, bitumen, and other contaminants from remaining construction activities.
4. Without damaging completed work, provide protective boards at exposed external corners, which may be damaged by construction activities.

**END OF SECTION 07 42 46**