

CEM-STEEL Cement Board Security Wall Panels
----- **Architectural Specification** -----
Last Update: 03/12/2003

I. General:

The work under this Section is subject to the provisions of the Contract and the Contract Documents, which in any way affect the work herein specified.

II. Scope of Work:

A. Furnish and install interior and/or exterior wall mounted reinforced cement board wall panels as shown on the drawings or as herein specified.

B. Coordinate this section with interfacing and adjoining work for proper sequencing of installation.

III. Work in Other Sections:

A. Metal stud framing systems.

B. Wood stud framing systems.

C. Wall insulation.

D. Gypsum wallboard.

E. Exterior and interior finish systems and materials.

IV. Materials:

A. General: All interior and exterior wall mounted cement board wall panels shall be Cem-Steel by U.S. Architectural Products, Inc., Lincoln, RI, 800-243-6677, or equal. Install according to manufacturer's most current published instructions at <http://www.architecturalproducts.com> Cement board wall panels shall comply with ASTM C-1186-91 Norm, standard specification for flat non-asbestos fiber-cement sheets, Grade 1.

B. Wall Panels:

1. Panels to be of metric thickness: 11mm (7/16") minimum, or 17mm (5/8"), 20mm (3/4"), or 22mm (7/8"); in 4' x 8' sizes as shown on drawings.

2. Panels shall have the following minimum mechanical properties (in dry condition):

2.a. Modulus of Elasticity perpendicular to fibers (per ASTM C120) 775,000 psi

2.b. Modulus of Rupture perpendicular to fibers (per ASTM C120) 1,820 psi

2.c. Shear Strength (per ASTM D732) 1,180 psi

2.d. Tensile Strength perpendicular to fibers (per ASTM D209) 690 psi

2.e. Compressive Strength perpendicular to surface (per ASTM C170) 3,860 psi

3. The proper panel thickness for the design load, deflection limit and framing spacing shall be selected from the manufacturer's loading tables.

4. Cement board wall panels shall be factory silicone impregnated to resist surface water penetration.

V. Samples and Submittals:

A. Submit two 12" x 12" pieces of panel in thickness selected.

B. Submit two copies of specifications, installation instructions and general recommendations of the manufacturer.

VI. Fire Resistance Characteristics:

A. Cement board panels shall be noncombustible in accordance with ASTM E136.

B. Surface burning characteristics shall be rated zero flame spread and zero smoke development in accordance with ASTM E84.

VII. Delivery and Storage:

A. Deliver, store and handle materials to prevent breakage, warping or damage by water.

B. Acclimatize materials by storing on site not less than three days before installation.

C. Materials to be stored indoors on leveled dunnage not exceeding 32" on centers. If temporarily stored outdoors, boards are to be elevated above ground, and covered top and sides with tarpaulins to prevent warping and water damage.

D. Panels to be stored flat and not on edges.

VIII. Installation:

A. Tools: Use standard carpentry tools to cut and install panels.

B. Installation:

1. A support-framing member must always occur behind fastener location.

2. Screw fasteners attaching collateral materials to Cem-Steel boards must penetrate the steel backing of the panel in order to achieve acceptable holding/pull-out values. Do not over-drive screw fasteners resulting in thread strip-out from the steel backing of the panel. Do not nail collateral materials to Cem-Steel panels – use screw fasteners only.

3. Deflection of panels shall be limited to L/240.

4. In exterior application, control joints (where applicable) shall be designed to prevent transfer of any movement or stress to exterior finish. Through-wall control joints shall be designed to isolate a maximum of 250 sq. ft. of wall area. Provide separate framing member at each side of control joint.

5. Comply with applicable building codes for wind, seismic and other load requirements.

6. Install panels with long dimension vertical. All panel joints must occur at a framing member. All panel edges to be supported by a framing member.

7. Provide 1/8" vertical and horizontal joints between panels.

8. Use 11mm (7/16") minimum thickness.

9. Use 2 inch minimum flange stud width framing for single stud back up at panel joints; if framing stud flanges are less than 2" wide, use double studs at panel joints with 1-5/8" minimum flange widths. Opposite side of stud wall to be restrained against stud rotation.

10. Never install panels while wet or damp.

C. Fasteners:

1. Metal studs: #8 diameter minimum x lengths as applicable to panel thickness, non-corroding, with self-drilling point and self-countersinking head, type S-12 screws. Do not use black phosphate screws.

2. Wood studs: #8 diameter minimum x lengths as applicable to panel thickness, non-corroding, Hi-Lo type screws with self-countersinking head or non-corroding ring nails. Do not use black phosphate screws.

D. Fastening:

1. Screw fasteners to be 12" o.c. maximum spacing attaching panels to framing members.

2. Maintain centerline of fasteners a minimum of 3/4" from all edges of panels.

3. Do not overdrive screw heads. Seat screw heads flush with panel surface.

4. Maintain minimum 2" distance from panel corners with any screw fastener. Do not locate screw fasteners at 45-degree angle from each other at board corners.

E. Finishes

1. Direct applied synthetic stucco finishes must be of the elastomeric type such as GrailCoat or Stuc-O-Flex or equal. Do not use cement or mortar based stucco finishes applied direct to the Cem-Steel panels.

F. Joint Filler:

1. Exterior installation: Premixed elastomeric joint sealant as approved for use in the synthetic coatings manufacturer's system.

G. Joints:

1. At exterior applications, use sufficient elastomeric joint compound to fill 1/8" joint prior to fixing adjacent panel. Compress joint compound when installing adjacent panel. Provide full board coverage of open weave, balanced treated glass fiber mesh, minimum 5 oz/sq. yd. set in wet elastomeric base coat. Wrap all exposed edges of cement board panels at openings with mesh.

2. Interior installation: Design for visible cement board panel joints.

___ END OF SECTION ___