

# STRUCTOCORE™ Brand Security Wall Metal Lath Sheets

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## Materials

- STRUCTOCORE Sheets, (12 ga.) (14 ga.) (16 ga.) (18 ga.) galvanized finish, (height x width): standard sizes nominal 4' x 8' (actual 48.19" x 98.44") and nominal 4' x 10' (actual 48.19" x 121.88"), nonstandard sizes available, steel meeting ASTM A526, commercial quality hot-dipped galvanized (minimum G-60), minimum 33 ksi yield strength.
- (1/2") (3/4") fasteners, No. 10-16 Hex Washer Head Screws, CLIMASEAL coated, or welds of equal strength.
- 18 ga., G-60 hot-dipped, galvanized perforated steel angles:  
STRUCTOCORE Vertical Abutment Angle 4" x 1-1/2" x (8') (10').  
STRUCTOCORE Floor-Ceiling Angle 1-3/4" x 1-3/4" x (8') (10').  
STRUCTOCORE 135° Intersection Angle 4" x 4" x (8') (10').  
STRUCTOCORE Flat Accessory Plate 5-1/2" x (8') (10') with 4 rows of holes.
- STRUCTO-BASE Gypsum Basecoat Plaster (Machine Application) (Hand Application), meeting ASTM C28, 2800 psi when tested in accordance with test procedures outlined in ASTM C472.
- IMPERIAL Brand Finish Plaster, 3000 psi when mixed according to bag directions and tested in accordance with test procedures outlined in ASTM C472.
- USG™ Standard Strength Accelerator.
- Corrosion-resistant anchors, 400 lb. shear, 300 lb. pull-out safe load (minimum).
- No. 1 sand meeting ASTM C35 (for STRUCTO-BASE Gypsum Plaster).
- Potable water, free of significant organics (See Specifications section 3.5).
- Paint finish of (alkyd enamel undercoater, semigloss alkyd enamel finish) (polyamide epoxy, high-gloss finish) to meet water erosion hose stream test or acrylic latex paint.
- Structural steel jamb channels, base plates and bunk mounting plates.
- 3" x 3" x 3/8" outside corner guard angle.

## Equipment

Plastering pump specifically designed to meet the requirements of high-volume delivery of sanded gypsum basecoat mixes, at a water usage and fluidity as specified in Section 3.5 Plastering Materials, and which allows plaster application without segregation of material or interruption of work.

## Preparation

Accurately align and plumb the wall construction in the location depicted on approved drawings.

## Steel Forming

**Layout** Partition and ceiling layout for the STRUCTOCORE Security System is accomplished in a conventional manner except measured from the center line of the STRUCTOCORE Sheet.

**Panel Angles** Measure the opening and determine the wall or ceiling center line. Align and set trailing end of floor angle about 1/2" from the wall or vertical structural member. Align outstanding legs 3/4" off one side of the center line. Securely anchor 1-3/4" x 1-3/4" 18 ga. STRUCTOCORE Floor-Ceiling Angles to the floor with fasteners not exceeding 12" o.c. Repeat process at header. Where angle run is greater than length of angles, space angle ends 1/8" apart and continue layout. Field cut last angle to about 1/2" from existing or adjacent walls. In order to increase attachment area and ease of installation, STRUCTOCORE Vertical Abutment Angles (4" x 1-1/2" 18 ga.) may be used in place of the Floor-Ceiling Angles (1-3/4" x 1-3/4" 18 ga.). With 4" leg in plane of wall, attach 4" x 1-1/2" 18 ga. STRUCTOCORE Vertical Abutment Angles to the side walls. Cut angles to a min. 1/8" short of the floor, ceiling, and header angles at ends.

**Sheet Layout** STRUCTOCORE Forming Sheets can be installed individually or assembled in multiples and raised into position. Minimum overlap is 1 wave or 3 rungs; sheet width is the dimension parallel to the ribs, and length is the dimension perpendicular to the ribs.

- Partitions—Install STRUCTOCORE Forming Sheets horizontally so ribs run top to bottom of partition. Sheets can be erected from bottom up or hung from the top angle. Hanging the sheets allows for self-plumbing and ease of installation. Start with a full STRUCTOCORE Sheet on the upper course and position the ribs vertically. Care should be employed in order to level the first row of sheets. Allow 1/8" minimum between the web of the Vertical Abutment Angle and the forming edge. Screw attach or weld the STRUCTOCORE Sheets to leg of the Floor-Ceiling Angle at every other rib. For walls over 12'0" high, attach at every rib. Screw attach the trailing edge of the sheet to the Vertical Abutment Angle 7" o.c. Overlapping of courses may be increased in order to accommodate wall height and length

## Preparation

(continued)

in order to reduce cutting of sheets. If sheets must be cut, start second course sheets with a partial width sheet. Overall rib length can be up to 1-1/4" less than clear height. Nest and interlock sheets in increments of three rows of corrugations (3-5/8" minimum) on horizontal joints and one course on vertical joints. Connect with wedges, screws or welds. An additional screw should be driven when a screw has stripped. Temporary clamping should be employed during fastening. This can easily be accomplished with the STRUCTOCORE Shoe Horn Splice (which can be removed or left in place after fastening), locking-type pliers, or C-clamps. For single-side applications, install 3.4 self-furring metal lath to the back side of the STRUCTOCORE Forming Sheets. Lath is installed by sliding it into place as the STRUCTOCORE Sheets are being installed. Lath shall be overlapped a minimum of 1" in either direction and wire-tied to the STRUCTOCORE Sheets (place every 12" in both directions). Provide temporary bracing (strong backs) to plumb the forming sheets until after the plaster application scratch coat has fully set.

Remove free oil and loose rust from the forming to permit adequate plaster application. Verify wall straightness and conformance with specified tolerances for surfaces to receive direct application. Sequence plaster installation properly with the installation and protection of other work.

- Ceilings—Install adequate horizontal support framing to carry dead load of the STRUCTOCORE ceiling system and any required live loads. Attach 3.4 self-furring paper-backed metal lath to support framing. Install STRUCTOCORE forming sheets so ribs run perpendicular to support framing. Secure forming sheet to support framing by means of wire ties, screws or welding as suitable based on support framing metal.

### Accessories

- The STRUCTOCORE Shoe Horn Splice is used to connect overlapped STRUCTOCORE Sheets.
- The STRUCTOCORE Flat Accessory Plate (5-1/2" x 8' with 4 rows of holes) can be used in a variety of applications and custom details. This flat plate can be field modified for almost any application.

## Electrical

Install electrical conduit and junction boxes on the forming before plaster application. Local electrical codes shall govern. Conventional outlet boxes can be fastened to the face of the STRUCTOCORE Sheets prior to plastering and connected with flexible conduit, metal or plastic. The flexible conduit can easily be fished through the ribbing of the erected STRUCTOCORE Sheets prior to plastering.

## Doors and Openings

Cut angles and sheets as necessary to provide designated rough openings at specified locations. Attach door or opening anchors to sheets in approved manner. Frame corners shall be mitered and ground smooth. Door or other frame-outs shall be properly positioned before plaster is applied.

## Plastering Materials

**Machine application** Mix STRUCTO-BASE Gypsum Basecoat Plaster (Machine Application) with sand aggregate in the proportions of 2 cu. ft. sand per 100 lbs. of plaster with water to provide a fluid mix to be applied as a fog coat 1/8" to 1/4" thick to the STRUCTOCORE Forming Sheets. Fog coat to set and partially dry prior to application of the scratch coat.

**Hand application** Mix STRUCTO-BASE Gypsum Basecoat Plaster (Hand Application) with sand aggregate in the proportions of 1/2 cu. ft. sand per 100 lbs. of plaster with water to provide a highly fluid mix to be applied as a fog coat 1/8" to 1/4" thick to the STRUCTOCORE Forming Sheets using a hopper gun and compressed air, or splatter dash using a stiff fiber brush to forcibly throw the material onto the steel sheets. Fog coat to set and partially dry prior to application of the scratch coat.

- Mix STRUCTO-BASE Gypsum Basecoat Plaster (Machine Application) with sand aggregate in the proportions of 2 cu. ft. of sand per 100 lbs. of plaster for scratch coat, brown coat and screeding operations over STRUCTOCORE Sheets. Mix in strict accordance with label directions on gypsum plaster bag, making sure not to exceed 5.5 to 6.0 gallons of clean water per 2:1 sand to gypsum plaster mix.
- Optimum batch material fluidity for machine application of plaster can be determined at the mixer by adjusting water usage to achieve a 1" hopper slump to maintain strength development.

**Preparation**  
(continued)

Slump Test Procedure:  
Place a wetted 2" ID x 4" high cylinder on base plate.  
Gradually fill cylinder with material, puddling occasionally; when full, strike off flush with top of cylinder.  
Slowly raise cylinder and allow material to slump.  
Position empty cylinder alongside material and place a rule on cylinder top to overhang material—measurement from rule to material indicates slump.  
– For amount of coverage, follow the guidelines in the table below:

Plaster	Coverage	Comments
STRUCTO-BASE Basecoat Plaster	190 ft. <sup>2</sup> /ton/3-1/2" wall	Machine- or hand-applied
	170 ft. <sup>2</sup> /ton/4" wall	Machine- or hand-applied
	150 ft. <sup>2</sup> /ton/4-1/2" wall	Machine- or hand-applied
IMPERIAL Brand Finish Plaster	3200-3600 ft. <sup>2</sup> /ton	Over sanded STRUCTO-BASE Basecoat Plaster

**Screeding**

**Dots** A dab or mound of plaster applied to the scratch coat in an appropriate position, normally 6" from all internal angles, ceilings and floors, and plumb with finish wall line, with a small piece of wood (1" x 2") or similar material embedded across its face to assist in obtaining a true surface in plaster. Dots are placed horizontally for vertical screeds and vertically for horizontal screeds.

**Screeds** Vertical screeds are generally set between a pair of dots that have been plumbed with finish wall line. Once dots have set or become sufficiently firm to withstand pressure from the straightedge or browning rod, a small quantity of basecoat material is applied by trowel, held in a vertical position; and, with a pinching action, to the area between the dots. As soon as this material reaches the same thickness as the dots, it is rodged to be even with the dots. Having cut off all the surplus material, inspect the screed, and if there are places where the rod has not touched, fill these in again and repeat the operation with the rod. As soon as every part of the screed is seen to be in contact with the browning rod (straightedge) and flush with both dots, trim the edges straight and leave until firm enough to use as a guide for the second (brown) coat application. The preceding description would also be suitable for horizontal screeds rodged to vertical dots.

**Machine-Applied  
STRUCTO-BASE Gypsum  
Basecoat Plaster  
Application**

1. Spray apply fog coat of plaster per mix proportions and thickness indicated on page 2 (machine application).
2. Spray apply scratch (first) coat to a minimum 3/8" thickness. Before set, trim or remove high spots or surplus material from angles and floor line. For single-side applications, force initial scratch coat material through STRUCTOCORE Forming Sheets into metal lath with trowel. Apply second scratch coat after first scratch coat sets. Allow scratch coat to set and dry thoroughly (approximately 24 to 48 hours) before application of subsequent brown (second or third) coat. Use mix proportions indicated above.
3. After scratch coat sets, install plaster dots (approximately 1" x 4") plumb with finish wall line, and subsequent screeds, allowing 1/16" for finish coat. Scream composition shall consist of STRUCTO-BASE Gypsum Basecoat Plaster (Machine Application) with USG™ Standard Strength Accelerator added, if necessary, to shorten the setting reaction time. Build up plaster screeds (grounds) to provide necessary plaster thickness of wall surface. Screeds shall be approximately 4" wide to avoid warping and out-of-plumb areas. Use mix proportions indicated on page 2.
4. Spray apply brown (second) coat, laying on proper thickness with one pass and overlapping successive strokes. Rod brown coat flush with screeds, leaving walls ready for finish coat. Use mix proportions indicated above.
5. Plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise shown. Where plaster is not terminated at metal by casing beads, cut basecoat free from metal before plaster sets.

<b>Preparation</b> (continued)	<b>Hand-Applied STRUCTO-BASE Gypsum Basecoat Plaster Application</b>	<ol style="list-style-type: none"> <li>1. Apply fog coat of plaster per mix proportions and by procedures indicated in paragraph 3.5B (hand application).</li> <li>2. Apply scratch coat by “dashing” or throwing plaster mix onto “fogged” STRUCTOCORE Forming Sheets, scratch coat to be approximately 3/8” thick and allowed to set and partially dry. Apply an additional scratch coat as necessary to attain a wall surface suitable for placement of dots, screeds and subsequent brown coat. Use mix proportions indicated on page 3.</li> <li>3. Install dots and screeds per page 3. Use mix proportions indicated on page 3.</li> <li>4. Apply brown coat using conventional plastering hand tools (hawk and trowel), using the scratch and double-back method of application. Rod final brown coat flush with screeds, leaving walls ready for finish. Use mix proportions indicated on page 3.</li> </ol>
	<b>IMPERIAL Brand Finish Plaster Application</b>	<ol style="list-style-type: none"> <li>1. Procedure for mixing IMPERIAL Brand Finish Plaster shall comply with U. S. Gypsum recommendation data sheet PM9.</li> <li>2. Apply finish coat when basecoat is practically dry (damp, not wet), approximately 48 hours after brown coat application. Apply a tight scratch coat over entire working area; immediately double back with material from the same batch to a nominal 1/16” thickness.</li> <li>3. Start finish troweling as soon as material has become sufficiently firm to achieve a smooth surface free from marks, voids, and other blemishes.</li> <li>4. Where plaster is not terminated at metal by casing beads, “V” groove finish coat at the junctures with metal.</li> </ol>
	<b>Decoration</b>	After the plaster wall matrix is completely dry, IMPERIAL Brand Plaster Finish may be painted with alkyd enamel undercoater with semi-gloss alkyd enamel finish, or two coats polyamide epoxy with high-gloss finish (to meet water erosion hose stream test) or acrylic latex paint.
	<b>Cleanup</b>	When plastering work is completed, remove temporary protection and enclosure of other work. Promptly remove plaster from door frames, windows and other surfaces that will not be plastered. Remove unused materials and equipment and clean floors of

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