



## **NOCSA Standard for Installation and Furring of Plaster Base (Lath) for Vertical Construction**

### **1.0 Scope**

1.1 This specification covers the minimum technical requirements for the installation of plaster base and accessories for proprietary one coat stucco systems (OCS). This specification does not assign any units of work to any specific trade. Some items listed in this specification may be required prior to the plaster base installation and are not the responsibility of the lath and plaster contractor.

1.2 Proprietary one coat stucco systems shall be accompanied by a current Evaluation Report from an evaluation service. Evaluation Reports shall show compliance with Acceptance Criteria 11 (AC-11). The specifications outlined herein are specific to the proprietary one coat stucco and do not fall under any ASTM application or installation standards.

### **2.0 Terminology**

2.1 *Casing bead* - an accessory used to terminate one coat stucco to a dissimilar material and establish grounds for thickness. Can be short flange or expanded flange. Also referred to as plaster stop or J mold. Can be manufactured using galvanized steel, stainless steel, vinyl, or zinc alloy.

2.2 *Control joint* - an accessory used to create panels and breaks in one coat stucco wall assemblies and establish grounds for thickness. Control joints will also accommodate minimal shrinkage and movement in the assembly. Control joints aid in the isolation of cracking to a specific panel. Control joints ARE NOT expansion joints. Can be manufactured using galvanized steel, stainless steel, vinyl, or zinc alloy.

2.3 *Corner bead* - an accessory used to reinforce, establish grounds for thickness, and aid in keeping outside corners straight and true. Can be manufactured using galvanized steel, stainless steel, vinyl, or zinc alloy.

2.4 *Expansion joint* - a two-piece accessory used to accommodate breaks in construction at floor lines, where dissimilar materials meet, or other areas where movement in the structure is anticipated. Sheathing must not span these breaks in construction. Expansion joints may be a premanufactured part, or may be two pieces of casing bead back to back with backer rod and sealant. Can be manufactured using galvanized steel, stainless steel, vinyl, or zinc alloy.

2.5 *Fastener* - an item used to attach plaster base and/or accessories to a framing member or to the plaster base material. Can be staples, nails, screws, or tie wire. Must be manufactured from corrosion resistant material.

2.6 *Weep screed* - an accessory used to terminate the base of the one coat stucco at the bottom of the wall assembly. Foundation weep screed must have a solid 3 ½-inch (89 mm) vertical leg. Can be manufactured using galvanized steel, stainless steel, vinyl, or zinc.

2.7 *Framing member* - studs, joists, tracks, plates or any other items that are part of the frame of the structure. Can be wood or steel.

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**2.8 Furring** - a method used to keep the plaster base away from the wall so that the one coat stucco will key into and fully embed the plaster base. Most plaster bases are self-furring.

**2.9 Plaster base** - any type of material fastened to the framing member for the one coat stucco to be applied. Can be expanded metal lath, welded wire, woven wire, vinyl, or other material. Plaster base must be either manufactured to its applicable ASTM standard or have an Evaluation Report demonstrating approval for use as a plaster base.

**2.10 Self-furring** - a plaster base manufactured with evenly spaced indentations that hold the plaster base away from the wall a minimum of 1/8" (3.2 mm) (for application 1/2" (12.7 mm) thickness or less) from solid surfaces to which it is installed.

**2.11 Weather resistive barrier** - a material that resists the infiltration of moisture behind the one coat stucco cladding.

### 3.0 Delivery and storage of materials

3.1 Materials shall be delivered in their original packaging or bundles, bearing the manufacturer's brand name and ASTM material certification or Evaluation Report identification.

3.2 Materials shall be stored in a clean, dry environment stacked neatly off the ground to avoid damage to products.

### 4.0 Material standards

4.1 Metal plaster bases, lath and trim accessories, furring accessories, and fasteners shall be selected for compatibility to minimize galvanic corrosion between each other and any other components they may encounter. Must meet ASTM Standards for materials and manufacturing.

4.2 Metal plaster bases:

Furring- Metal plaster bases shall be furred over all substrates except unfaced insulation boards.

4.2.1 When the base coat thickness is 1/2-inches (12.7 mm) thick or less, the body of metal plaster base shall be furred a nominal of 1/8-inch (3.2 mm) from the substrate.

4.2.2 When the base coat thickness greater than 1/2-inches (12.7 mm) thick, the body of metal plaster base shall be furred a nominal of 1/4-inch (6.4 mm) from the substrate.

4.2.2.1 Expanded metal lath must meet ASTM C847 Standard Specification for Metal Lath

4.2.2.2 Welded wire lath must meet ASTM C933 Standard Specification for Welded Wire Lath

4.2.2.3 Woven wire lath must meet ASTM C1032 Standard Specification for Woven Wire Plaster Base. 20 gage woven wire may only be used when the base coat thickness is 1/2-inches (12.7 mm) thick or less.

4.3 Lathing accessories shall meet specifications in ASTM C1861, Specification for Lathing and Furring Accessories, and Fasteners, for Interior and Exterior Portland Cement-Based Plaster.



4.4 Selecting the appropriate type of plaster base and accessories shall be up to the design professional. Plaster base and accessories should be selected to be compatible with the environment and climatic conditions specific to the location of the project. These conditions include, but are not limited to, salt air, high moisture, and industrial pollution.

4.5 *Framing* - Requirements for framed substrates to receive plaster base:

4.5.1 Framing design and erection is not the responsibility of the lath and/or plaster contractor.

4.5.2 Framing shall be designed and erected by qualified individuals in their respective fields.

4.5.3 Framing shall be designed and performed so that deflection shall not exceed  $L/360$  (0.33 inches in 10ft).

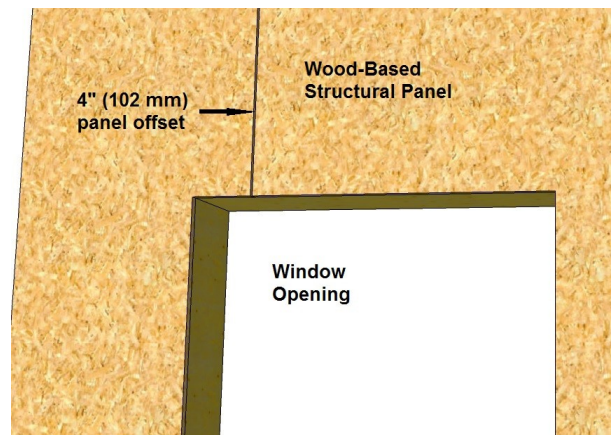
4.5.4 Framing shall be designed to withstand the wind load requirements of the jurisdiction of the project.

4.5.6 Framing shall be a maximum of 24 inches (0.61 m) on center.

4.6 Sheathing:

4.6.1 Substrates to receive plaster base for one coat stucco shall be straight and true to a tolerance of  $1/4''$  in 10 feet (6.4 mm in 3 m).

4.6.2 Wood-based structural panels must be minimum  $5/16''$  (7.9 mm) OSB or plywood for framing spaced  $16''$  (0.41 m) on center, and minimum  $3/8''$  (9.5 mm) OSB or plywood for framing spaced  $24''$  (0.61 m) on center. Plywood must be Exposure 1 and comply with US DOC PS-1 as applicable; OSB must be Exposure 1 and comply with US DOC PS-2.



Detail 1, Reentrant Corner Detail

4.6.2.1 Wood structural panels shall have a gap of  $1/8''$  (3.2 mm) around all edges of the board, and panel edges shall be offset a minimum of  $4''$  (102 mm) around all reentrant corners. (See Detail 1)

4.6.3 Water-resistant core-treated gypsum sheathing must comply with ASTM C79 or C1396. Gypsum sheathing must comply with ASTM C36 or C1396. Gypsum sheathing panels shall be installed in compliance with ASTM C1280.

4.6.4 Fiberboard must be a minimum of  $1/2''$  (12.7 mm) thick, asphalt impregnated must comply with ASTM C208 as a regular density sheathing.

4.6.5 Insulation Board:



4.6.5.1 Expanded polystyrene (EPS) - EPS foam insulation boards, when used as a sheathing, must have a nominal density of 1.5 lb/pcf, and a flame-spread index of 25 or less and a smoke developed index of not more than 450 when tested in accordance with ASTM E84. The boards must all comply with ASTM C578 as Type II. All boards must be recognized in an Evaluation Report and in the Evaluation Report of the one coat stucco manufacturer.

4.6.5.2 Foam insulation boards installed without sheathing, over open framing, must have a minimum nominal 1 inch thickness and have a 3/8" (9.5 mm) high tongue with compatible grooves for horizontal joints.

4.6.5.3 Extruded polystyrene (XPS) - XPS foam insulation boards must have a minimum nominal density of 1.5 lb/pcf and must comply with ASTM C578 as Type IV or V. All boards must be recognized in an Evaluation Report and in the Evaluation Report of the one coat stucco manufacturer.

4.6.5.4 Polyisocyanurate - Polyisocyanurate foam insulation boards must have a nominal density of 2 lb/pcf and must comply with ASTM C1289 as Type II. Polyisocyanurate foam insulation boards must have a flame spread index of 25 or less and a smoke-developed index of 450 or less tested in accordance with ASTM E84 or UL723. Polyisocyanurate boards shall have all squared joints installed at horizontal and vertical edges supported by framing or blocking and be limited to non-fire-resistant-rated and combustible construction. All boards must be recognized in and Evaluation Report, and in the Evaluation Report of the one coat stucco manufacturer.

4.6.5.5 Mineral Wool - Boards must have a density per, ASTM C303 of 11 lbs/ft<sup>3</sup> (176 kg/m<sup>3</sup>), R-Value (U-Value) at 75°F (9°C) of 4.0 (0.25), Compressive strength of minimum 584psf (28kPa) @ 10% compression, Water Vapor Permeance of 1.00 in (25.2 mm) thickness, max., perm (ng/Pa.s.m<sup>2</sup>) of 35.0 (2160), Water absorption by total immersion, max., volume, % of 1.2, Flame spread of 0, Smoke development of 0.

## 5.0 Flashing

5.1 Flashing complying with 2018 IBC section 1404.4 or 2015, 2012, and 2009 IBC section 1405.4 and 2018, 2015 IRC section R703.4 as applicable, must be provided.

## 6.0 Water-resistive barriers

6.1 Water-resistive barriers must be installed prior to the installation of plaster base over all framed structures; water-resistive barriers are not typically used when direct applying over concrete or masonry. Follow the instructions given in one coat stucco manufacturer's Evaluation Report and local building codes. Water-resistive barriers are sometimes installed by other trades, but the one coat stucco contractor should review WRB installation prior to the application of plaster base and accessories.

6.2 Per IBC Section 1403.2 (2018) or 1404.2 (2015-2009) the requirements for the water-resistive barrier are: not fewer than one layer of No.15 asphalt felt complying with ASTM D226 for Type 1 felt or other approved materials shall be attached to the studs or sheathing, with flashing as described in Section 5.1, in such a manner as to provide a continuous water-resistive barrier behind the exterior wall veneer.

6.2.1 A WRB with an Evaluation Report showing equivalency to the requirements of Section 6.2 may be used.

6.3 Per IBC Section 2510.6 additional requirements for the water-resistive barriers are: water-resistive barriers shall be installed as required in Section 1403.2 (2018) or 1404.2 (2015-2009) and, where applied over wood-based



sheathing, shall include a water-resistive vapor-permeable barrier with a performance at least equivalent to two layers of water-resistive barrier complying with ASTM E2556, Type I. The individual layers shall be installed independently such that each layer provides a separate continuous plane and any flashing (installed in accordance with Section 5.1) intended to drain to the water-resistive barrier is directed between the layers.

6.3.1 IBC Exception 2018: (1) Where the weather-resistive barrier that is applied over wood-based sheathing has a water resistance greater than that of a water-resistive barrier complying with ASTM E2556, Type II and is separated from the stucco by an intervening, substantially non-water-absorbing layer or drainage space (2) Where the water-resistive barrier is applied over wood-based sheathing in Climate Zone 1a, 2A, or 3A, a ventilated air space shall be provided between the stucco and water-resistive barrier.

6.3.2 IBC Exception 2015: Where the water-resistive barrier that is applied over the wood-based sheathing has a water resistance equal to or greater than that of a water-resistive barrier complying with ASTM E2556, Type II and is separated from the stucco by an intervening, substantially non-water-absorbing layer or drainage space.

6.4 The use of foam board meets the exception's requirement for a substantially non-water-absorbing layer.

### 7.0 Installation of plaster base over open framing

7.1 *Accessories* - Install accessories, such as the weep screeds and casing beads prior to the installation of the foam insulation board. The accessory should be designed to encapsulate the thickness of the insulation board and one coat base coat.

7.2 The weep screed nose must extend a minimum of 1" (25 mm) below the joint where the framing meets the foundation, and a minimum of 4" above raw earth, or 2" (50 mm) above paved surfaces. *(NOTE- the final grade of the earth and paving is beyond the control of the lath and plaster contractor and is the responsibility of the designer and the general contractor).*

7.3 Casing beads must be installed before foam insulation boards to encapsulate the boards, so that no foam insulation board is left exposed.

7.4 *Water-resistive barrier* - The WRB must be installed per Section 6. The weather resistive barrier must overlap the 3" (76.2 mm) solid leg of the weep screed at the bottom of the wall.

7.5 *Foam insulation board* - Insulation board shall be installed horizontally, with the tongues facing upward and must be temporarily held in place by galvanized staples or roofing nails. Vertical butt joints must be staggered a minimum of one stud space from adjacent courses and be located directly over framing members.

7.6 *Plaster base* - Plaster base is then installed tightly over the foam insulation board, with 1-½" (38.1 mm) end and side laps for expanded metal lath. Woven wire and welded wire must be overlapped one mesh opening at each overlap. Alternate material plaster bases (nonmetallic) must be overlapped in compliance with the Evaluation Report for that product. The plaster base shall be fastened through the foam insulation board and weather resistive barrier, directly to the framing member.

Acceptable fasteners for wood framing are 11 gage galvanized roofing nails with 3/8" (9.5 mm) diameter heads or 16 gage, screws fabricated in accordance with either ASTM C954 or C1002 and shall have a 7/16" (11.1 mm) diameter pan wafer head and a 0.120 in. (3.0 mm) diameter shank, corrosion resistant staples with a minimum



crown width of 1/2" (12.7 mm), spaced a maximum of 7" (17.78 cm) on center and with a minimum penetration of 1-inch (25.4 mm) into the framing member. Screws used for attachment to metal framing members shall be self-drilling and self-tapping. Screws shall penetrate metal framing members 3/8", or 3 threads. Screws used for attachment to wood framing members shall be sharp-point. Screws shall penetrate wood framing members 3/4" (19 mm). Refer to manufacturer's Evaluation Report for additional fastening information. Care must be taken to avoid overdriving the fastener.

7.7 Plaster base must be installed with the long dimension at right angles to framing members, with the end joints of the plaster base staggered. Following angled gable lines at roof peaks is an acceptable practice. Plaster base shall be turned around inside and outside corners a minimum of one stud space, or corner reinforcement accessories must be used.

7.8 Plaster base may be continuous or discontinuous at locations of control joints. If the plaster base is to be discontinuous, additional framing must be provided so that the plaster base may be securely fastened to a framing member at both sides of the control joint, and the control joints wire tied to the plaster base. For continuous plaster base, the control joint shall be installed over the plaster base and wire tied to it. Vertical control joints shall be continuous, with horizontal control joints abutting them and set in a bead of sealant.

7.9 Expansion joints must be installed at expansion joint location in the building, the substrate, or its components. Expansion joints must be two pieces and capable of moving independently of each other. This may be accomplished with a prefabricated two-piece accessory, or by installing a piece of casing bead, back to back, on each side of the expansion joint with a minimum gap, sized for anticipated movement, then filled with backer rod and approved sealant.

7.10 Corner beads may be installed over the lath. Corners should be plumb, straight and true. Corners may be fastened to the framing member or attached to the plaster base.

## 8.0 Installation over solid substrates

### 8.1 Sheathing

**8.1.1 Fiberboard** - Minimum 1/2" (12.7 mm) thick fiberboard sheathing must be installed directly to framing. The fiberboard must be temporarily held in place using corrosion-resistant staples or roofing nails for wood framing or self-drilling screws for steel framing.

**8.1.2 Wood based structural panel** - Wood based structural panel sheathing must be installed directly to wood framing under the conditions set forth in 2018 and 2015 IBC Table 2308.6.3(3), 2012 and 2009 IBC Table 2308.9.3(3), or IRC Table 602.3(3), as applicable. The sheathing must be fastened in accordance with 2018 and 2015 IBC Table 2304.10.1, 2012 and 2009 IBC Table 2304.9.1 or IRC Table 602.3(1), as applicable.

**8.1.3 Gypsum sheathing** - Minimum 1/2" (12.7 mm) thick, water-resistant core-treated gypsum sheathing must be installed directly over wood framing spaced a maximum of 24" (0.61 m) on center. Gypsum sheathing must be fastened in accordance with IBC Table 2508.1, or IRC Table R702.3.5, as applicable. Gypsum sheathing may also be installed to minimum 20 gage steel framing spaced a maximum of 24" (0.61 m) on center. Gypsum sheathing over steel framing must be fastened with No.8 self-tapping screws, spaced 6" (152.4 mm) on center, and measuring a minimum of 1 3/16" (30 mm) long with 0.409" (10.4 mm) diameter heads. Screws fastening sheathing, and screws





fastening plaster base must be staggered from each other. The screws must penetrate the studs and tracks a minimum of 3/8" (9.52 mm) beyond the stud.

**8.1.4 Water-resistive barrier** - The WRB must be installed per Section 6.0. The water-resistive barrier must overlap the 3" (76.2 mm) solid leg of the foundation weep screed at the bottom of the wall.

**8.1.5 Foam insulation board** - The use of insulation board is optional over sheathing. When used, install foam insulation horizontally, with the tongues facing upward and must be temporarily held in place by galvanized staples or roofing nails. Vertical butt joints must be staggered a minimum of one stud space from adjacent courses and be located directly over framing members. When optional foam insulation boards are used, the foam insulation boards must have vertical grooves on the interior side to accommodate drainage, or flat faced foam insulation boards may be used provided the weather resistive barrier used is Tyvek Stucco Wrap or equivalent tested in accordance with ICC-ES AC11. The grooves in the foam insulation board must face the weather resistive barrier and must be aligned vertically, but may be offset a maximum of 6" (152.4 mm) from adjacent boards.

**8.2 Accessories** – Install accessories, such as the weep screeds and casing beads prior to the installation of the foam insulation board. The accessory should be designed to encapsulate the thickness of the insulation board and one coat base coat.

**8.3** The weep screed nose must extend a minimum of 1" (25 mm) below the joint where the framing meets the foundation, and a minimum of 4" above raw earth, or 2" (50 mm) above paved surfaces. *(NOTE- the final grade of the earth and paving is beyond the control of the lath and plaster contractor and is the responsibility of the designer and the general contractor).*

**8.4** Casing beads must be installed before foam insulation boards to encapsulate the boards, so that no foam insulation board is left exposed.

**8.5 Plaster base** - Plaster base is then installed tightly over the foam insulation board, with 1-½" (38.1 mm) end and side laps for expanded metal lath. Woven wire and welded wire must be overlapped one mesh opening at each overlap. Alternate material plaster bases (nonmetallic) must be overlapped in compliance with the Evaluation Report for that product. The plaster base shall be fastened through the foam insulation board and weather resistive barrier, directly to the framing member.

Acceptable fasteners for wood framing are 11 gage galvanized roofing nails with 3/8" (9.5 mm) diameter heads or 16 gage, screws fabricated in accordance with either ASTM C954 or C1002 and shall have a 7/16" (11.1 mm) diameter pan wafer head and a 0.120 in. (3.0 mm) diameter shank, corrosion resistant staples with a minimum crown width of 1/2" (12.7 mm), spaced a maximum of 7" (17.78 cm) on center and with a minimum penetration of 1-inch (25.4 mm) into the framing member. Screws used for attachment to metal framing members shall be selfdrilling and self-tapping. Screws shall penetrate metal framing members 3/8", or 3 threads. Screws used for attachment to wood framing members shall be sharp-point. Screws shall penetrate wood framing members ¾" (19 mm). Refer to manufacturer's Evaluation Report for additional fastening information. Care must be taken to avoid overdriving the fastener.

**8.6** Plaster base must be installed with the long dimension at right angles to framing members, with the end joints of the plaster base staggered. Following angled gable lines at roof peaks is an acceptable practice. Plaster base shall



be turned around inside and outside corners a minimum of one stud space, or corner reinforcement accessories must be used.

8.7 Plaster base may be continuous or discontinuous at locations of control joints. If the plaster base is to be discontinuous, additional framing must be provided so that the plaster base may be securely fastened to a framing member at both sides of the control joint, and the control joints wire tied to the plaster base. For continuous plaster base, the control joint shall be installed over the plaster base and wire tied to it. Vertical control joints shall be continuous, with horizontal control joints abutting them and set in a bead of sealant.

8.8 Expansion joints must be installed at expansion joint location in the building, the substrate, or its components. Expansion joints must be two pieces and capable of moving independently of each other. This may be accomplished with a prefabricated two-piece accessory, or by installing a piece of casing bead, back to back, on each side of the expansion joint with a minimum gap, sized for anticipated movement, then filled with backer rod and approved sealant.

8.9 Corner beads may be installed over the lath. Corners should be plumb, straight and true. Corners may be fastened to the framing member or attached to the plaster base.

### **9.0 Installation over concrete and masonry**

9.1 Surface preparation by others must be in accordance with IBC Section 2510.7. Surface must be clean, free of dust and other particles, and sufficiently damp to ensure proper bonding. Weather resistive barriers are not recommended over concrete or masonry substrates.

9.2 Plaster base is optional for applications up to 1/2" (12.7 mm) nominal thickness. If plaster base is to be used, it must be mechanically fastened to the concrete or masonry with power-actuated fasteners, or a combination of power-actuated fasteners and hardened concrete stub nails. One power-actuated fastener shall be placed at each corner and one at the midpoint of the long dimension adjacent to the edge of the plaster base sheet. The remainder of the plaster base must be fastened with power-actuated fasteners or hardened concrete stub nails. The fasteners must be installed in rows not more than 16" (40.1 cm) on center horizontally and spaced not more than 7" (177.8 mm) on center vertically. Power-actuated fasteners and hardened concrete stub nails must not be less than 3/4" (19 mm) in length, width heads not less than 3/8" (9.5 mm) in width. Where the heads of the fasteners are less than 3/8" (9.5 mm) in width, fastener must use a 7/8" (22.2 mm) diameter corrosion resistant metal washer, which must be perforated if the diameter exceeds 1" (25 mm).

9.3 Lathing accessories may be installed to concrete or masonry substrates adhesively or mechanically fastened. Where mechanically fastened, accessories must be fastened a maximum of 24" (177.8 mm) on center with poweractuated fasteners, hardened concrete stubs nails, or a combination of the two. Where adhesive installation is used, select an adhesive that is compatible with the plaster accessory material and concrete or masonry surfaces. Apply the adhesive to the flange of the accessory in nominal 1" (25 mm) dabs 24" (177.8 mm) on center, or in a semi-continuous bead along the solid portion of the attachment flange and press firmly to the concrete or masonry substrate.



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9.4 Where weather resistive barriers are to be used over concrete or masonry substrates, special instructions should be requested from the one coat stucco manufacturer, the plaster base manufacturer, and the weather resistive barrier manufacturer.