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METAL LATHING AND FURRING



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GUIDE SPECIFICATIONS FOR EXPANDED METAL LATHING AND FURRING

Fifth Edition

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METAL LATHING AND FURRING

EMLA

A Division of

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NATIONAL ASSOCIATION OF
ARCHITECTURAL METAL MANUFACTURERS



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HOW TO USE THESE SPECIFICATIONS

These specifications are a guide for the specification writer, inspector, and contractor concerned with the aspects of metal lathing and furring for plastered construction. They provide detailed information about many metal lath and plaster assemblies. In some instances, certain sections may not be applicable, however, Sections 1 through 7 are pertinent to all other sections and must be considered. Sections 6 & 7 contain requirements that apply to all others and should be included in any specifications prepared using this document as a basis.

Commentaries and explanatory notes, diagrams, etc. are inserted within the text where applicable and italicized. Appendix A provides supplementary information and details.

This specification covers the recommended minimum requirements for lath and furring. Other materials may be used provided their physical characteristics and durability under condition of usage are at least equal to those described.

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SPECIFICATIONS FOR METAL LATHING AND FURRING

1. SCOPE

This specification covers the minimum requirements for lathing and furring to receive full thickness plaster or stucco as specified in ASTM C842 and C926.

Where a specific degree of fire resistance is required, details of construction shall be in strict compliance with reports and appropriate tests.

2. REFERENCED DOCUMENTS

ASTM Standards

A1008-00 Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength: Low-Alloy and High-Strength Low-Alloy with Improved Formability.

A653/A653M (metric) Commercial Quality galvanized steel replaced A526.

A641/A641A Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

A1011/A1011M (metric) Standard Specification for Steel, Sheet, and Strip, Hot-Rolled, Carbon Structural, High-strength Low-Alloy and High Strength Low Alloy with Improved Formability. Replaced A569.

B69 Rolled Zinc Specification.

C645 Standard Specification for Nonstructural Steel Framing Members.

C842 Specification for Application of Portland Cement Based Plaster.

C847 Specification for Expanded Metal Lath.

C926 Specification for the Application of Portland Cement Plaster.

C954 Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. to 0.112 in. in Thickness.

C1002 Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases.

C1063-08 Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.

Federal Specifications

UU-B-790a Building Paper, Vegetable Fiber, (Kraft, Waterproofed, Water Repellent and Fire Resistant).

3. DEFINITIONS

3.1 Plaster trim, for the purposes of this specification, shall mean all parts or assemblies used in

conjunction with metal lath and plaster construction to establish grounds, reinforcement, boundaries, stress relief or isolation, aesthetic appeal or to fulfill a utilitarian function principally designed to augment the finished plaster or stucco installation. They are generally characterized by such products as corner beads, casing beads or plaster stop, control joints or expansion joints, foundation weep screeds, drip screeds, reveals, and ventilation screeds or any other members deemed necessary to complement the function of the primary plaster assembly.

4. DELIVERY OF MATERIALS

4.1 All materials shall be delivered in the original packages, containers or bundles bearing the brand name and manufacturer's (or supplier's) identification.

5. STORAGE OF MATERIALS

5.1 All materials shall be kept dry, preferably by being stored inside and protected from damage to materials or packaging for accessories. Where necessary to store lath outside, materials shall be stacked off the ground, supported on a level platform, and protected from the weather and surface contamination and damage to ends, edges or surfaces.

6. MATERIALS, GENERAL

6.1 Metal Lath- as specified in ASTM C847, with or without paper backing, shall be fabricated from hot dipped galvanized steel with a minimum G60 zinc coating.

Use of copper bearing steel for metal lath is now obsolete and no longer should be cited in current specifications.

The term galvanized refers to carbon steel that has been coated or galvanized with zinc by the hot-dip process.

The term zinc alloy denotes material comprised of almost pure zinc throughout the thickness of the product, with only enough alloy elements for workability.

Self-furring of diamond mesh metal lath (approximately 1/4 inch) may be accomplished by rolling intermittent dimples or continuously embossed ribs into the mesh. These ribs run longitudinally down the length of the sheet of lath.

6.2 Plaster Trim- All trim to be anchored in the plaster may have perforated, expanded, or solid flanges shaped so as to permit full embedment

in the plaster to provide a means for accurate alignment, and to secure attachment of the trim to the plaster base. This helps to avoid cracks in the stucco. Trim shall be designed to receive or to accommodate application of the specified plaster thickness.

6.3 Plaster trim shall be fabricated from hot-dipped galvanized steel or zinc alloy.

6.3.1 Galvanized steel, with a minimum G60 coating as specified in ASTM A653, and a thickness of .0172 as specified in ASTM C1063

6.3.2 Zinc alloy, as specified in ASTM B-69.

6.4 Plaster trim thickness shall be as follows:

TABLE 1

Accessory	Base Material	
	Steel (in.)	Zinc Alloy (in.)
Corner Beads	0.0172	0.0207
Cashing Beads	0.0172	0.0207
Weep Screeds	0.0172	0.0207
Control Joints	0.0172	0.0180

6.5 Zinc alloy plaster trims shall be used for installations where abnormal corrosion is possible due to high humidity and continual moisture exposure as in bath and shower rooms, greenhouses, swimming pool areas, etc., or where adverse atmospheric conditions may exist, (high saline content or acid rain) such as in coastal regions or heavy industrial areas.

6.6 Corner reinforcement (1.75 lb/sq. yd.) galvanized expanded metal strip lath bent to form corner reinforcement. It shall have legs of not less than 2 in. in width.

Cornerite in flat configuration (strip-lath) may also be applied diagonally across corner as reinforcement of concentrated stress areas on flat surfaces, such as at corners of door or window openings with strip width not less than 4 in.

6.7 Cold-rolled furring channels shall have a minimum galvanized G60 coating per ASTM A653 and physical properties shall be as follows: they shall be formed from steel having a minimum 33,000 psi yield strength, minimum flange width of 1/2 inch minimum, 0.0538 in. minimum bare steel thickness and have the following minimum weights in pounds per 1000 linear feet.

Sizes (in)	Weight (galvanized)
3/4	277
1 1/2	414
2	506
2 1/2	597

6.8 Wire as specified in ASTM A641, galvanized, soft temper class 1 coating weight

6.9 Rod and Strap hangers shall be of mild steel per ASTM A1008 with rust inhibitive coating or galvanized commercial quality steel per ASTM A653 minimum G60 coating.

6.10 Clips shall be formed from galvanized steel wire as specified in ASTM A641 from hot-dipped galvanized steel as specified in ASTM A653.

6.11 Nails shall be galvanized roofing nails (type II, style 20) or galvanized common nails (type II, style 10) as specified in Fed. Spec. FF-N-105B and as shown in Table 2:

**TABLE 2
NAILS**

Roofing Nails- Type II, Style 20

Shank (in)	Head (in)	Length (in)
0.120	0.438	1
0.120	0.438	1 1/2
0.120	0.438	1 3/4

Common Nails- Type II, Style 10

	Shank (in)	Head (in)	Length (in)
6d	0.113	0.266	2
8d	0.131	0.281	2 1/2
12d	0.148	0.312	3 1/4
16d	0.162	0.344	3 1/2
30d	0.207	0.438	4 1/2

6.12 Staples for attaching metal lath to wood supports shall be 0.054 in. (16ga) round or flattened with min. 3/4 in. crown. (see 8.4.2.2)

6.13 Screws shall be self-drilling or self-taping as required in accordance with ASTM C954 or C1002. (See 8.4.2.3)

6.13.1 For attaching metal lath to steel framing, they shall have a 7/16 in. diameter pan wafer head and a 0.120 in diameter (#8) shank long enough to penetrate framing a minimum of 3/8 in.

6.13.2 When attaching lath to horizontal metal support members lath shall be attached with screws described above and must contact at least three strands of lath. This may require the use of 1" O.D. X 1/4" I.D. X 16 ga. cut washers.

7. INSTALLATION, GENERAL

Metal lath shall be of appropriate type and weight for the application (horizontal or vertical) and the spacing of supports as set forth in Table 3.

TABLE 3
VERTICAL ASSEMBLIES (WALLS) MAXIMUM
SUPPORT SPACING, in.

Lath Type	Lath Wt. lbs/sq yd)	Wood ^A Studs	Masonry/ Concrete	Metal ^A Studs
Dia. Mesh	2.5	16	16	16
Dia. Mesh	3.4	16	16	16
Flat Rib	2.5	16	16	16
Flat Rib	3.4	19	19	19
* 3/8 Rib	3.4	24	24	24

*** 3/8 Rib Lath is not recommended for vertical applications as it may cause thickness variations leading to stucco cracking.**

TABLE 4
HORIZONTAL ASSEMBLIES (SOFFITS)
MAXIMUM SUPPORT SPACING, in.

Lath Type	Lath Wt. lbs/sq yd)	Wood ^A Studs	Masonry/ Concrete	Metal ^A Studs
Dia. Mesh	2.5	12	12	12
Dia. Mesh	3.4	16	16	6
Flat Rib	2.5	16	16	16
Flat Rib	3.4	19	19	19
3/8 Rib	3.4	24	24	24

Notes:

^A For lath over solid sheathing, attachments must extend through lath and sheathing into the wood or metal supports⁴.

^B Attach metal lath to concrete or masonry surfaces with attachments,⁵ not to exceed 7 in. apart in a line running across the short dimension of the sheet. Rows of fasteners shall be spaced 16 in. on center.

^C It is recommended that only 2.5-lb/sq. yd. or heavier lath be used on exterior applications. Over sheathed walls framing and attachments may be extended to 24 in. on center and self-furred lath must be utilized. *Note: 1.75 expanded metal lath is not recommended for 3-coat stucco.*

^D Lath does not need to be furred on supports having a surface of less than 1 5/8 in. bearing on the lath.

^E Self-furring lath shall be used.

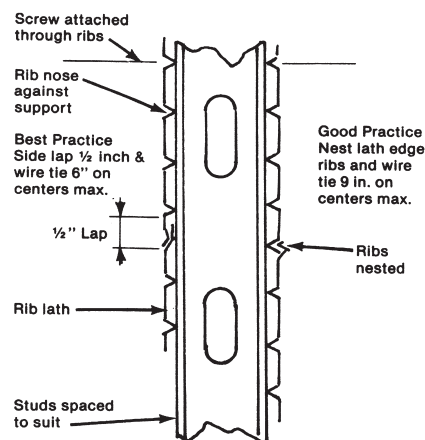
^F Fastener length at least 3/4 in. penetration into wood supports.

^G Six power or powder activated fasteners are required per sheet in addition to stub nails which must be at least 3/4 in. in length. Power fasteners located in each corner and at mid point of long dimension of the sheet edge. Power actuated fasteners can be used for all connections and should have a minimum 0.145 in. shank. All fasteners should have a minimum 7/16 in. wide head or use a washer to contact at least three lath strands. (Stub nails may be used to attach the balance of the field of each sheet.)

7.1 Install metal lath with its long dimension crossing supports at a right angle. Install rib metal lath with ribs against the supports. (See illustration)

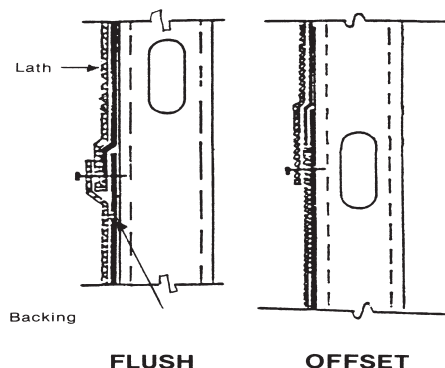
Attach metal lath to supports not to exceed 7 in. on center along all supports. Wire tie metal lath at the side laps with single loop of 0.043 in. (18 ga.) galvanized not to exceed 9 in. spacing. That is, one tie between supports for 16 in. spacing and two ties for 24 in. support spacings.

RIB LATH
INSTALLATION



7.2 Lap diamond mesh and flat rib metal laths at sides at least 1/2 in. Lap 3/8 in. rib lath (ending with edge rib) by either nesting edge ribs or (if ending with flat lath edge) lapping sides at least 1/2 in. End laps should occur over framing members or supports.

7.3 To lap paper backed lath, it is necessary that there be lath to lath contact as opposed to lath to backing (paper to lath) contact and that the backing be extended behind the metal to metal lap. Most paper-backed lath is now sold with off set paper that allows for easier installation in the proper fashion.



- 7.4** To prevent moisture penetration into exterior walls, the over-lapping backing shall be ship or roof lapped so that it extends downward on the lath side of the lap (paper over paper, metal over metal), shedding any water down the wall to the foundation weep screed to facilitate drainage.

Wall ceiling junctures or intersections can be treated either as restrained (unmoving) or unrestrained (floating) construction.

7.5 Restrained Construction.

- 7.5.1** Where diamond mesh metal lath is used on abutting ceilings, and walls or partitions bend lath into internal corner and carry around the corner at least 3 in. onto adjoining lath surface before lapping and fastening; or but lath into corner and apply Cornerite over the abutting lath juncture.

When using cornerite or bending lath into internal corners for restrained construction, do not fasten cornerite or lath to support framing at terminal end but allow it to float by attaching to adjacent lath only. For lath bent into and carried from internal corner, do not fasten such lath to its corner entry supports closer than 6 in. from corner.

- 7.5.2** Where rib lath is used on abutting ceilings, and wall or partitions, butt lath into corner and apply cornerite over abutting lath juncture.

7.6 Unrestrained Construction

- 7.6.1** Install casing bead or control joint along plaster surfaces intersection. If casing bead is used, hold bead face sufficient distance from abutting surface to suit backer rod and caulking used to fill gap (approx. 3/8 in.).

The discontinuity of the unrestrained construction is particularly advantageous where differential movement may be expected between intersecting plaster membranes. Also, design consideration should be given to the isolation of load carrying building components such as columns, beams, floors, etc. from non-load bearing components.

- 7.7** Control joints and expansion joints shall be designed and installed in a manner to permit the plaster membrane to expand and contract freely without inducing excessive stress in the plaster.

See Sections 18 & 19 for specific information on material selection and installation.

- 7.8** Where abutting surface is not to be plastered, terminate plastered surface with a casing bead (plaster stop) of suitable grounds to match stucco thickness.

- 7.9** attachments shall be firm enough to hold trim in place during plastering.

8. METAL LATHING ON EXTERIORS (STUCCO): MATERIALS

- 8.1** Metal lath shall be of the appropriate type and weight for the application (vertical or horizontal) and spacing of supports as set forth in Tables 3 & 4, Section 7)

- 8.2** Flashing (usually water proof asphalt saturated paper strips in combination with metal flashing elements) shall be of a noncorrosive type, installed prior to lathing, and located as follows: (See Appendix)

- 8.2.1** At the tops of all openings in the stucco.

- 8.2.2** Along the sides of all openings.

- 8.2.3** Where trims project under copings and sills.

- 8.2.4** At intersections of walls and roofs.

- 8.2.5** Under built-in gutters.

- 8.2.6** Around all roof openings.

- 8.2.7** At all places where flashing can be used to prevent water from getting behind the stucco membrane.

- 8.2.8** Behind all foundation weep screeds, which must be located at the bottom of all framed walls. Also, used in some cases over window head flashing and at stucco wall to roof junctures.

8.3 Attachments- Vertical Assemblies:

8.3.1 On steel:

- 8.3.1.1** Wire Ties- 0.043 (18 ga) diameter galvanized wire per ASTM A641/641M.

- 8.3.1.1** Screws-Self-drilling, self-tapping, #8 shank, 7/16 in. pan wafer head, 1/2 in. or long enough to project a minimum of 3/8 in. through the support, galvanized or equivalent.

8.3.2 On wood

- 8.3.2.1** Nails - as specified in 6.11- barbed or etched, galvanized roofing nails, 0.120 in. (11 ga.) shank diameter, 7/16 in. diameter head, which provides for penetration into supports of at least 1 in., or 0.113 in. (11 1/2 ga.), 6d, 2 in. long galvanized common nails driven at least half way in and bent over to catch at least three strands of lath.

- 8.3.2.2** Staples - round or flattened 0.062 in. diameter (16 ga) wire, 3/4 in crown; 7/8 in. lets for flat laths, or 1 1/4 in legs for 3/8 in. rib lath with minimum penetration into support of 3/4 in. engaging not less than three strands of lath.

8.4.1 On steel

8.4.1.1 Wire Ties- Direct attachments for securing metal lath shall be at least one loop of 0.054 (16 ga.) diameter galvanized, annealed, steel wire or two loops of 0.043 in. (18 ga) diameter galvanized, annealed, steel wire.

8.4.1.2 Screws- as specified in 6.13. Maximum spacing of 7 inches on center shall be applied for diamond mesh lath and into each rib for rib lath for plaster thicknesses of 1 in. or less. The screw shall pass through but not deform the rib.

8.4.2 On wood

8.4.2.1 Nails- Barbed or etched, galvanized roofing nails, 0.120 in. (11 ga.) shank diameter, 7/16 in. diameter head, which provides for a penetration into supports of at least 1 1/2 in.

8.4.2.2 Staples-round or flattened 0.054 in. diameter (16 ga) wire, 3/4 in crown; 7/8 in. lats for flat laths, or 1 1/4 in legs for 3/8 in. rib lath with minimum penetration into support of 3/4 in. engaging not less than three strands of lath.

8.4.2.3 Screws- as specified in 6.13. Maximum spacing of 7 inches on center shall be applied for diamond mesh lath and into each rib for rib lath for plaster thicknesses of 1 in. or less. The screw shall pass through but not deform the rib. Screws shall penetrate at least 5/8 in. into the support and have a min. 7/16 in. diameter head.

8.4.3 On concrete: Attachments for securing metal lath directly to concrete shall be attached with preinstalled wire of 0.068 diameter (14 ga). They shall be provided with a loop or other preinstalled means for attachment. For direct attachment of lath to concrete surfaces the following method is also employed. Six power or powder activated fasteners are required per sheet in addition to stub nails which must be at least 3/4 in. in length. Power fasteners located in each corner and at mid point of long dimension of the sheet edge. Power actuated fasteners can be use for all connections and should have a minimum 0.145 in. shank. All fasteners should have a minimum 7/16 in. wide head or use a washer to contact at least three lath strands. Stub nails can be used for balance of field.

8.5 Lath backing- When supplied as an integral part of the lath, shall be water-resistant asphalt saturated paper meeting Federal Specification UU-B-790a, Type 1, Grade D, vapor permeable.

9. METAL LATHING ON EXTERIORS (STUCCO): INSTALLATION

9.1 Steel Frame Construction

See sections 26 through 29 for lathing steel beams and structural columns.

9.1.1 Install self-furring lath to provide clearance for "plaster keys" to form. (Furring offset of lath not required on supports having bearing surface of 5/8 in. or less)

9.1.2 Stagger end laps of lath from course to course.

9.1.3 Return lath 3 in. around internal corners or use cornerite.

9.1.4 Carry lath down to the angular edge of the foundation screed to cover the building paper and back flange of the weep screed.

9.2 Wood Frame Construction

9.2.1 Install self-furred lath to provide clearance (approximately 1/4 in.) for "plaster keys" to form. (Furring not required on supports with bearing surface width of 1 5/8 in. or less).

9.2.2 Attach metal lath to wood supports with nails or staples spaced not to exceed 7 in. on centers.

9.2.3 Common nails shall be driven in half way and bent over to engage at least three strands of diamond mesh lath or over the ribs of flat or 3/8 in. rib lath.

9.2.4 Roofing nails shall be driven flush with the surface of the lath so as to engage at least three strands of diamond mesh lath or driven through the ribs of flat or 3/8 in. rib lath without deforming the rib.

9.2.5 Staples shall be driven in so as to engage at least three strands of diamond mesh lath or over the ribs of flat or 3/8 in. rib lath without deforming the rib.

9.2.6 Stagger end laps from course to course.

9.2.7 Start metal lath one stud away from corner, (see 7.5 commentary) or use cornerite for internal corners and corner bead for external corners. The second option is the most commonly employed.

9.2.8 Carry lath down to the angular edge of the foundation screed to cover the building paper and back flange of the weep screed.

9.3 Sheathed Construction or Overcoating

- 9.3.1** In those areas that only require one layer of paper lath with integrally applied paper is not recommended. In these areas paper should be installed separately to ensure water integrity.

Metal lath should be used as reinforcement over all surfaces (old brick, painted block, sheathing, etc.) that do not provide a satisfactory bond for stucco. Special consideration must be given to attachment of the lath to these surfaces.

- 9.3.2** In those code jurisdictions requiring two layers of building paper between lath and wood based sheathing, the water resistant backing incorporated into the appropriate lath will suffice for one of the two required.

- 9.3.3** Where building paper is required, it shall be fastened to the sheathing or surface being over coated with each course overlapping the course below at least 2 in. on the side lap and the end lap of backing shall be at least 2 in. (some jurisdictions require end laps up to 6 inches.

- 9.3.3.1** A 1/8 in. space shall be left between all edges of adjoining wood sheathing for expansion.

- 9.3.4** Install self-furring lath to provide clearance of approximately 1/4 in. for "plaster keys" to form.

- 9.3.5** Stagger end laps of lath from course to course.

- 9.3.6** Start metal lath one stud away from corner, (see 7.5 commentary) or use cornerite for internal corners and corner bear for external corners. The second option is the most commonly employed.

- 9.3.7** Carry lath down to the angular edge of the foundation screed to cover the building paper and back flange of the weep screed.

10. NON-LOAD BEARING STEEL STUD PARTITIONS WITH METAL LATH BOTH SIDES: MATERIALS

- 10.1** Metal lath shall be of the type and weight for the spacing of supports as set forth in Table 3, Section 7.

Consult individual manufacturers for load bearing stud capabilities and application.

- 10.2** Interior non-load bearing studs shall be minimum 0.033 in. thick (design thickness) (20ga.) galvanized steel studs.

- 10.3** Studs shall be of the size and spacing for the simple span height of the partition as set forth in Table 5.

**TABLE 5
PARTITION HEIGHTS**

Overall Partition Thickness (in.)	Stud Size (in.)	Stud Spacing		
		24in.	16in.	12in.
3 1/8	1 5/8	6'4"	7'3"	8'
4	2 1/2	8'10"	10'1"	11'1"
5 1/8	3 5/8	11'5"	13'1"	14'5"
5 1/2	4	12'8"	14'7"	16'0"
7 1/2	6	17'7"	20'2"	22'2"

- A. Based on 5 PSF transverse load, L/360 maximum deflection, and non-composite design.

- B. Plaster thickness is 5/8 in. from finished face to face of lath (3/4 in. from finished face to face of stud.) For 3/8 in. rib metal lath both sides, partition thickness is 1/2 in. greater than when installed with diamond mesh lath. 3/8 in rib lath is not generally recommended for vertical applications.

- C. 0.033 in. thick (20ga.) galvanized steel with minimum 1 1/4 in. flanges and 3/16 in. return (lips). It is recommended that no studs lighter than this be considered for supporting lath and plaster assemblies.

- 10.4** Horizontal stiffeners shall be 1 1/2 in. cold rolled channels for studs to 6 in. deep.

11. NON-LOAD BEARING STEEL STUD PARTITIONS WITH METAL LATH BOTH SIDES: INSTALLATION

- 11.1** Attach track to concrete with concrete penetrating nails, power driven fasteners, or expansion drives 24 in. o.c.

- 11.2** Attach track to steel studs with screws.

- 11.3** Extend metal stud to a metal lath ceiling and wire tie to ceiling furring and or lath, or

- 11.4** Extend stud above ceiling and attach to track, which has been fastened to basic structure above ceiling.

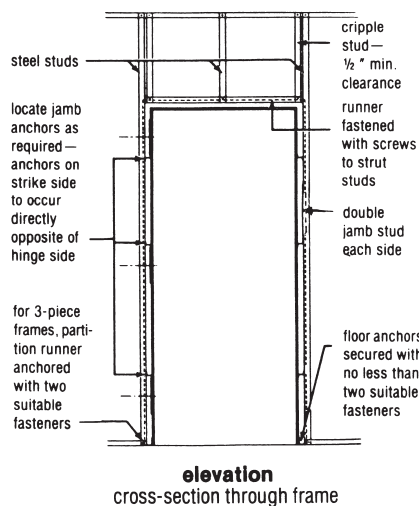
- 11.5** Where track cannot be used to hold each stud in place, attach clip angle to structure with screws, nails or power-actuated fasteners. Use two fasteners for each connection.

- 11.6** Attach studs to track or clip angles with screws. Use two fasteners for each connection.

- 11.7** Partitions shall be stiffened by installation of horizontal bridging at vertical spacing not to exceed 5 ft. o.c. Stiffeners shall be attached to each stud by screws or welds.

- 11.8** Frame at door openings by installing studs at each jamb.

- 11.9** Install studs at metal doorframes by screwing, bolting or welding to all jamb anchors.



- 11.10** Install an additional jamb stud on each side by screwing or welding stud toe-to-toe or back-to-back to the first stud.
- 11.11** Place cut length of track over head of door between jamb studs. Attach track to studs at each end by cutting the track flanges and bending the web at the cuts and screwing to studs or by using clip angles or welding.
- 11.12** Install studs a cripple studs 24 in. maximum o.c. depending on the lath used over the head of the door frame, between cut length of track and top track.
- 11.13** Insert metal lath as far as possible into the inside space of the metal frame, notching lath to pass around jamb anchors.
- 11.14** Attach studs to wood door jamb with screws.

12. METAL FURRING FOR WALLS (COVERED ONE SIDE): MATERIALS

- 12.1** Metal lath shall be of the type and weight for the spacing of supports as set forth in Table 3, Section 7.
- 12.2** Unbraced furring shall be of the type, size and spacing for the height of the assembly as set forth in table 6.

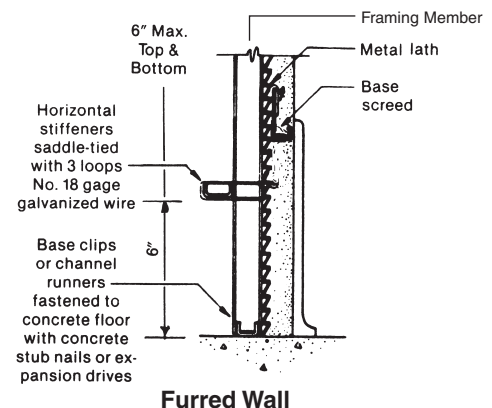
TABLE 6
UNBRACED FURRING HEIGHTS
(COVERED ONE SIDE)

Furring Type	Furring Size	Spacing		
		24"	16"	12"
Cold Rolled Chan.	1 1/2"	8'	10'	12'
Cold Rolled Chan.	2"	9'	11'	13'
Steel Stud (20 ga.)	1 5/8"	7'10"	8'	8'7"
Steel Stud (20 ga.)	2 1/2"	10'1"	11'6"	12' 6"

- 12.3** Horizontal stiffeners or bridging shall be not less than 3/4 in. cold rolled channel at 1/3 spans.
- 12.4** Concrete stub nails for attaching track, runners or studs shall penetrate concrete at least 3/4" If other fasteners such as power or powder-actuated fasteners are used, they shall provide attachment as strong as the concrete stub nails. (See appendix A for fastener strengths).

13. METAL FURRING FOR WALLS (COVERED ONE SIDE): INSTALLATION

- 13.1** Cold-rolled channels shall be attached to concrete by cutting the flanges of the channel at least 2 in. from the end, bending the section back and nailing or shooting the web of the channel to the concrete.
- 13.2** Steel studs shall be installed following the methods outlined in Section 11 as for partitions.
- 13.3** Horizontal stiffeners shall be spaced not to exceed 5 ft. on centers vertically with the upper and lower stiffeners not more than 6 in. from the floor and ceiling.



- 13.4** Stiffeners shall be at least 1/4 in. clear from the face of the wall.
- 13.5** Where furring abuts the underside of a concrete slab or runs parallel to and abuts load-bearing concrete beams or steel members, a slip or cushioning joint shall be provided so that loads will not be transferred to the furring.

For specifications and details of slip joints consult appropriated manufacturer's literature. Common joint construction generally includes track, runners, clip and casing bead used in combination with one or more sealing materials such as elastic caulking, compressible fiberboards and vinyl gaskets.

- 13.6** At door frames install casing bead at door frame to isolate the plaster membrane from shock loading.

- 13.7 Door frames shall not be supported by vertical furring.
- 13.8 Wood casings shall be specified that overlap the plaster at least 1 in.

14. DIRECT ATTACHED FURRING: MATERIALS

- 14.1 Metal lath shall be of the type, and weight for the spacing of supports as set forth in Table 3, Section 7.
- 14.2 Furring shall be 7/8 in. deep, galvanized steel hat channel, 0.0312 in. thick (20 ga.), with 1/2 in. nailing flanges and 1 1/4 in. face (attachment surface).
- 14.3 Attachment to wall shall be with concrete stub nails, powder or power driven fasteners or expansion drives at least 1 in. in length.
- 14.4 attachment of lath to hat channel shall be with self-drilling, self-tapping #8 shank, 7/16 in. pan wafer head screws, long enough to penetrate 3/8 in. through the support.

15. DIRECT ATTACHED FURRING: INSTALLATION

- 15.1 Hat channels shall be installed vertically and spaced not to exceed 16 inches on center for diamond mesh applications.
- 15.2 Hat channels shall be attached to wall with fasteners staggered and spaced not to exceed 12 in. o.c. along both sides of the channel. This is done so that no fastener on any nailing flange will exceed 24 in.

16. METAL LATH ON WOOD STUDS: MATERIALS

- 16.1 Metal lath shall be of the type and weight for the spacing of supports as set forth in Table 3, Section 7.
- 16.2 Attachments for metal lath shall be as specified in 6.11 and/or 6.12 and as follows:
- 16.2.1 Nails - 1 in. long roofing nails or 6d 2 in. long common nails driven half way in and bent over. Three strands of lath should be in contact with the fastener.
- 16.2.2 Staples-7/8 in. long legs for diamond mesh and flat rib laths and 1 1/4 in. long legs for 3/8 in. rib lath.

17. METAL LATH ON WOOD STUDS: INSTALLATION

- 17.1 Attach metal lath to wood studs with nails or staples spaced not to exceed 7 in. on centers driven at least 3/4 in. into the stud. When applying over sheathing fastener must be into framing members and long enough to pass through the sheathing and still penetrate the stud at least 3/4 in.
- 17.2 Common nails shall be driven in partially but sufficiently and bent over to engage at least three strands of diamond mesh lath or over the ribs of flat or 3/8 in. rib lath.
- 17.3 Roofing nails shall be driven in flush with the surface of the lath and engage at least three strands of lath or driven through the rib of flat and 3/8 in. rib laths.
- 17.4 Staples shall be driven into the framing member and lath so as to engage at least three strands of lath or over the ribs of flat or 3/8 in. rib laths.

18. CONTROL JOINTS: MATERIALS

- 18.1 Control joints shall be used to relieve stresses of expansion and contraction due to shrinkage and minor thermal movement in large plastered interiors or stuccoed exterior areas.
- 18.2 Control joints shall be specifically designed metal plastering accessories.
- 18.3 Material shall be galvanized steel (zinc coated carbon steel) or zinc alloy (nearly pure zinc), depending on the severity of exposure, manufactured in accordance with 6.3 through 6.5.
- 18.4 One-piece reveals are not considered control joints.

19. EXPANSION JOINTS: INSTALLATION

- 19.1 Expansion Joints (EJ) require that lath be discontinuous and attached on both sides of the cut in the lath. Expansion joints consist of two or three piece assemblies. Expansion joints govern over control joints when structural movement is anticipated. Expansion joints should run continuous with control joints abutting. In seismic zones expansion joints are recommended at all floor lines. Water resistant barrier should run continuous behind the expansion joint and properly

lapped in a weather bond fashion to allow moisture to escape the stucco assembly. Expansion joints should be sealed at all inside/outside corners and termination points to prevent bulk water from entering the stucco assembly.

19.1.2 CONTROL JOINT: INSTALLATION

Water resistant barrier should run continuous behind control joints. Control joints should be sealed at inside/outside corners and termination points. Lath should be cut behind control joints and attached to framing members on either side of control joint. Control joints should then be attached with wire ties at 9" on center

Control joints are single piece accessories and are limited in their range of movement. Two-piece expansion joints provide greater movement.

Where sound and /or fire ratings are of prime consideration, adequate protection must be provided behind control joints.

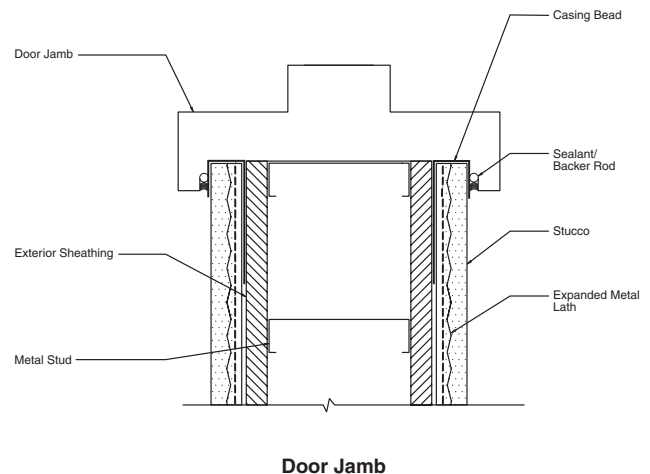
Also, metal control joints should not be used with magnesium oxychloride cement plasters or plasters containing chloride additives. This applies to all metal accessories, as these chemicals will accelerate corrosion.

The stucco membrane should be isolated with control joints where construction changes radically within the plane of a partition or plastered surface areas or dimensions exceed prescribed area sizes.

- 19.2** Attach control joints to the cut edges of abutting lath sheets with wire ties unless a through wall expansion exists as described in 19.1.
- 19.3** In gypsum plaster ceilings install control joints to create panels no larger than 2500 sq. ft. with no dimension exceeding 50 ft.
- 19.4** For furring runs on the inside faces of exterior walls, install control joints not to exceed 30 ft. in either direction or where a through wall expansion occurs.
- 19.5** For exterior portland cement stucco, install control joints to create panels no larger than 144 sq. ft. for walls or 100 sq. ft. for ceilings. No dimensions shall exceed 18 ft. or a length to width ratio of 2 1/2 to 1.
- 19.6** Install control joints at all locations where panel sizes or dimensions change.

- 19.7** Joints shall extend the full width or height of the plaster membrane.

Where a plaster surface is finished flush with metal, metal door bucks should be grooved between the two dissimilar materials. Where stucco abuts any openings or dissimilar material other than inset door jams, stucco shall be terminated with a casing bead allowing room for backer rod and sealant placement. Where a plaster surface is finished flush with metal door bucks the plaster should be grooved between the two dissimilar materials or a casing should be used to isolate the jam from the stucco.



- 19.8** Less than ceiling height door frames shall have control joints extending to the ceiling from both top corners, or ceiling height door frames may be used as control joints.
- 19.9** If control joints are not used, additional reinforcement is required at the corners of openings such as strip lath placed at 45° to vertical to distribute stress concentration at the corners.
- 19.10** Where two casing beads (plaster stops) are employed as a control/expansion joint shall have a 6 in. to 10 in. strip of 25 mil. Self adhesive flashing centered under the joint.
- 19.11** The space between casing beads is to be filled with backer rod and highly durable elastic caulking compound formulated for such service.

With one-piece expansion joints the joint should be cleaned of all finish and nothing should be injected into the expansion opening of the joint.

Note: all joints or junctures of joint sections shall be embedded in a bed of caulk.