



REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
OFFICE OF THE SECRETARY  
MANILA

897.13 DPWH  
06-01-2015

MAY 29 2015

DEPARTMENT ORDER )

SUBJECT : DPWH Standard Specifications for  
Item 1040 - Metal Lath and  
Accessories

No. 81 )

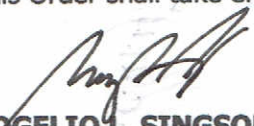
Series of 2015 )

06.01.15

In line with the mandate of the Department in providing effective standard specifications in the implementation of various infrastructure projects and in view of the need of setting a standard specification for the installation of Metal Lath on the interior and exterior Portland Cement - Based Plaster finish of the building, the attached **DPWH Standard Specifications for Metal Lath and Accessories, Item 1040** is hereby prescribed, for the guidance and compliance of all concerned.

This specification shall form part of the on-going revision of the DPWH Standard Specifications for Public Works Structures - Buildings, Ports and Harbors, Flood Control and Drainage Structures and Water Supply Systems, Volume III, 1995 Edition.

This Order shall take effect immediately.

  
**ROGELIO L. SINGSON**  
Secretary

Department of Public Works and Highways  
Office of the Secretary



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5.5.2 FET/JFS

## DPWH STANDARD SPECIFICATIONS FOR ITEM 1040 – METAL LATH AND ACCESSORIES

### 1040.1 Description

This item shall consist of furnishing, fabricating and placing of sheet lath, expanded metal lath, diamond mesh, flat and self-furring, and rib metal lath, all with or without backing and accessories of the type, thickness and support spacing required and designed to be used as a base for Portland cement plaster in accordance with this Specification and in conformity with the requirements shown on the Plans or as directed by the Engineer.

### 1040.2 Material Requirements

#### 1040.2.1 Metal Lath

Metal lath shall be fabricated from cold-rolled carbon steel sheet of commercial quality as specified and galvanized metal lath shall have a G60 coating in accordance with ASTM A 653M.

Backing shall be netting, film, paper, or felt attached to the lath sufficiently enough to prevent accidental removal during shipping, handling, or installation. Attachment of backing shall also allow lapping of metal to metal and backing to backing, 25.4 mm on the ends and 12.7 mm on the sides.

#### 1040.2.2 Accessories

**1040.2.2.1** All accessories shall have perforated or expanded flanges or clips shaped to permit complete embedment in the plaster, to provide means for accurate alignment, and to secure attachment of the accessory to the underlying surface. Accessories shall be designed to receive or to accommodate application of the specified plaster thickness.

**1040.2.2.2** Accessories shall be fabricated from hot-dipped galvanized steel or zinc alloy. Galvanized steel shall have a G60 coating in accordance with ASTM A 653 or zinc alloy, 99 % pure zinc in accordance with ASTM B 69. The minimum allowable thickness of base material shall be as shown in Table 1.

**Table 1 Minimum Thickness of Accessories**

Accessory	Base Material, (mm)	
	Steel	Zinc Alloy
Corner Beads	0.44	0.53
Cashing Beads	0.44	0.53
Weep Screeds	0.44	0.53
Control Joints	0.44	0.46

When cornerite 0.059 kg/m<sup>2</sup> galvanized expanded metal lath, 0.057 kg/m<sup>2</sup> galvanized woven or welded wire fabric of 1.04



mm wire shaped for angle reinforcing, it shall have outstanding flanges (legs) of not less than 51 mm.

- 1040.2.2.3** *Channels* - Shall be cold-formed from steel with minimum 228 MPa yield strength and 1.37 mm minimum bare steel thickness. Channel shall have a minimum galvanized G60 coating in accordance with ASTM A 653 or have a protective coating with an equivalent corrosion resistance for exterior applications, or shall be coated with a rust inhibitive paint, for interior applications, and shall have the following minimum weights as shown in Table 2:

Sizes (mm)	Weight (kg/m)	Flange Width (mm)
19	0.412	13
38	0.616	13
51	0.753	13
64	0.888	13

*External Corner Reinforcement* – Expanded lath, welded wire, or woven wire mesh bent to approximately 90° used to reinforce Portland cement stucco at external corners. This accessory shall be fully embedded in the stucco.

*Foundation Weep Screed* – Accessory used to terminate Portland cement based stucco at the bottom of exterior walls. This accessory shall have a sloped, solid, or perforated, ground or screed flange to facilitate the removal of moisture from the wall cavity and a vertical attachment flange not less than 89 mm long.

- 1040.2.2.4** Wire shall be with a Class I zinc coated (galvanized), soft temper steel in accordance with ASTM A 641M.
- 1040.2.2.5** Rod and Strap Hangers shall be of mild steel, zinc or cadmium plated, or protected with a rust-inhibiting paint.
- 1040.2.2.6** Clips shall be formed from galvanized steel wire in accordance with ASTM A 641M.
- 1040.2.2.7** Nails for attaching metal plaster bases to wood supports shall be of 11 gauge, 3.06 mm diameter, 11.10 mm head, barbed, galvanized roofing nails or galvanized common nails. Nails for attaching metal plaster bases to solid substrates shall be not less than 19 mm long.

Screws for attaching metal plaster base shall be fabricated in accordance with either ASTM C 954 or C 1002 and shall have an 11.1 mm diameter pan wafer head and a 3.00 mm diameter shank. Screws used for attachment to metal framing members

shall be self-drilling and self-tapping. Screws used for attachment to wood framing members shall be sharp-point.

### **1040.3 Construction Requirements**

#### **1040.3.1 Delivery of Materials**

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

#### **1040.3.2 Storage of Materials**

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.

#### **1040.3.3 Packaging and Package Marking**

Metal lath shall be in package of ten sheets per bundle, and self-furring lath shall be five or ten sheets per bundle (option of manufacturer).

When shipped for resale, the name of the manufacturer or the supplier and the brand shall be legibly marked on each lath or package.

#### **1040.3.4 Installation of Metal Lath**

##### **1040.3.4.1 General**

Metal plaster bases such as expanded metal, woven wire, and welded wire, may be applied over a variety of substrates. Metal lath may be applied directly to wood stud or metal stud framing, but this type of open framing is often covered with solid sheathing such as exterior gypsum, plywood, or particle board. The strength of the fastener attachment to most sheathing is not adequate to support the lath and plaster membrane. Longer fasteners for lath are required to penetrate through the sheathing into the framing. Staples, nails, or screws are the most commonly used fasteners for attaching lath to wood or steel framing. Wire ties are sometimes used, and they are recommended for certain installations, such as ceiling construction. Manufacturers of approved power-driven or powder driven fasteners have reference tables that will provide pullout and shear values for different size fasteners in various substrate.

##### **1040.3.4.2 Application of Metal Plaster Bases**

Metal lath and wire fabric lath should be applied with the long dimension of the sheets perpendicular to the supports. Expanded metal lath shall be lapped 12.7 mm at sides (horizontal), or nest the edge ribs and 25.4 mm on ends (vertical). Rib metal lath with edge ribs greater than 3.75 mm should be



lapped at the sides by nesting outside ribs. When edge ribs are 3.75 mm or less, rib metal lath should be lapped 12.7 mm at the sides and 25.4 mm on the ends. Wire fabric lath should be lapped at least one mesh at sides and ends, but never less than 25.4 mm. The ends of adjoining horizontal sheets or rolls of lath should be staggered. Where end laps of lath do not occur over supports they should be securely tied together or laced with not less than 18 U.S. gage galvanized or annealed steel wire. When a metal plaster base with factory-applied paper backing is used, the vertical and horizontal laps shall be backing on backing, and metal on metal. Lap backing on horizontal and vertical surfaces are a minimum of 25.4 mm. Laps should be made so that any moisture will flow to the exterior. Backing should be continuous behind control joints. Metal lath should be interrupted with a 12.7 mm gap behind control joints to enable the joint to function properly. Where furred or suspended ceilings butt into or are penetrated by columns, walls, beams, or other elements, terminate the sides and ends of the ceiling lath at the horizontal internal angles with corner beads, control joints, or similar approved devices. This will keep the sides and ends of the ceiling lath and plaster free from the adjoining vertical elements. Where load-bearing walls or partitions butt into structural walls, columns, or floor and roof slabs: a) terminate the sides or ends of the wall or partitions; b) lath at the internal angles with a casing bead, control joint or similar device. Install metal lath true to line, level, plumb, and square, or else curved as necessary to provide a proper finish plane for the plaster finish.

#### **1040.3.4.3 Attachment of Metal Plaster Bases To Supports**

Metal lath and wire fabric lath used as reinforcement for Portland cement plaster shall be furred out from vertical supports a nominal 6.35 mm. Self-furring lath meets this requirement. Furring of expanded metal lath is not required on supports having a bearing surface width of 41.28 mm or less. Expanded metal lath and wire fabric lath should be attached to supports with fasteners installed not more than 152.40 mm apart.

#### **1040.3.4.3 Attachment of Metal Lath to Solid Bases**

When poor bond or no bond to a surface is anticipated, the use of metal reinforcement anchored to the surface is recommended. The use of a paper backing or other debonder between the solid base and scratch coat is recommended, to prevent stresses which could cause cracking. When expanded metal or wire fabric lath is to be attached to monolithic concrete or masonry, the lath must be the self-furring type. On vertical surfaces lath should weigh not less than 1.36 kg/m<sup>2</sup>. On horizontal surfaces, lath should weigh not less than 1.84 kg/m<sup>2</sup>. Attachments to the substrate should be made at furring points. Fasteners should have large heads, capable of securing at least two strands of reinforcement, or else be used with metal, neoprene, or vinyl washers. Forced entry types are recommended. The type and size of fastener are determined by the substrate, type and weight of lath, and any additional material supported by the fasteners. Metal plaster bases should be attached with at least five (5) fasteners at a distance not less than 406.40 mm. on center horizontally and not more than 406.40 mm. on center vertically.

Tie side laps or lace between the cross rows. All end laps should be fastened and side laps laced.

A self-furring lath should be used when a greater thickness of plaster is desired. Power-driven or powder driven fasteners are preferred over hand-driven concrete stub nails or cut nails for attaching self-furring lath.

#### **1040.3.6 Finish**

Metal lath shall be coated with a water barrier film such as asphalt or non-reemulsifiable water base paint unless fabricated from galvanized steel.

#### **1040.4 Method of Measurement**

Lath and accessories consist of different types, sizes and shapes. There is no exact method of measurement for the completed work, hence the quantity to be paid under this Item shall be in lump sum cost and the derivation of the lump sum cost shall be provided.

#### **1040.5 Basis of Payment**

The accepted quantities, determined as provided in Section 1040.4, Method of Measurement of the Pay Items in the Bill of Quantities shall be paid for at the contract unit prices, which shall constitute full compensation for furnishing, processing and placing all materials, including for all labor, equipment, tools and incidentals necessary to complete the Item.

#### **References:**

1. DPWH Standard Specifications for Public Works Structures, Volume III, 1995 Edition
2. American Society for Testing and Materials (ASTM)
  - ASTM C 847* – Standard Specification for Metal Lath
  - ASTM C 1063* – Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
  - ASTM A 653M* – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  - ASTM B 69* – Standard Specification for Rolled Zinc
  - ASTM A 641M* – Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
  - ASTM C 954* – Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness
  - ASTM D 1002* – Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs