



**CERAMIC TILE INSTITUTE OF AMERICA, INC.**  
 12061 Jefferson Blvd., Culver City, CA 90230-6219

## **CTI FIELD REPORT 73-2-6 (R-85)**

**SUBJECT: Expanded Metal Lath and Wire Reinforcing**

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### **A. INTRODUCTION**

For many years the typically used lath for Portland cement plaster and mortar was expanded metal lath, or sheet lath. Then welded wire lath in sheets with a factory applied paper backing was developed and because of its convenience in handling it was commonly used in backing for ceramic tile. Now even woven wire stucco netting (1 1/2" inch, 17 gauge mesh) is manufactured in sheets for use as plaster reinforcement and as a backing for ceramic tile and masonry veneer.

### **B. DISCUSSION**

The contractor has a choice of all these materials and should know which is the most applicable for a given situation.

For example, until the development of the factory applied, paper backed lath, it was necessary, on wood framing, to apply asphalt saturated building paper as a moisture barrier before installing the lath. To keep this paper backing from excessively sagging between studs, horizontal lines of 18 gauge wire were installed approximately 6" apart to support the paper. Then too, the flat lath had to be installed with "furring nails" or "wads" to insure embedment in the plaster.

Manufacturers of expanded metal lath, welded wire fabric lath and woven wire fabric lath have introduced "self-furring" or "pre-furred" lath which eliminates the need for furring nails and enables the use of staple attachment at dimples or ribs preformed in their metal.

Further more they now apply the building paper backing at the factory eliminating another labor step on the job. This paper backing can be furnished as an absorbent, slotted paper to provide for the formation of mortar "keys" or with water resistant Type 1, Grade D paper or waterproof Type 1, Grade B paper.

Some manufacturers of metal plaster reinforcement will furnish waterproof backing paper with a flame spread of less than 25 to comply with some codes non-combustible requirements. Other manufacturers are marketing metal plaster reinforcement with factory applied polyethylene sheathing for a water barrier. Following is a table of the commonly available metal plaster reinforcements being marketed in this area.

<b>EXPANED METAL LATH</b>			
<b>Type</b>	<b>Weight Per Square Yard</b>	<b>Spacing of Supports</b>	
		<b>Vertical</b>	<b>Horizontal</b>
Diamond Mesh	2.5	16"	12"

Diamond Mesh	3.4	16"	16"
Flat Rib	2.75	16"	16"
Flat Rib	3.4	19"	19"
3/8" Rib	3.4	24"	24"
3/8" Rib	4.0	24"	24"
Sheet Lath	4.5	24"	24"
<b>WELDED WIRE FABRIC LATH</b>			
Type	Gauge and Mesh Size	Spacing of Supports	
		Vertical	Horizontal
Standard	16x16 gauge, 1½"x 2" mesh, with 13 gauge stiffener	16"	16"
Heavy Duty	16x16 gauge, 1½"x2" mesh, with 11 gauge stiffener	24"	24"
<b>WOVEN WIRE FABRIC LATH</b>			
1 ½"x17	17 gauge hexagonal 1 ½" mesh	16"	16"
1"x18	18 gauge hexagonal 1" mesh	16"	16"

***EDITORIAL NOTES***

1. This report was written to supply some technical information on expanded metal lath and wire reinforcing as used in the construction industry. The content is best considered with several other CTI Field Reports. It is not necessarily meant to provide information on the type of reinforcing to use for ceramic tile installation.
  
2. The following information is from ANSI Standard Specification A108.1 for installation of tile in the mortar method and provides the information on the type of reinforcing to use for ceramic tile installations.  
Metal Lath: Metal lath shall conform to SPR R3-57 and Federal Specification QQ-B-101c Lath shall be flat expanded type, painted or galvanized and weigh not less than 2.5 pounds per square yard, or welded wire self-furring ¼ inch tile reinforcing mesh 2-by-2 inches - 14/14 galvanized.  
Reinforcing Wire Fabric: Reinforcing shall consist of welded wire fabric 2-by-2 inch mesh -16/16 wire or 3-by-3 inch mesh - 13/13 wire or 1½-by-2 inch mesh -16/13 wire and conforming to USAS A50.3-1967 (ASTM A82-66) and USAS G45.1-1964 (ASTM A185-64) expanded metal reinforcement, painted or galvanized, weighing not less than 1.8 lbs. per sq. yd. when approved.
  
3. It should be noted that Ceramic Tile Institute has recommended against the use of paper backed wire.
  - A. If the paper interferes with a full mesh wire to wire lap required for reinforcing.
  - B. When the paper backed wire is cut the paper and wire terminates at the same line. When the cut material is lapped, the paper completely negates the necessary wire to wire reinforcing.