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PLIBRICO SPECIFICATIONS VH-1
FOR
VERTICAL HEATERS

A. General

1. The lining shall be made up of two (2) components to provide both an insulation backing and a refractory surface.
2. The insulating portion of the lining shall be made up of block insulation. The thickness of this component shall be dependent upon the hot face temperature of the refractory surface and the desired shell temperature.
3. The refractory surface shall be made up of a light weight castable refractory having a density of seventy five to eighty (75 - 80) lbs. per cubic foot, shipped weight, as manufactured by the Plibrico Co., of Chicago, Ill., under the trade name of "L.W.I." or its equal. The minimum thickness of this component shall be three (3) inches on diameters under ten (10) feet and on walls not over twenty two (22) feet in height. On diameters over ten (10) feet in diameter, the thickness shall be increased. On heights over twenty two (22) feet the minimum thickness shall be four and one half (4½) inches.

B. Retaining Structure

1. The retaining structure for the refractory component shall be made up of 2 x 2 x 14 gauge mild steel wire mesh.
2. The mesh shall be attached to the shell by use of "Nelson 'G' Studs" or an approved equal.
3. The studs shall be spaced on eighteen (18) inch centers, both ways.
4. "Speed Nuts" may be used to hold the block insulation in position.

C. Application Procedure

1. Weld studs in place and hammer test.
2. Install block insulation. All voids between blocks and around studs to be filled with similar grade insulating cement.
3. The insulation block shall be sprayed with a light solution of cut back asphalt to render it impervious to the water from the castable refractory material. All nozzles which go through the refractory shall also be coated.
4. The 2 x 2 x 14 gauge wire mesh shall be applied. Care shall be exercised to see that a one square lap is maintained at both horizontal and vertical joints. All such joints shall be "hog ringed" or securely fastened with tie wire. The tie wires shall be cut short or the ends turned inward.

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5. On diameters ten (10) feet and under the castable refractory shall then be placed by pouring behind either plywood or sheet steel forms. If plywood is used it shall be treated with an approved plastic form coating or oiled before each pour. Care shall be taken to vibrate the forms while pouring the material. The top of each pour shall be left rough, not trowelled. The forms shall not be moved for a minimum of twelve (12) hours after completion of each pour. On diameters over ten (10) feet special "L.W.I" -T shall be used and the material trowelled into place with the vessel in a horizontal position; the vessel shall be "rolled" as the material is installed. If it is necessary or desirable the smaller units may also be trowelled.
6. Under normal atmospheric temperatures no water curing is required.

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