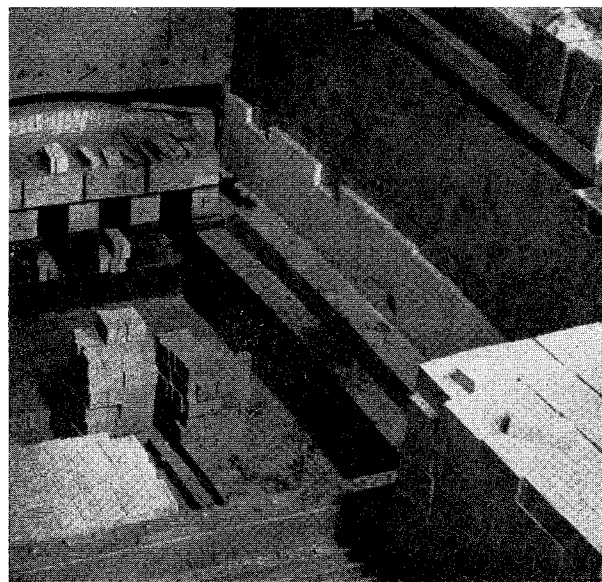


are used instead of Superex Blocks in the range up to 1600 F. JM-20, 23, 26, 28 and 3000 Insulating Fire Brick or Fireblok, or Sil-O-Cel C-22 and Sil-O-Cel Super Brick are used to take care of insulating requirements where temperatures to 3000 F will be applied to the insulation. The Sil-O-Cel Brick are used behind refractory protection and the J-M Insulating Fire Brick or Fireblok both as an insulating refractory or behind refractory protection.

Furnace insulation is a highly profitable investment from the standpoint of heat saving alone. Added to this is the lessening of internal strains and reduction in spalling because of the smaller temperature differential between the inside and outside of the refractory. Wall cracks, caused by uneven expansion and contraction, are fewer and smaller. Properly applied, the insulation tends to seal cracks in furnace walls and prevents the infiltration of air or exfiltration of furnace gases.

When insulation is placed over the exterior of furnace brickwork, considerably more resistance is introduced in the path of heat flowing directly to the outside. This promotes heat flow along the walls, and cooler portions of the furnace are raised to a higher temperature. Sharp temperature changes are obviated and adjacent brickwork is protected against widely varying rates of expansion. Lower temperatures may be used in the heating zone and adequate temperatures still be



Soaking pit under construction showing installation of Superex blocks between the steel casing and the pit lining

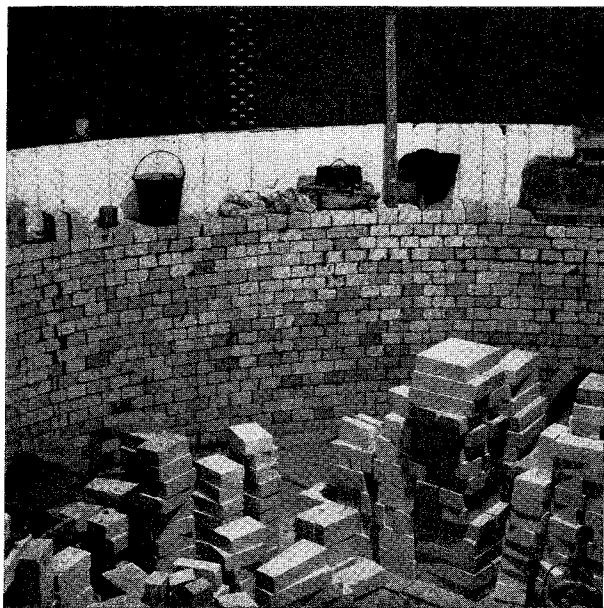
maintained throughout all portions of the furnace setting. This saves fuel and further prevents rapid deterioration of the refractories.

The modern furnace wall is cased with Transite sheets or with steel plate. Care is taken to leave the main supporting steel sufficiently exposed to the air so that its strength will not be affected by the heat.

It has been found entirely satisfactory to apply Superex and 85% Magnesia blocks and Sil-O-Cel Brick or J-M Insulating Fire Brick between the refractory and buckstays except at places of unusual thrust, such as opposite a sprung arch, or where castings and steel work are hung into the brickwork. In such locations the fire brick is carried through the insulation to the outside of the furnace.

When it is expedient to erect the furnace brickwork before the casing is applied, a space equivalent to the thickness of the insulation is left between the outside face of the brick and the inside face of the buckstays. Then insulating blocks or bricks are erected to fill this space and the Transite casing secured flush with the back of the buckstays by steel battens and toggle bolts or other suitable means.

Where the furnace brickwork is erected flush with the back of the buckstays, light angles may be clipped or spot-welded to the buckstays to allow the application of insulation between vertical steel members. These angles serve to support the $\frac{3}{8}$ " Transite casing.



Erecting the lining in a hot blast stove using Superex blocks between the steel shell and the fire-brick lining

SUPEREX AND SUPEREX COMBINATION BLOCK INSULATION

May, 1950 (Cancelling sheet dated February, 1946)

IN-41