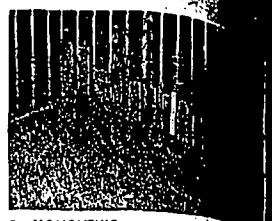


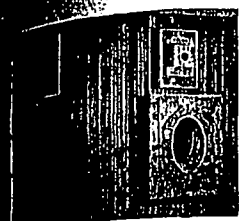
1 **FURNACE** roof gets 3½-in. cover of castable refractory laid over tubes



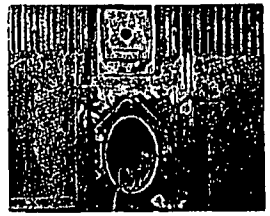
2 **PLASTICITY;** low firing shrinkage give tight heat-seal around hangers



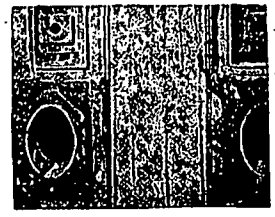
3 **MONOLITHIC** construction is easy to apply, air-sets cement



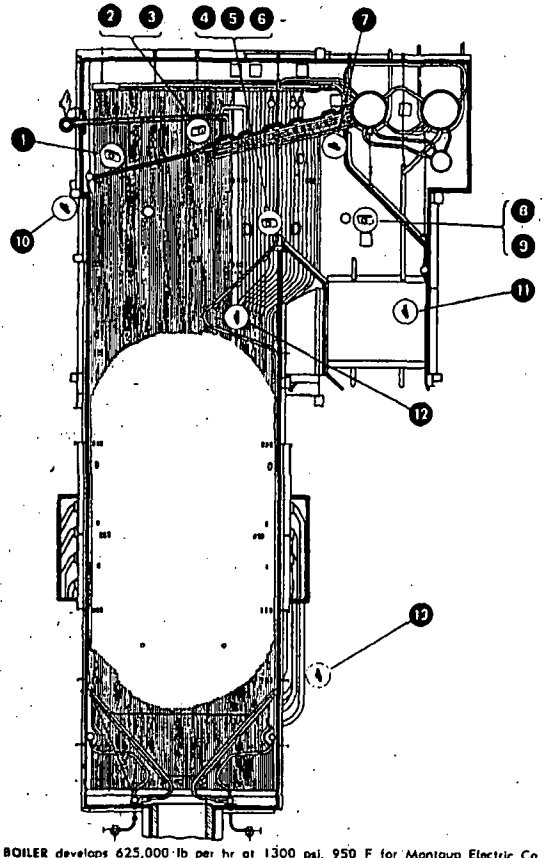
4 **FINNED** waterwall tubes with wire mesh ready for insulating castable



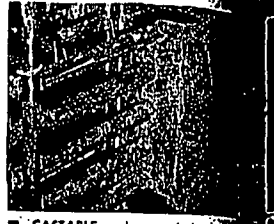
5 **REFRACTORY** is hand thrown through mesh on tubes, smoothed with trowel



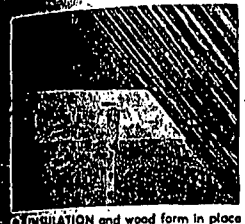
6 **FINAL** job is tight, seamless; has three layers of insulation on outside



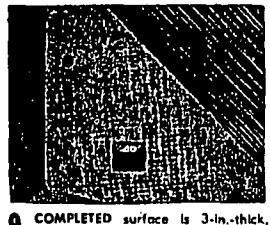
BOILER develops 625,000 lb per hr at 1300 psi, 950 F for Montaup Electric Co, Somerset, Mass. Castable refractories are used for heat-facing surfaces throughout



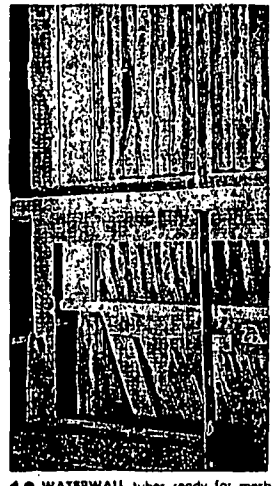
7 **CASTABLE** seal around drum no cracks, stays tight after

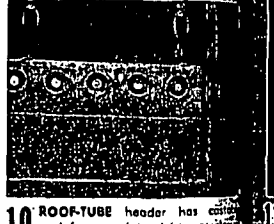


8 **INSULATION** and wood form in place ready for castable refractory layer



9 **COMPLETED** surface is 3-in.-thick, sectionally supported monolithic wall

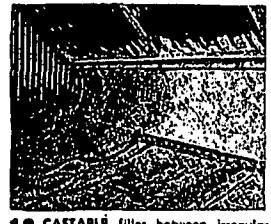




10 **ROOF-TUBE** header has cast seal for complete tight-spot



11 **ECONOMIZER** banks are enclosed by walls faced with castable refractory



12 **CASTABLE** filler between irregular tube surface and smooth steel plate

13 **WATERWALL** tubes ready for mesh hanging, refractory in place below

Monolithic Refractories Do Smooth Big-Boiler Job

Castable refractories can be placed by trowel or poured by bucket. They form complete walls and adapt to any shape, give tight seals and mature under fire. Resulting monolithic structure has strong bond and a long service life.

MONOLITHIC refractory construction has been used in small boilers for at least 40 years. But the fact that it is being applied to large central-station-size units is not well-known in the industry. The pictures above show such a job in the making.

The boiler, built by Combustion Engineering-Superheater, Inc for the Montaup Electric Co at Somerset, Mass., develops 625,000 lb per hr, 950 F, 1300 psi superheater outlet. Stone & Webster Engineering Corp were the consulting engineers. Castable refractory, supplied and installed by Plibrico Co of Chicago, Ill., is used as heat-facing material throughout radiant and convection passages of this large boiler. Successive layers of monolithic refractory, block insulation, 85% magnesia block insulation and plastic-insulation cover coat make up most of total heat-enclosing envelope materials.

Monolithic refractories are available in two forms: A castable type of dry composition is mixed with water, troweled in place or poured behind forms. A plastic type of stiff putty consistency is used directly from container, rammed in place. Both come in different grades to meet service conditions. Both fire to maturity in service operation.

Monolithic refractory surfaces can be supported on a wire mesh hung by studs welded to the backs of waterwall tubes. They can also be sectionally supported and anchored to structural steel or refractory walls. Monolithic suspended arches are as practical as the same construction used in vertical surfaces, and application includes air-cooled walls as well as the conventional solid brick wall construction.