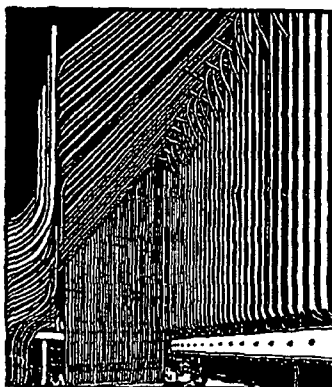


More PLANT PROBLEMS

Reprints on page 136



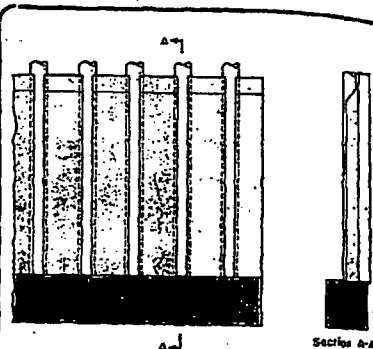
The problem

What are pros and cons of a protective refractory wall?

I would like to know the advantages and disadvantages of a protective refractory wall on the fire side of the water wall. The protective wall would be just high enough to stop the carbon soot emission caused by temperature difference when flame strikes the water wall.

We operate under a strict smoke emission law in our city. Thus, we must use extreme care to eliminate smoke. If we could do the same job by using the fire protected wall, I believe we could reduce the excess air, raise the CO₂, and get better efficiency. Would this not cause slagging in the superheater tubes? I would appreciate opinions since we're considering a protective wall.—*EEC, January Power*

The solutions



How to build refractory wall

By placing refractory material to a height of three feet above the grate on the side waterwall, EEC can keep his smoke at a minimum. This shielding height will improve operation over a wide load range and, at the same time will not cause excessive slagging at high loads.

By setting a form against the furnace side of the tubes and pouring in the refractory material, about 50% of the black surface is eliminated and the increased temperature needed in the burning area is produced.

The tubes themselves are a perfect anchor for the refractory, sketch above. Only the smallest fillet on the furnace side of each tube will break off after the form is removed. The remainder, being cooled by the embedded tubes, will last a long time.

The height EEC indicates is fine for general service. If, however, he operates at nominal loads and seldom at peaks he may find it advantageous to increase the height.

O Encarnacion, Berwyn, Ill.

Try a cement wash on boiler tubes

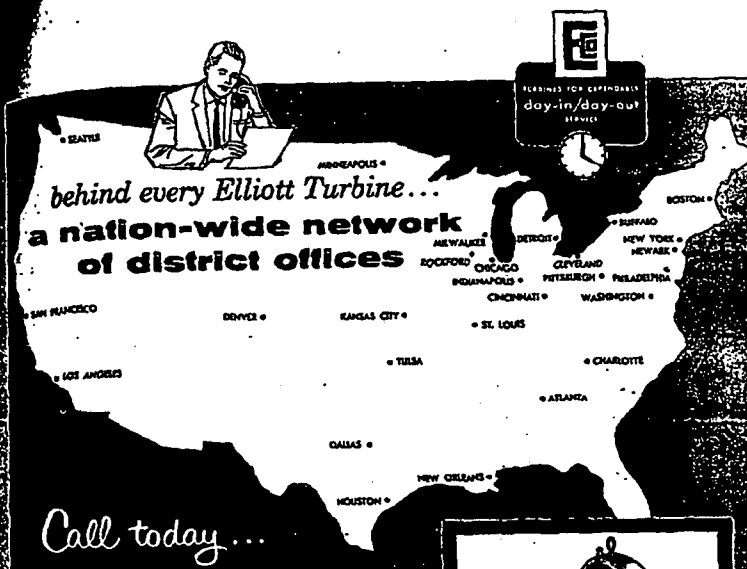
This unit appears to be a conventional oil burner. Assuming that (1) oil burner is working right and tips have been engineered correctly for flame propagation (2) oil temperature is correct for atomization and (3) flame impingement on the sidewall is not injurious, I would advise a cement wash on the boiler tubes. This would give EEC a relatively better furnace.

He can take any standard brand of refractory cement, mix it to a thin consistency and paint the tubes with a whitewash brush. This takes very little time and is surprisingly effective in increasing furnace temperature. Only drawback is the necessary renewal, when cement eventually spalls and falls off.

A boiler is rated on the basis of surface exposed to the

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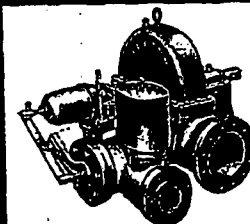
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