

EFFICIENCY ANALYSIS OF RADIATIVE SLAB HEATING IN A WORKING BEAM TYPE REHEATING FURNACE

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ABSTRACT. Thermal efficiency of a reheating furnace was predicted by calculating radiation heat transfer to the slabs and the furnace wall. The entire furnace was divided into fourteen sub-zones. Each sub-zone was assumed to have the homogeneous wall temperature and medium temperature. Temperature was computed for the medium and the wall of each sub-zones through overall heat balance. The radiation heat transfer was solved by the FVM radiation method. The blocked-off method was applied to the treatment of the slabs inside which intensity has no meaning.