

BUCKLING AND POST BUCKLING ANALYSES OF CONTINUOUSLY WELDED RAIL IN THE LATERAL PLANE

In this report the problem of lateral buckling of continuously welded rails (CWR) subjected to temperature rise is rigorously studied. The formulation considers variations in the thermal compressive force, due to large buckling deflections and non-linearities in the lateral, the axial and the torsional resistances. On the basis of variational calculus, two fundamental coupled non-linear differential equations that govern the buckling phenomenon are derived from the potential energy expression.

Several conclusions regarding the 'safe temperature' are reached.