

Fire has a significant effect on the structural behavior of concrete structures, since it affects both structural properties and straining actions, in case of statically indeterminate structures. Effect of fire on compression members is the most critical, since both crushing and buckling failure envelopes are deteriorated simultaneously. This scientific paper deals the problem of buckling of concrete shear walls in a single side fire condition, where a finite element model has been established to simulate non-linear structural behavior considering thermal-structural interaction. ISO 834 fire curve was considered as a fire load. Studied parameters are level of loading, slenderness ratio, concrete grade, and exposure condition. Buckling and crushing loads have been evaluated for a combination of the studied parameters and a parametric study was performed to determine vulnerability of failure load to studied parameters