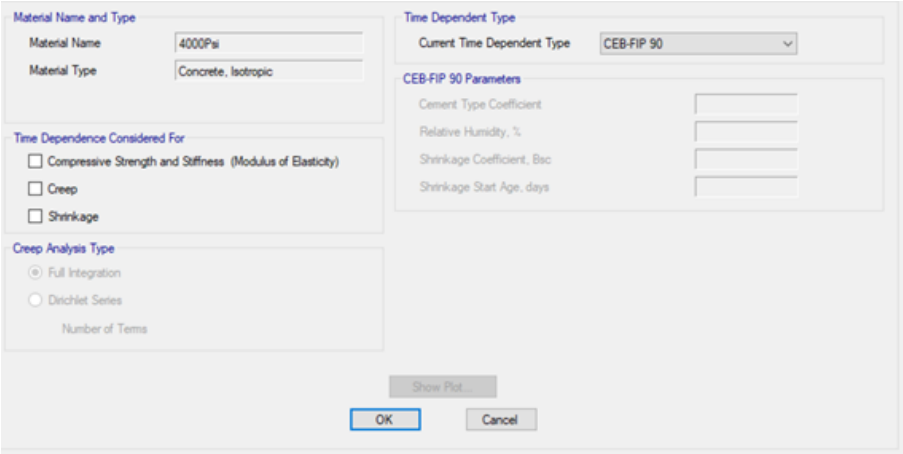
CERTIFICATIONS

SHRINKAGE

Shrinkage is a time-dependent volumetric change associated with the drying and moisture transfer, thermal effects and gradients, and autogenous behavior (early-age chemical and structural reactions) of restrained reinforce-concrete (RC) systems. Shrinkage may cause aesthetic, serviceability, and even stability issues with the onset of cracking, curling/warping, and reduced load-carrying capacity.



Restraint conditions that affect shrinkage behavior may be external, as with supports, connections, and boundary conditions, or internal, as with differential drying and reinforcement. Shrinkage cracking is mitigated with increased amounts of reinforcement at decreased spacing, and with the inclusion of coarse aggregate, which is dense, hard, and less compressible. The proper early-age handling and curing of concrete further mitigates shrinkage while enhancing long-term life expectancy and structural performance.