

CEEN 174 - Pavement Design
PCC Analysis Assignment – Due Tuesday, Nov 6th

1. A concrete slab is 12 ft wide, 18 ft long and 11 inches thick. Assuming $E_{PCC} = 4$ Mpsi, $\mu=0.15$, $\alpha_t = 5.5 \times 10^{-6}$ and $k=200$ psi/in, estimate the maximum midspan edge stress due to a slab temperature differential ΔT of 20 °F.

2. For the same slab described in problem 1, compute the maximum interior, free-edge and corner stresses and deflections under a single, circular 9,000 lb wheel load with an inflation pressure of 110 psi.

3. According to the PCA, what diameter and length of dowels are recommended for a PCC slab with a thickness of 10 inches?

4. What is the main purpose of the deformed tie bars installed across longitudinal joints?