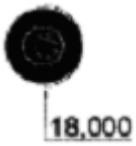
Appendix F

Documentation of Pavement Responses

Sub Appendix F-1

Documentation of Pavement Responses for



18-kips Single Axle

Figures F-1-1 through F-1-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

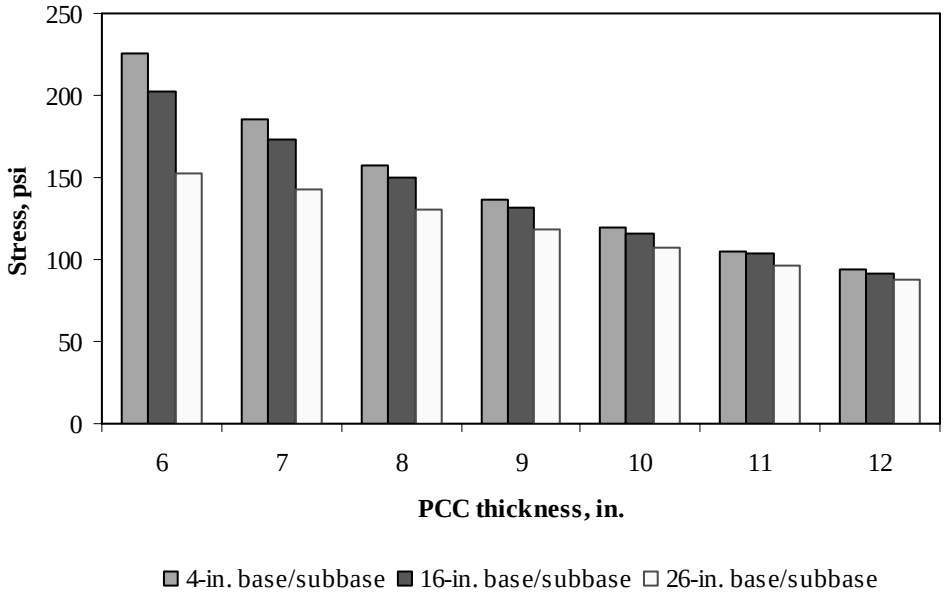


Figure F-1-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

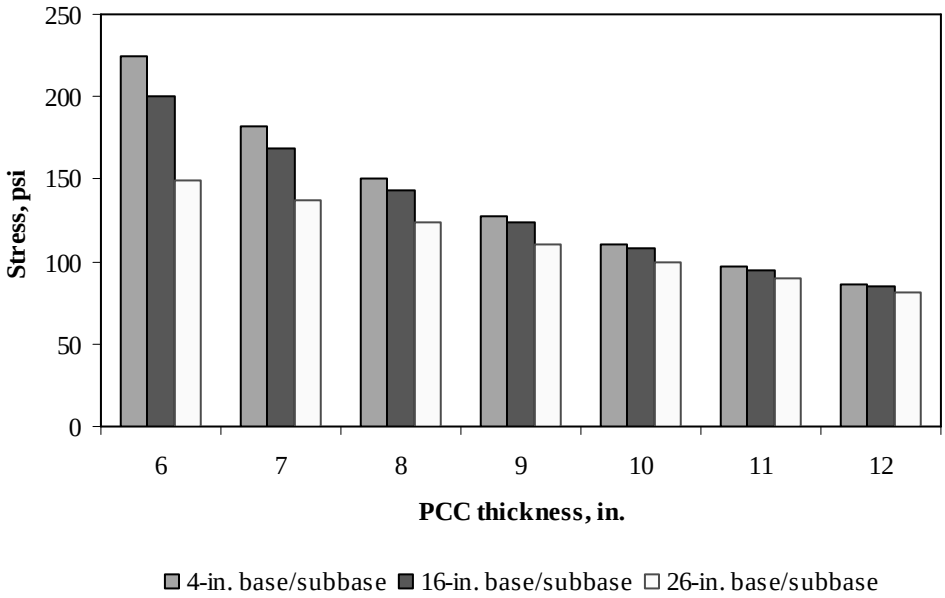


Figure F-1-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

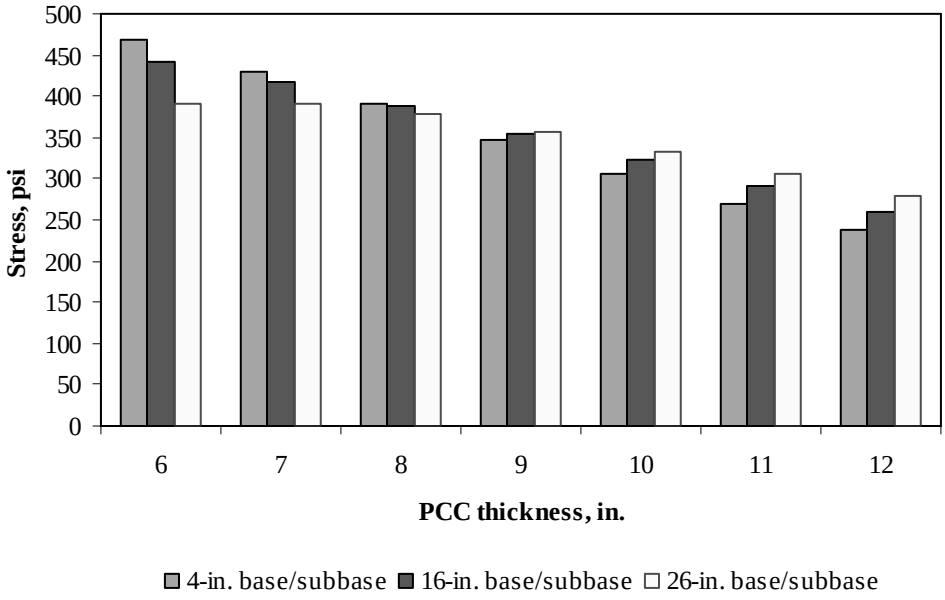


Figure F-1-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

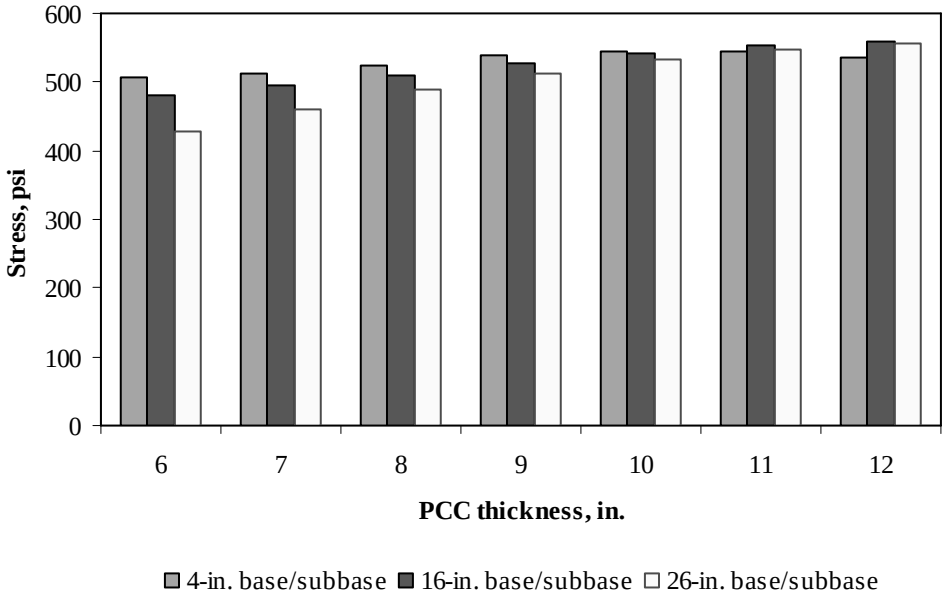


Figure F-1-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

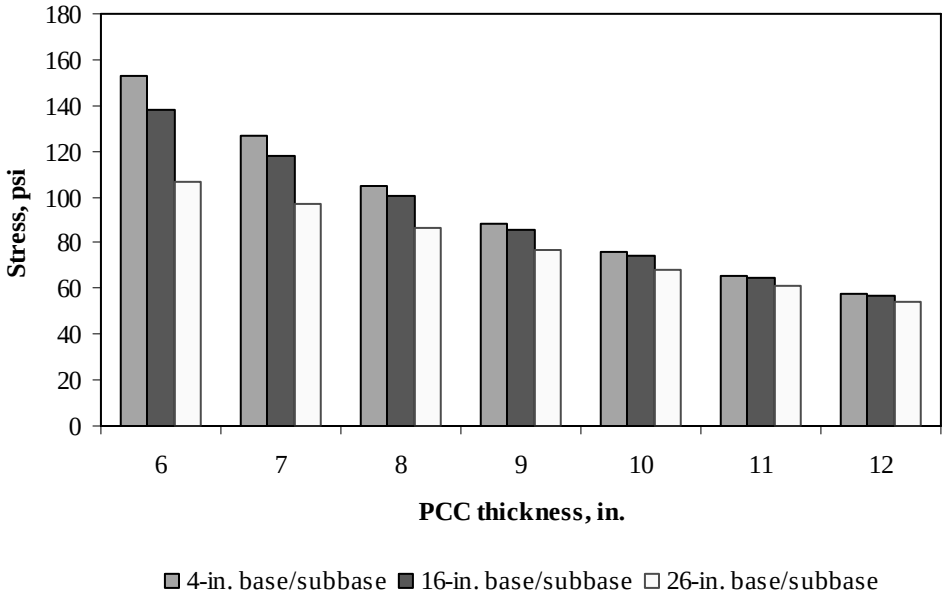


Figure F-1-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

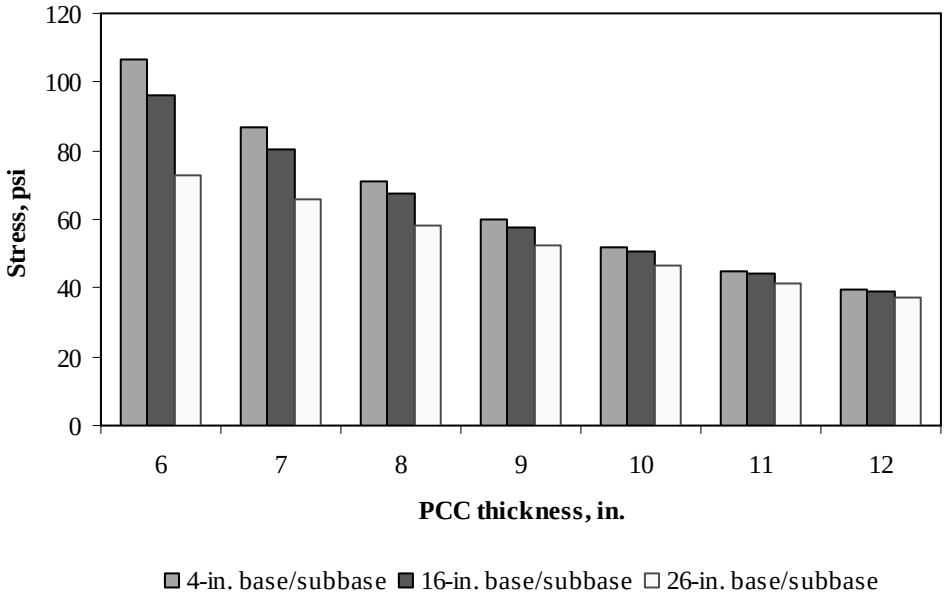


Figure F-1-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

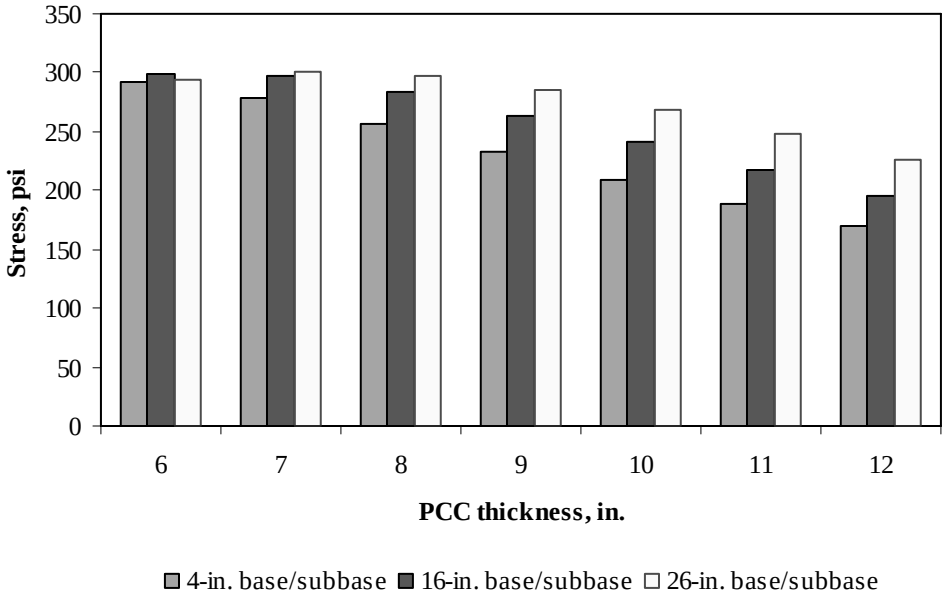


Figure F-1-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

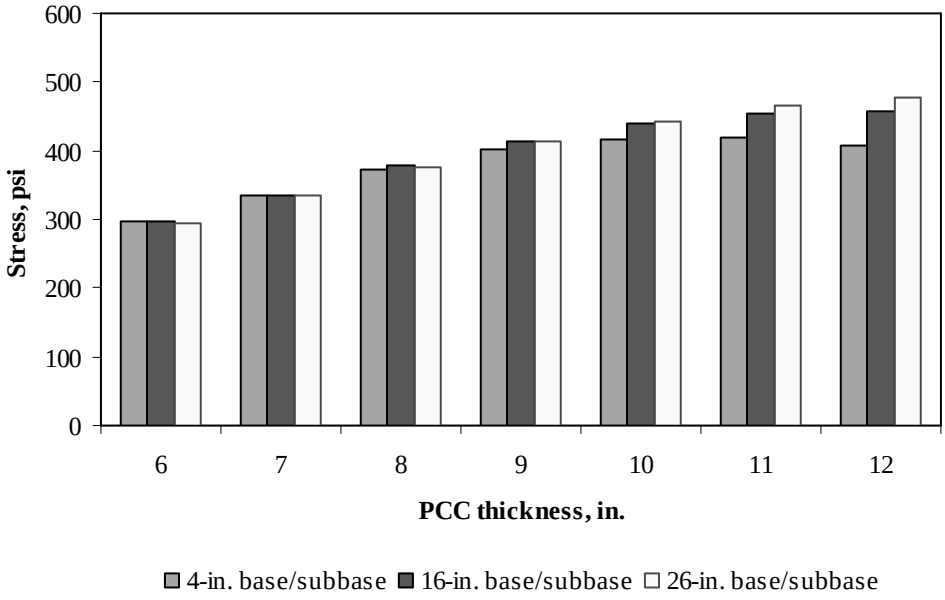


Figure F-1-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

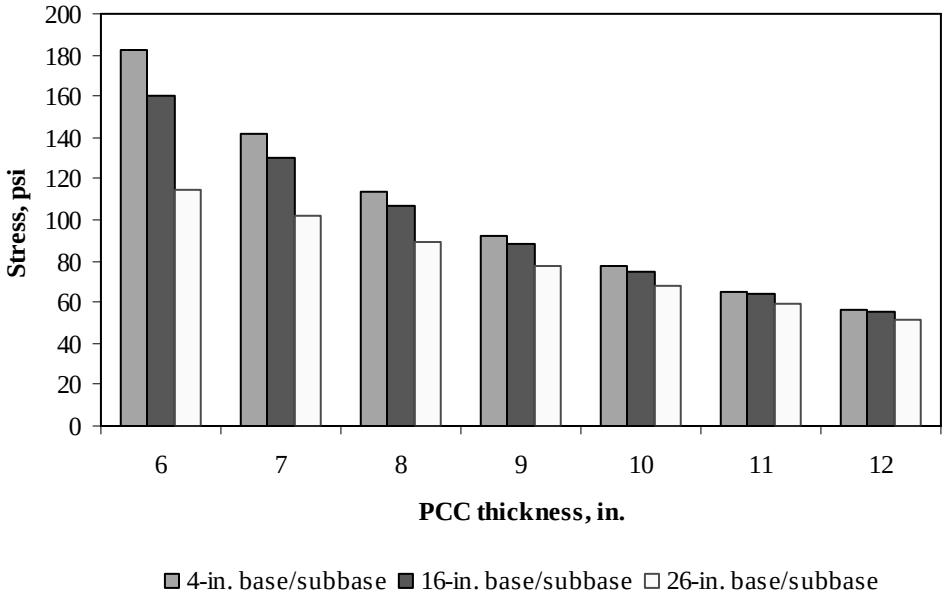


Figure F-1-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

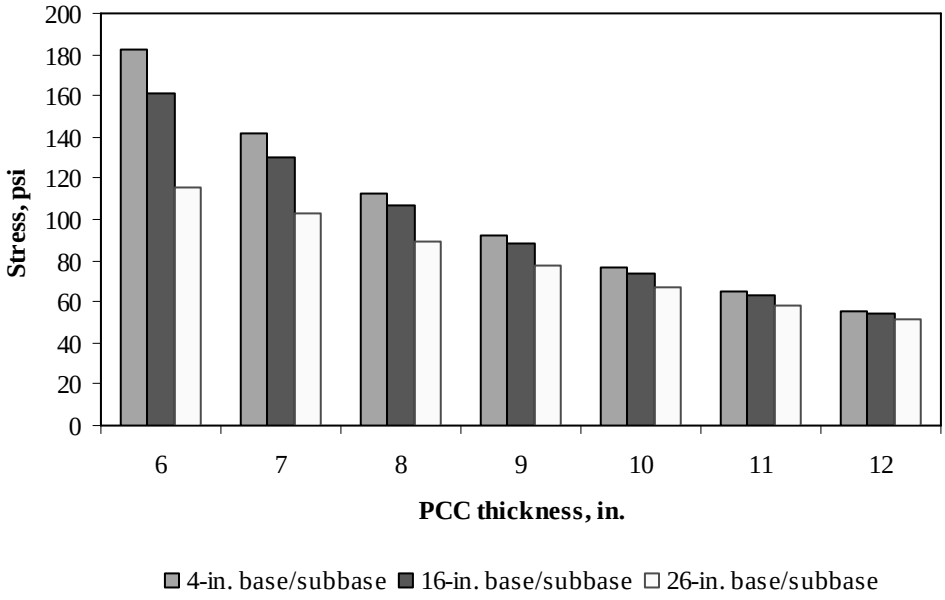


Figure F-1-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

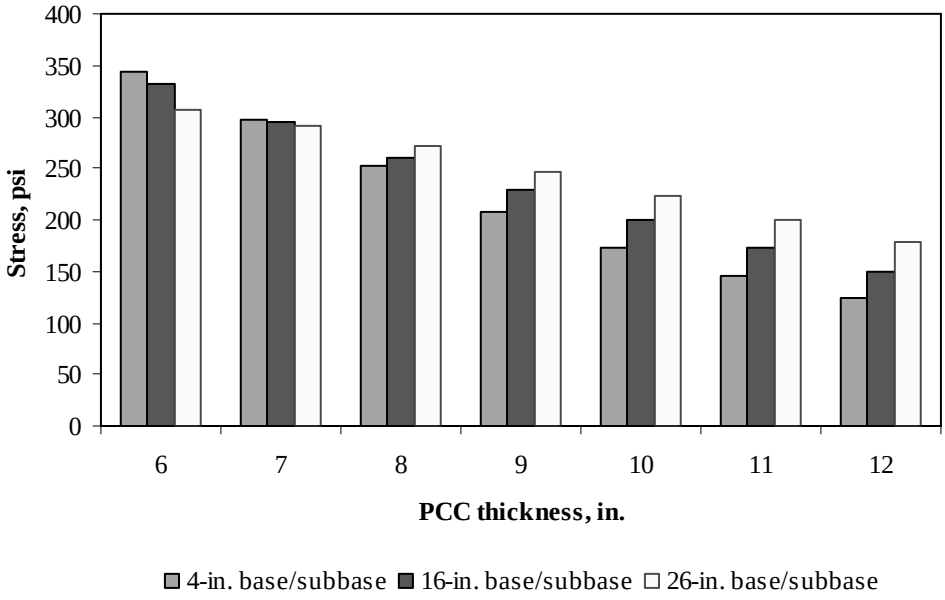


Figure F-1-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

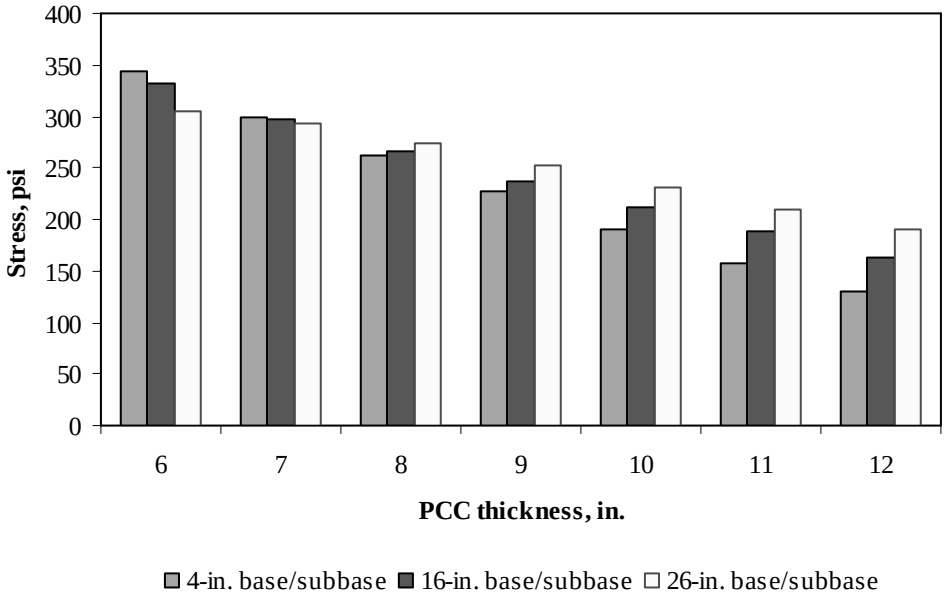


Figure F-1-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-1-13 through F-1-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

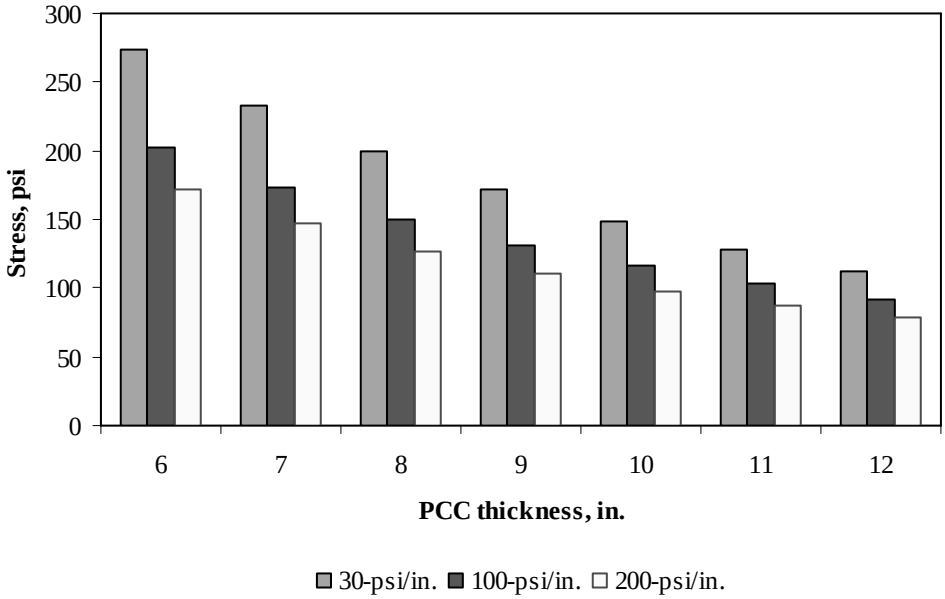


Figure F-1-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

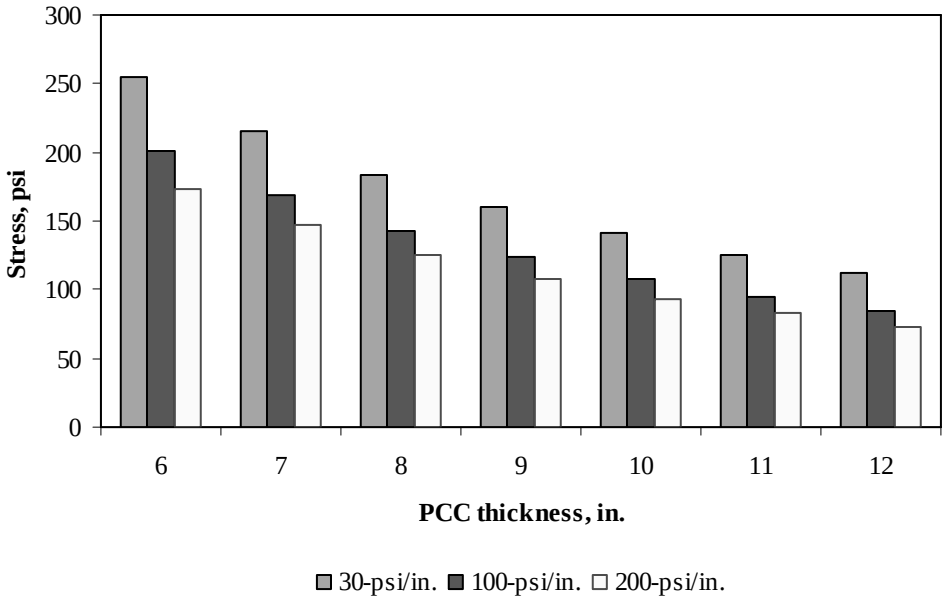


Figure F-1-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

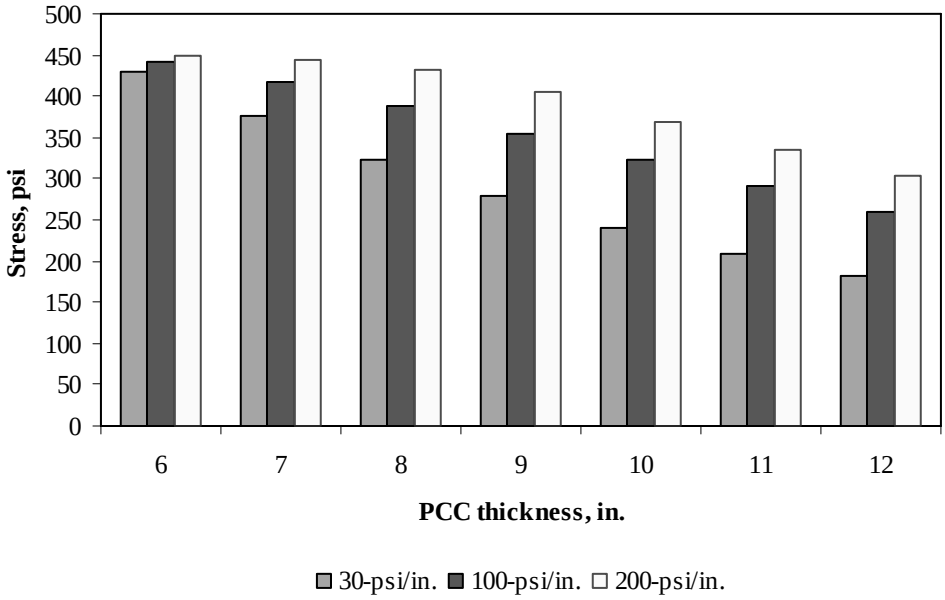


Figure F-1-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

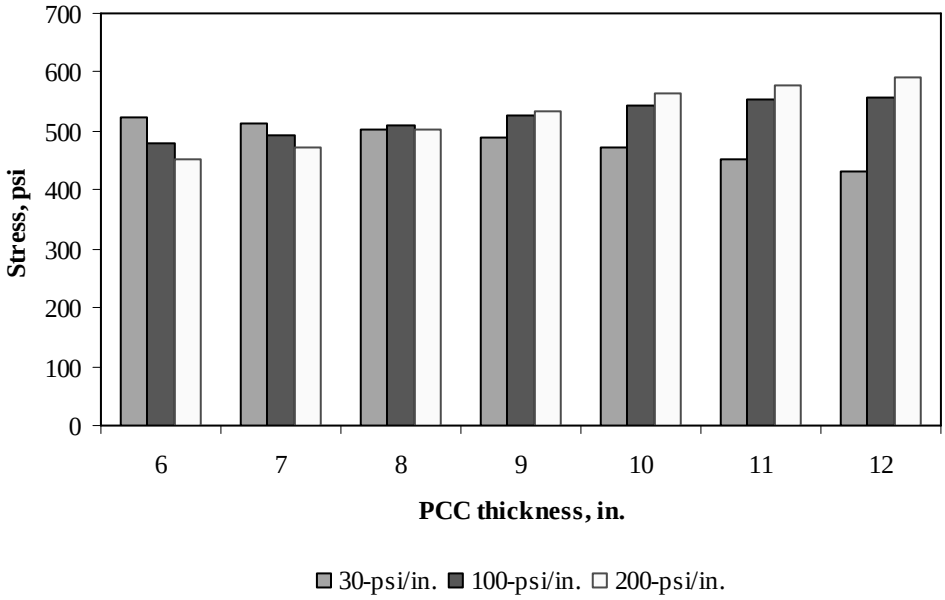


Figure F-1-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

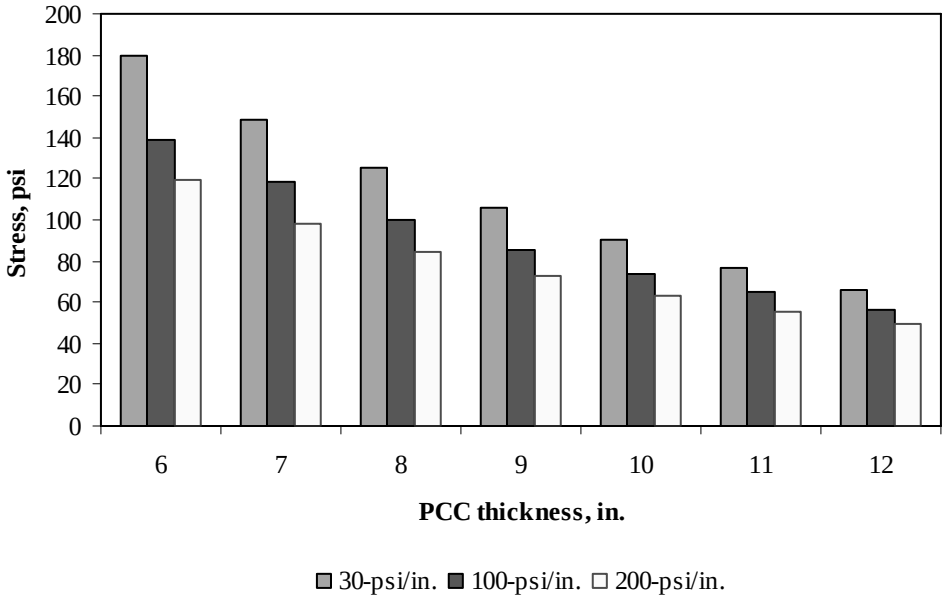


Figure F-1-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

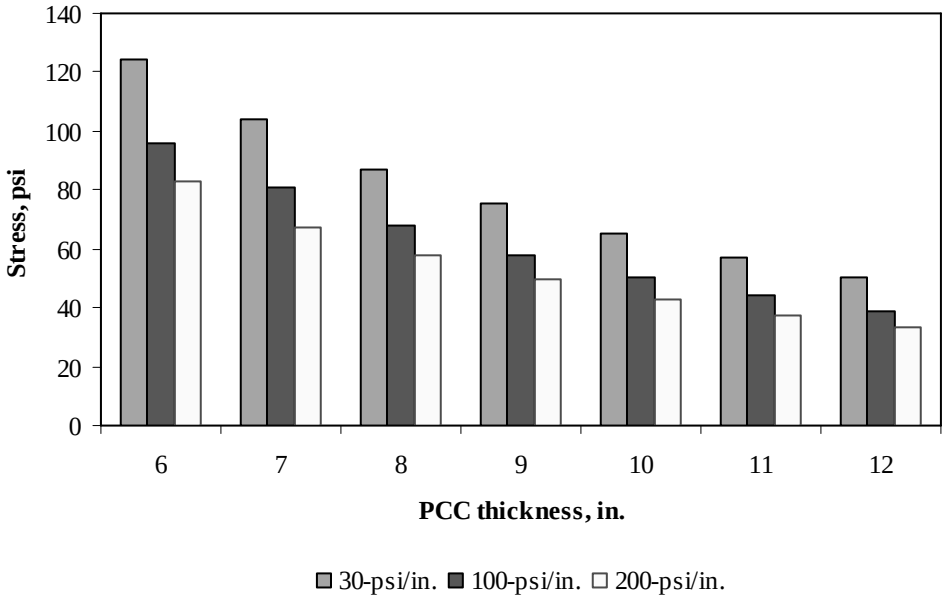


Figure F-1-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

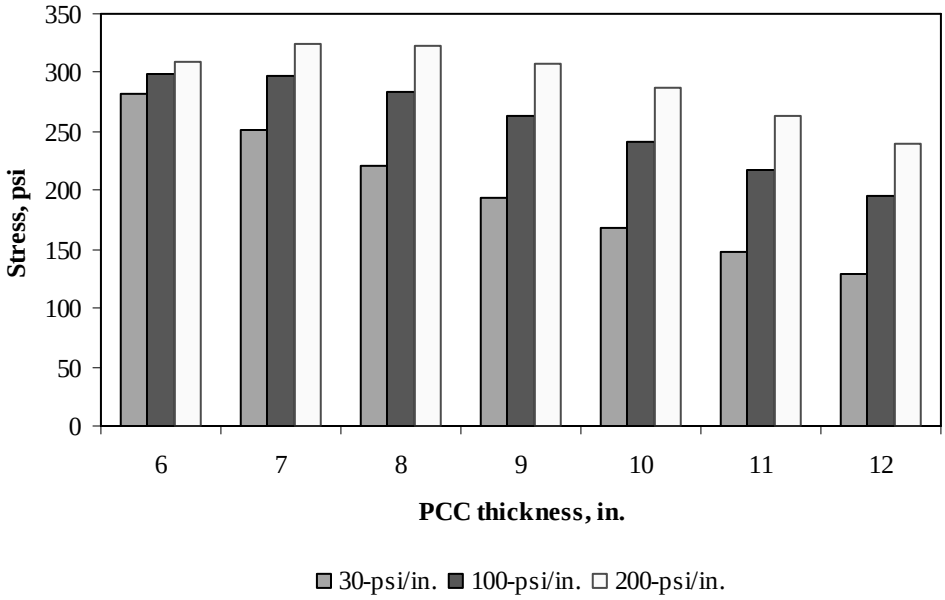


Figure F-1-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

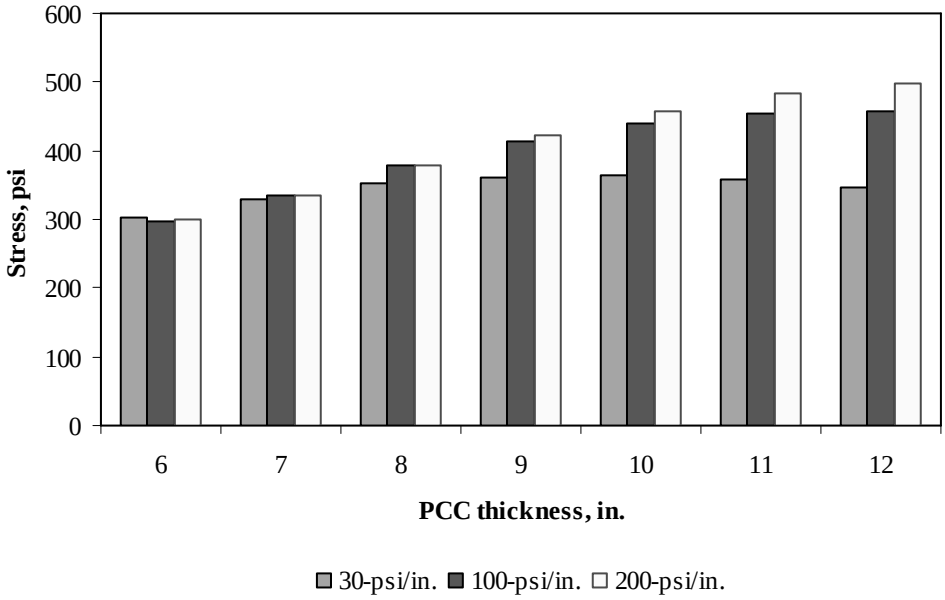


Figure F-1-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

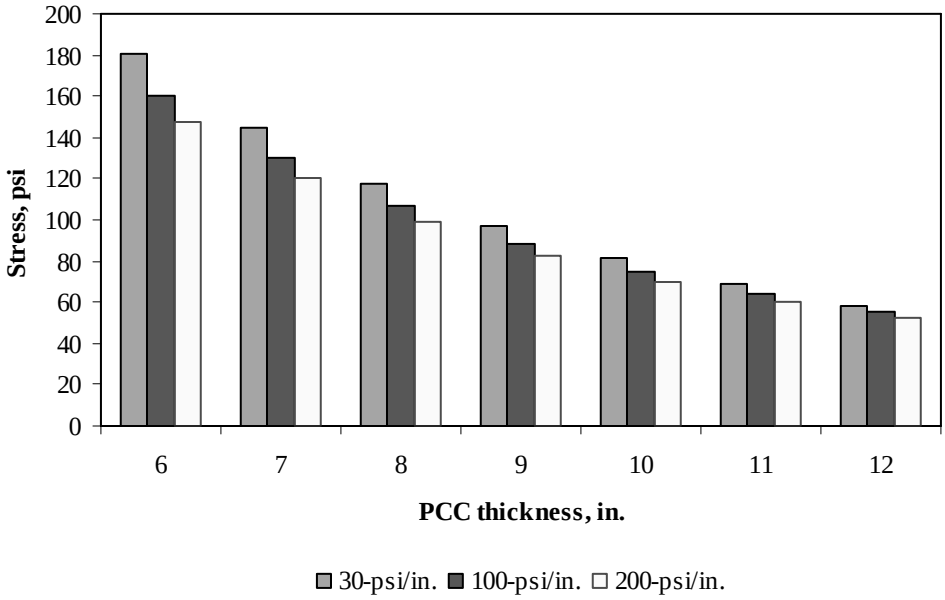


Figure F-1-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

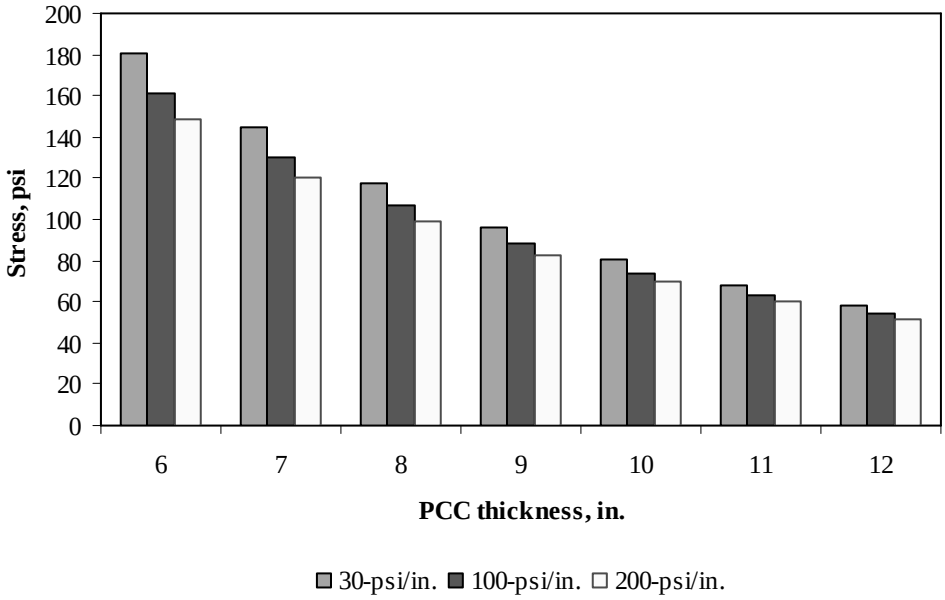


Figure F-1-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

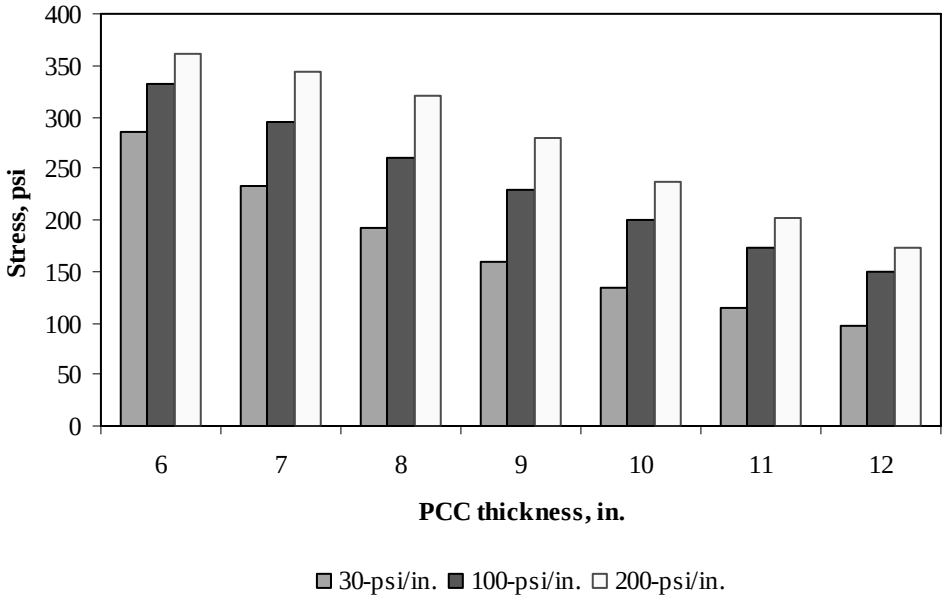


Figure F-1-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

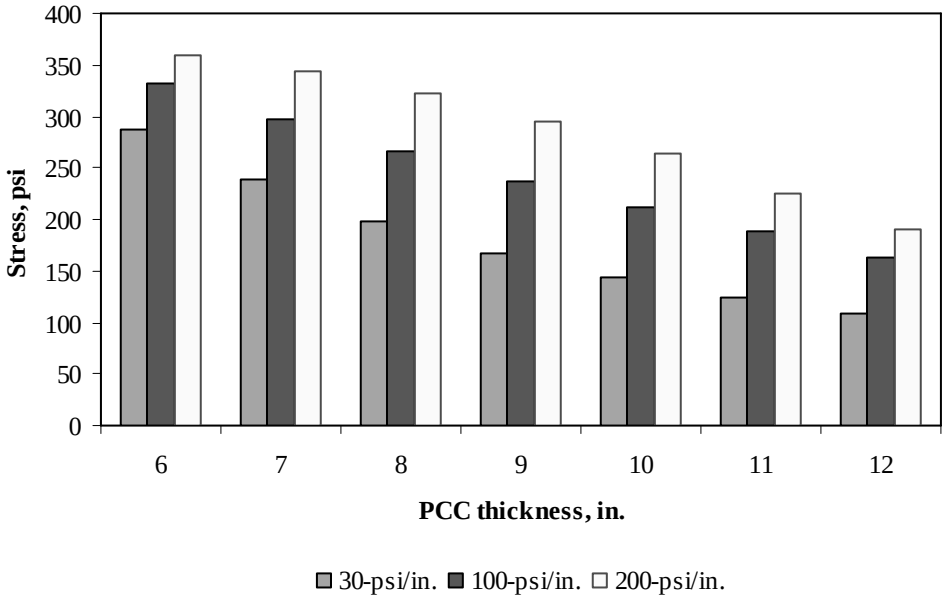


Figure F-1-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-1-25 through F-1-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

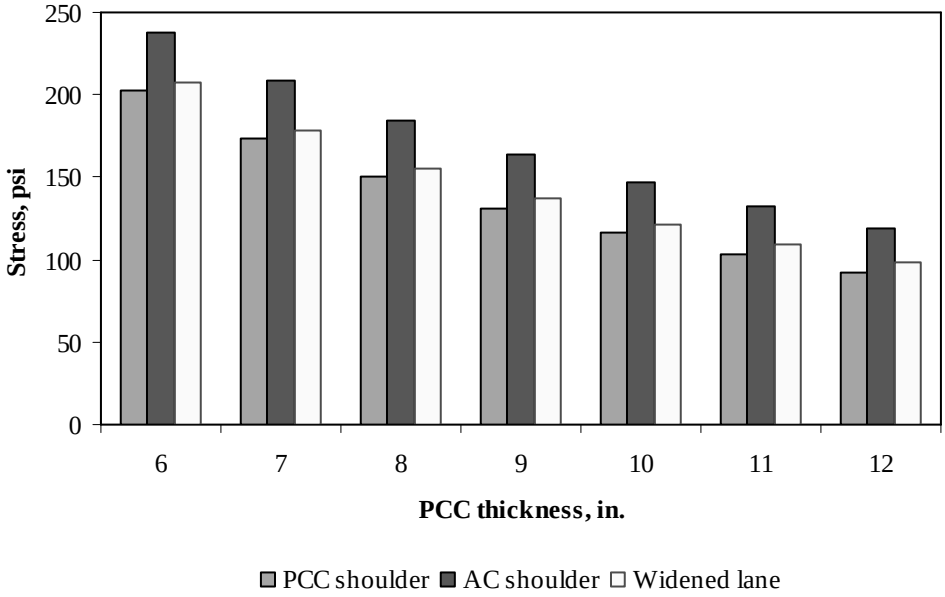


Figure F-1-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

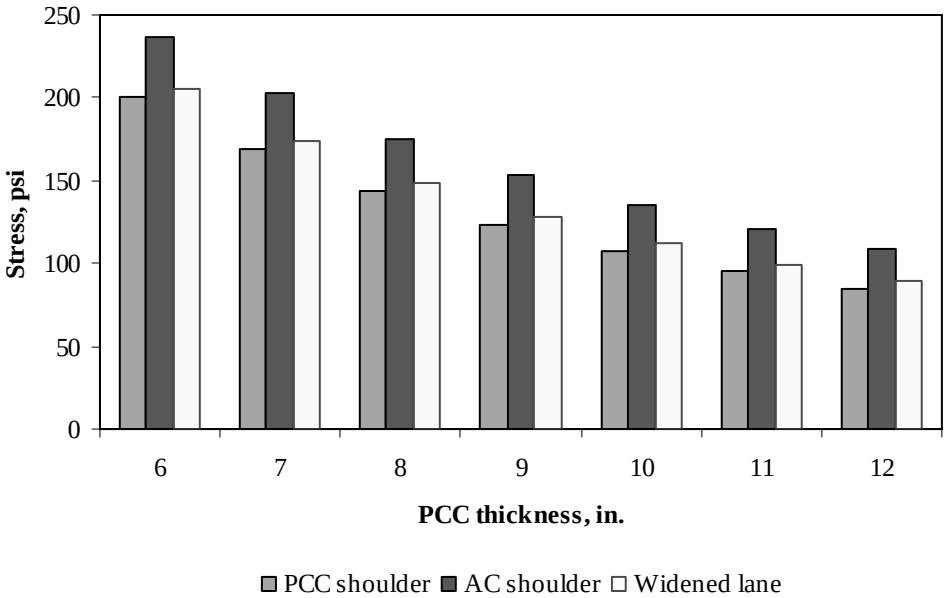


Figure F-1-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

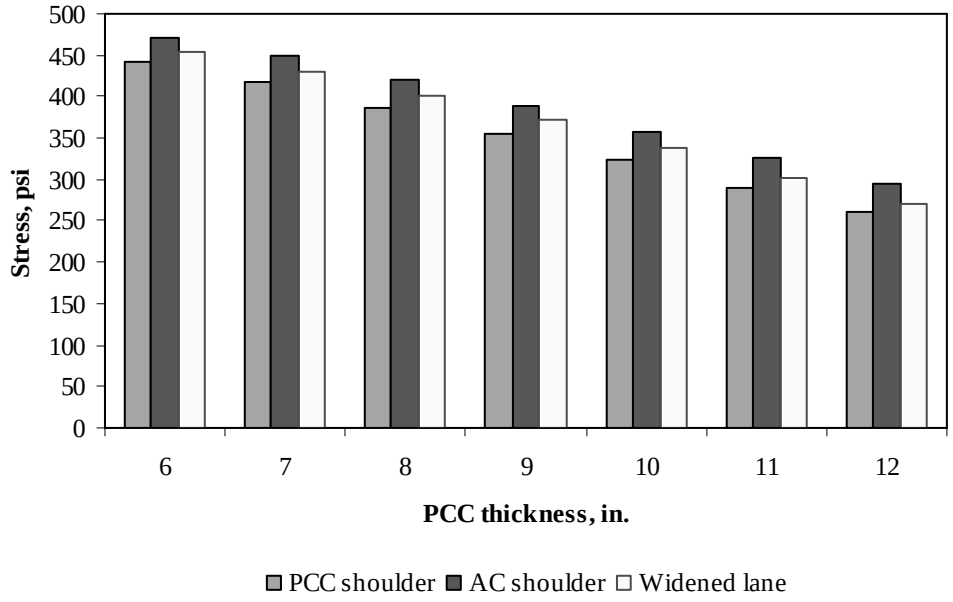


Figure F-1-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

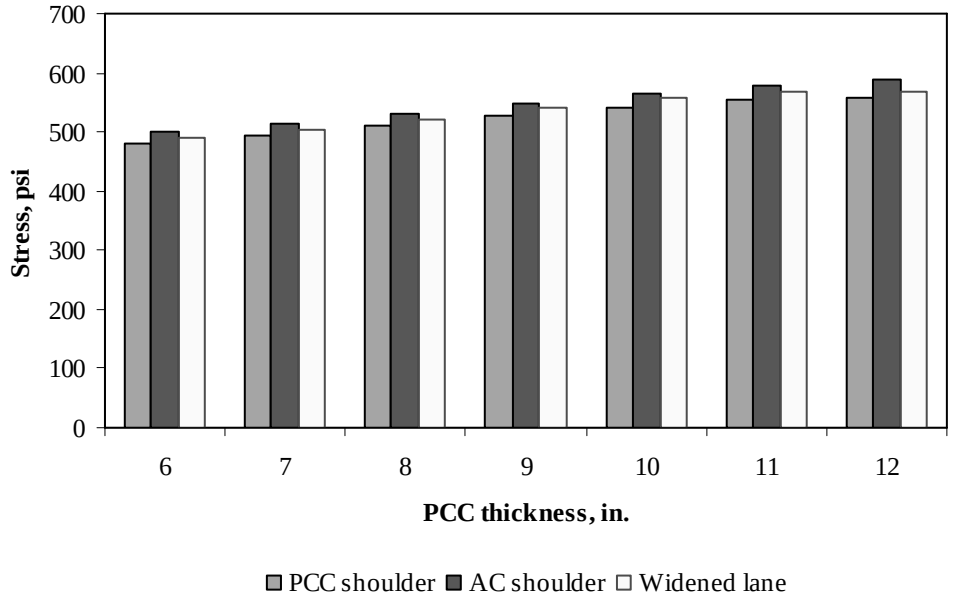


Figure F-1-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

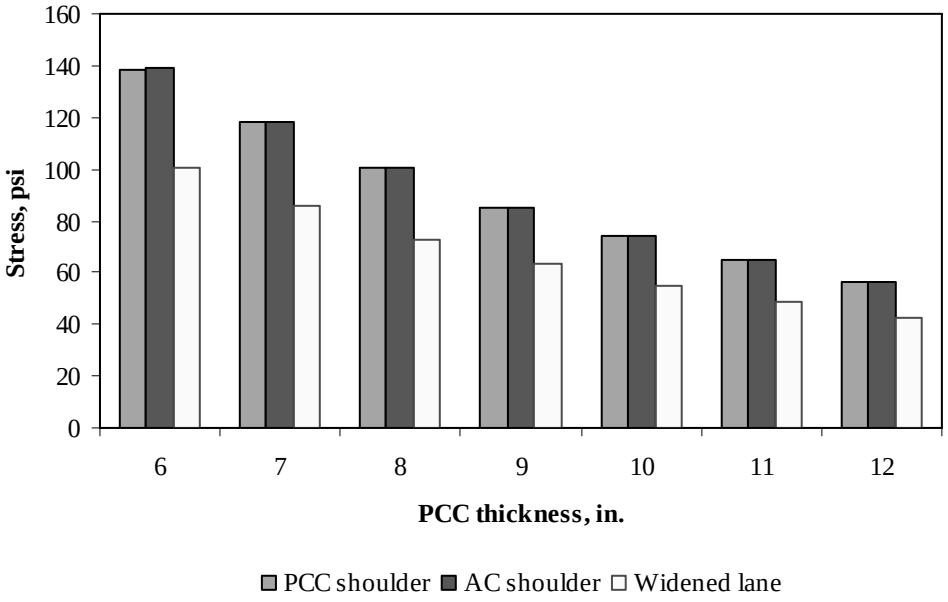


Figure F-1-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

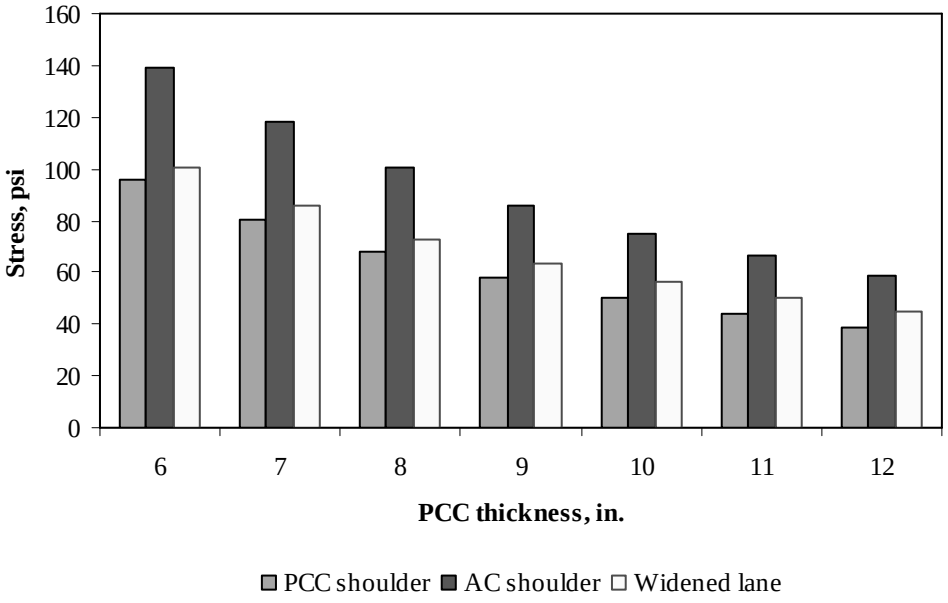


Figure F-1-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

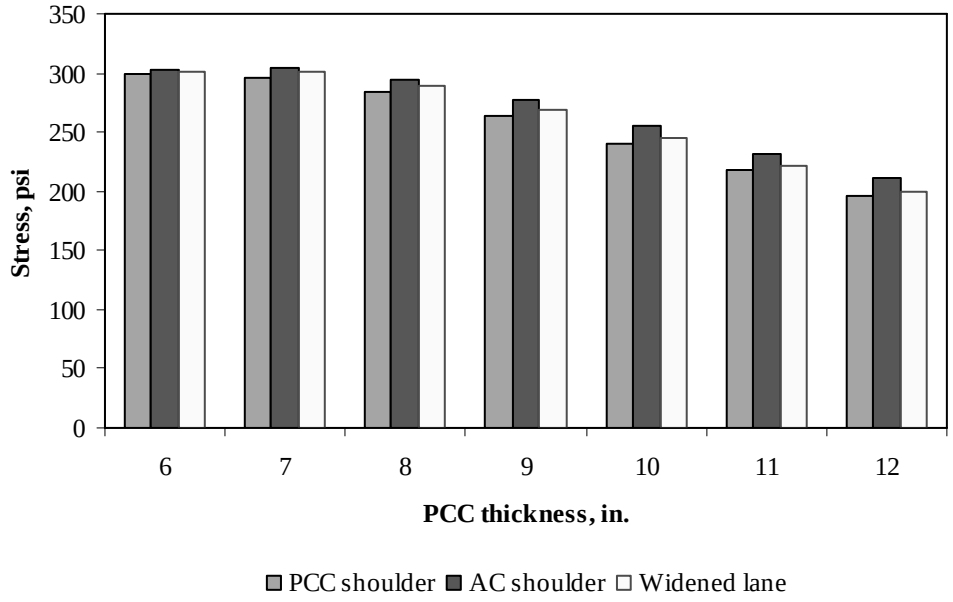


Figure F-1-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

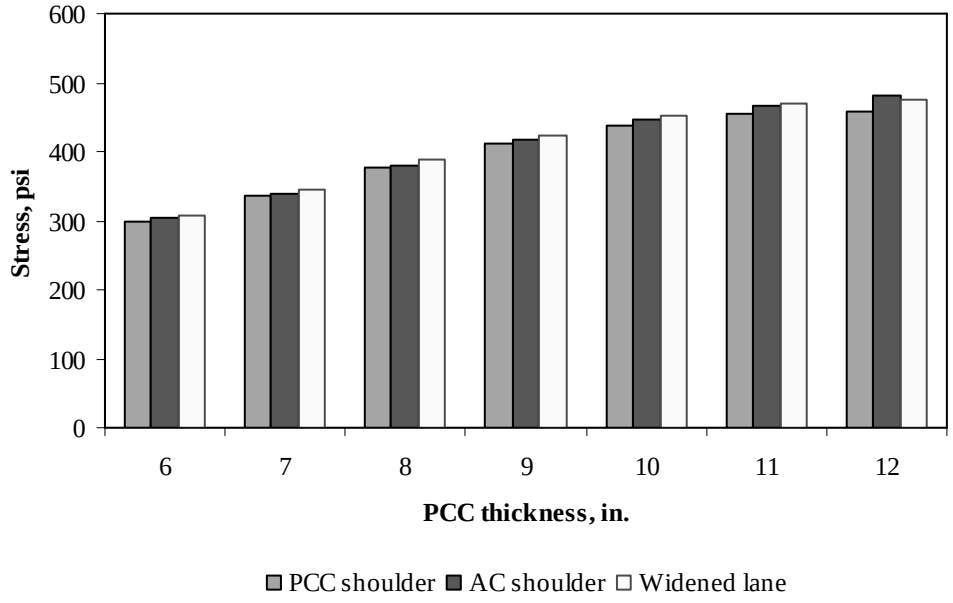


Figure F-1-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

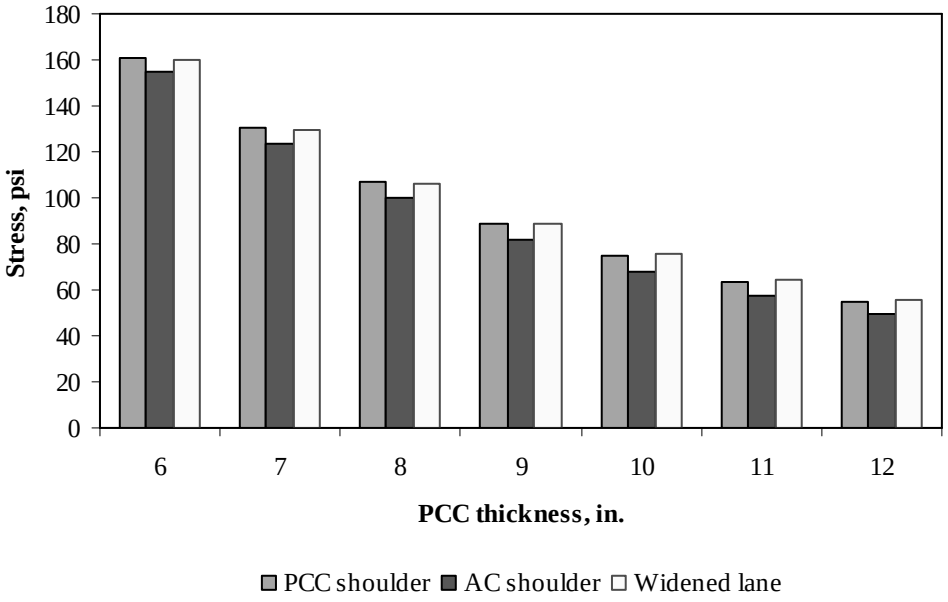


Figure F-1-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

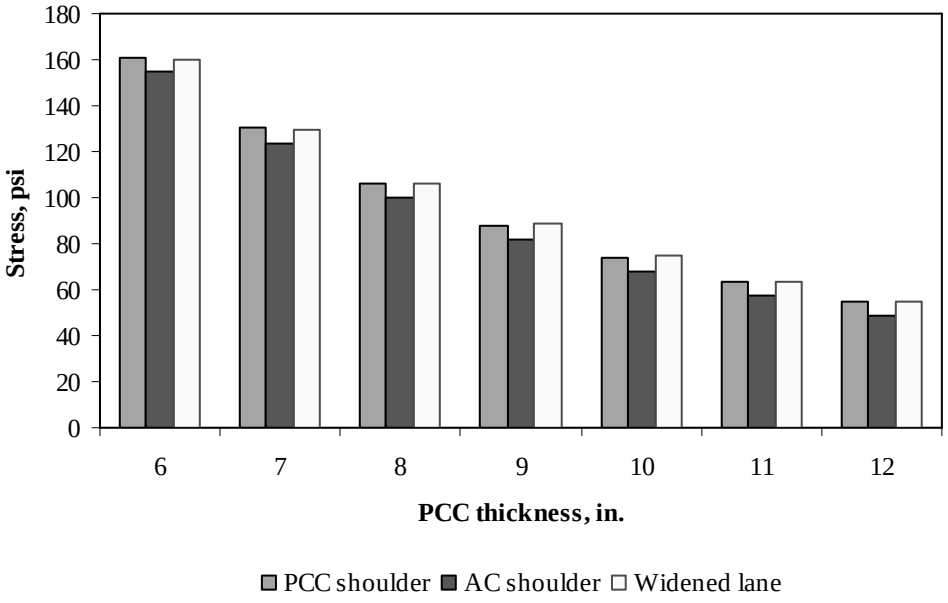


Figure F-1-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

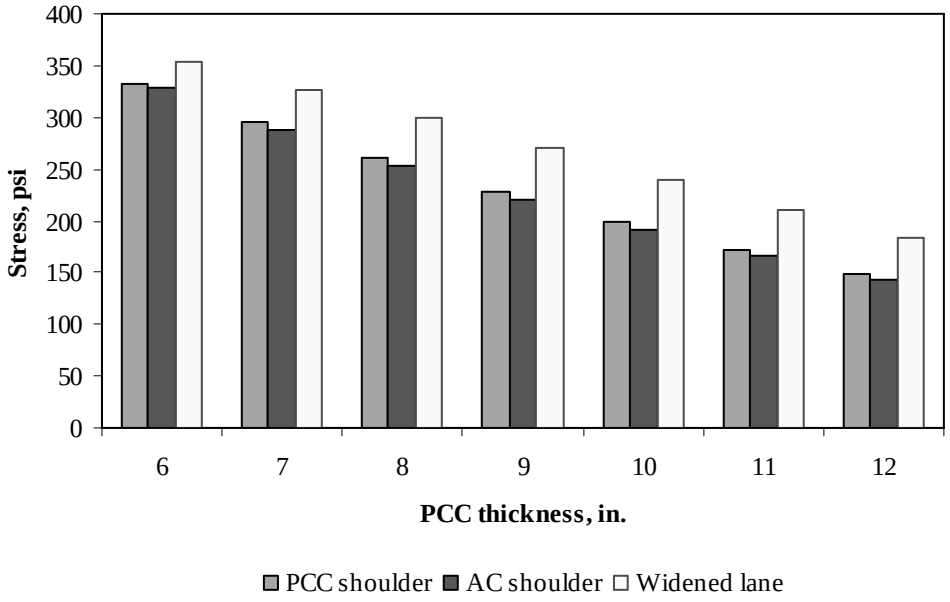


Figure F-1-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

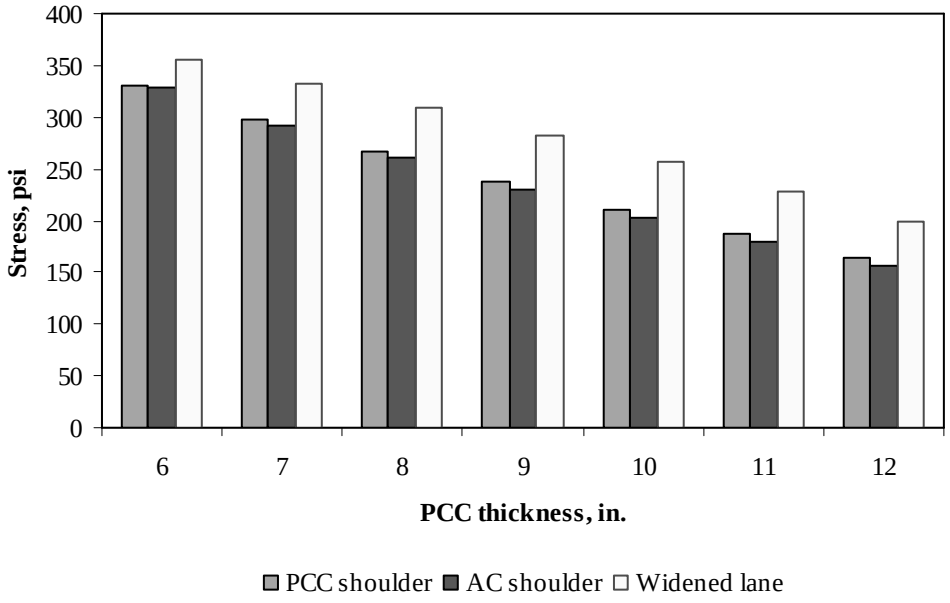


Figure F-1-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-1-37 through F-1-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

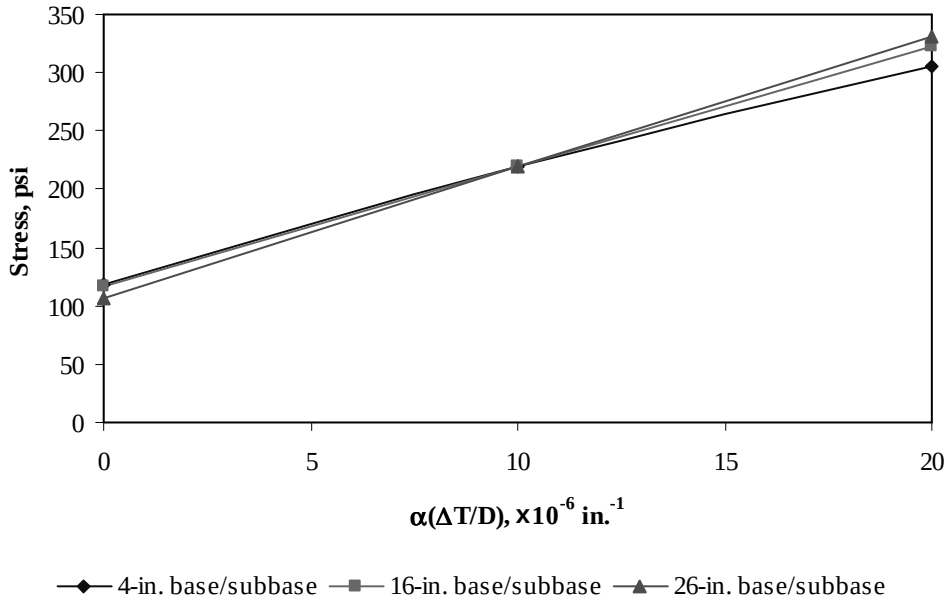


Figure F-1-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

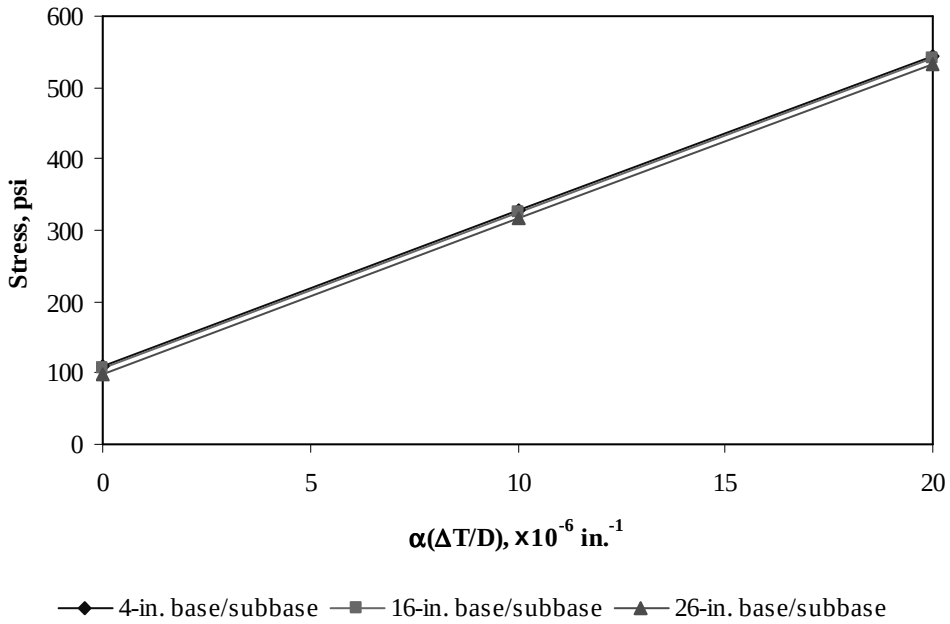


Figure F-1-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

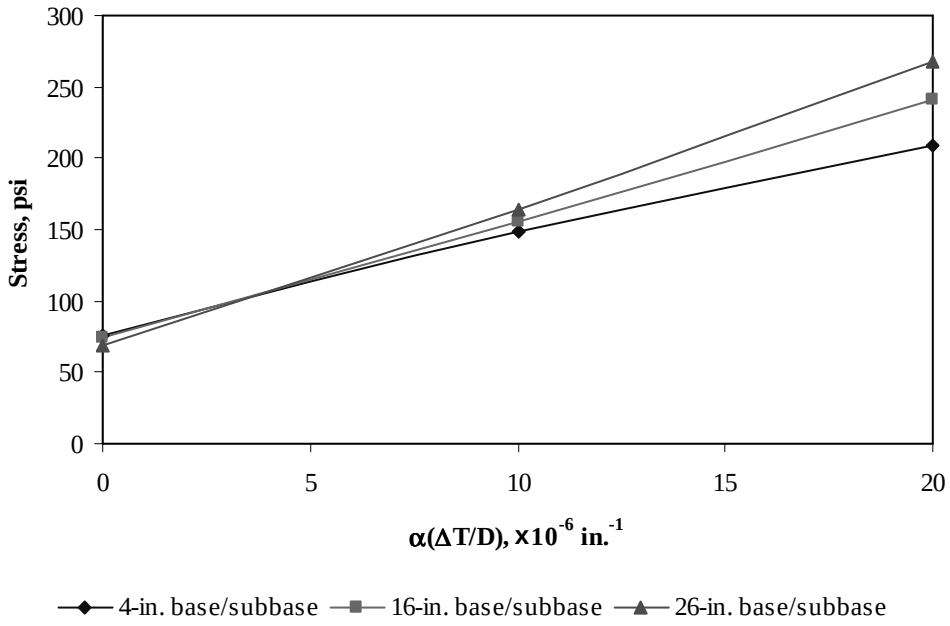


Figure F-1-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

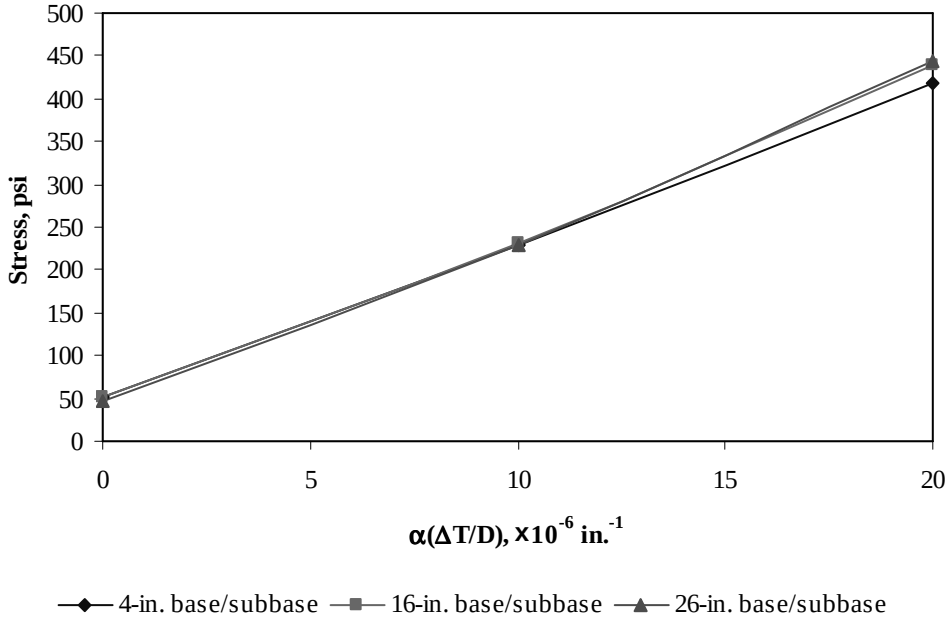


Figure F-1-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

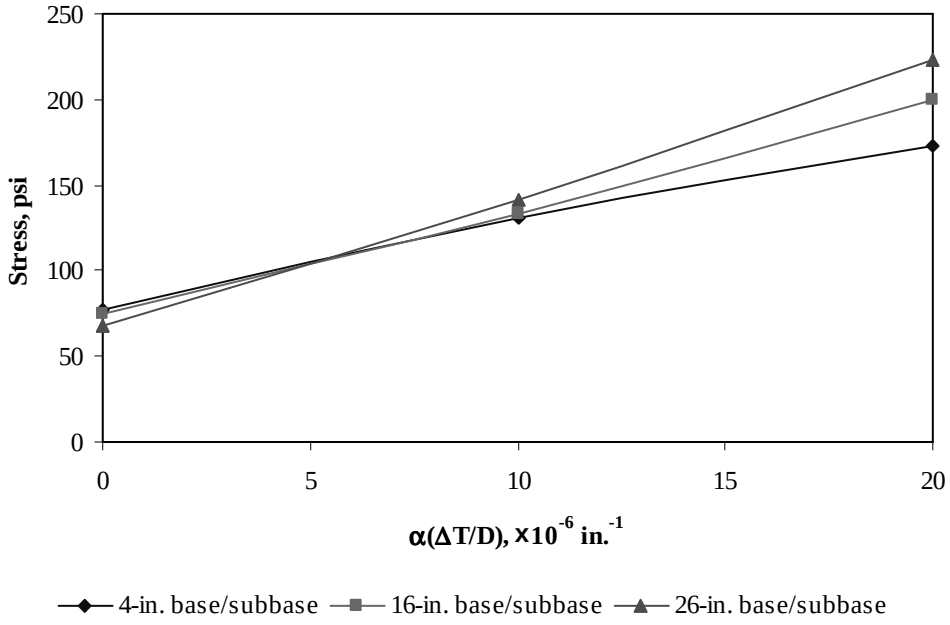


Figure F-1-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

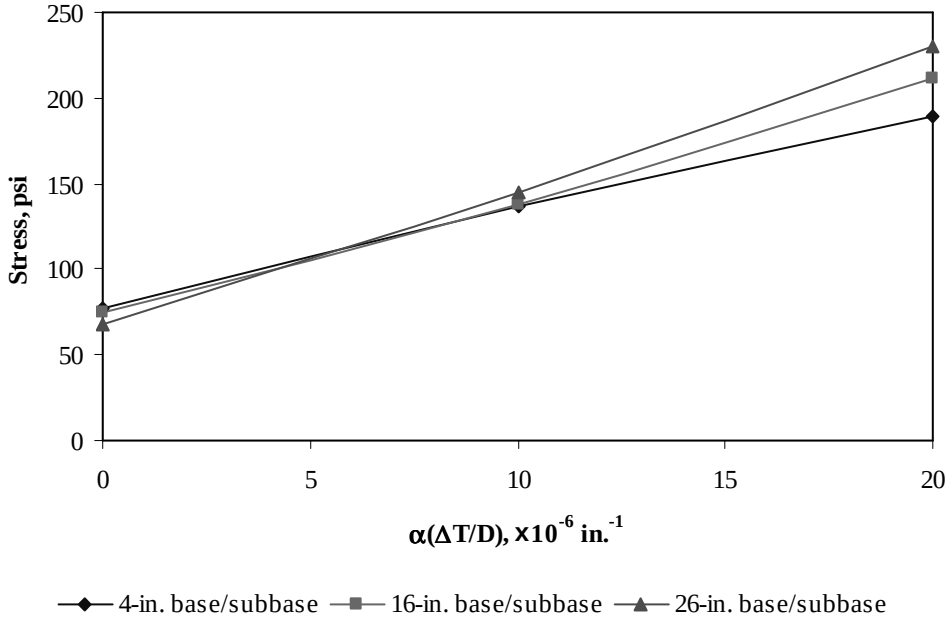


Figure F-1-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-1-43 through F-1-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

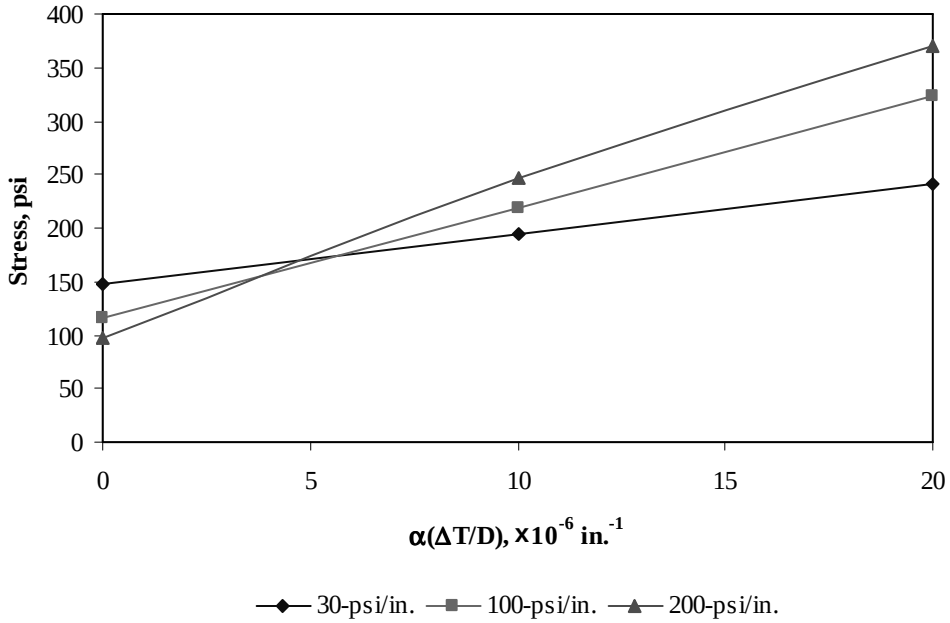


Figure F-1-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

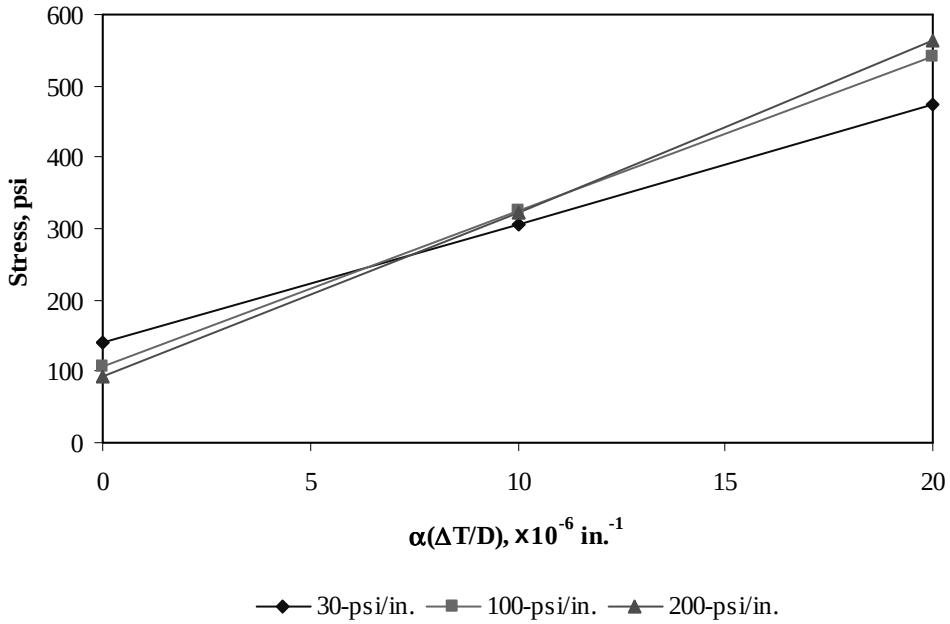


Figure F-1-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

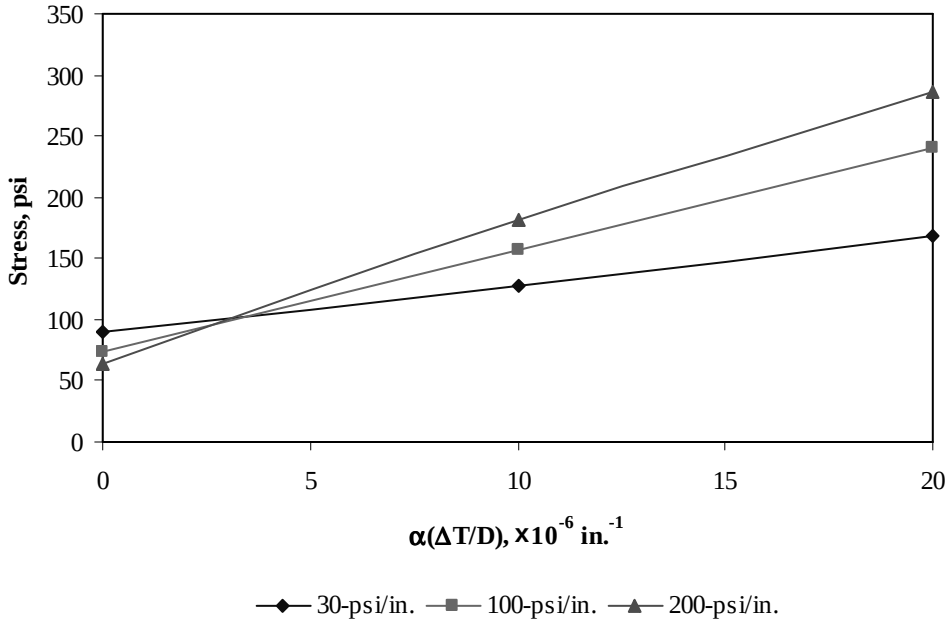


Figure F-1-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

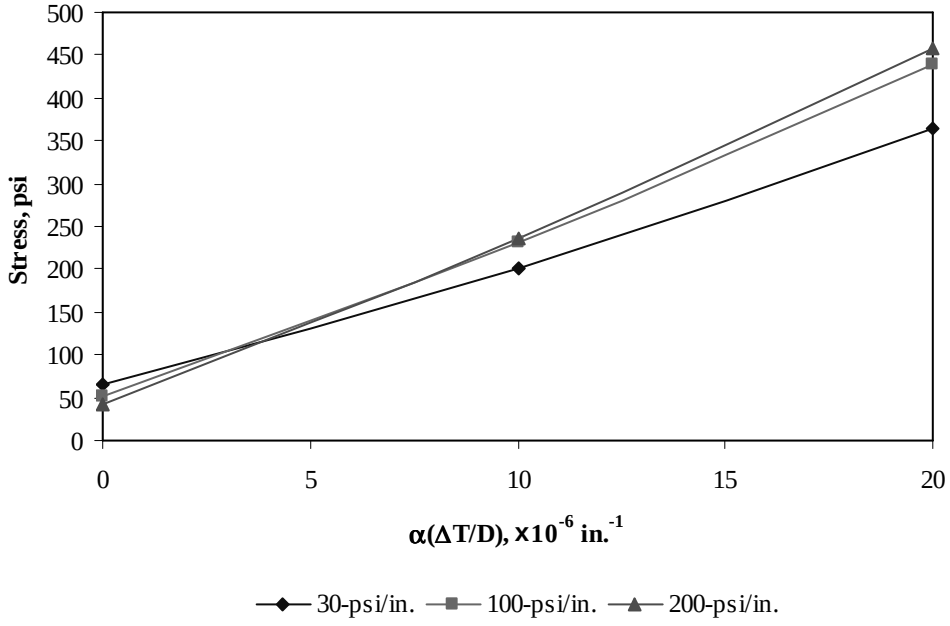


Figure F-1-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

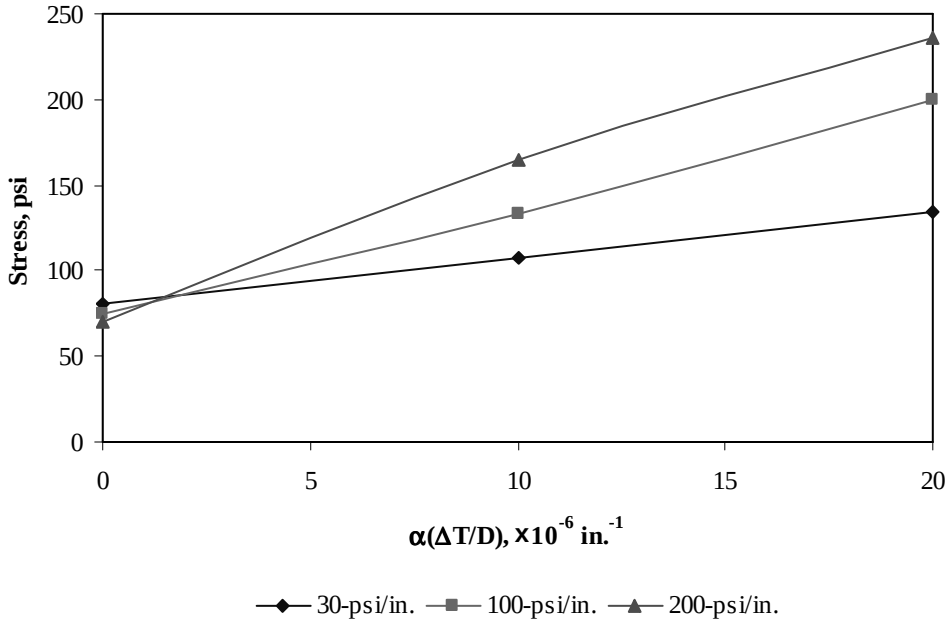


Figure F-1-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

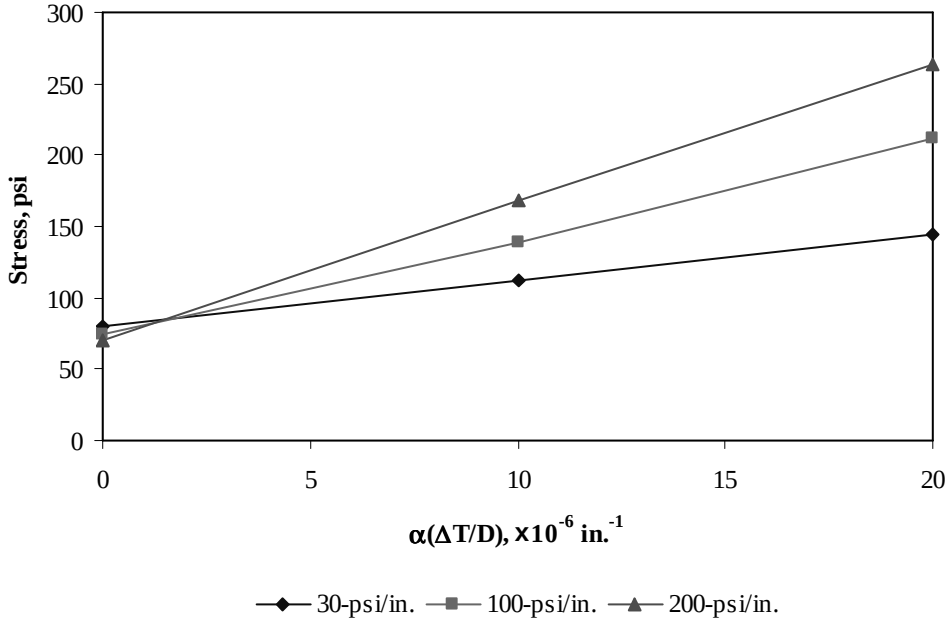


Figure F-1-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-1-49 through F-1-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

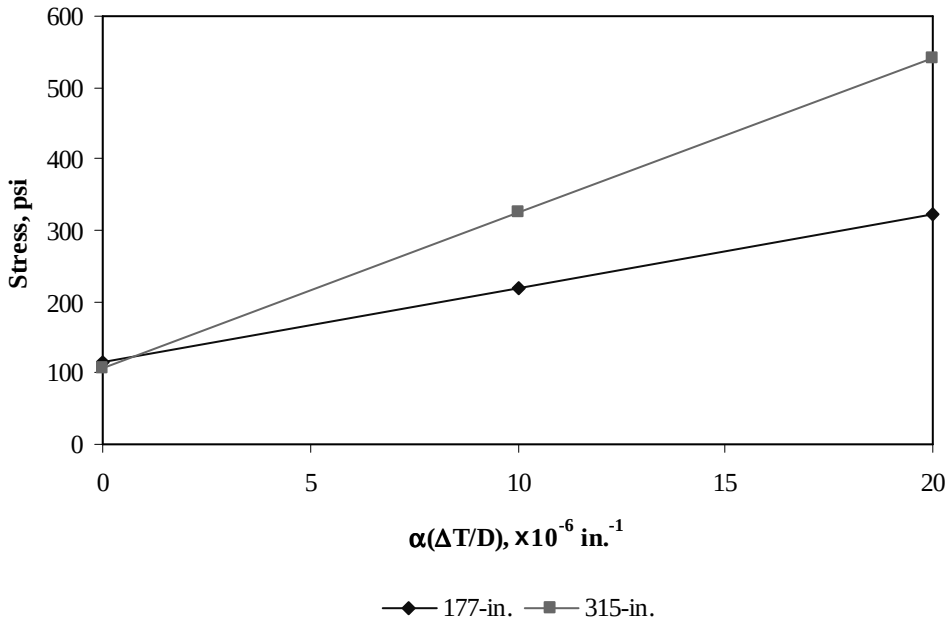


Figure F-1-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

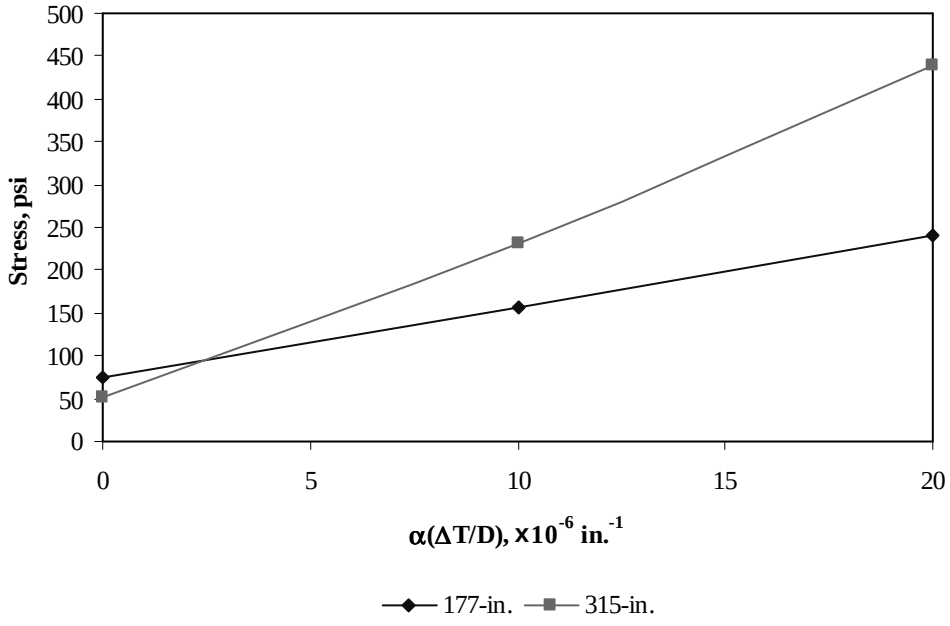


Figure F-1-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

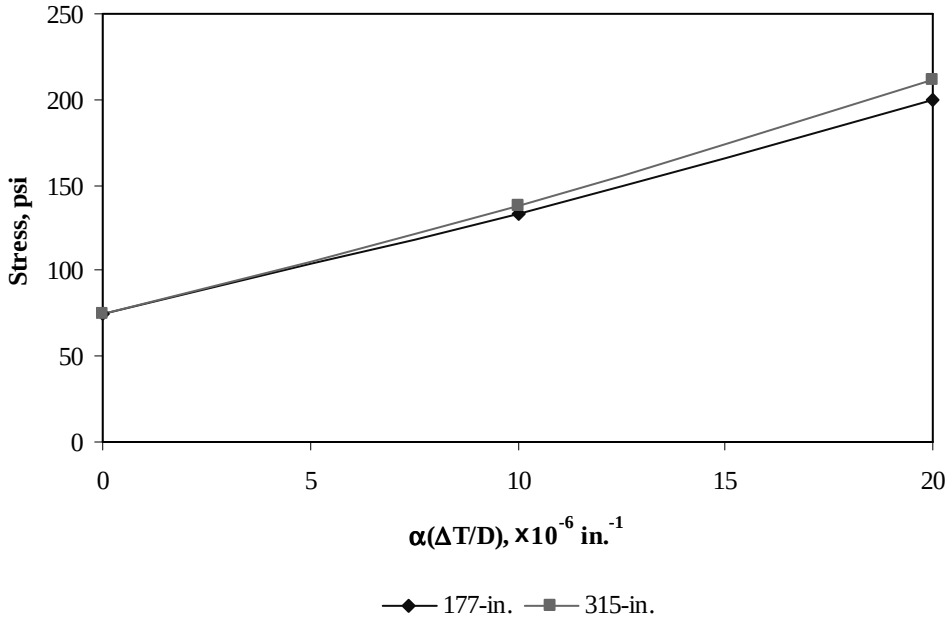
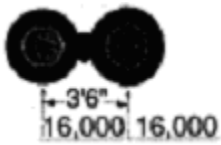


Figure F-1-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-2

Documentation of Pavement Responses for



32-kips Tandem Axle

Figures F-2-1 through F-2-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

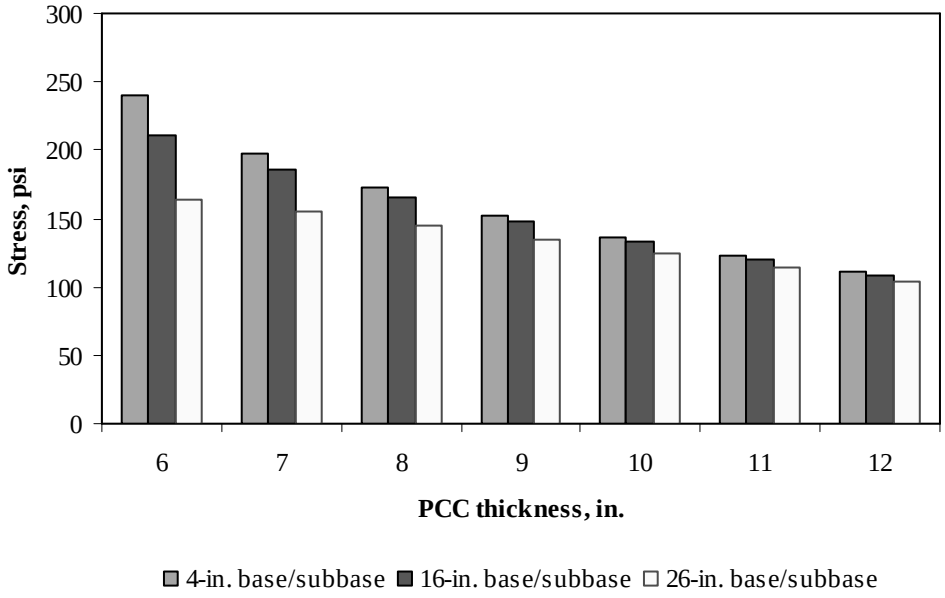


Figure F-2-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

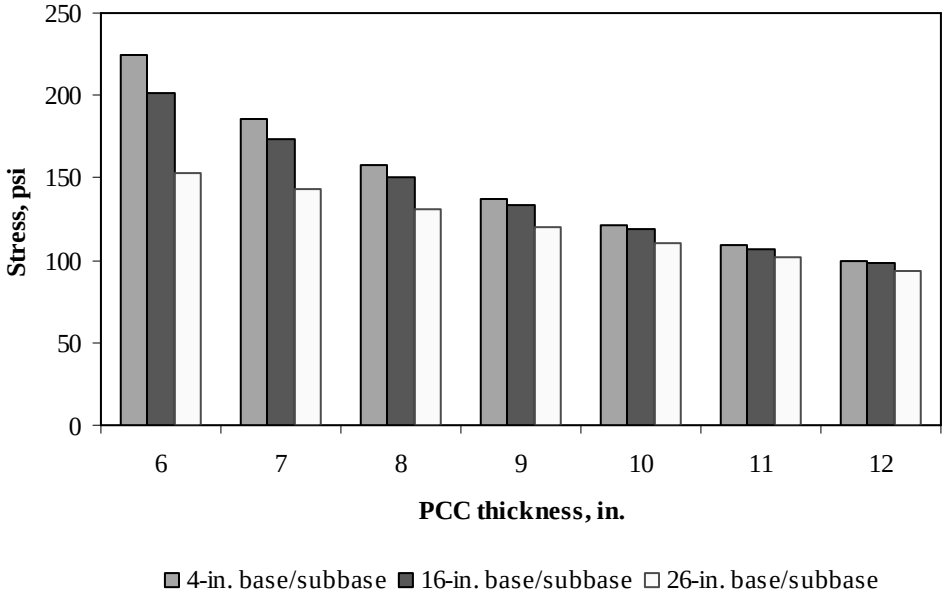


Figure F-2-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

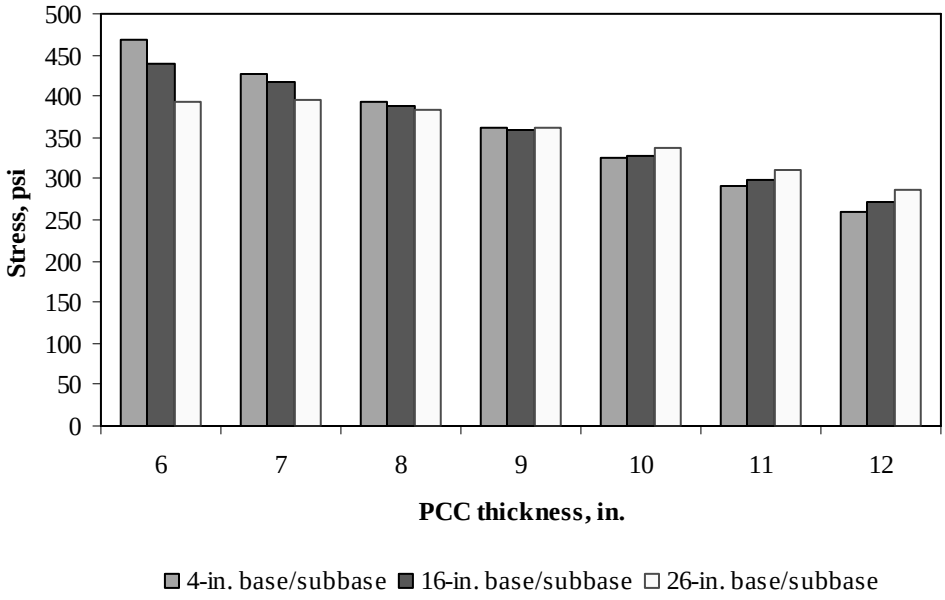


Figure F-2-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

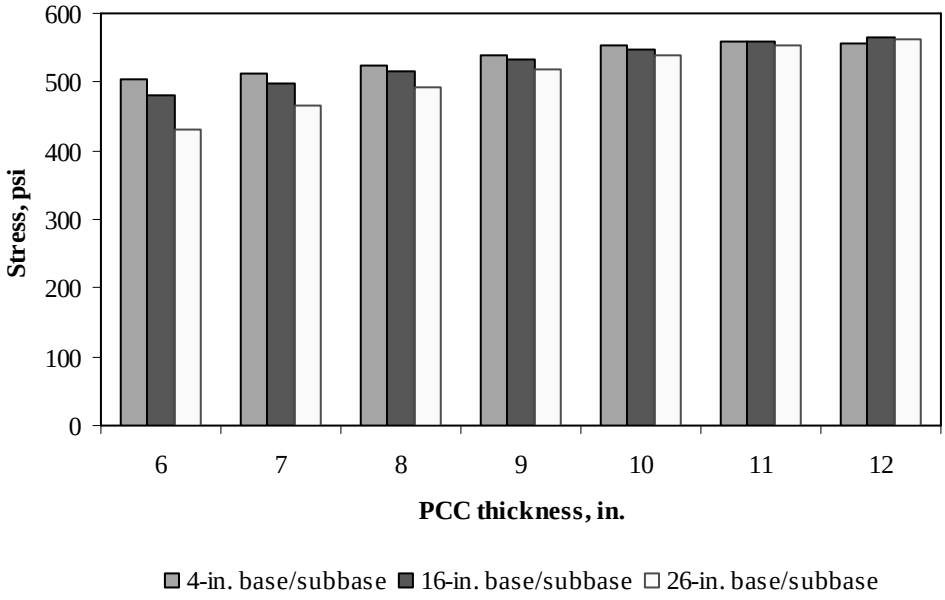


Figure F-2-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

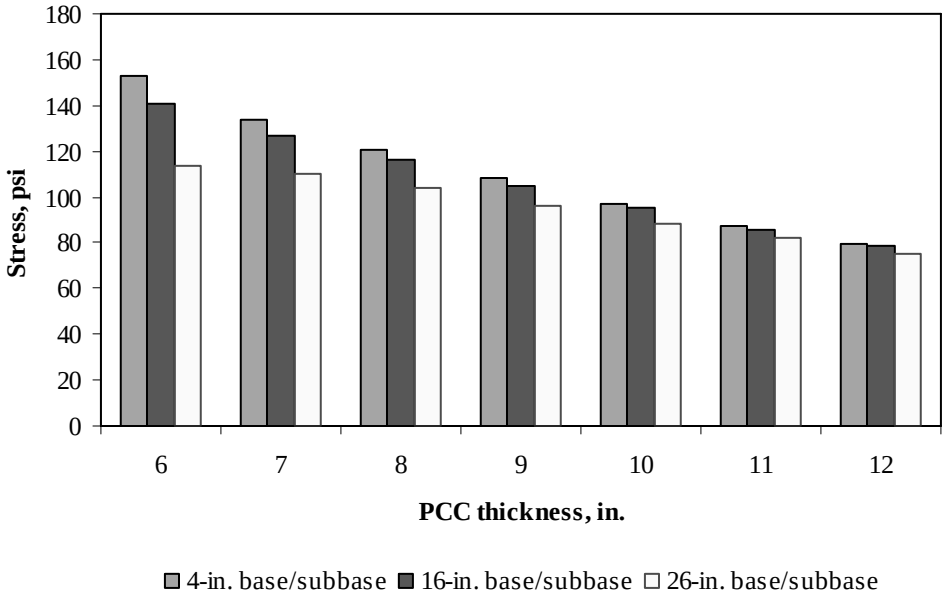


Figure F-2-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

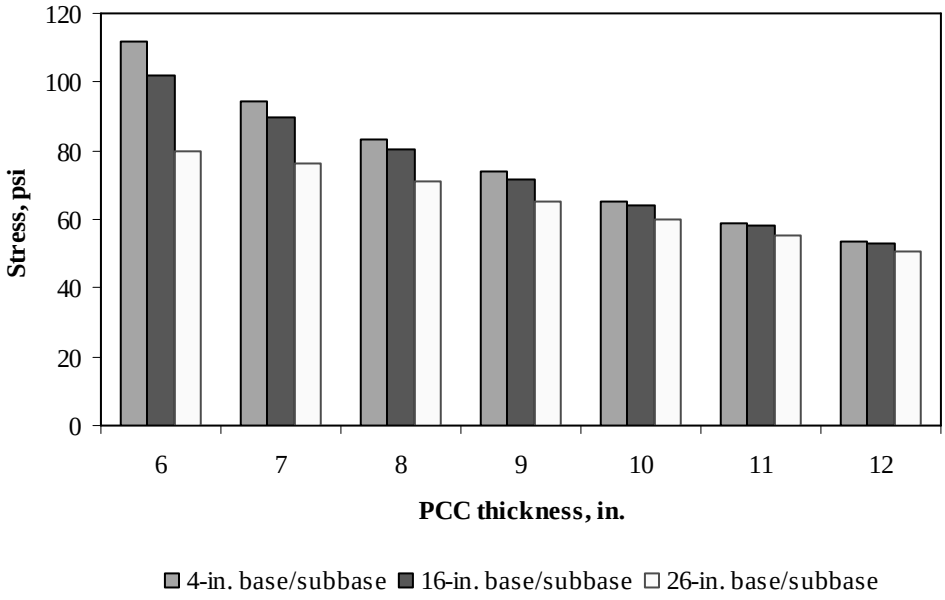


Figure F-2-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

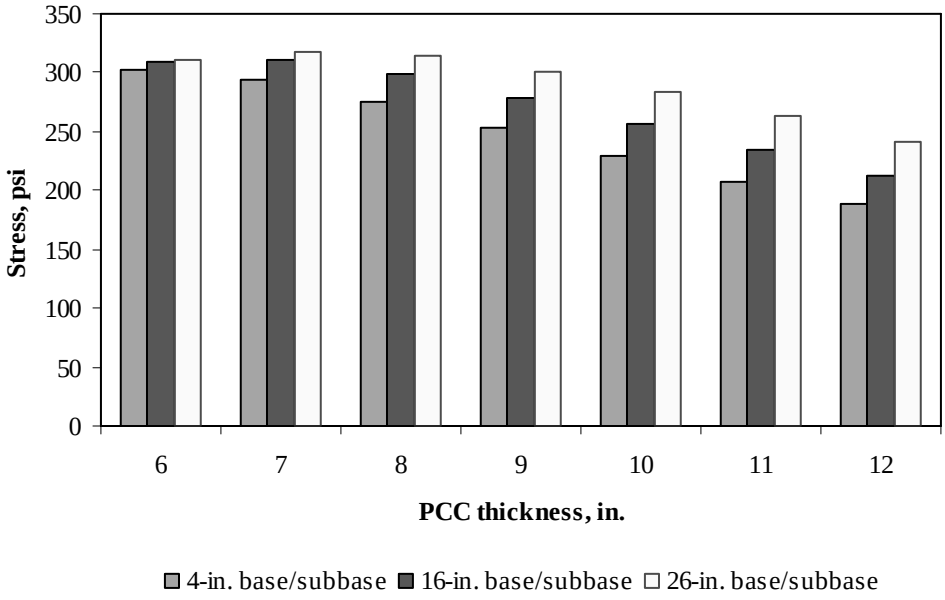


Figure F-2-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

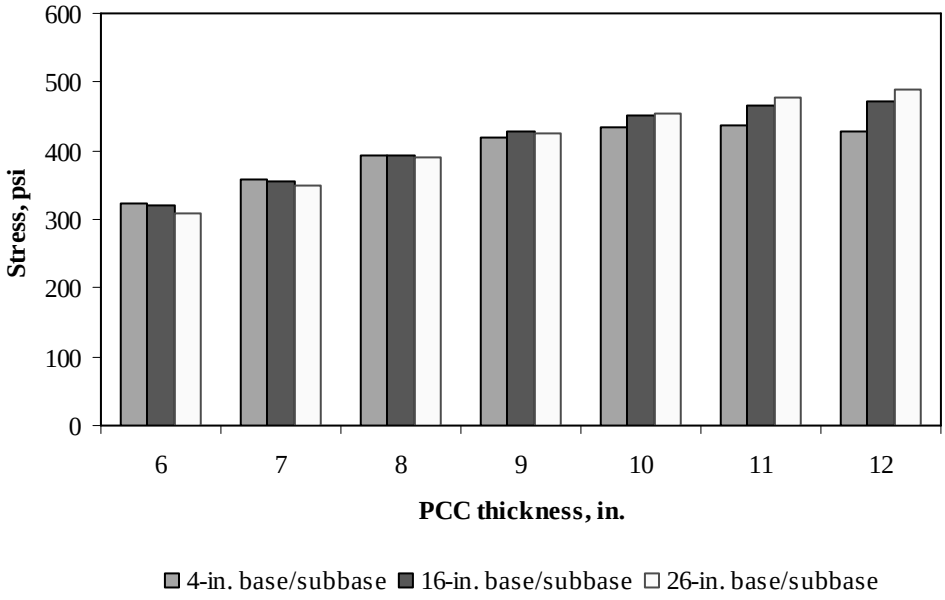


Figure F-2-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

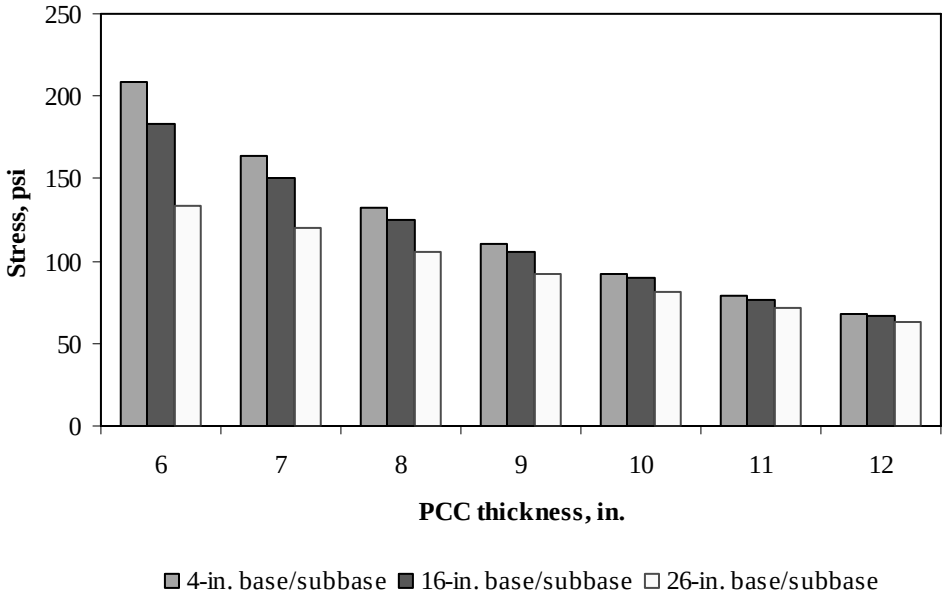


Figure F-2-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

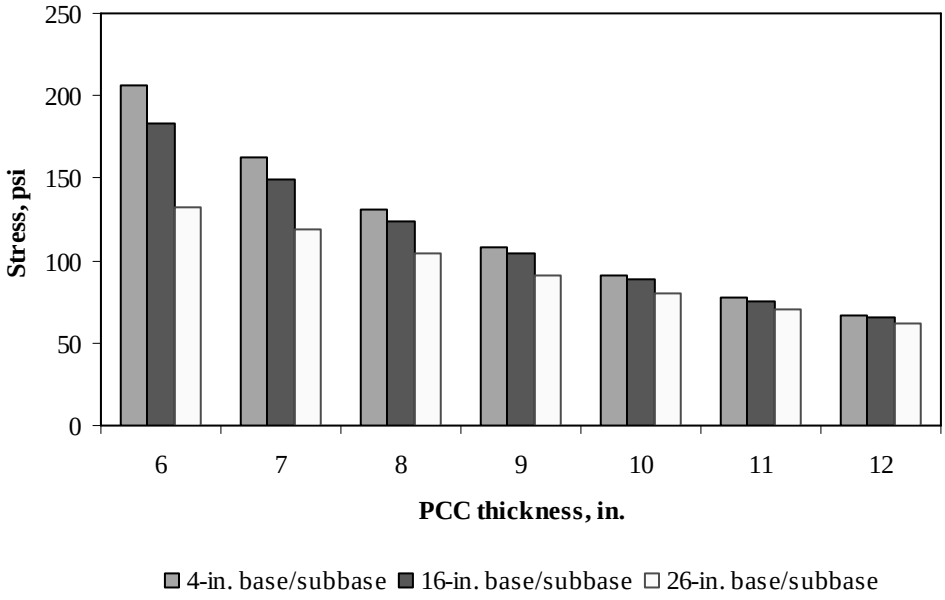


Figure F-2-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

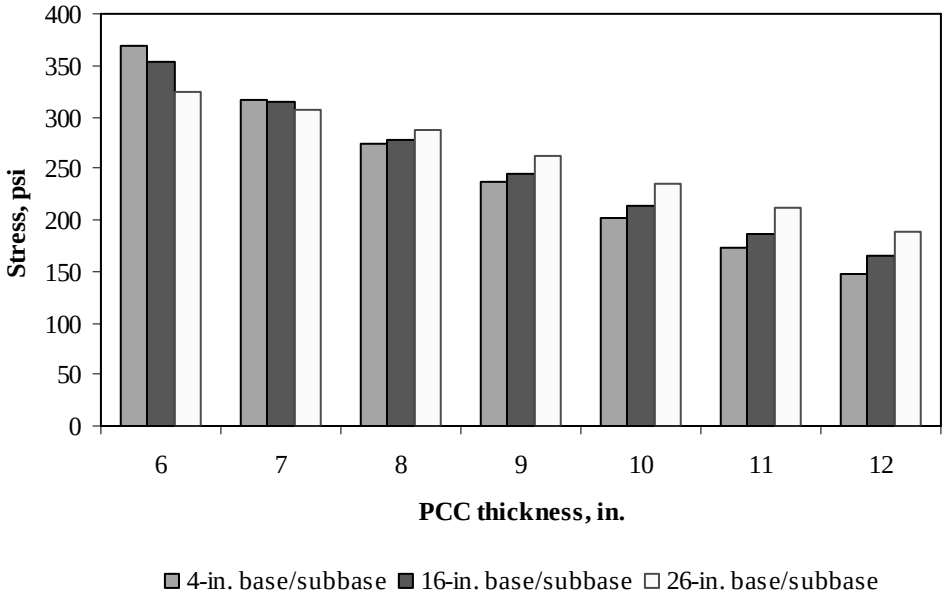


Figure F-2-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

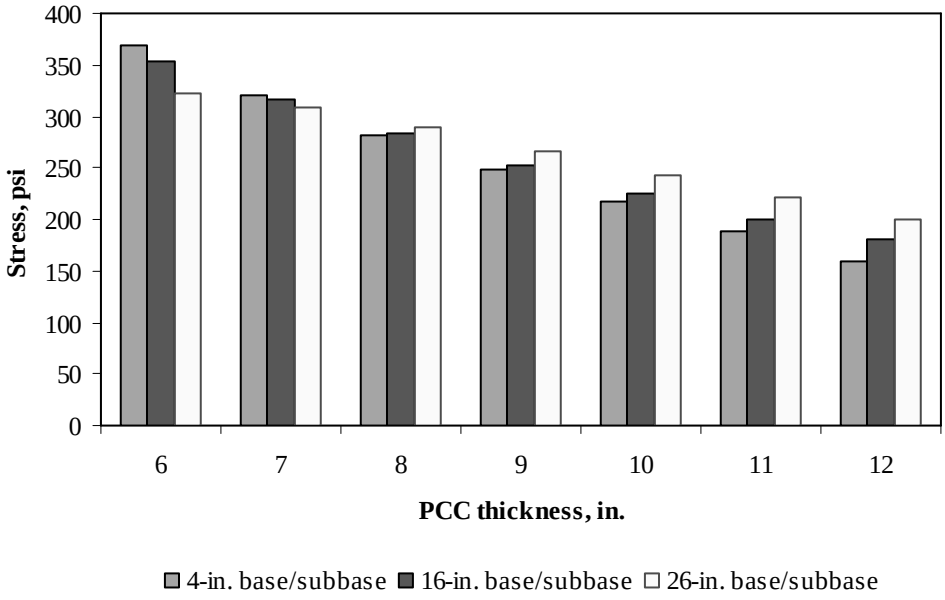


Figure F-2-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-2-13 through F-2-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

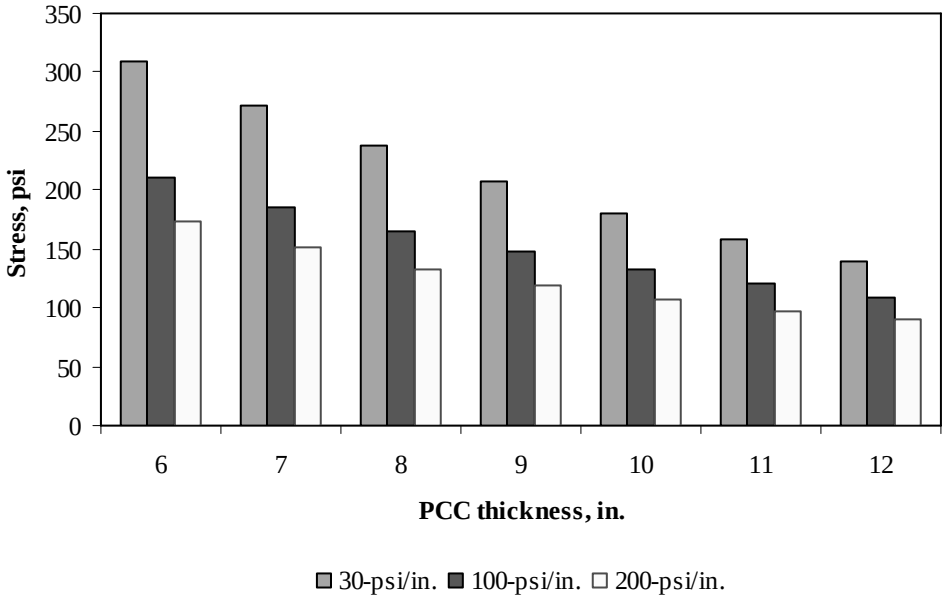


Figure F-2-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

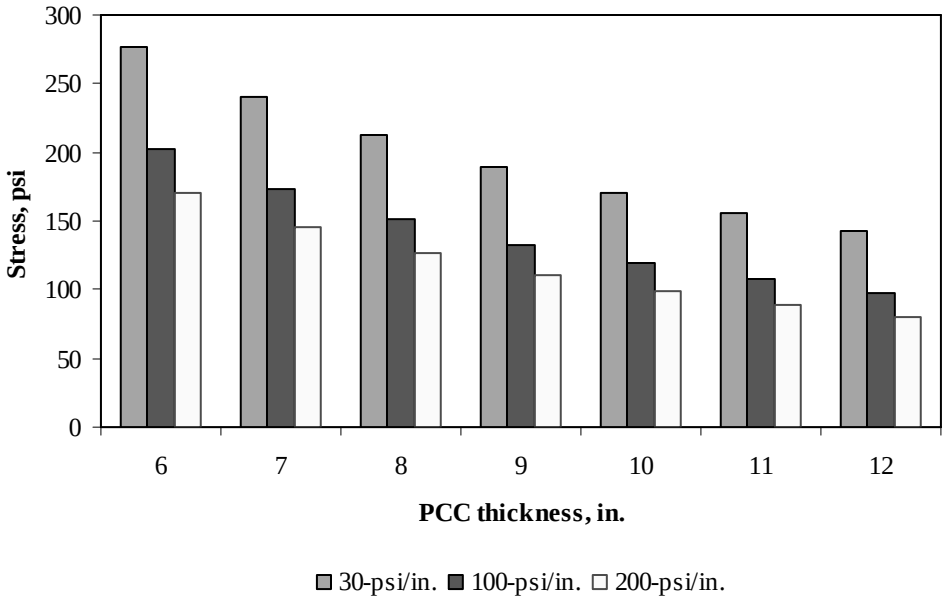


Figure F-2-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

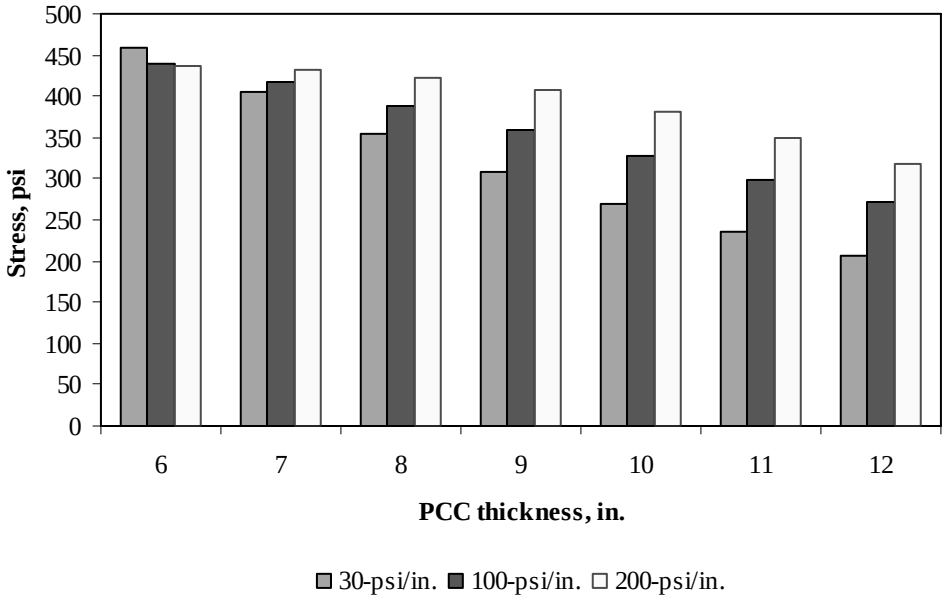


Figure F-2-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

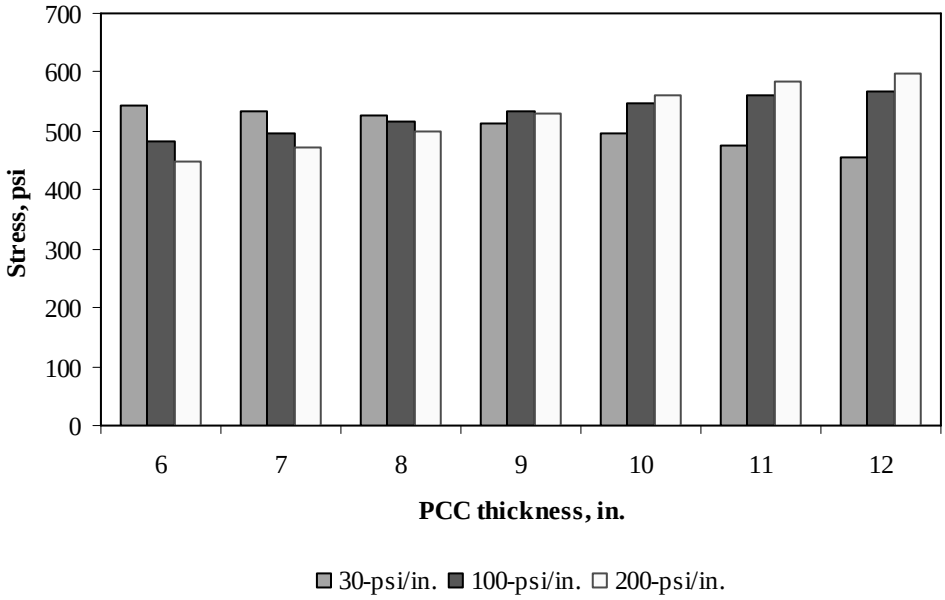


Figure F-2-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

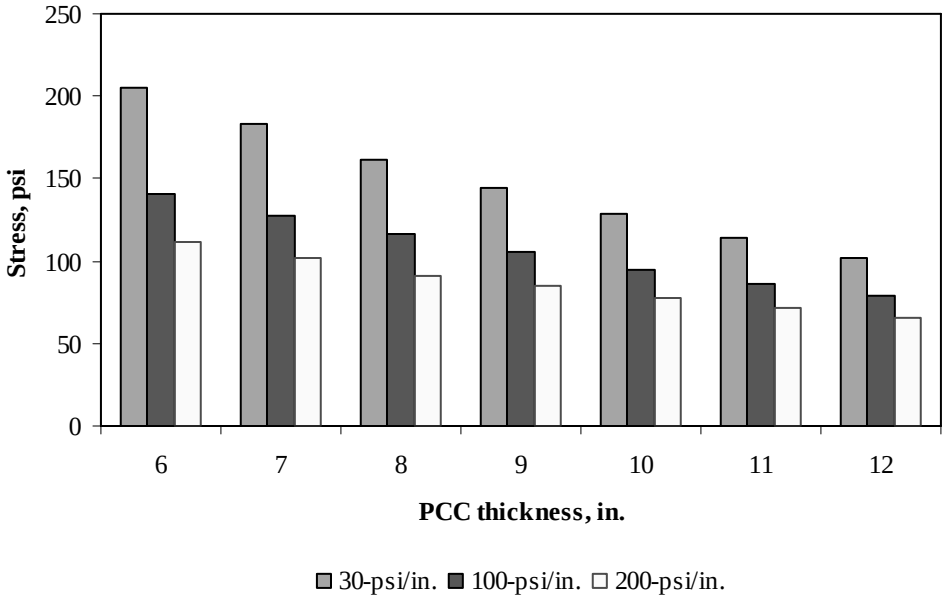


Figure F-2-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

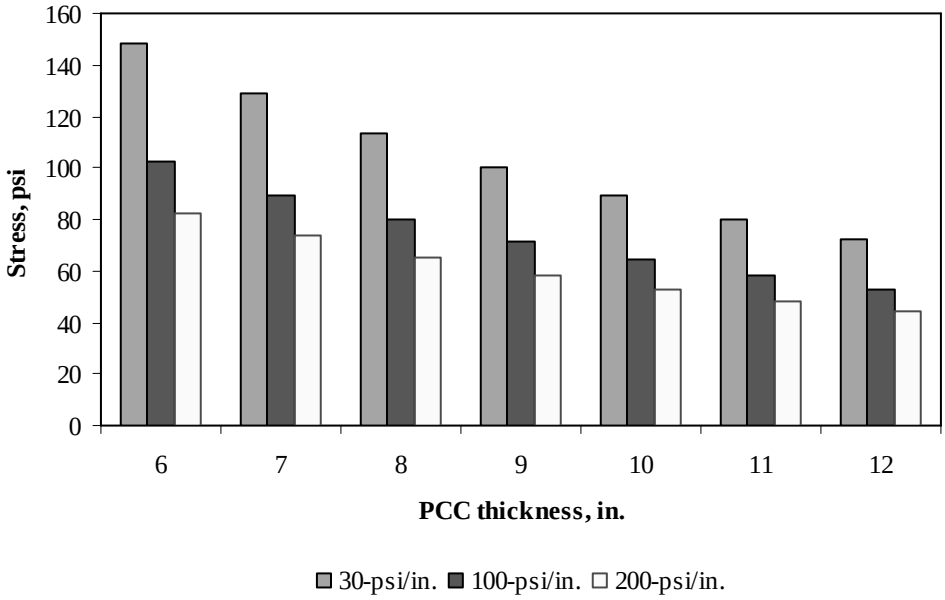


Figure F-2-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

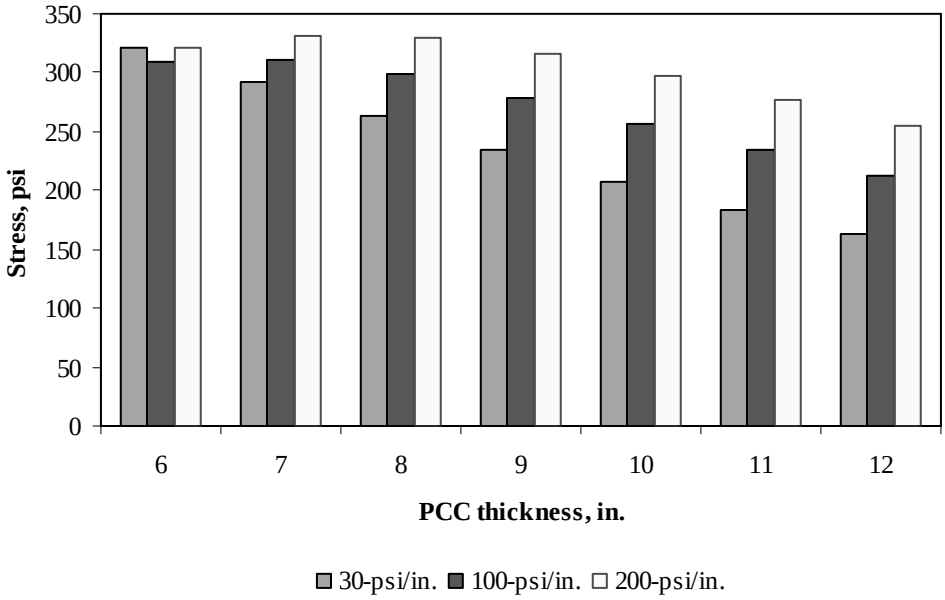


Figure F-2-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

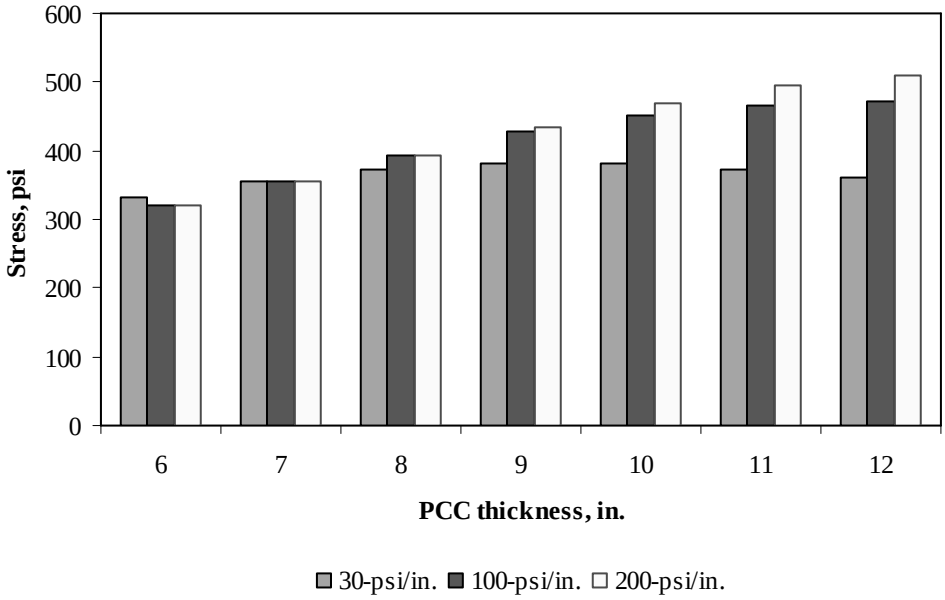


Figure F-2-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

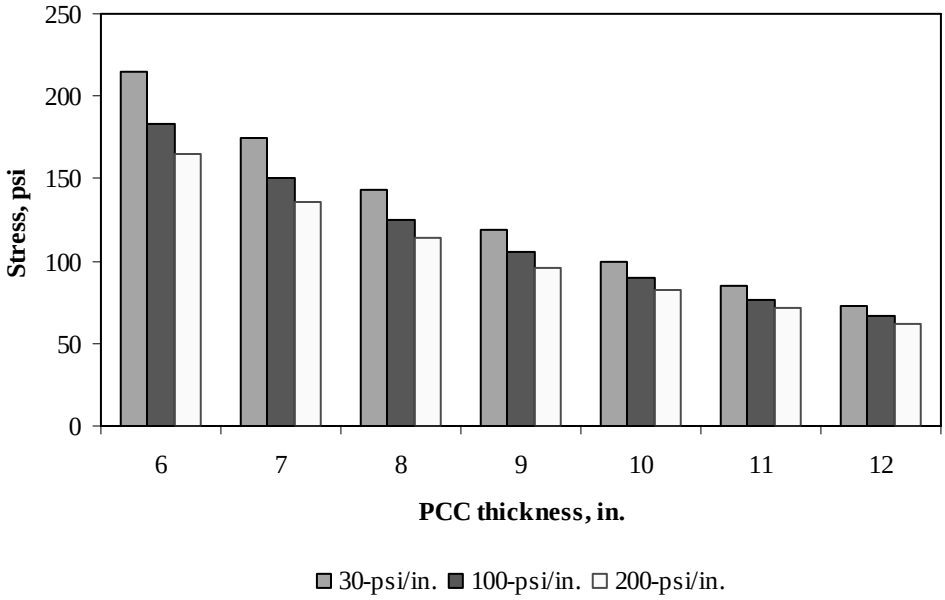


Figure F-2-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

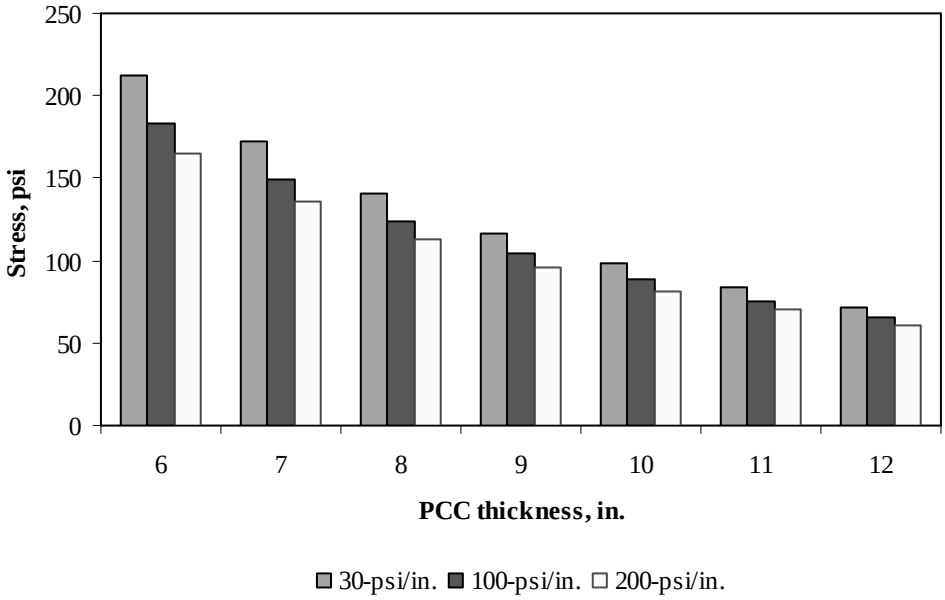


Figure F-2-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

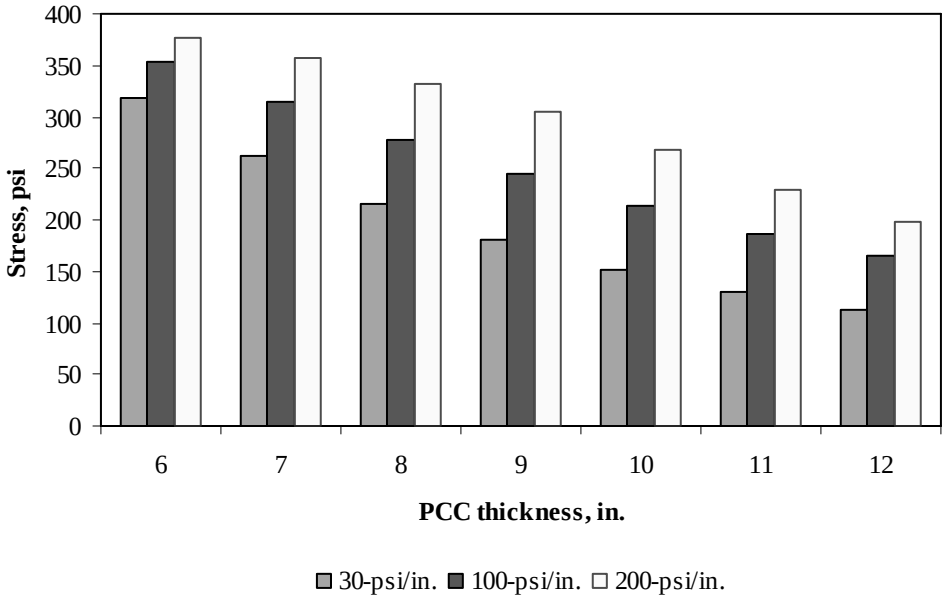


Figure F-2-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

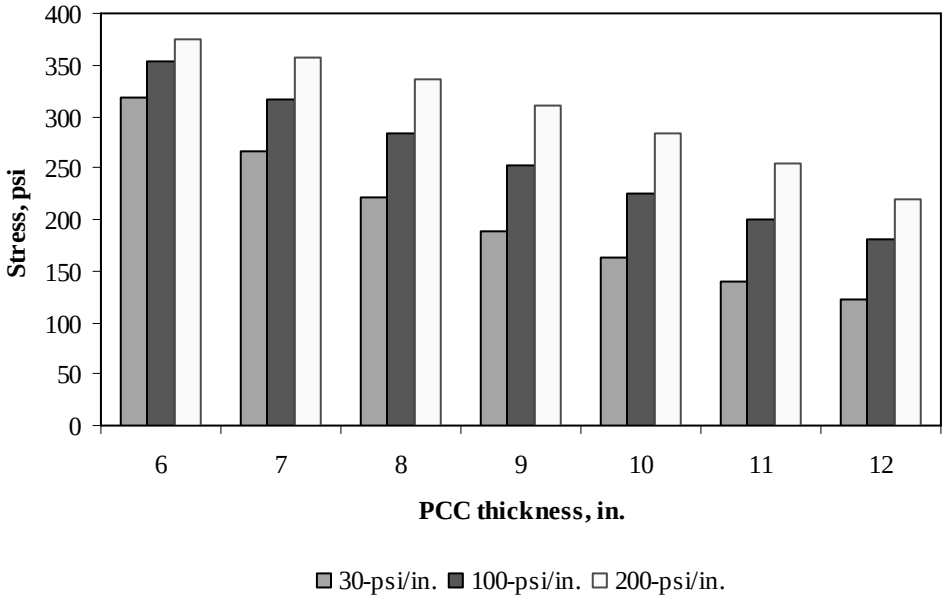


Figure F-2-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-2-25 through F-2-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

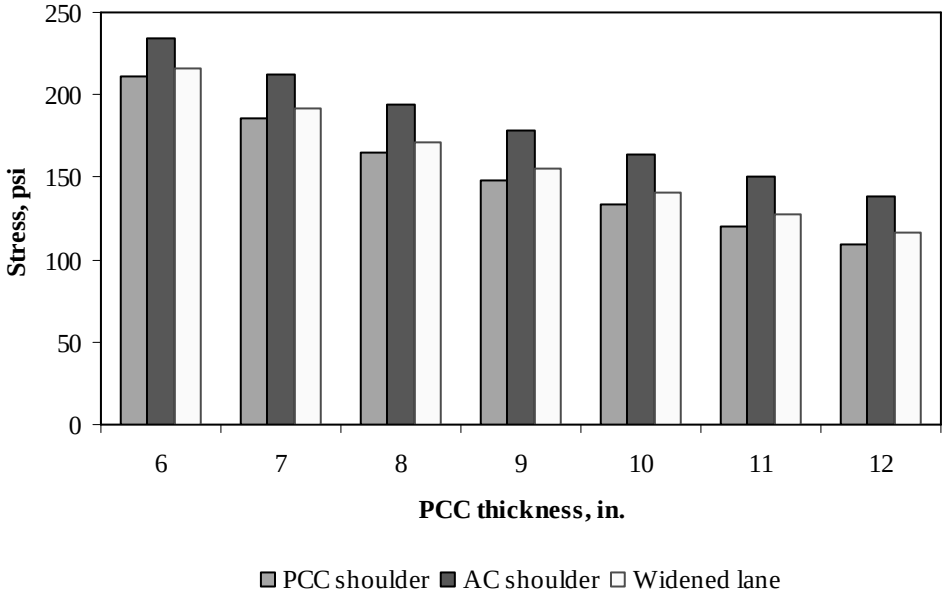


Figure F-2-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

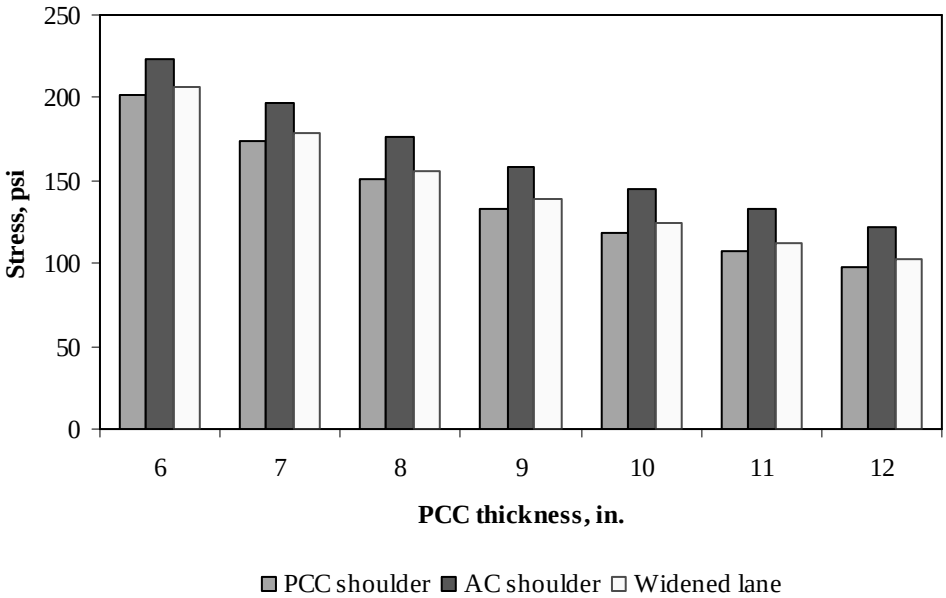


Figure F-2-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

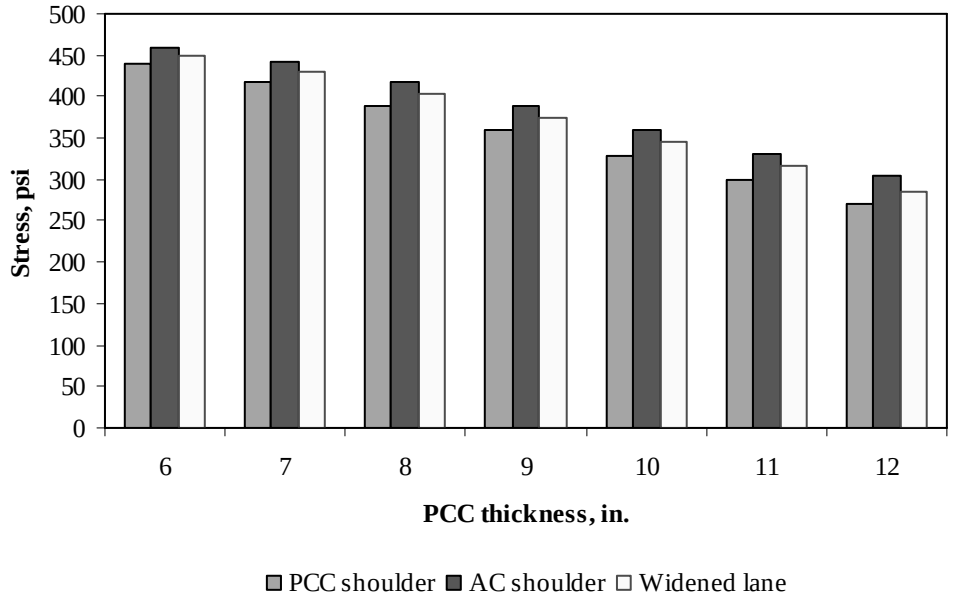


Figure F-2-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

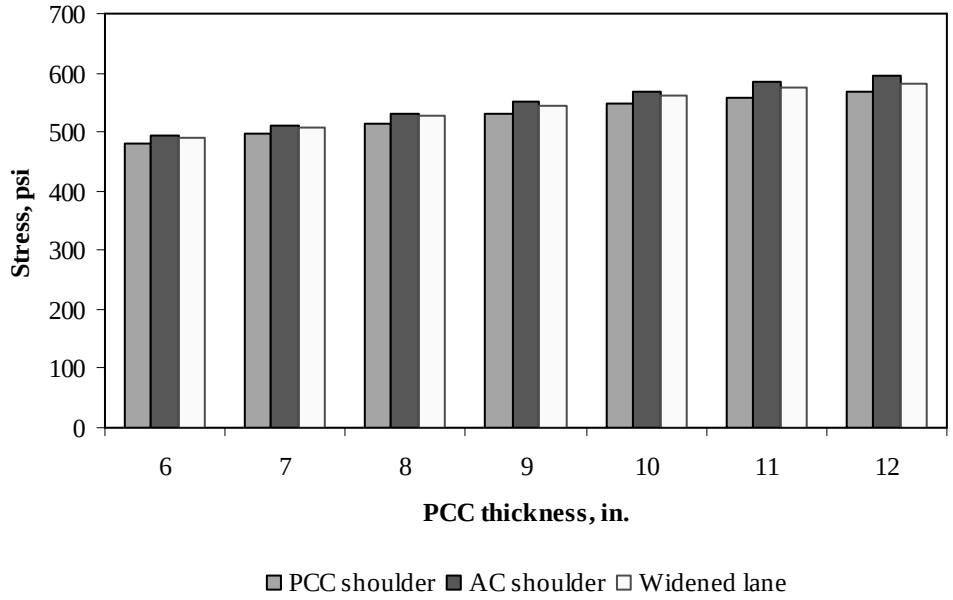


Figure F-2-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

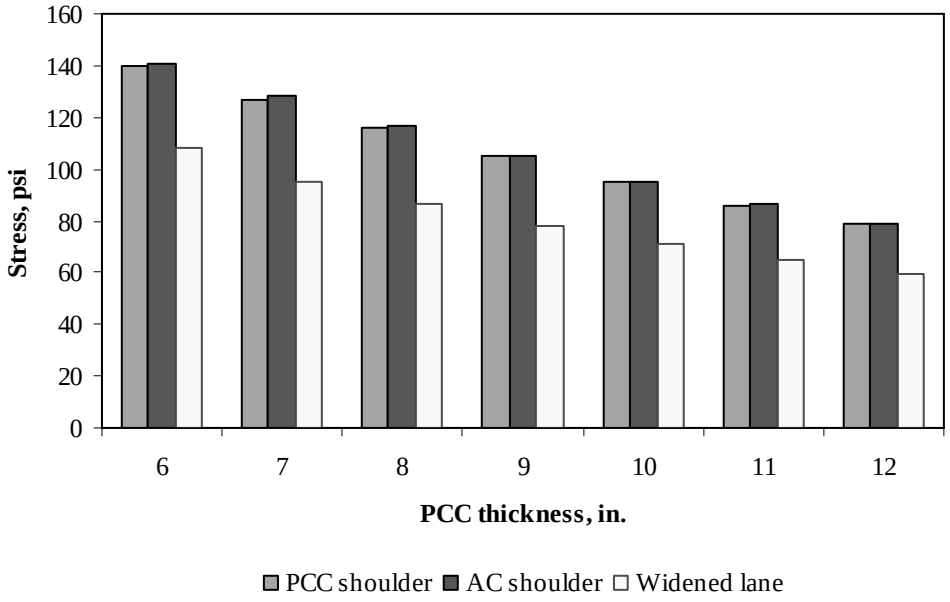


Figure F-2-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

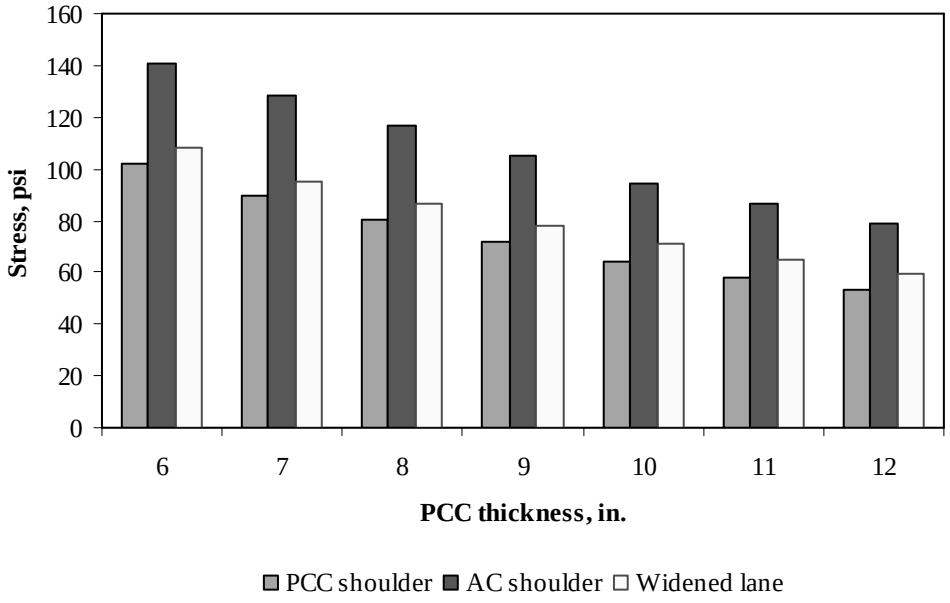


Figure F-2-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

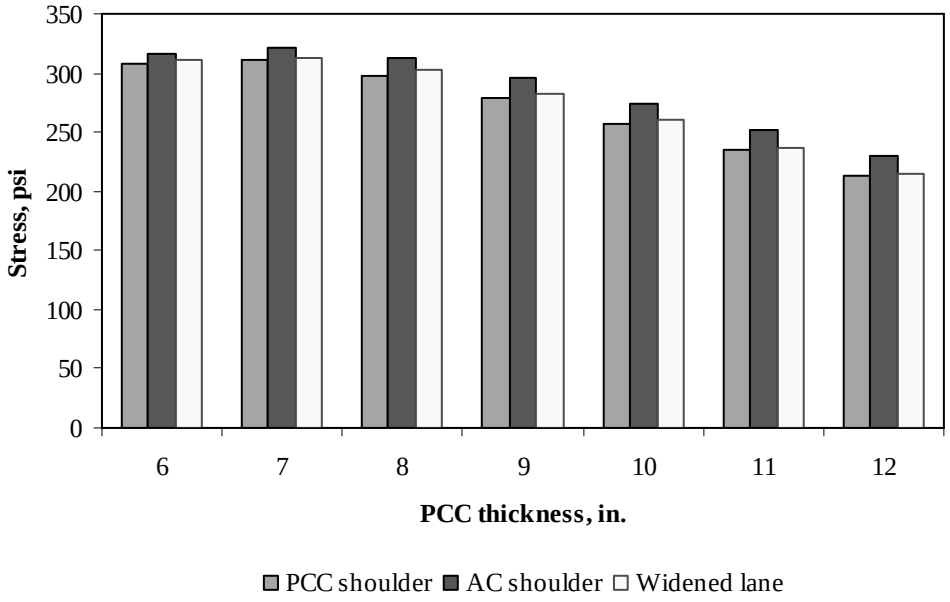


Figure F-2-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

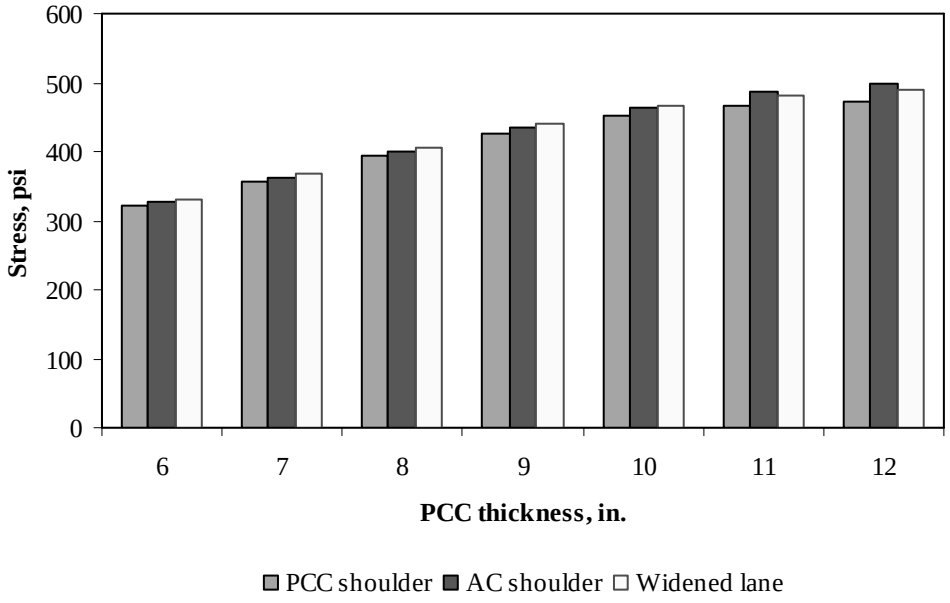


Figure F-2-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

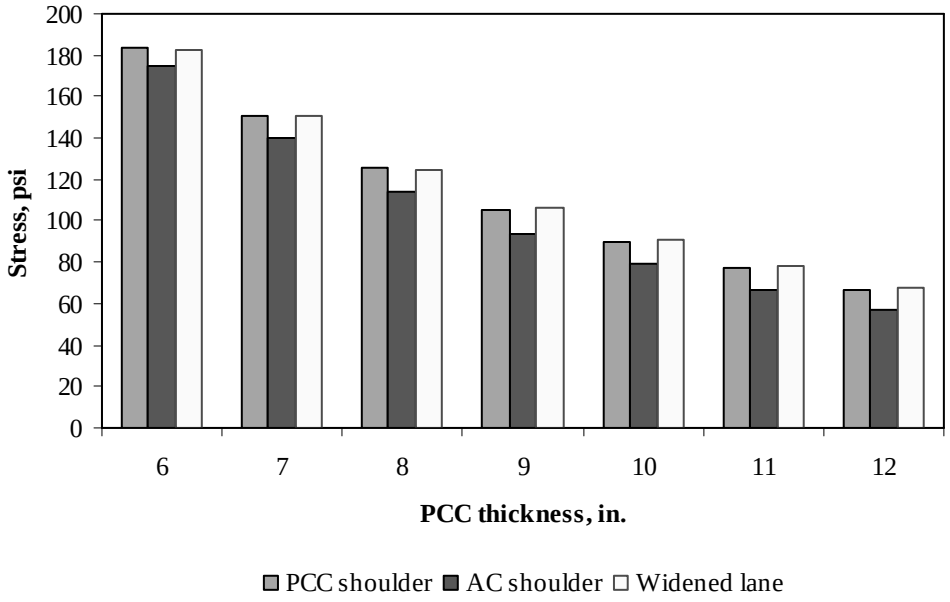


Figure F-2-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

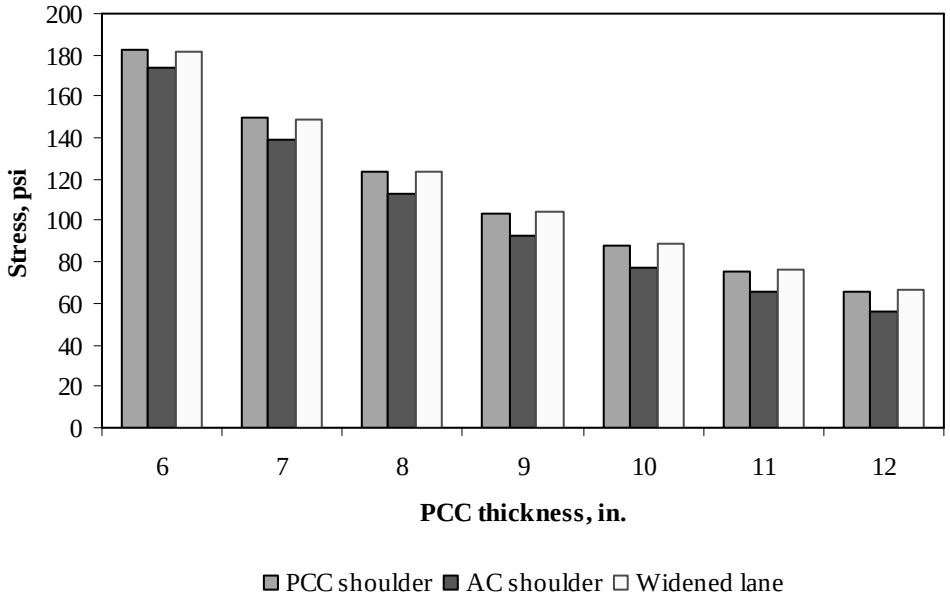


Figure F-2-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

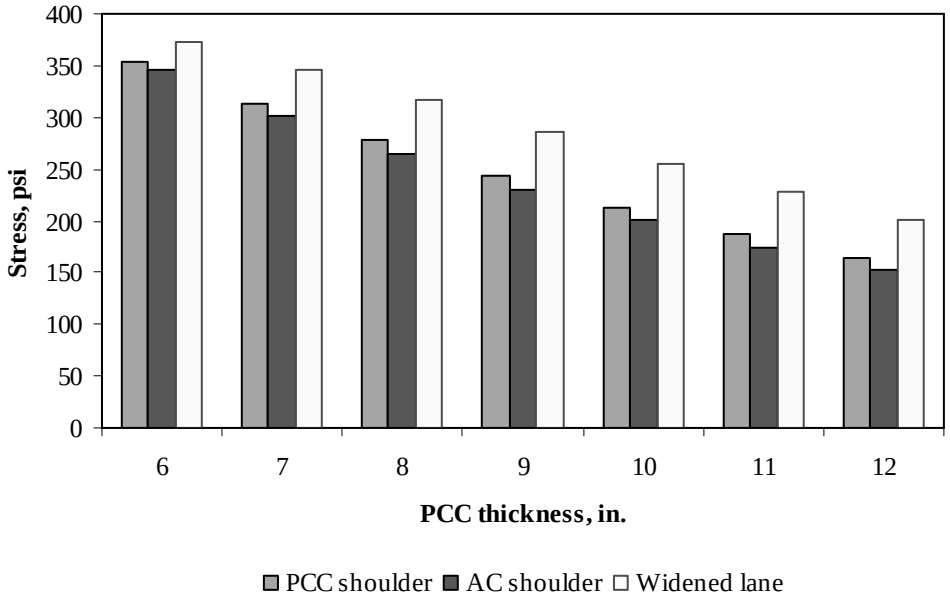


Figure F-2-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

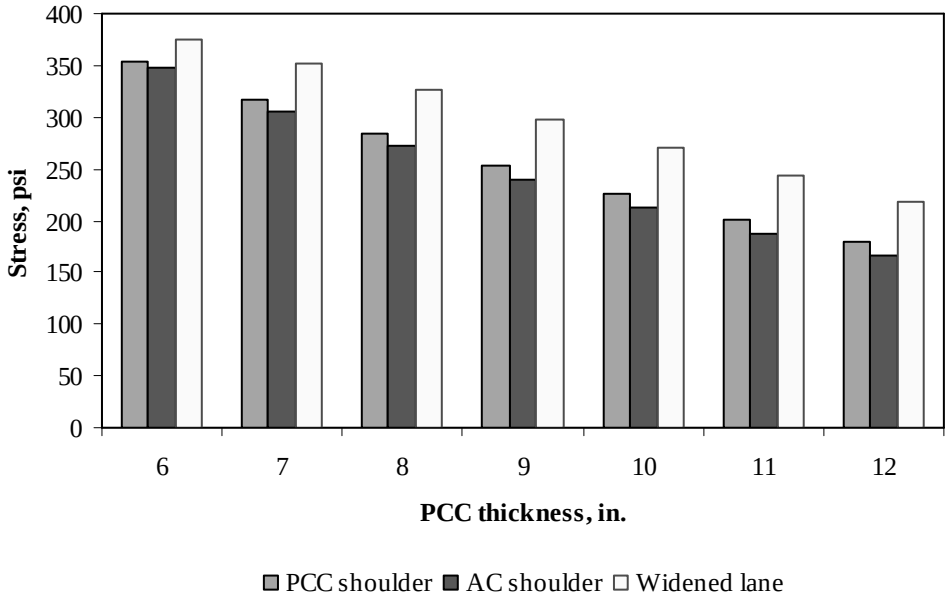


Figure F-2-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-2-37 through F-2-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

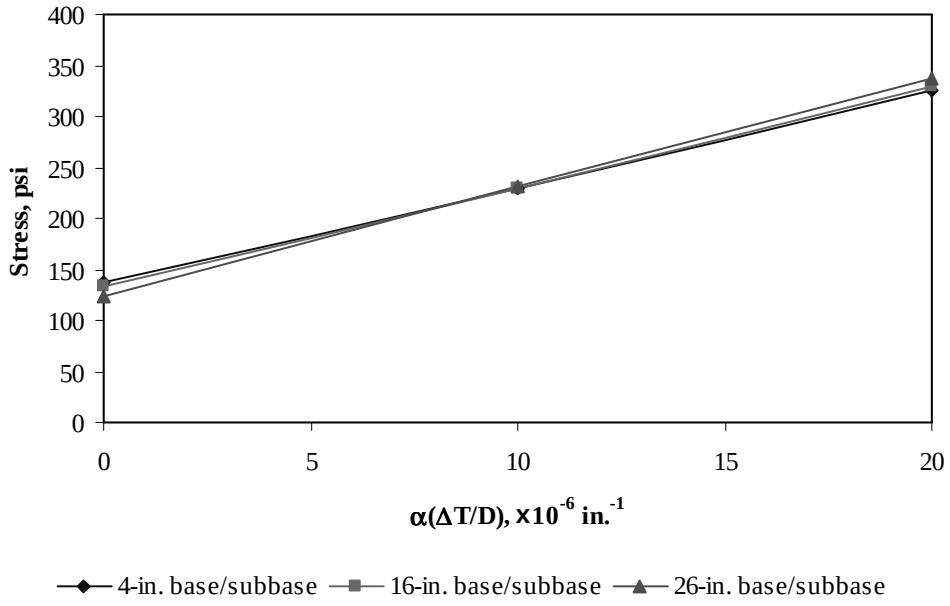


Figure F-2-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

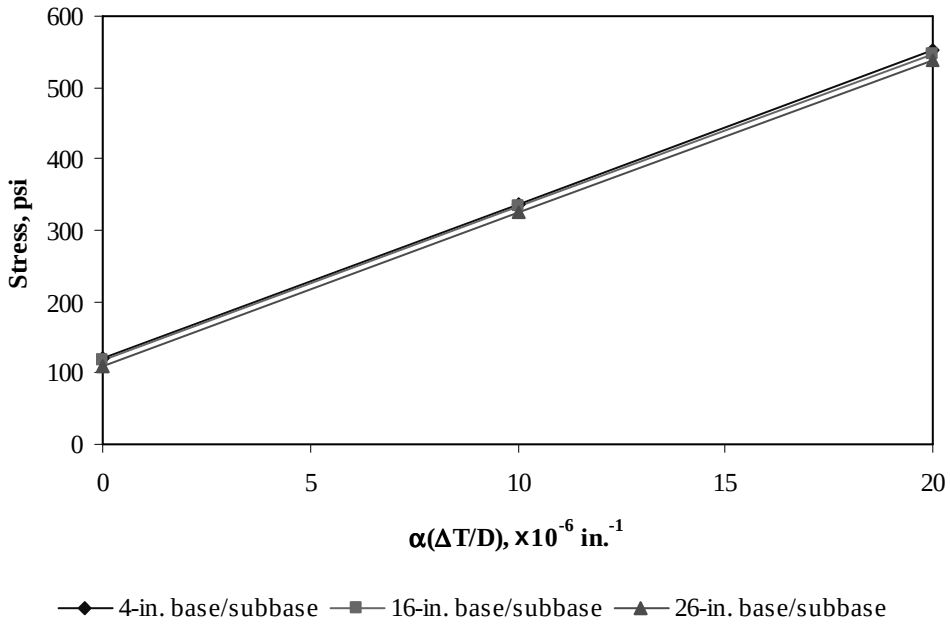


Figure F-2-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

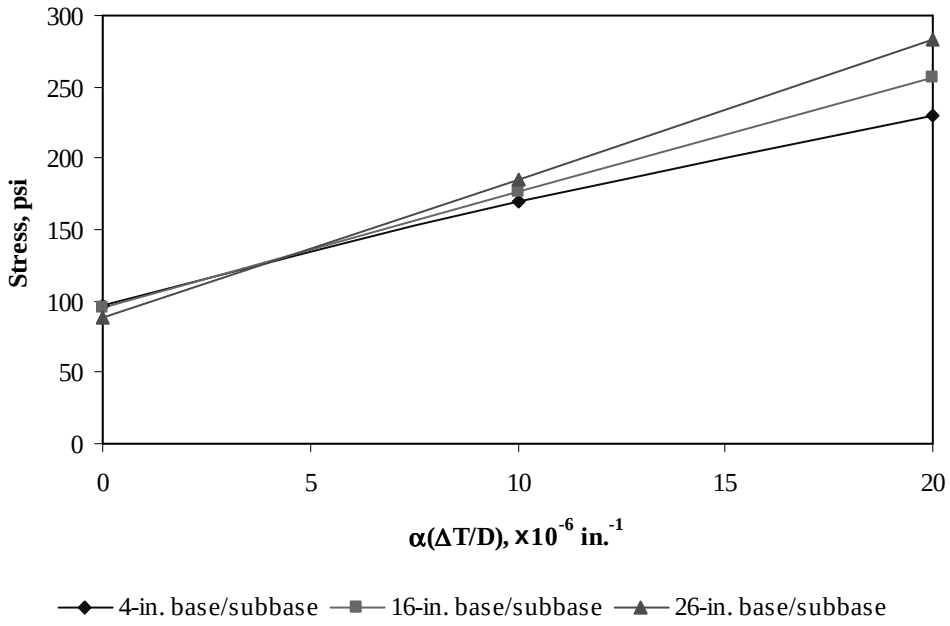


Figure F-2-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

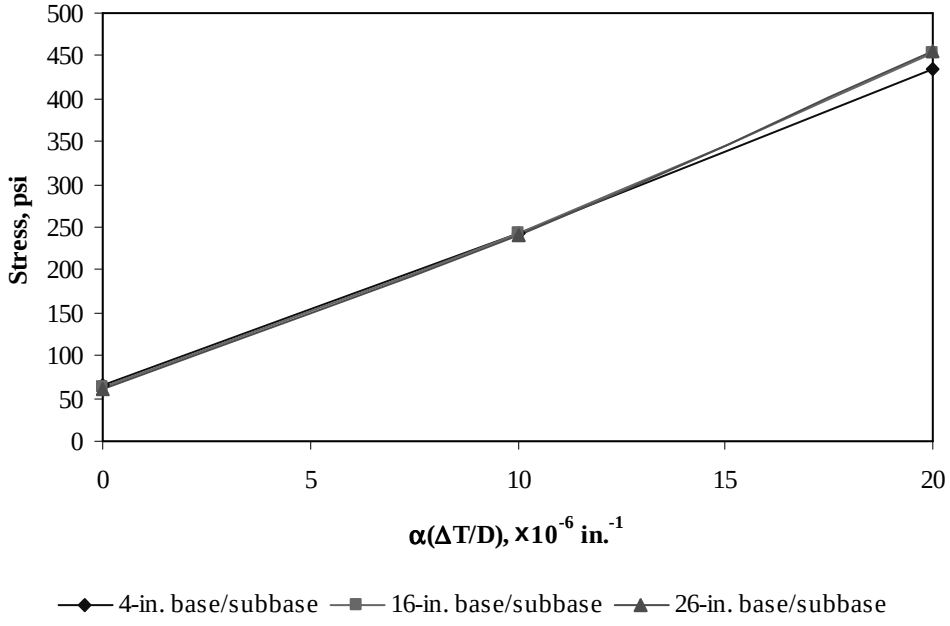


Figure F-2-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

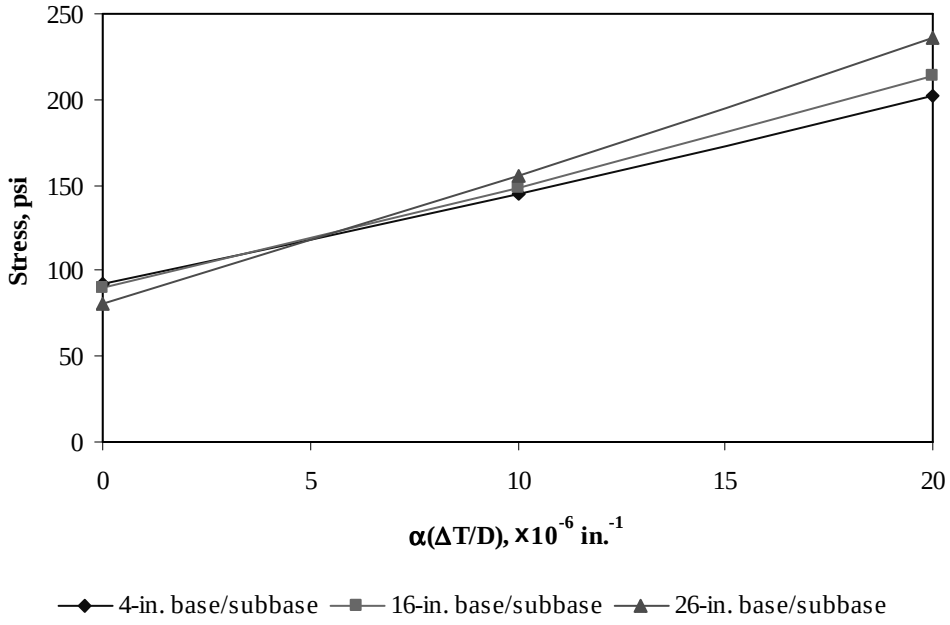


Figure F-2-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

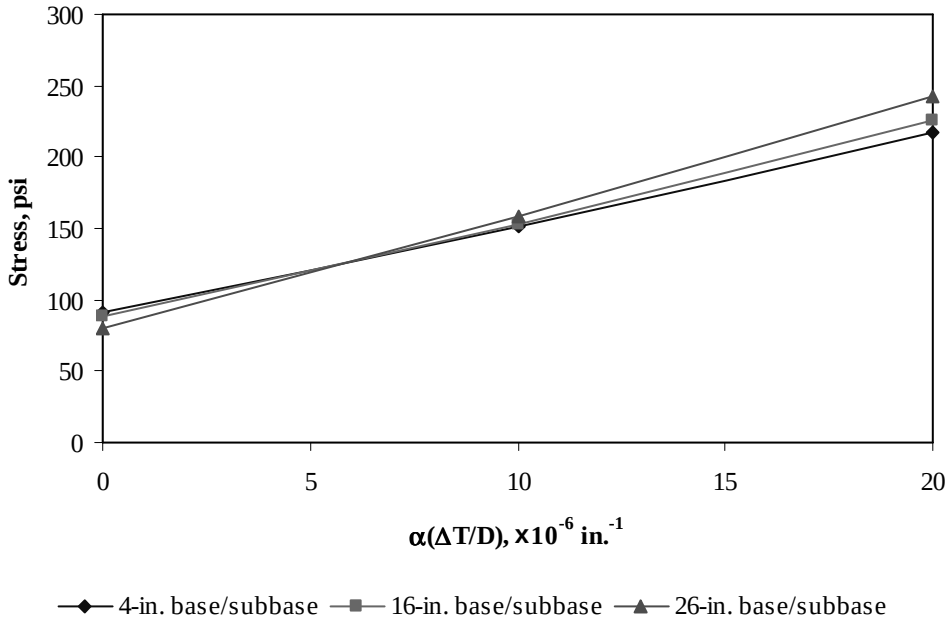


Figure F-2-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-2-43 through F-2-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

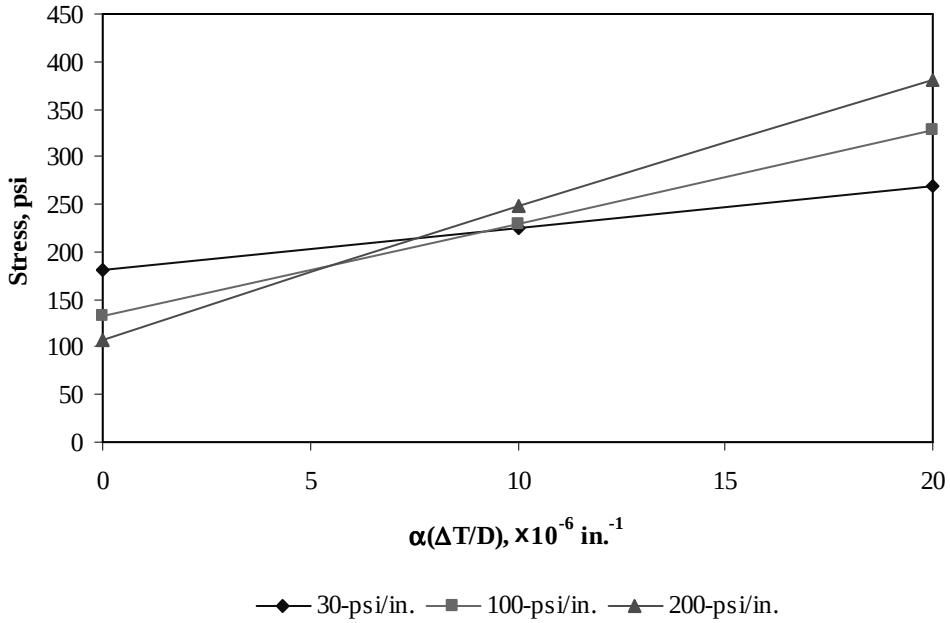


Figure F-2-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

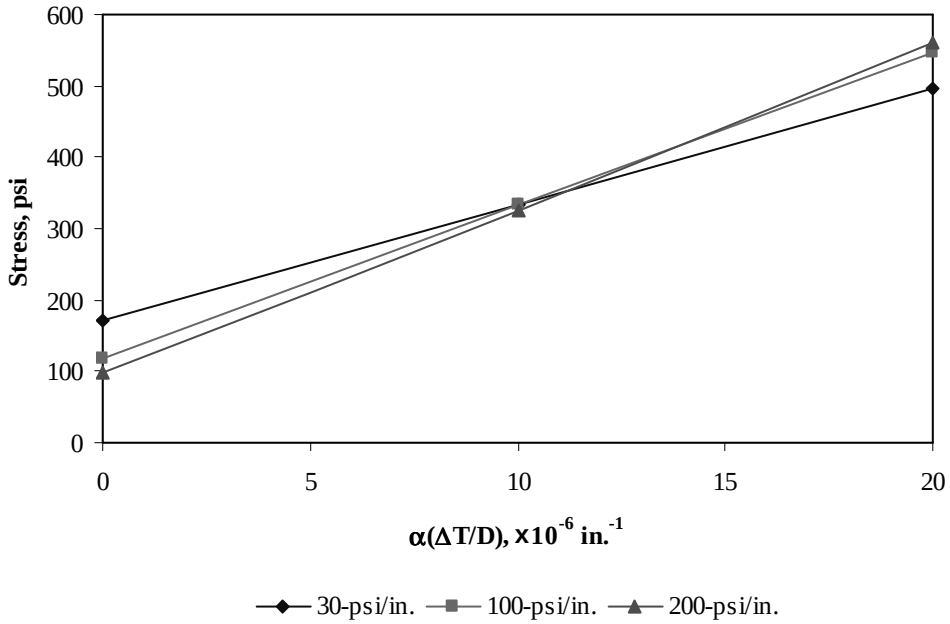


Figure F-2-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

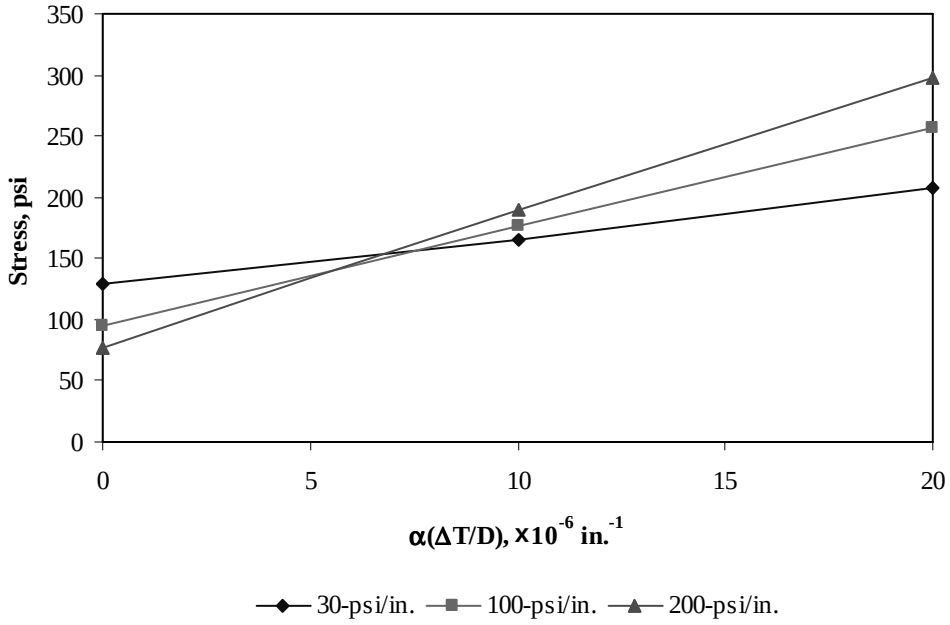


Figure F-2-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

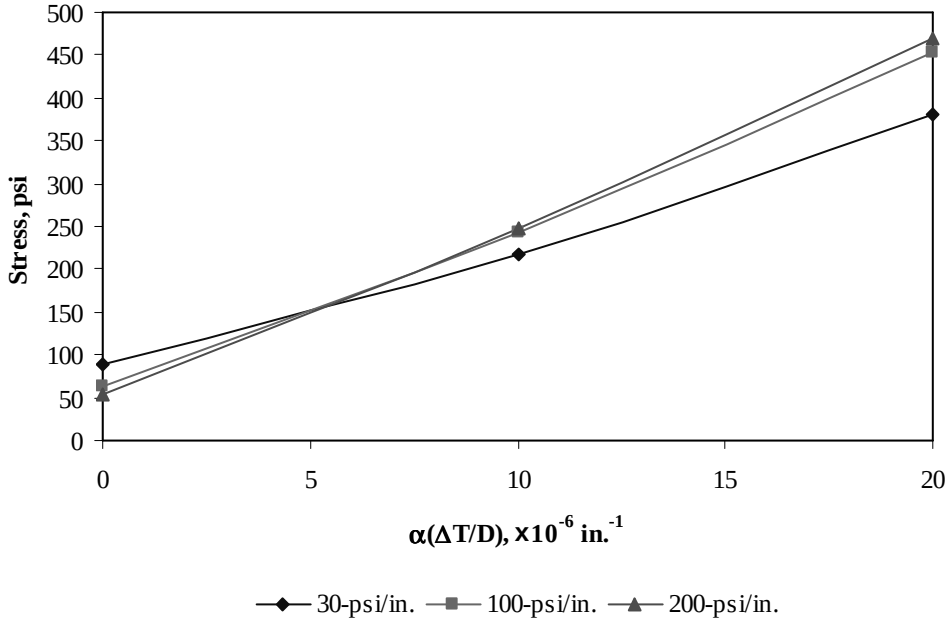


Figure F-2-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

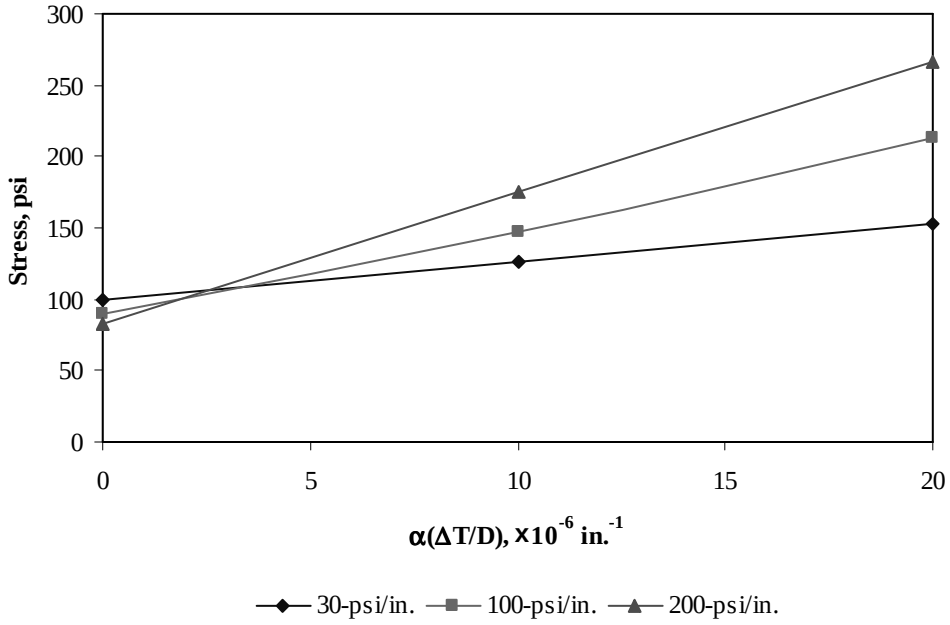


Figure F-2-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

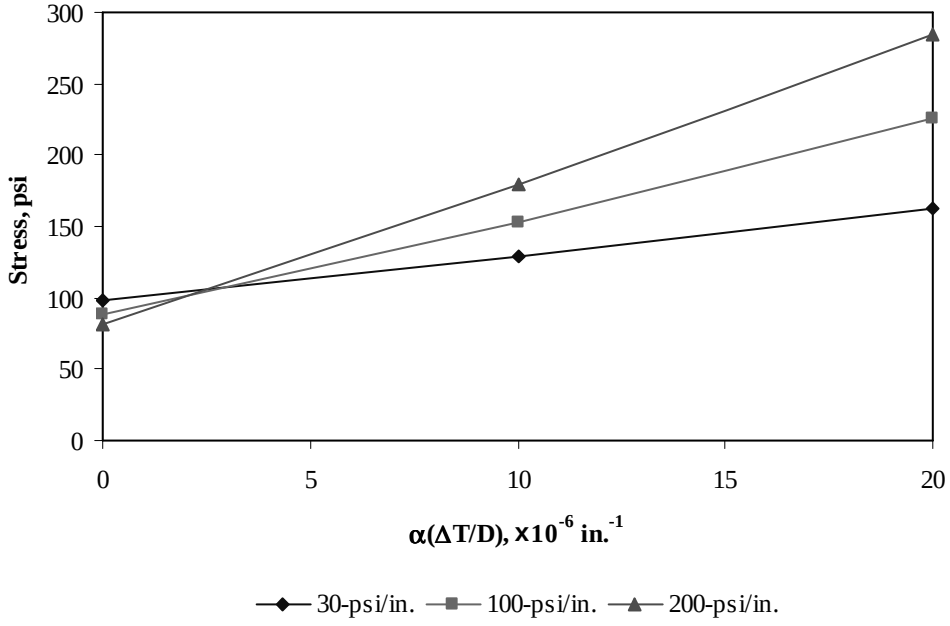


Figure F-2-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-2-49 through F-2-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

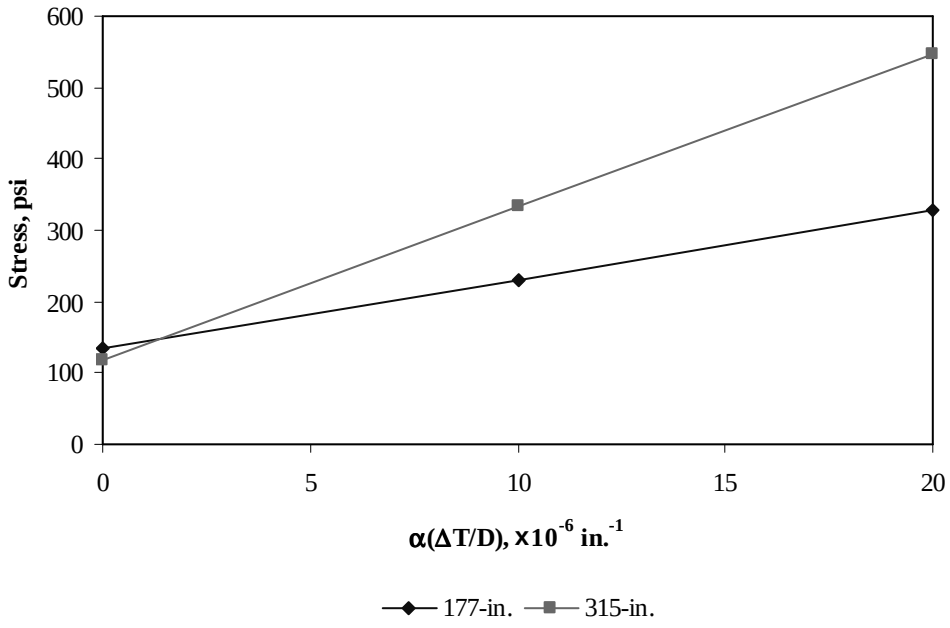


Figure F-2-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

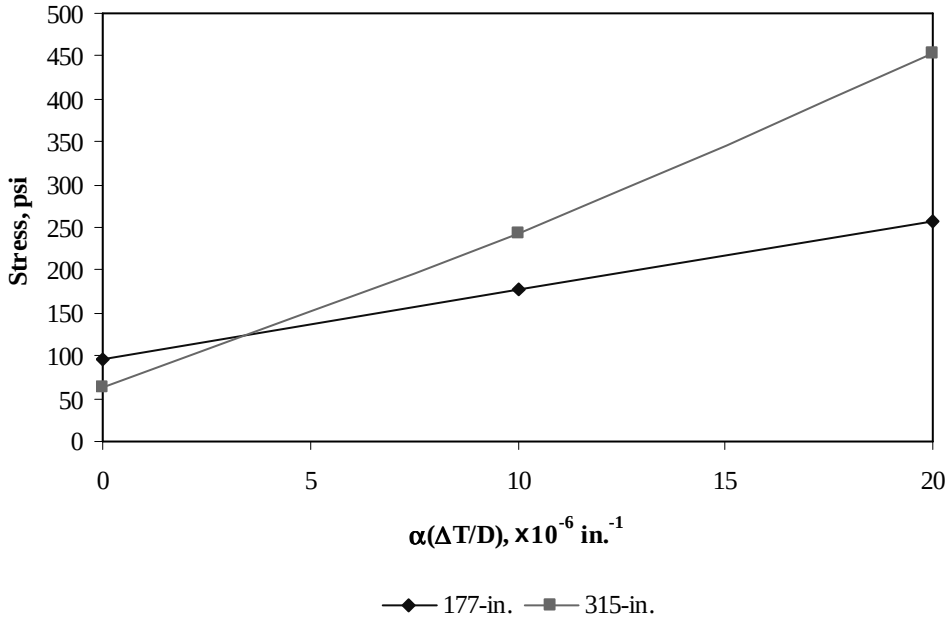


Figure F-2-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

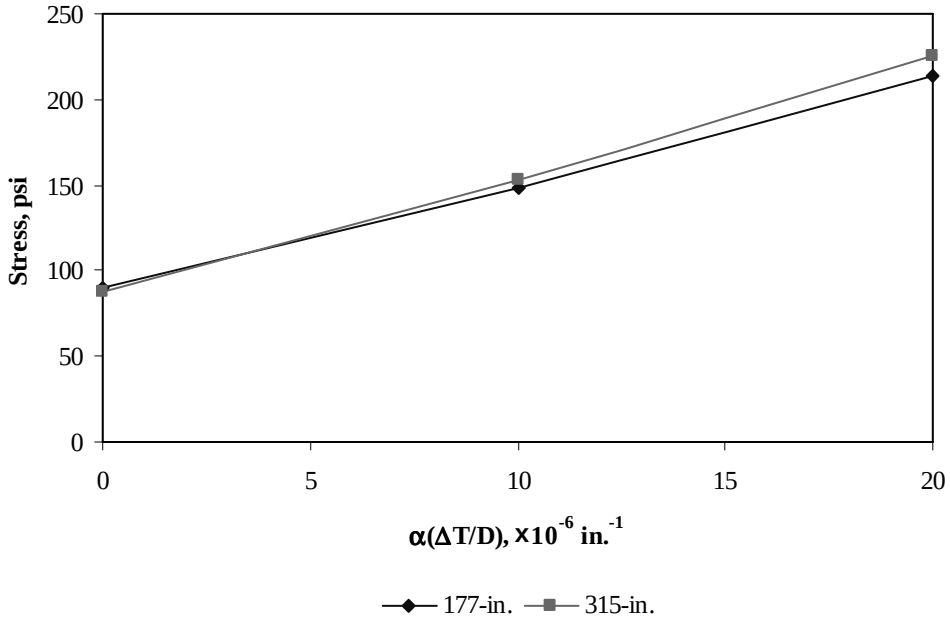
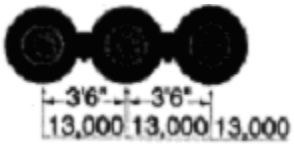


Figure F-2-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-3

Documentation of Pavement Responses for



39-kips Tridem Axle

Figures F-3-1 through F-3-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

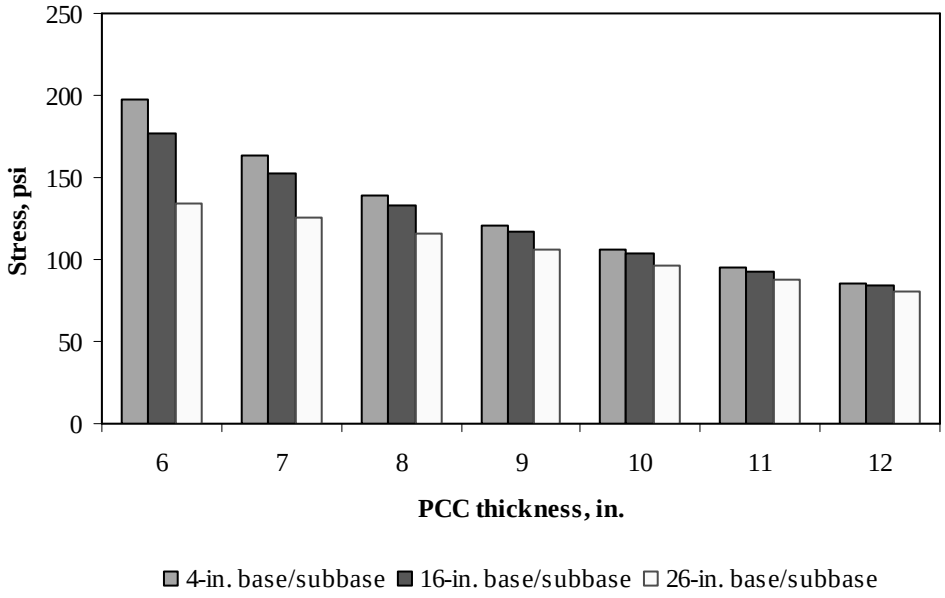


Figure F-3-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

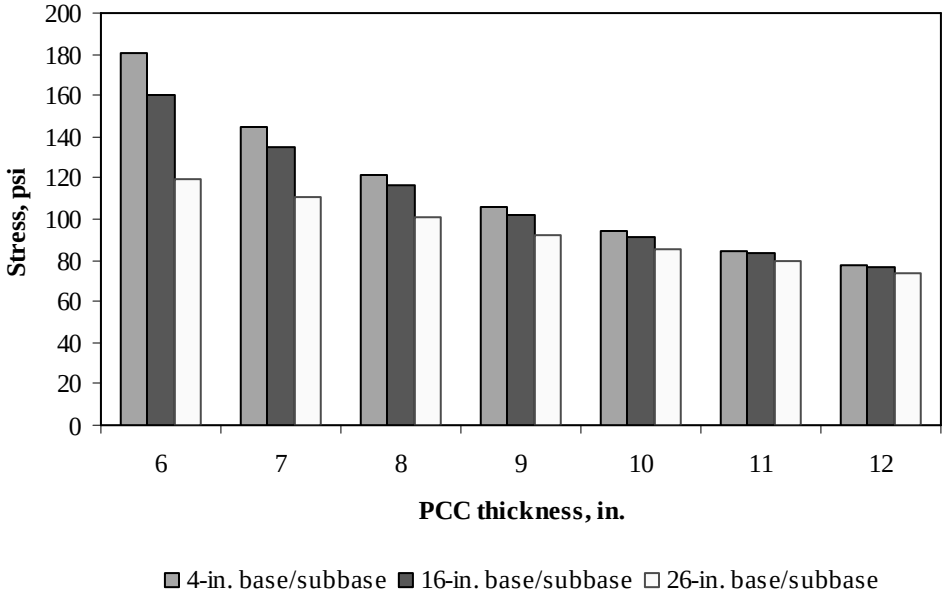


Figure F-3-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

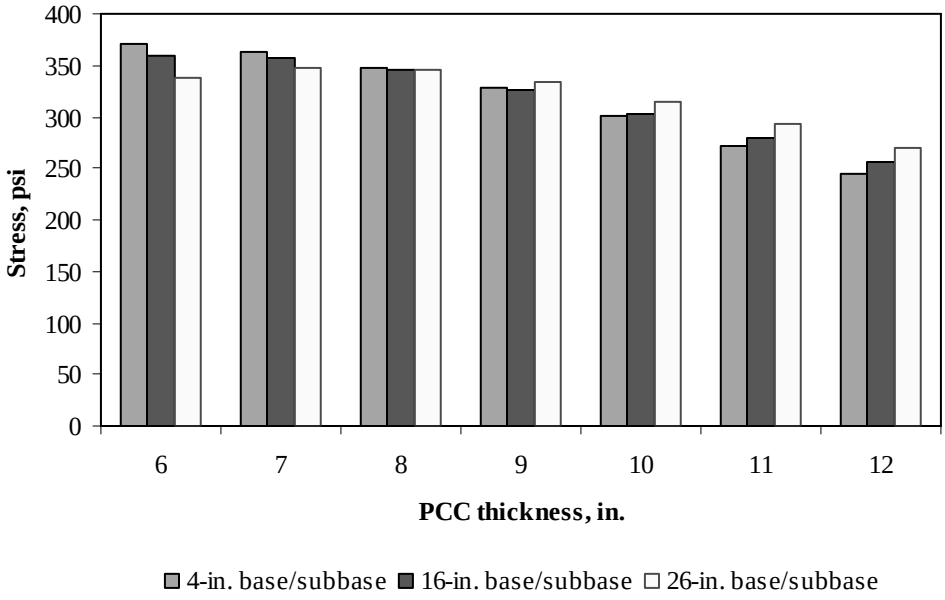


Figure F-3-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

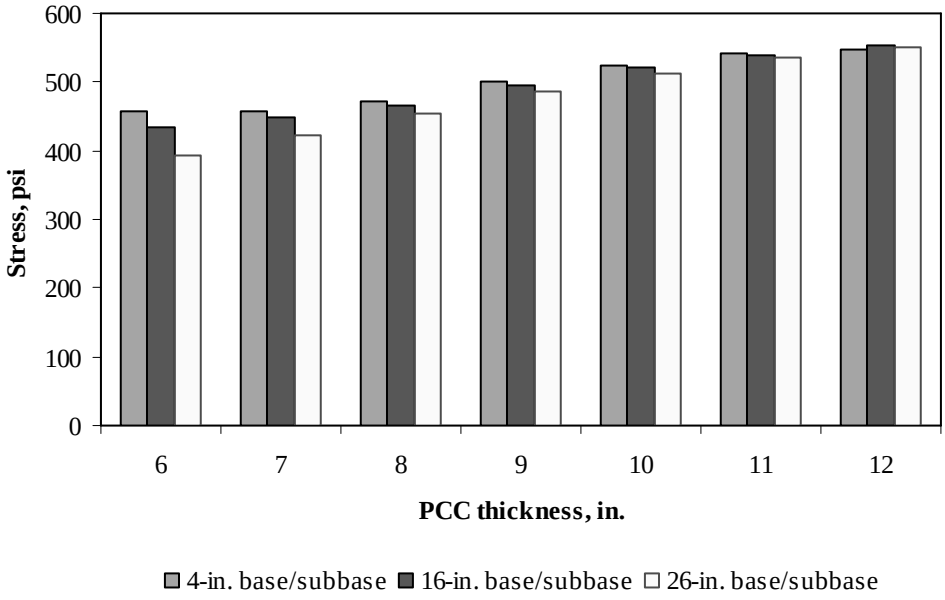


Figure F-3-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

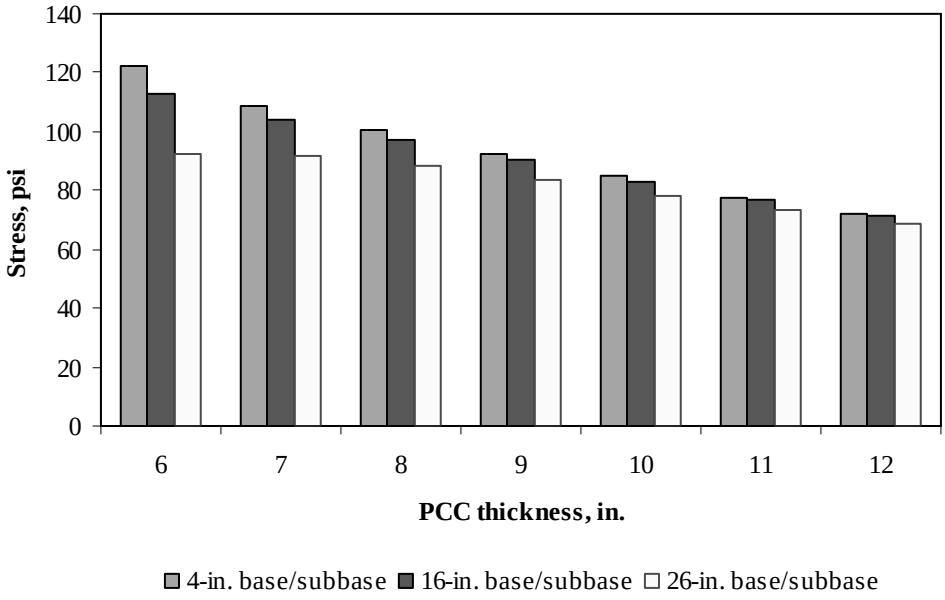


Figure F-3-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

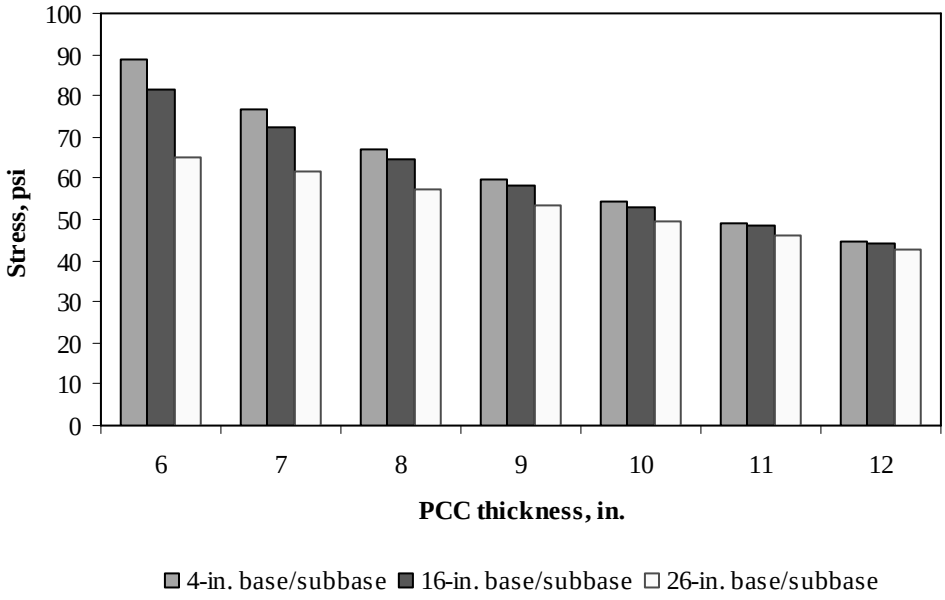


Figure F-3-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

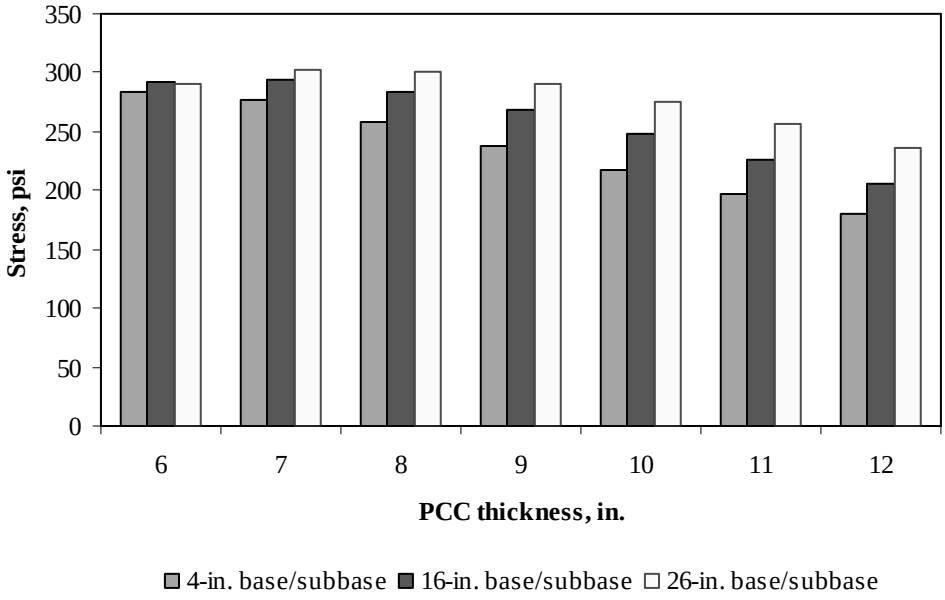


Figure F-3-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

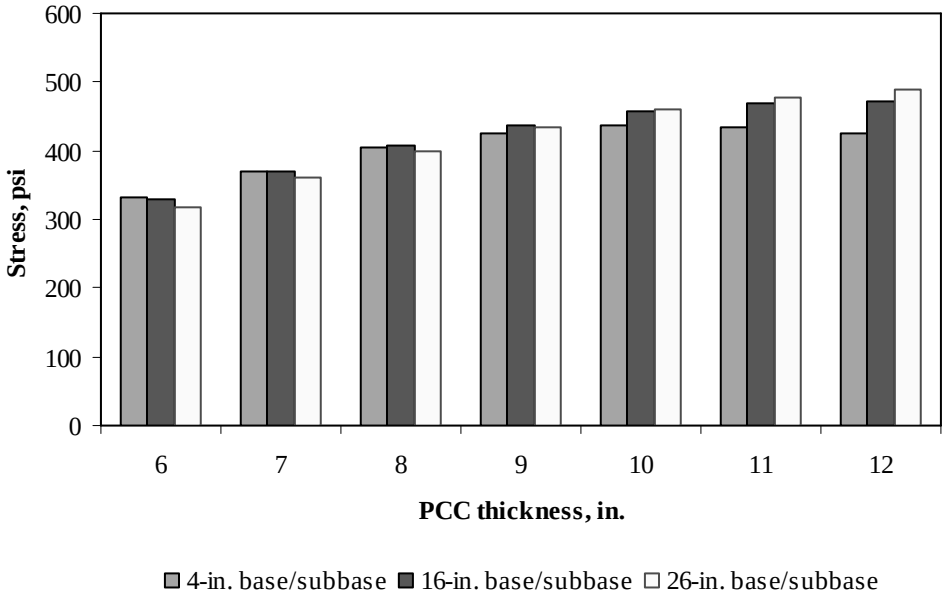


Figure F-3-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

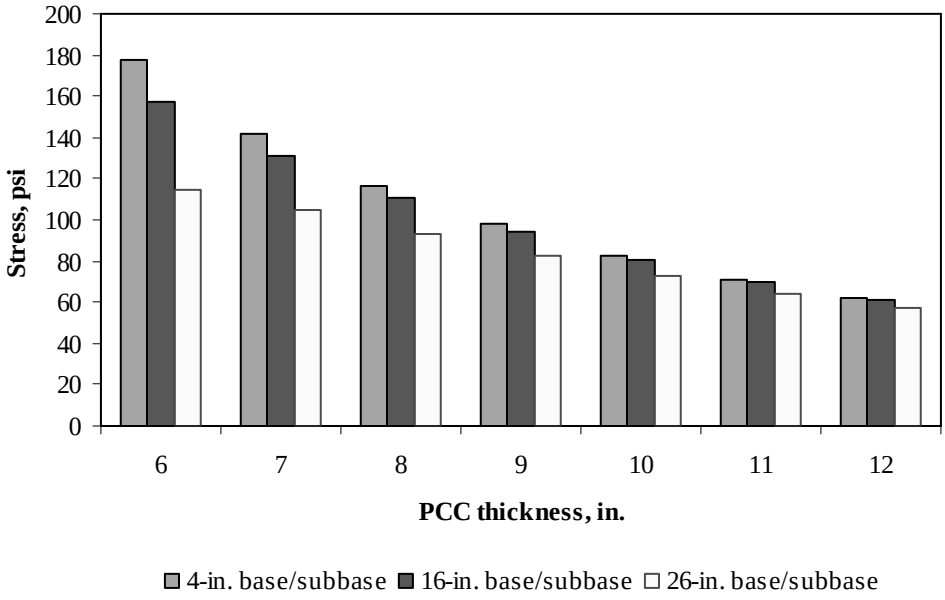


Figure F-3-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

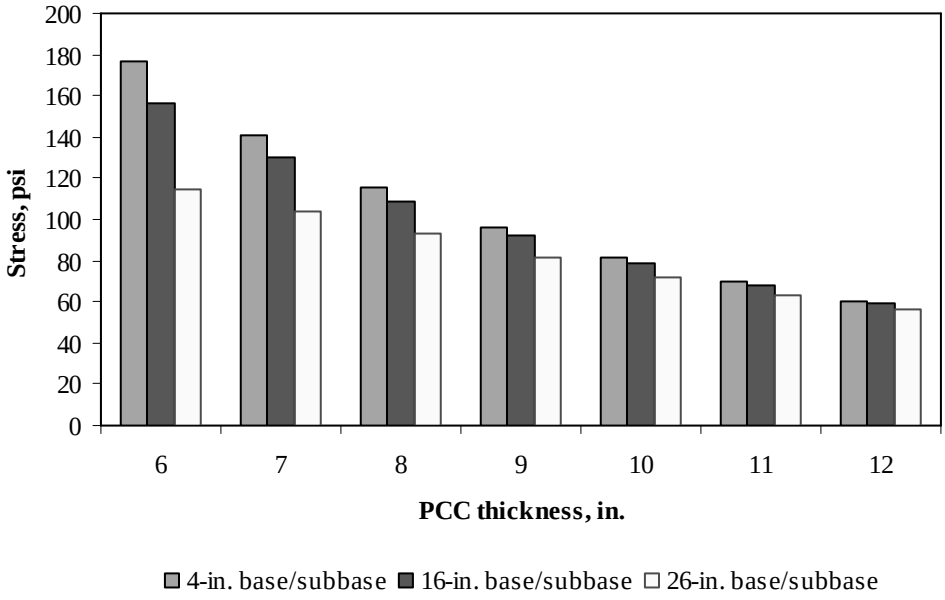


Figure F-3-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

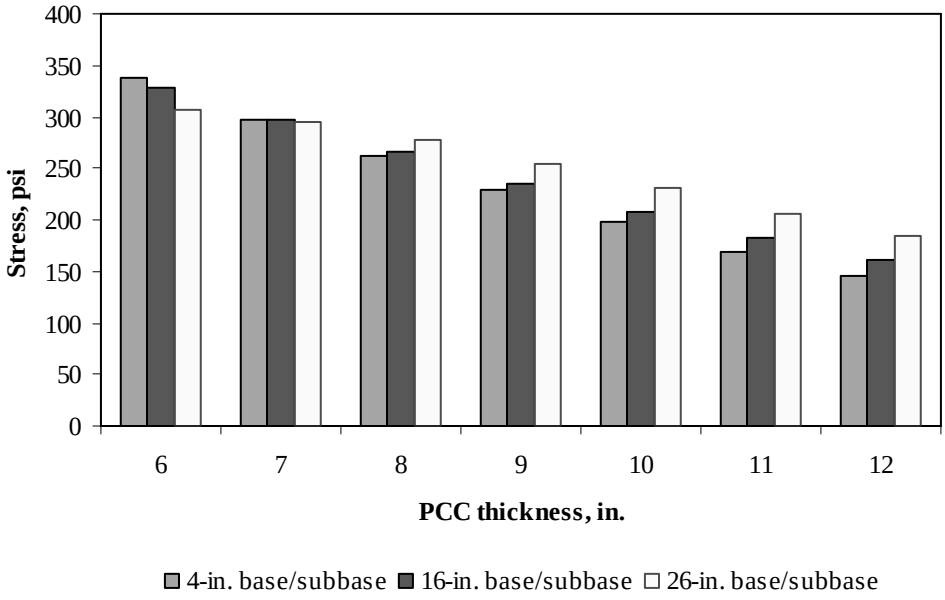


Figure F-3-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

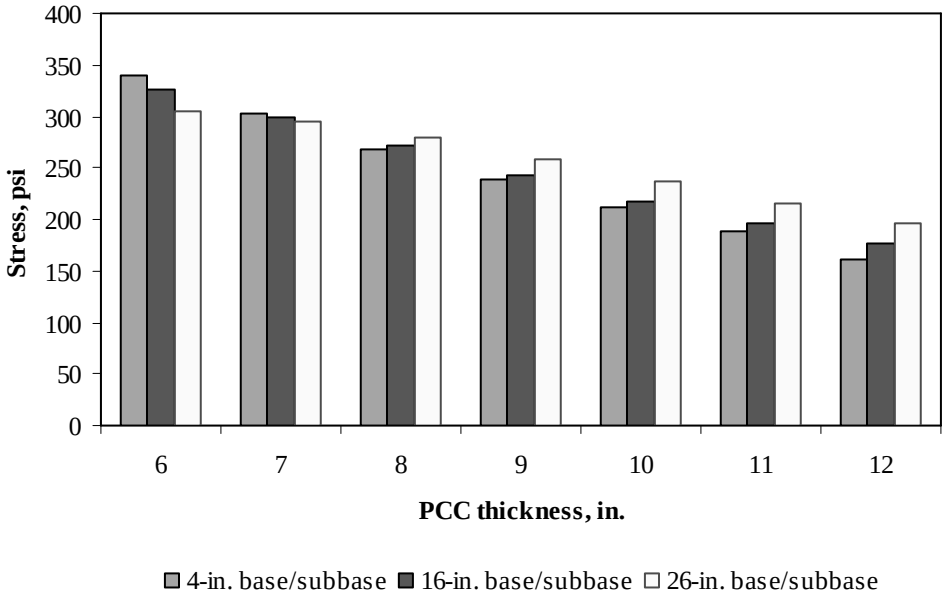


Figure F-3-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-3-13 through F-3-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

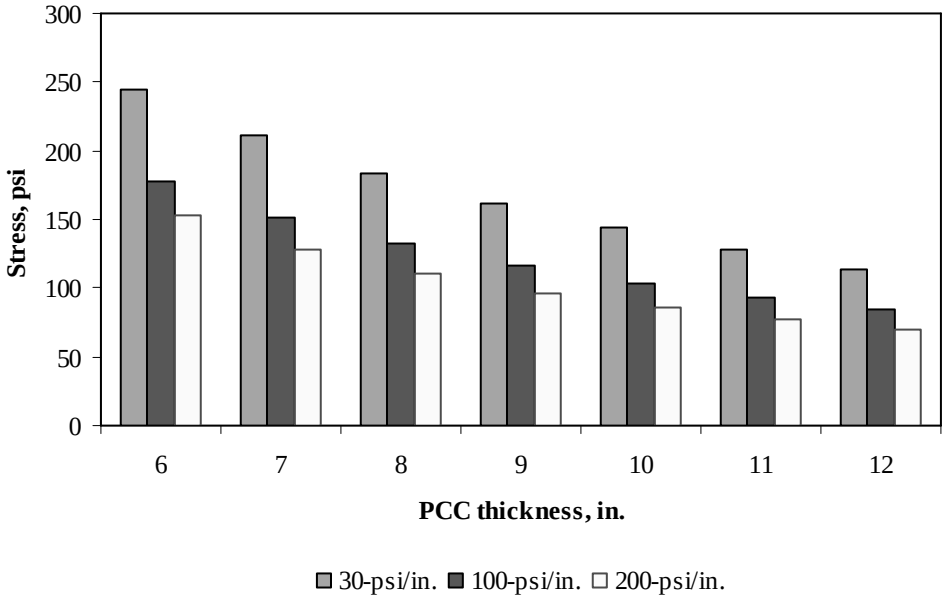


Figure F-3-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

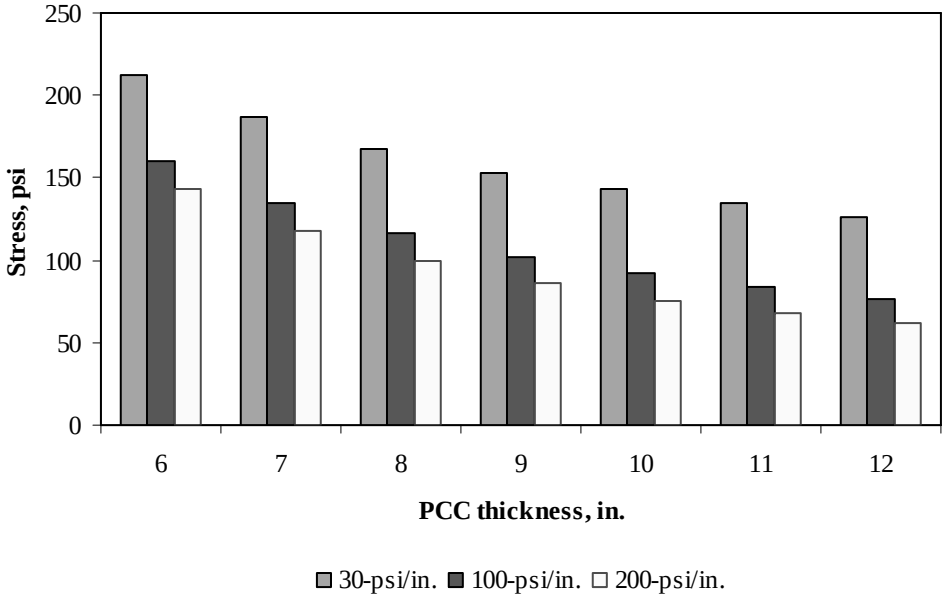


Figure F-3-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

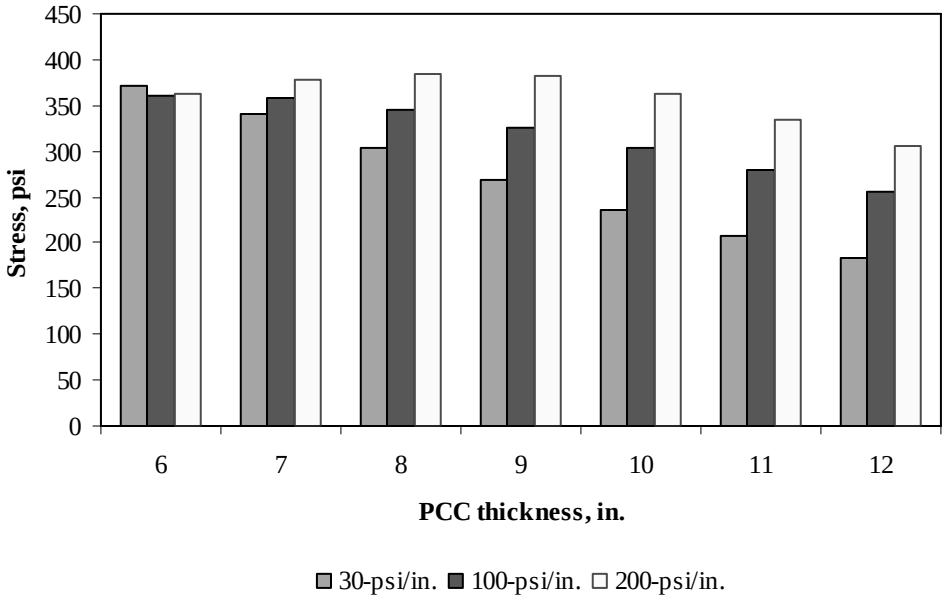


Figure F-3-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

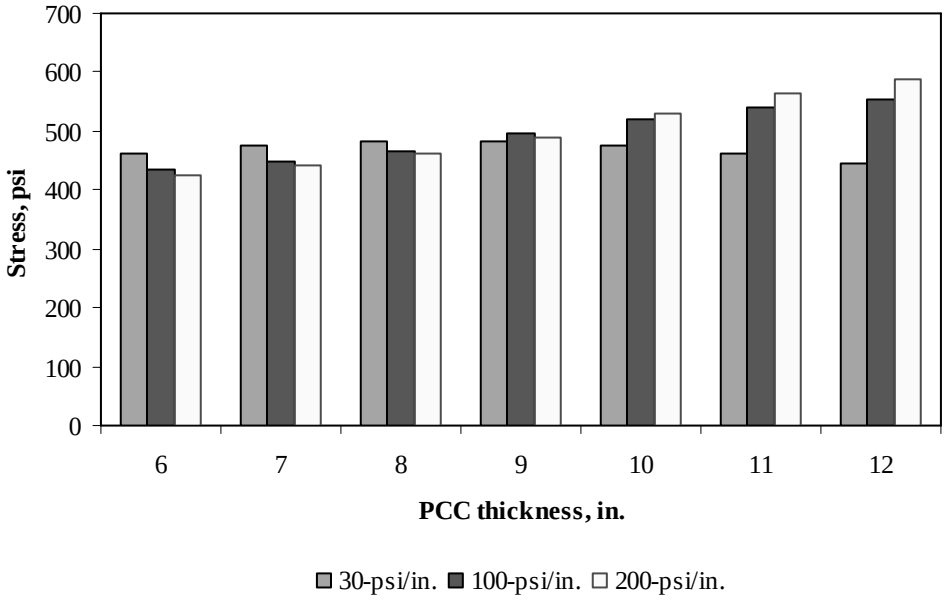


Figure F-3-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

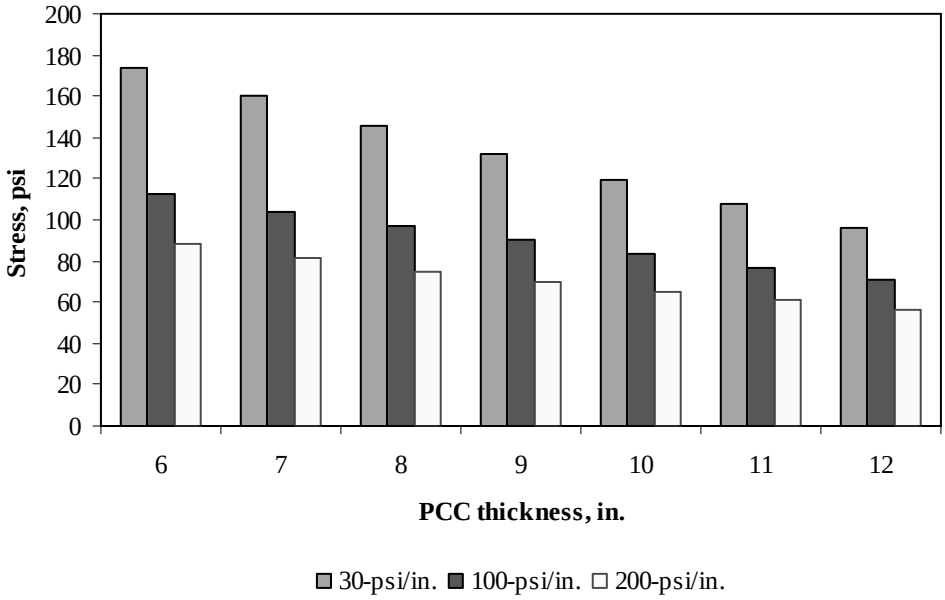


Figure F-3-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

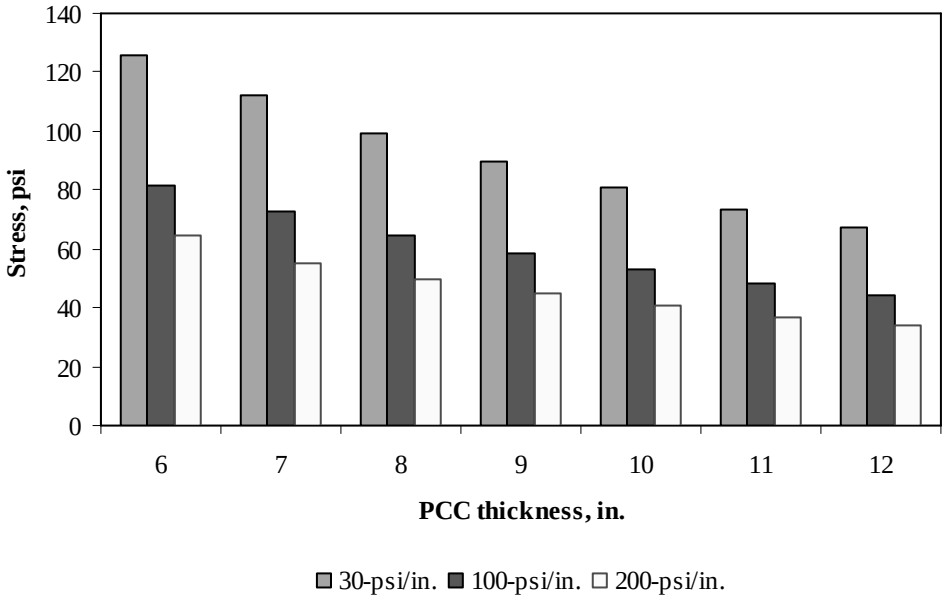


Figure F-3-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

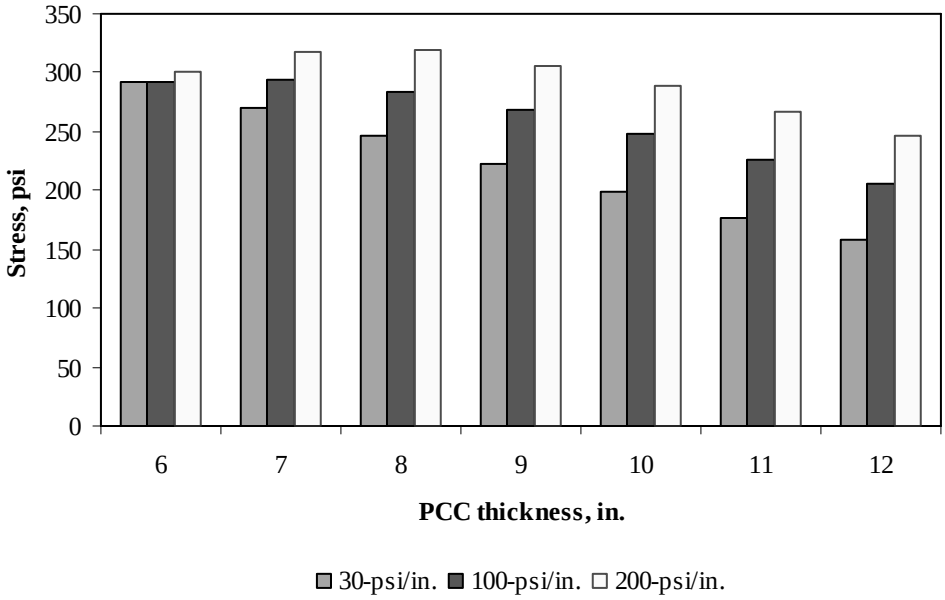


Figure F-3-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

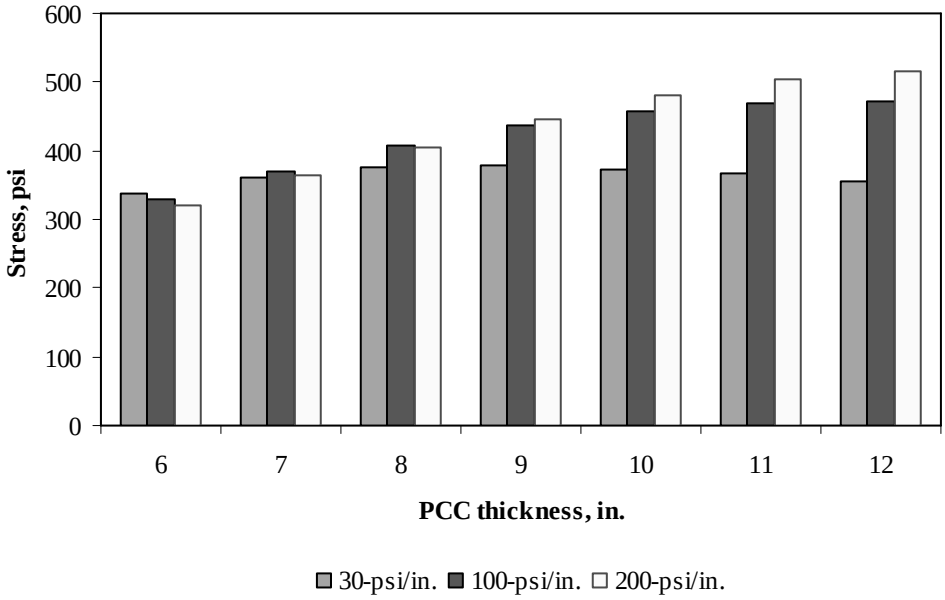


Figure F-3-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

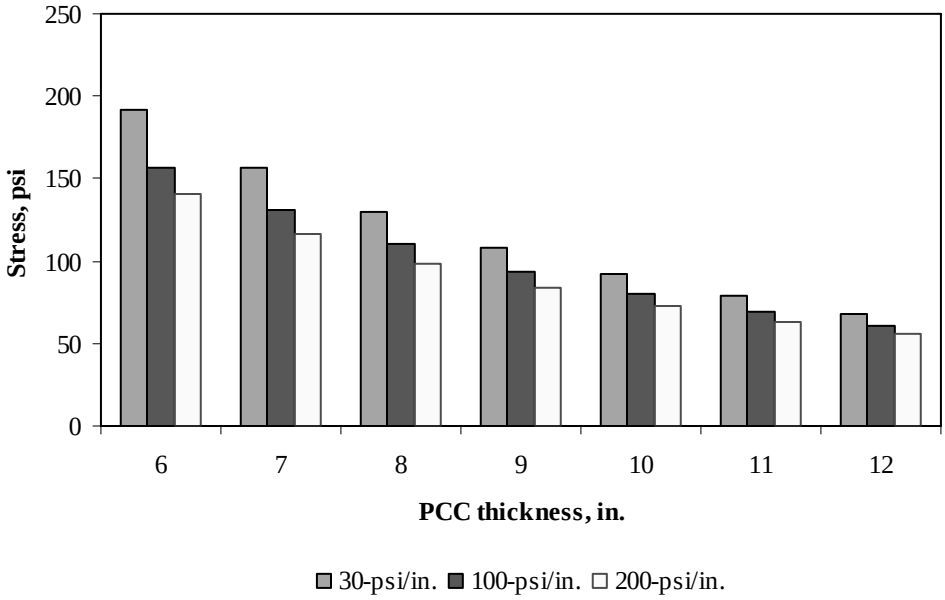


Figure F-3-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

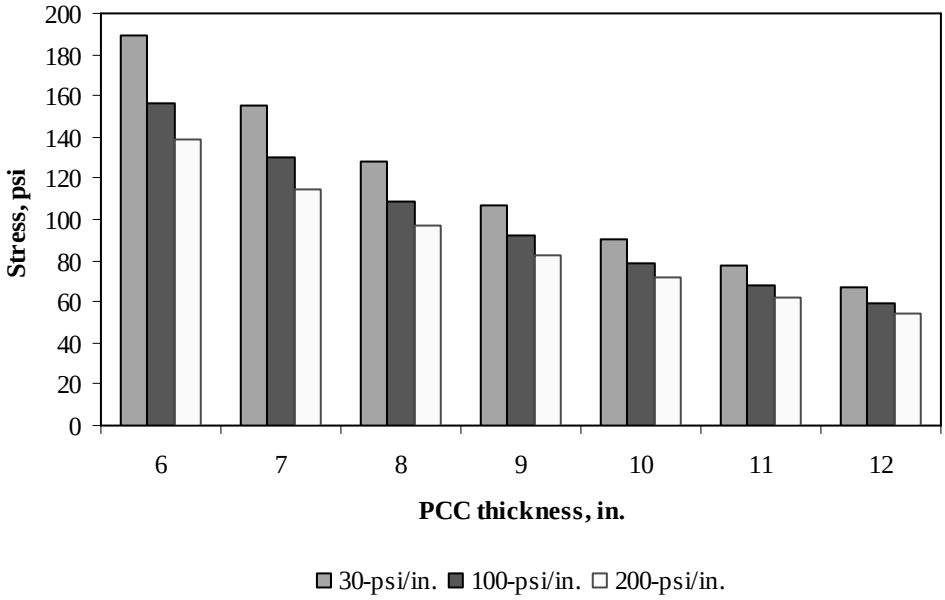


Figure F-3-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

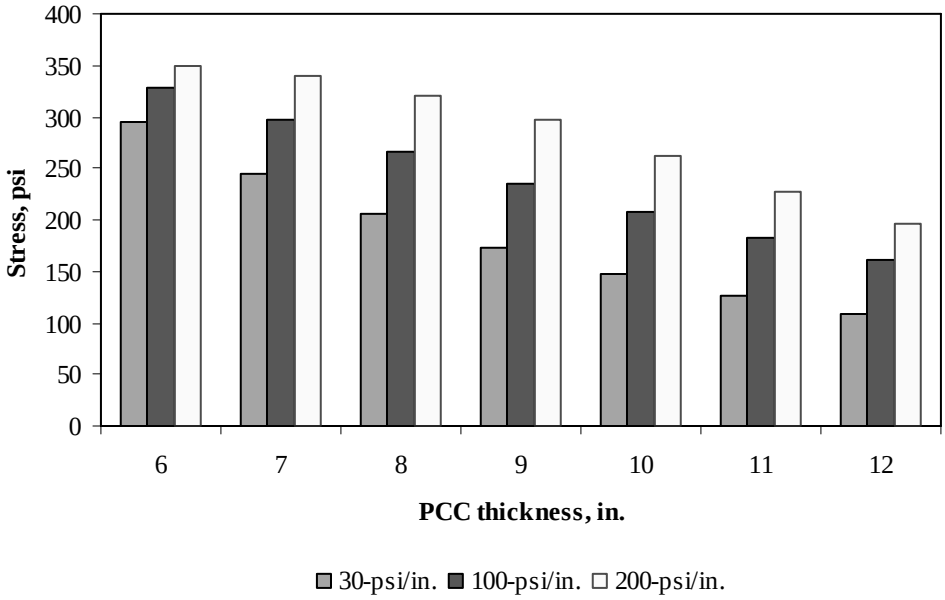


Figure F-3-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

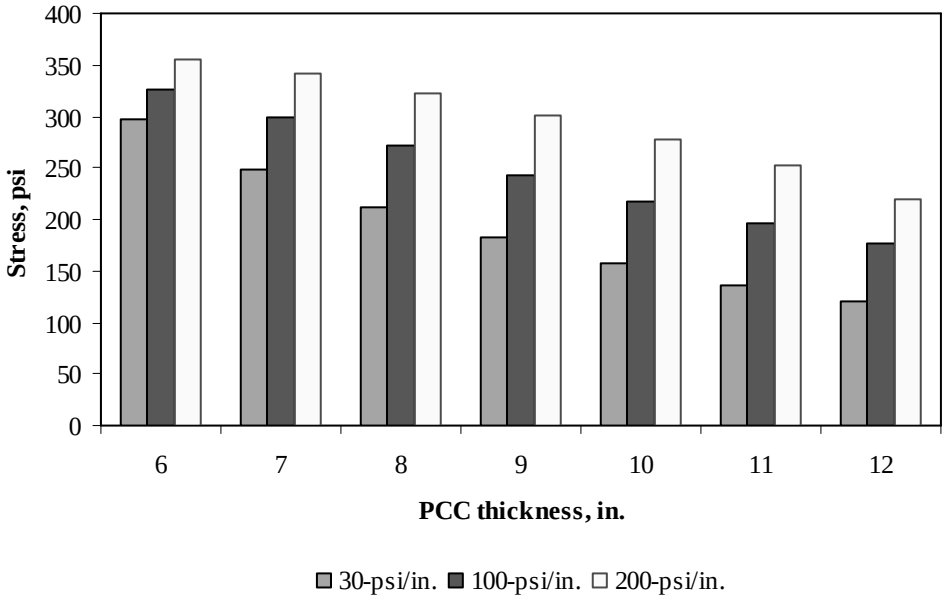


Figure F-3-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-3-25 through F-3-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

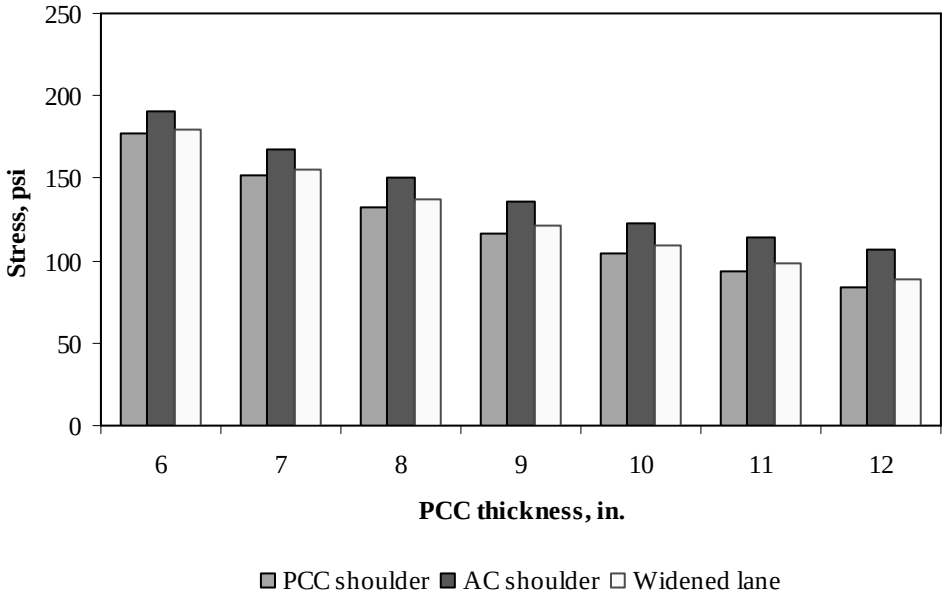


Figure F-3-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

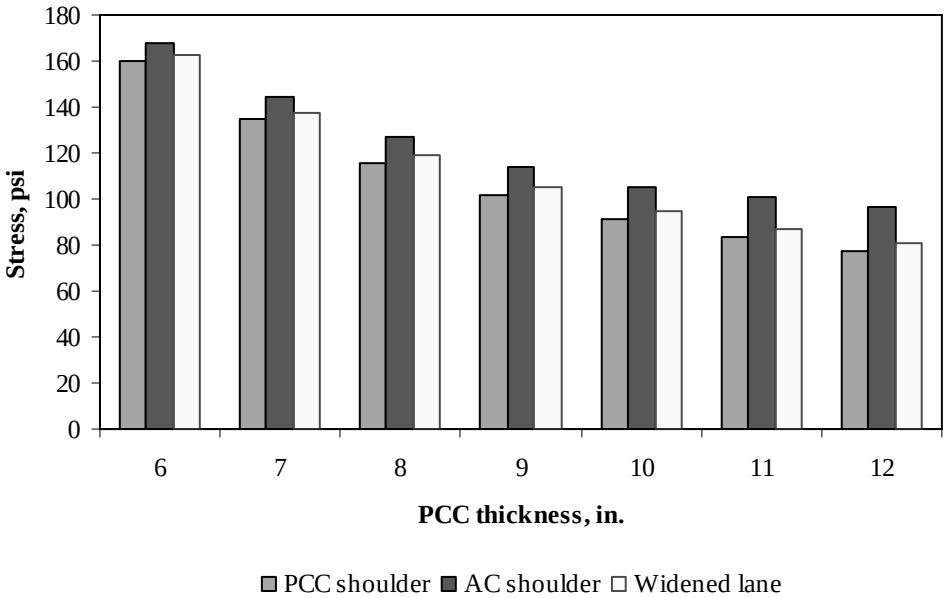


Figure F-3-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

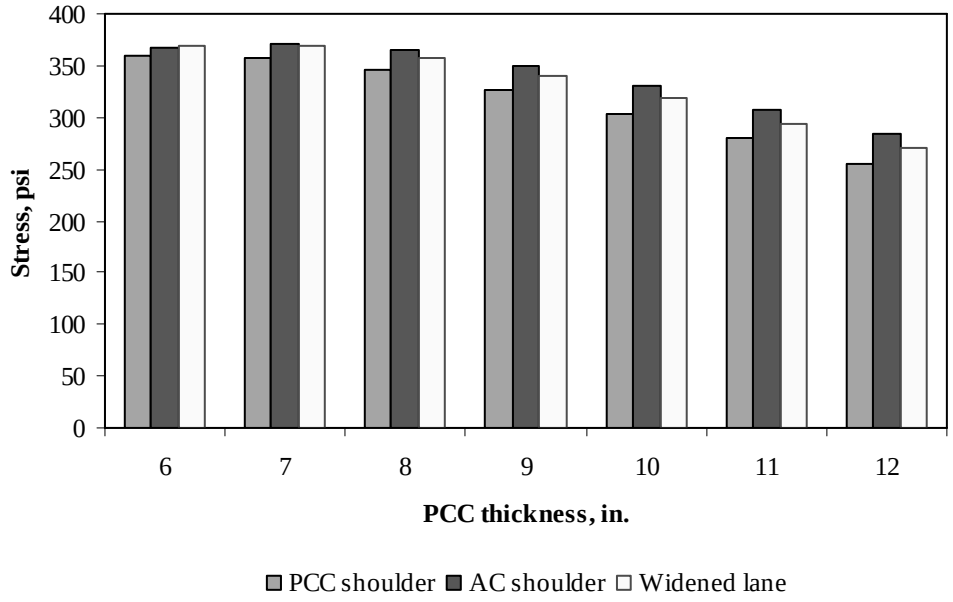


Figure F-3-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

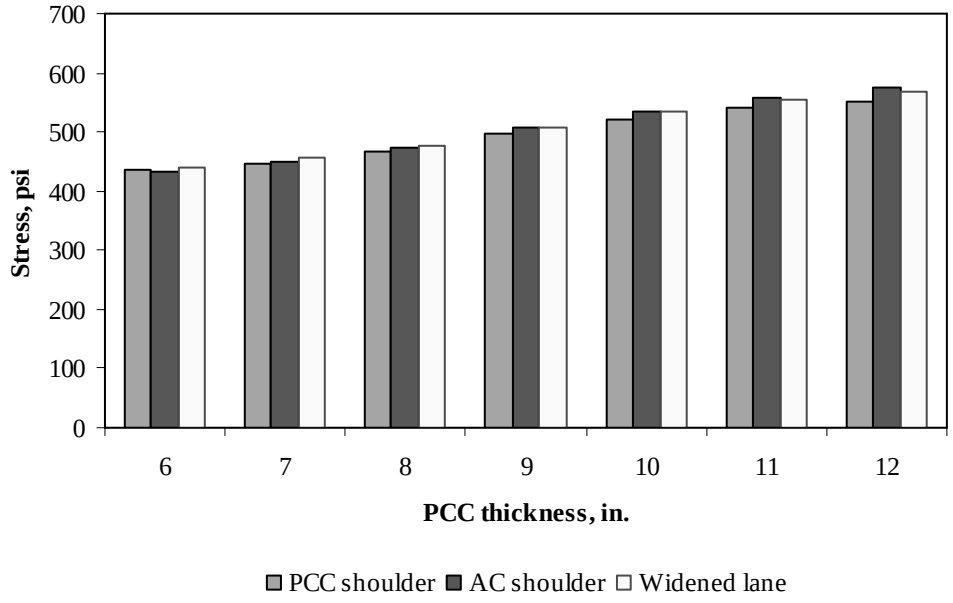


Figure F-3-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

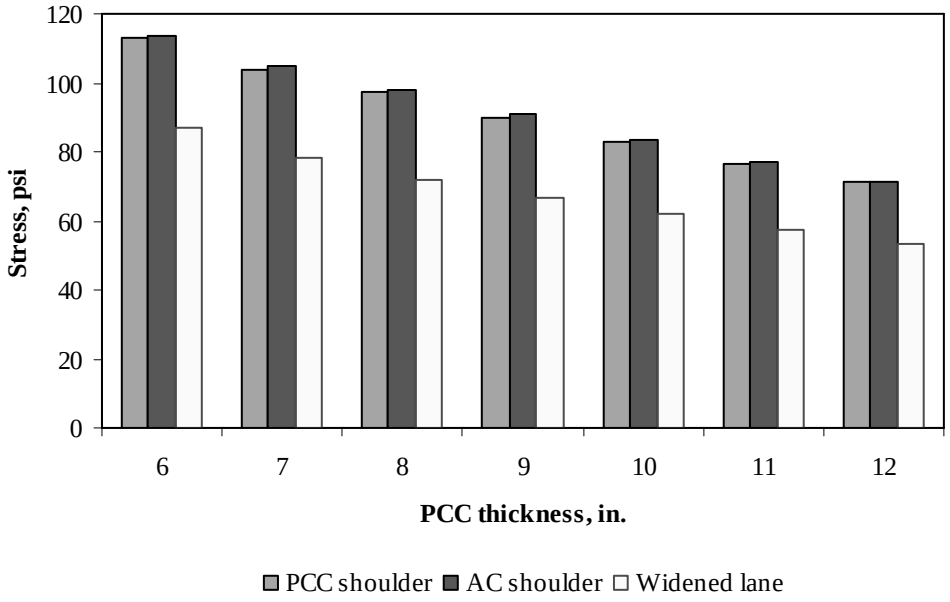


Figure F-3-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

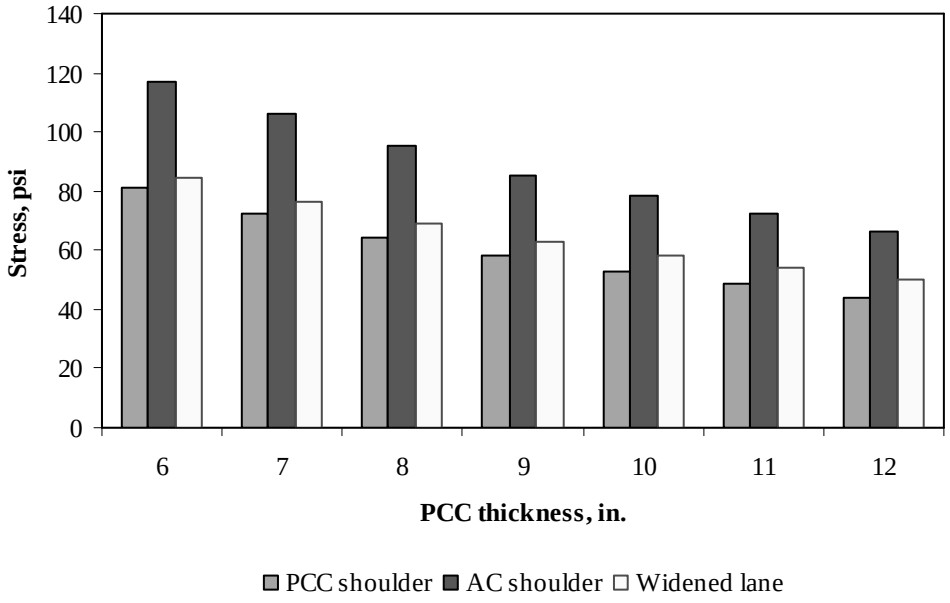


Figure F-3-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

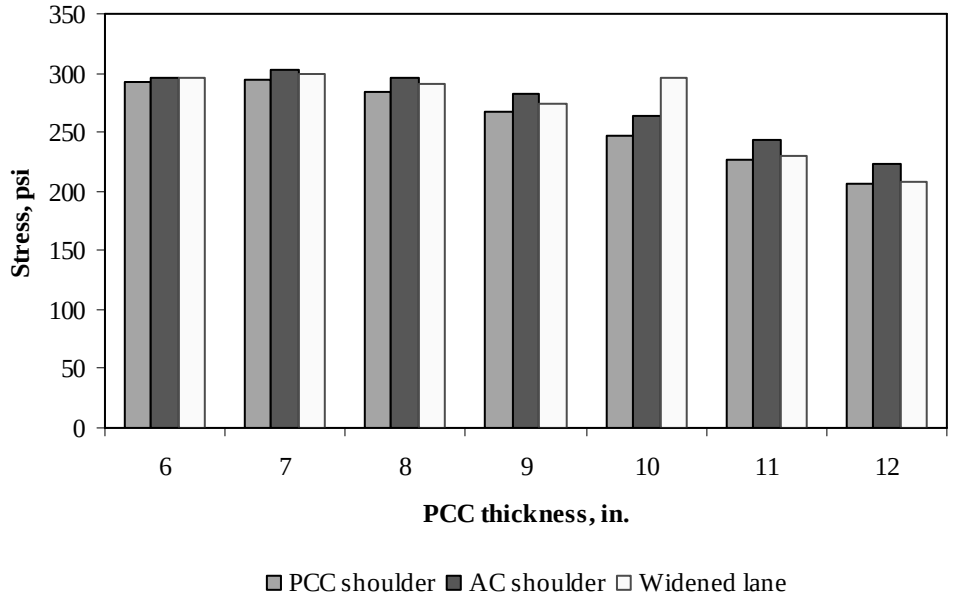


Figure F-3-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

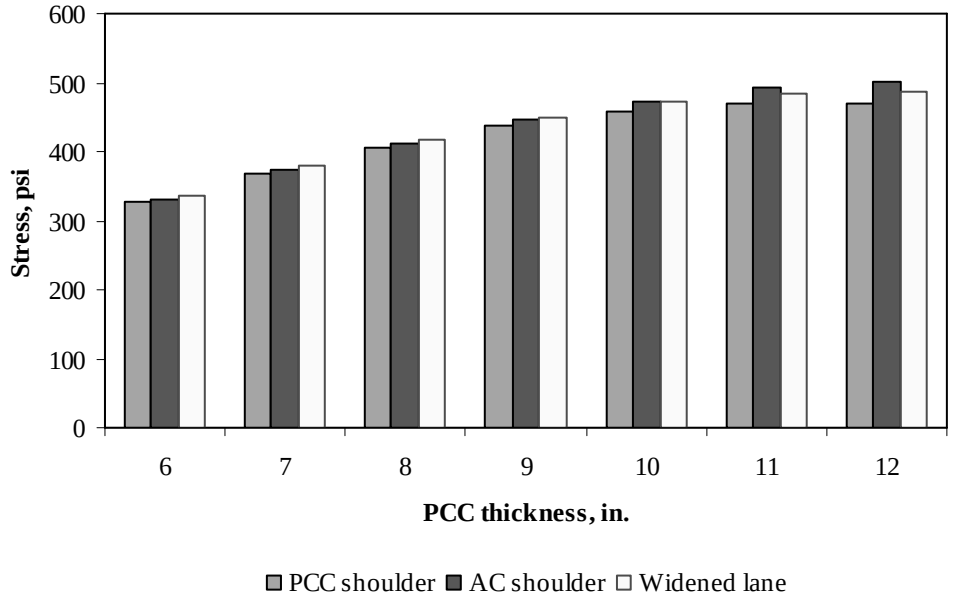


Figure F-3-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

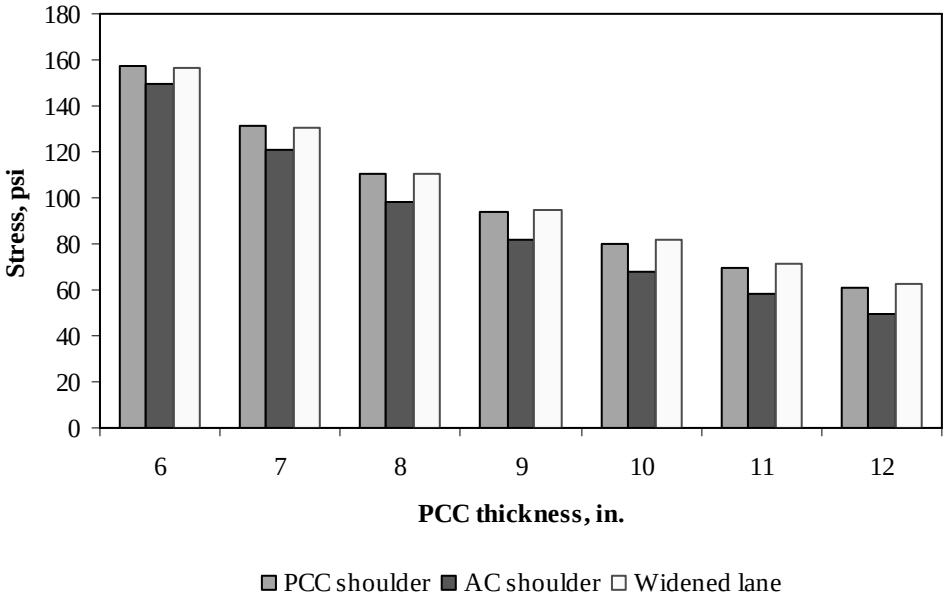


Figure F-3-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

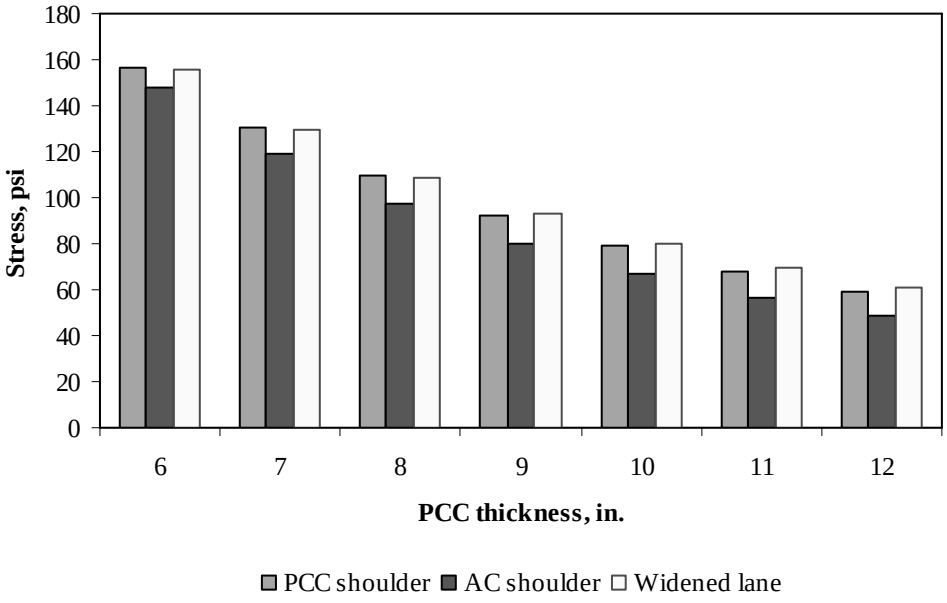


Figure F-3-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

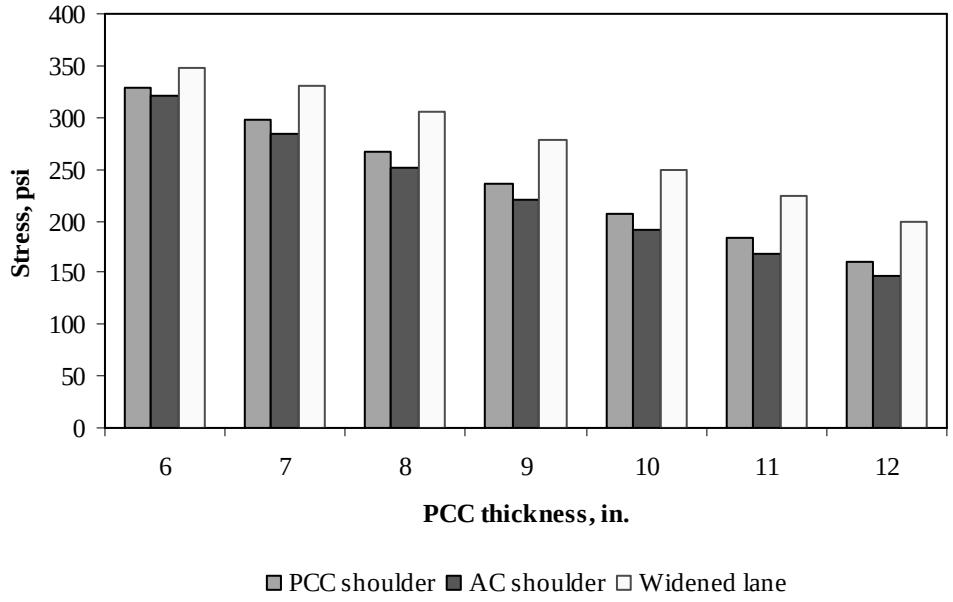


Figure F-3-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

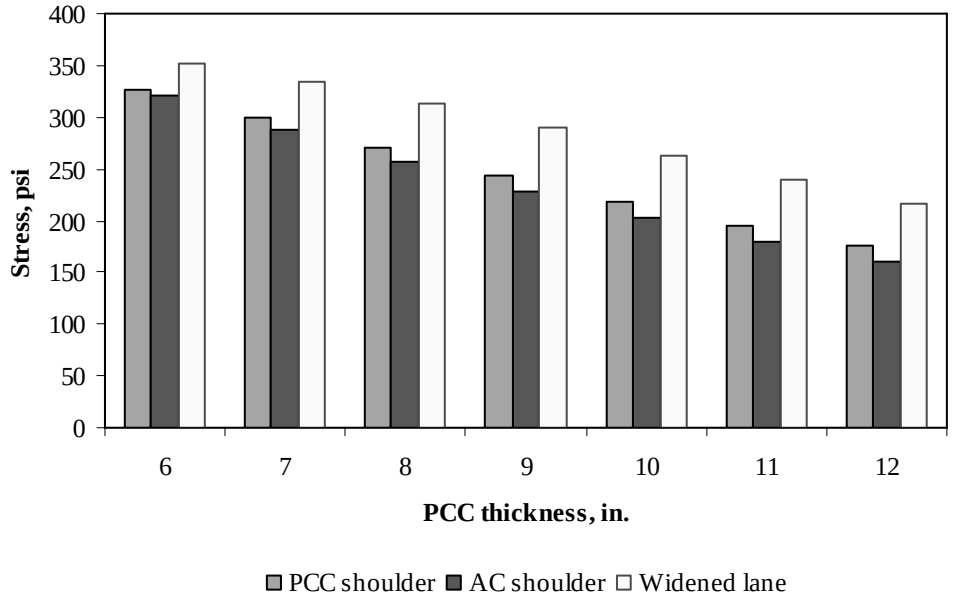


Figure F-3-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-3-37 through F-3-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

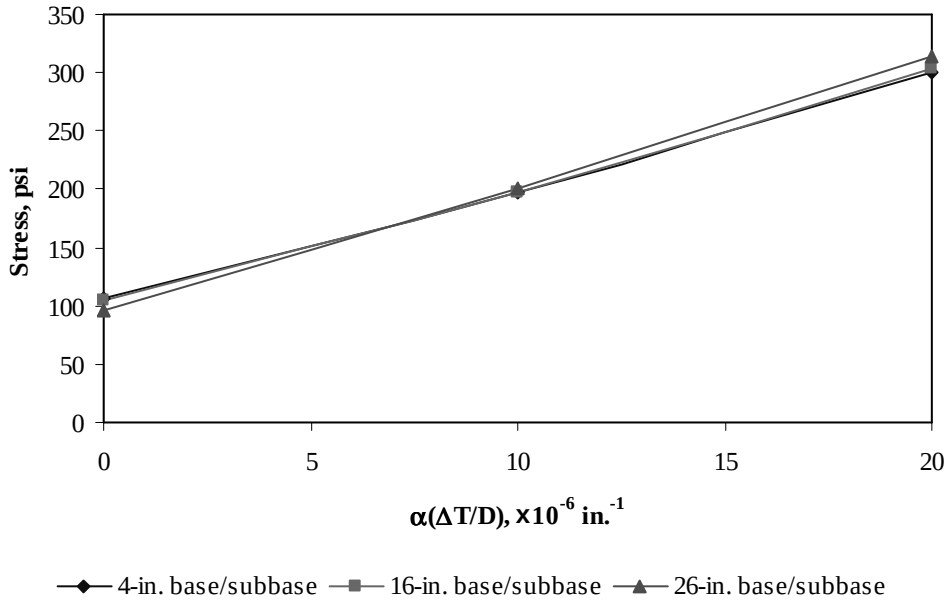


Figure F-3-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

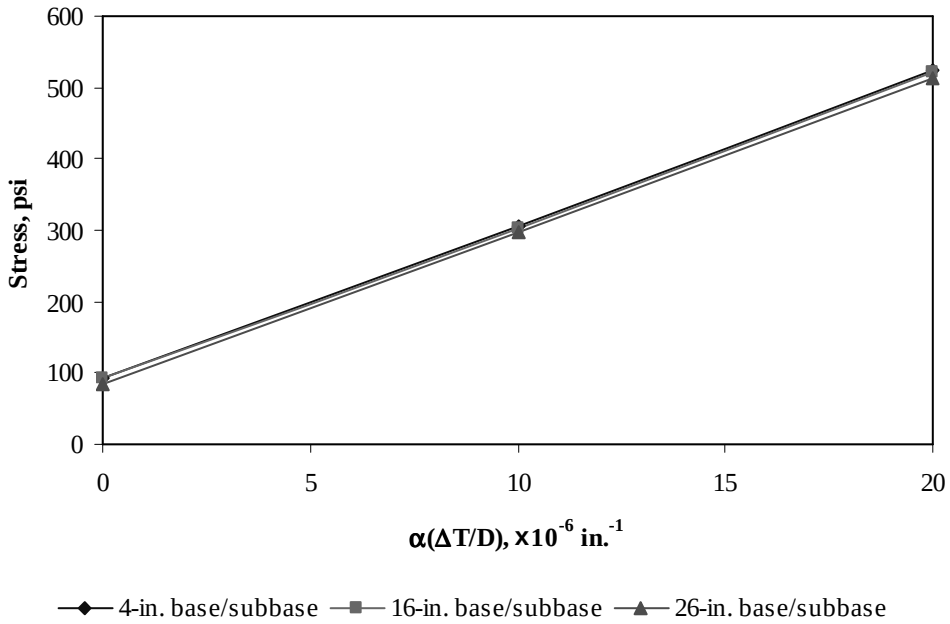


Figure F-3-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

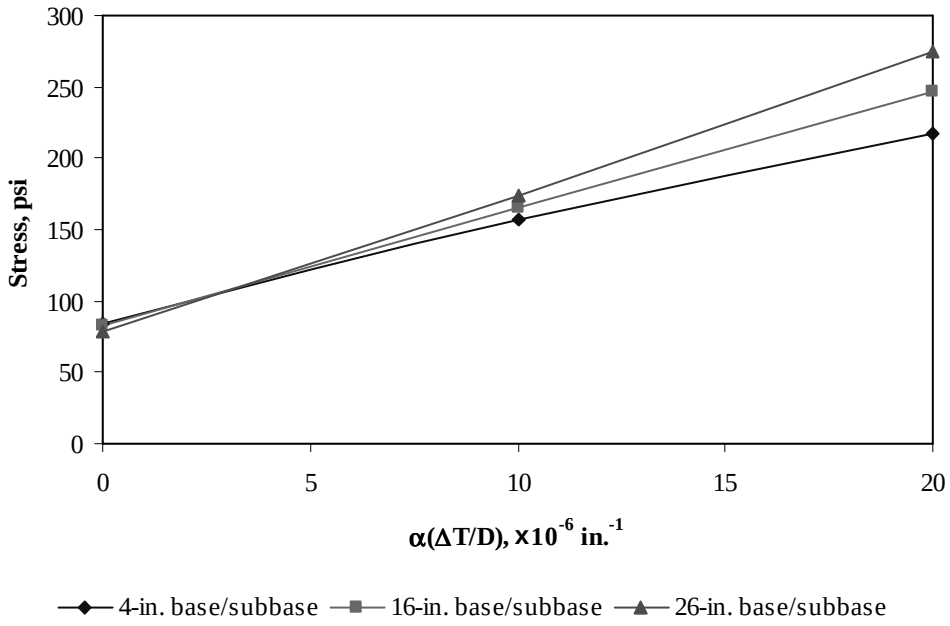


Figure F-3-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

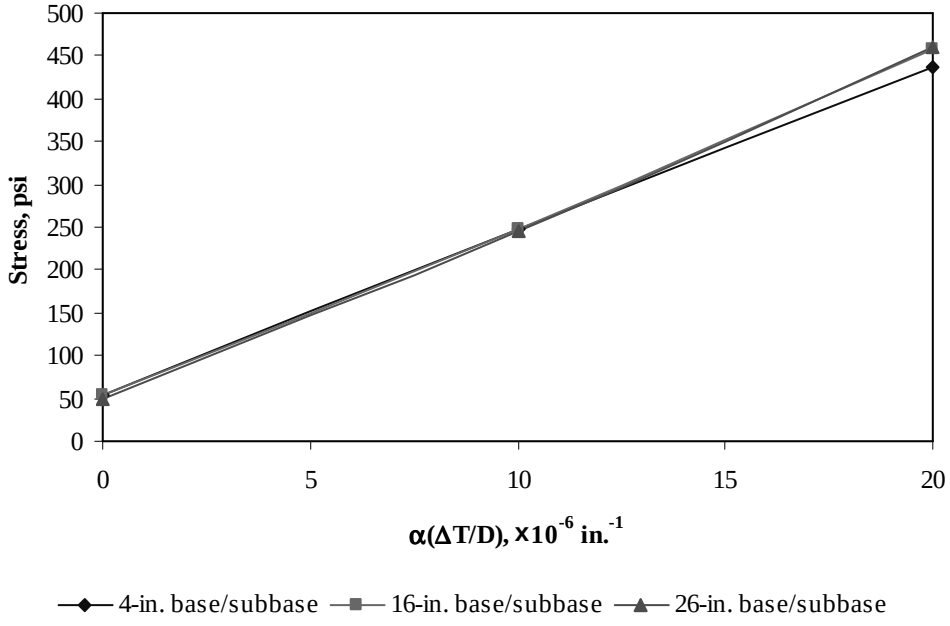


Figure F-3-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

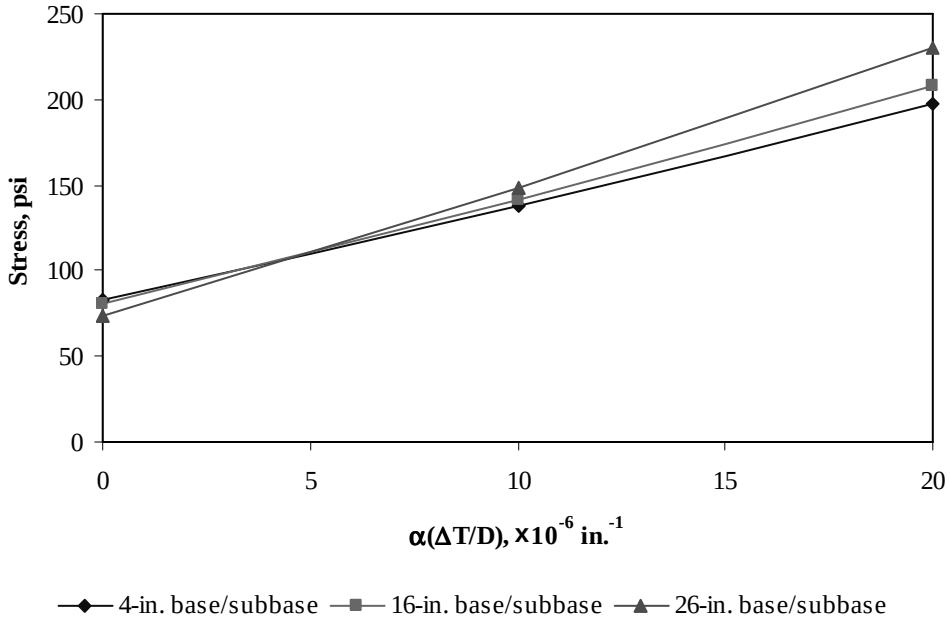


Figure F-3-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

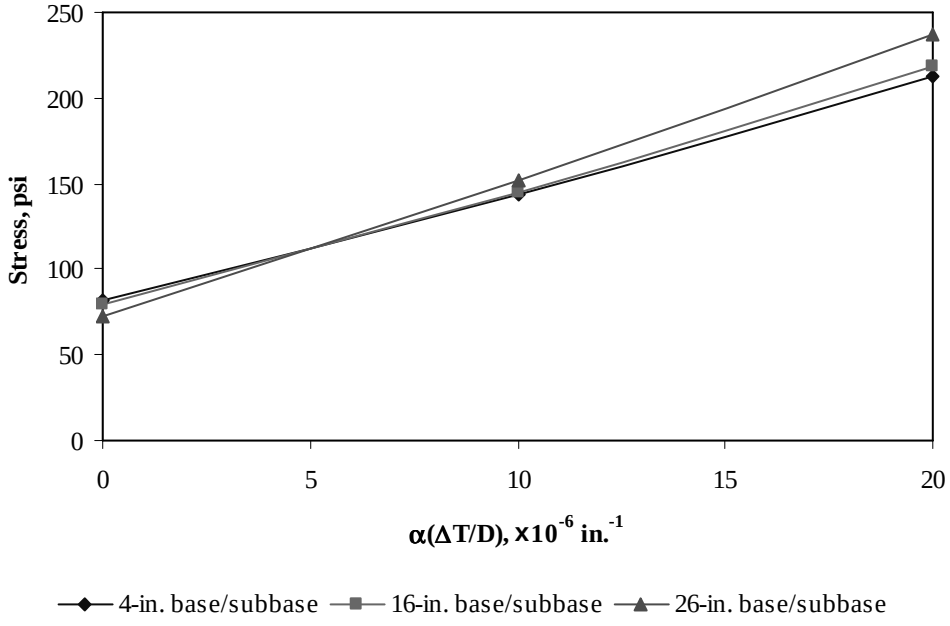


Figure F-3-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-3-43 through F-3-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

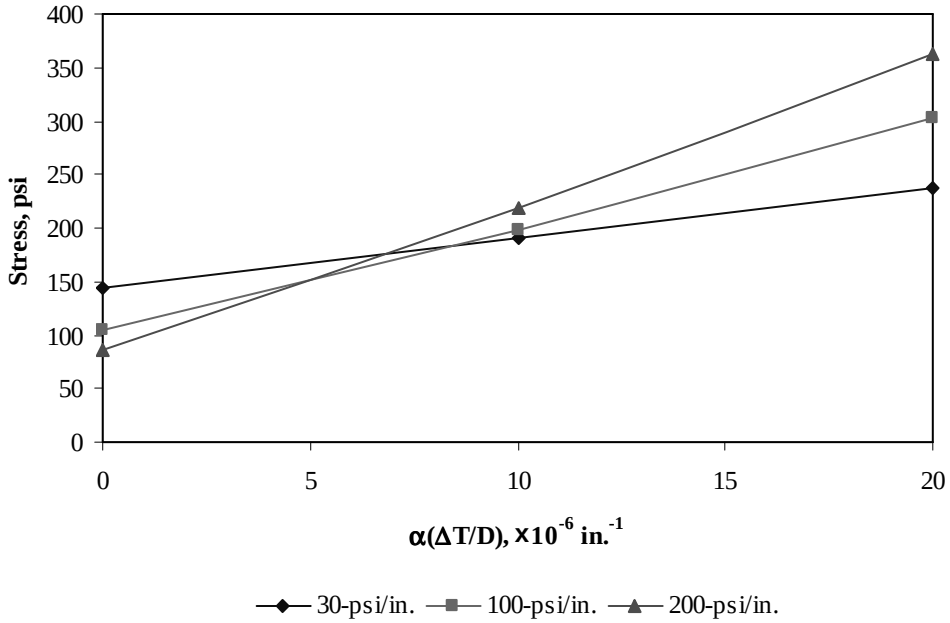


Figure F-3-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

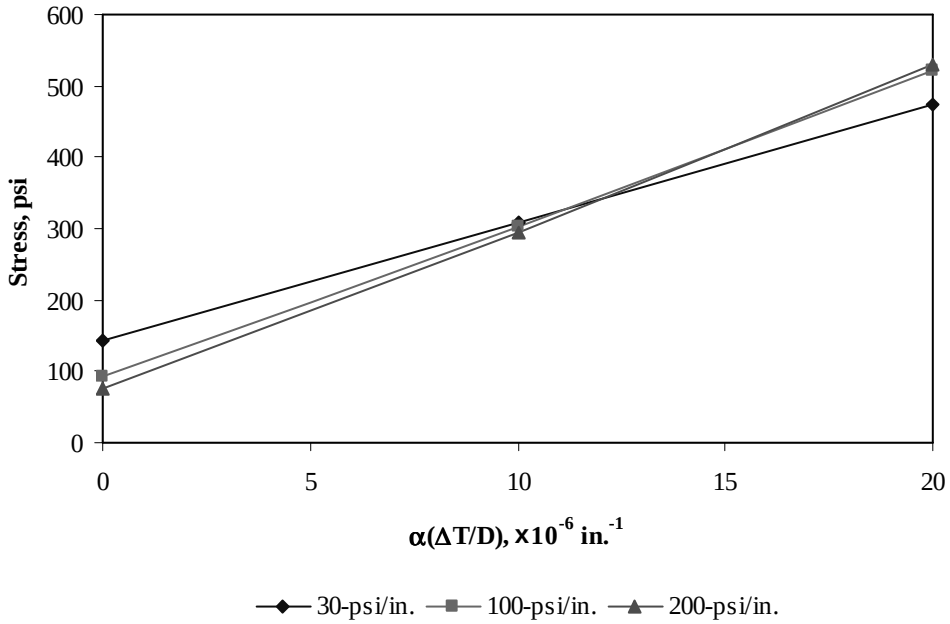


Figure F-3-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

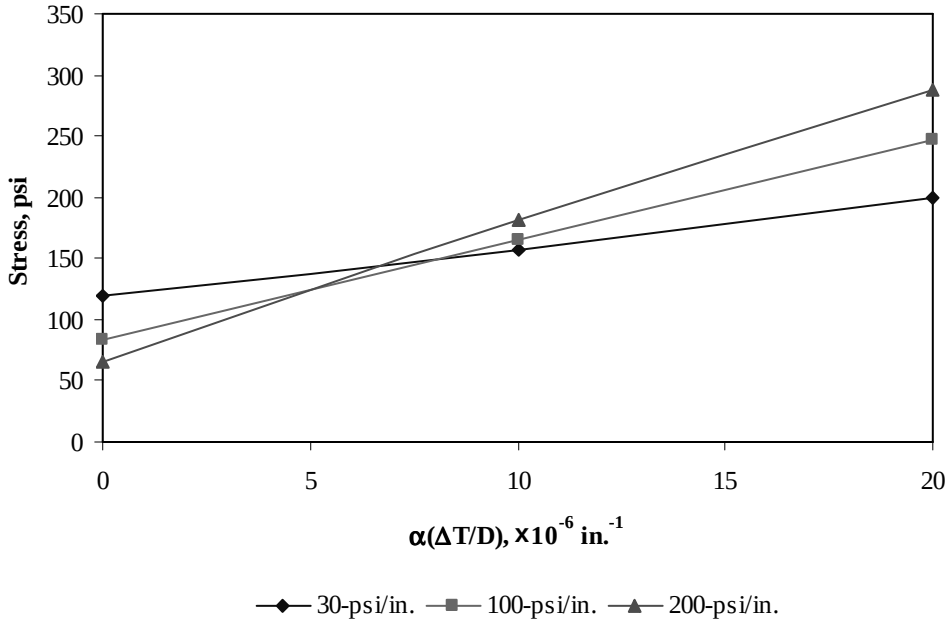


Figure F-3-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

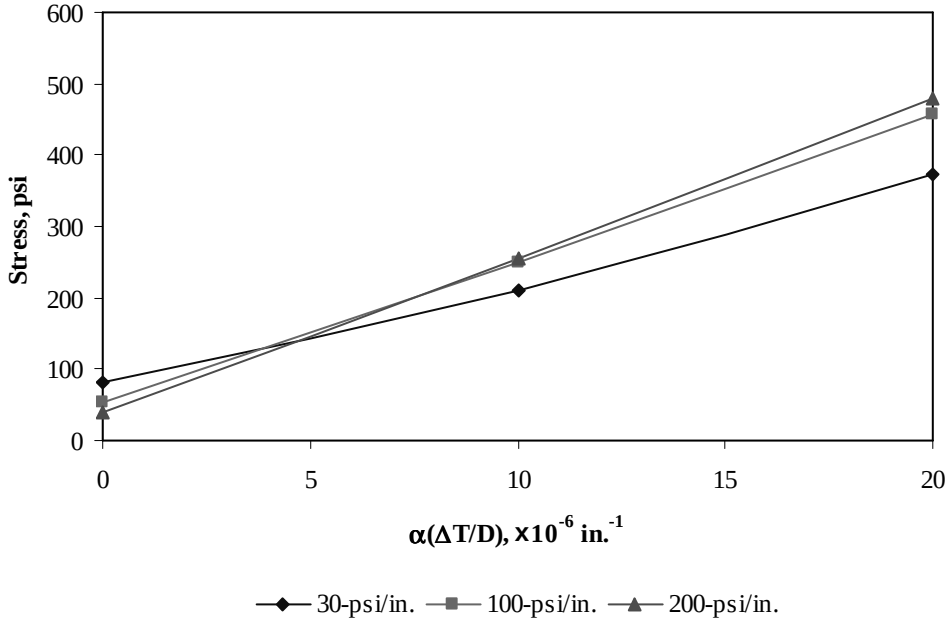


Figure F-3-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

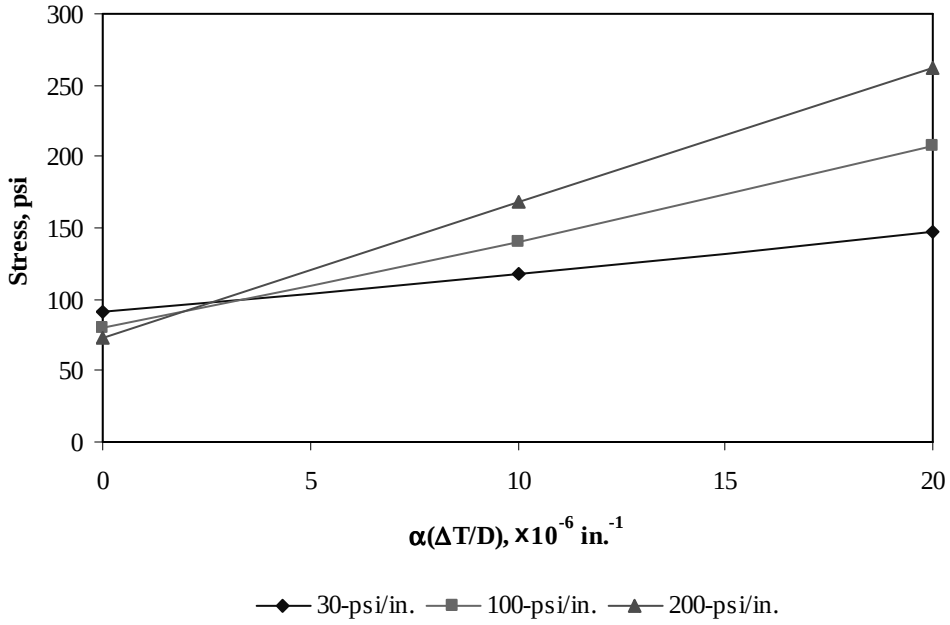


Figure F-3-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

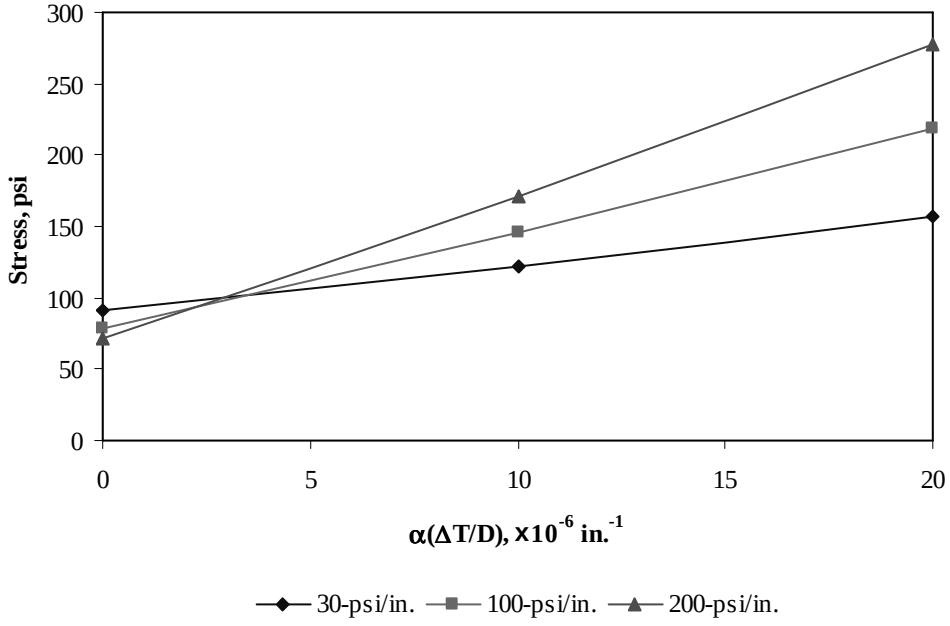


Figure F-3-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-3-49 through F-3-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

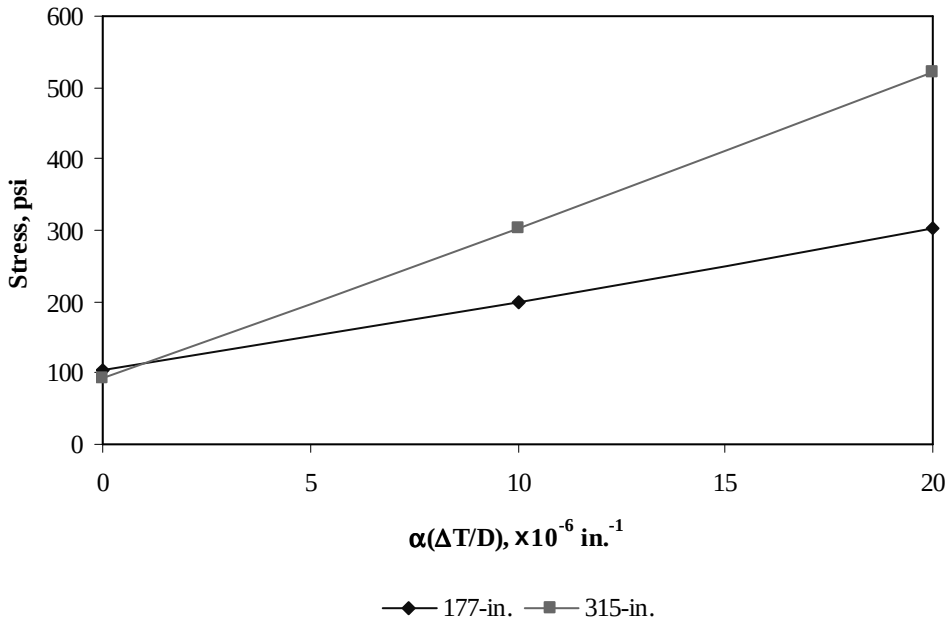


Figure F-3-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

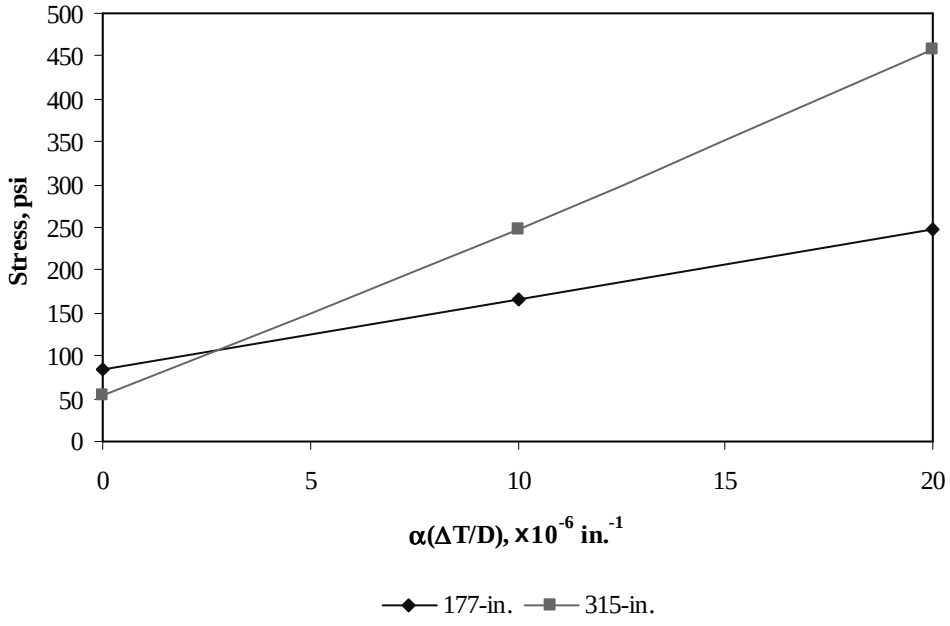


Figure F-3-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

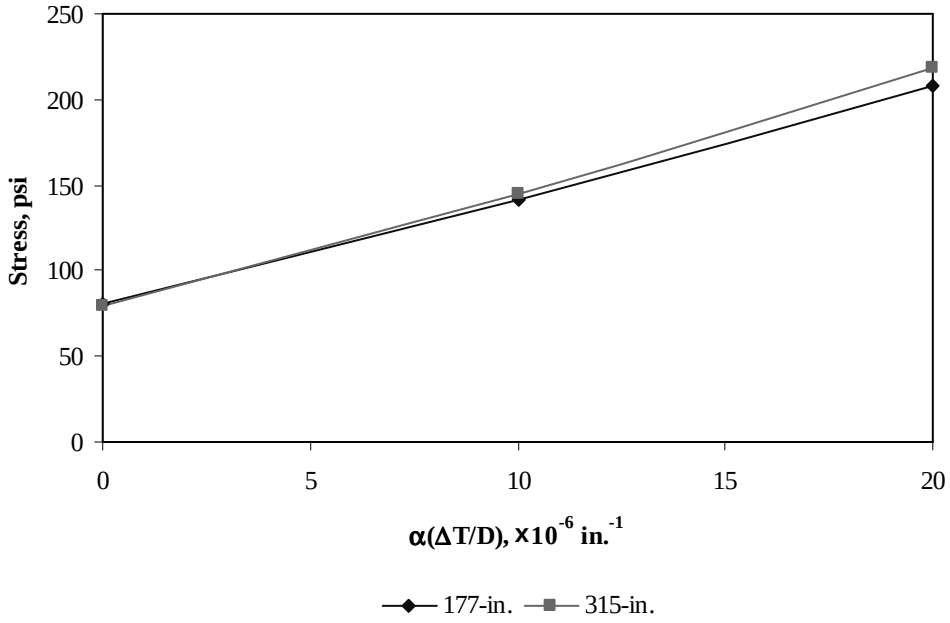
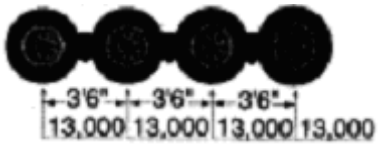


Figure F-3-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-4

Documentation of Pavement Responses for



52-kips Quad Axle

Figures F-4-1 through F-4-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

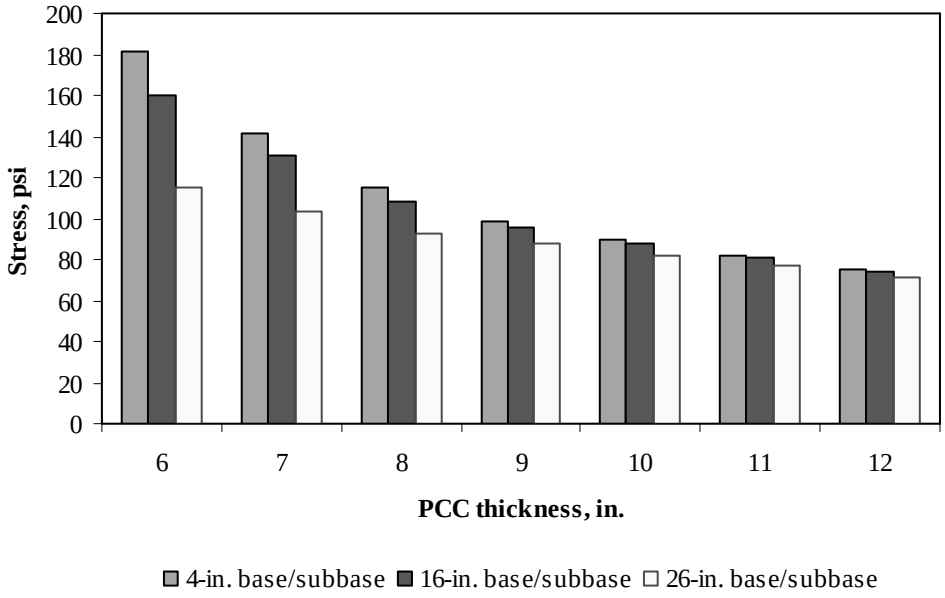


Figure F-4-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

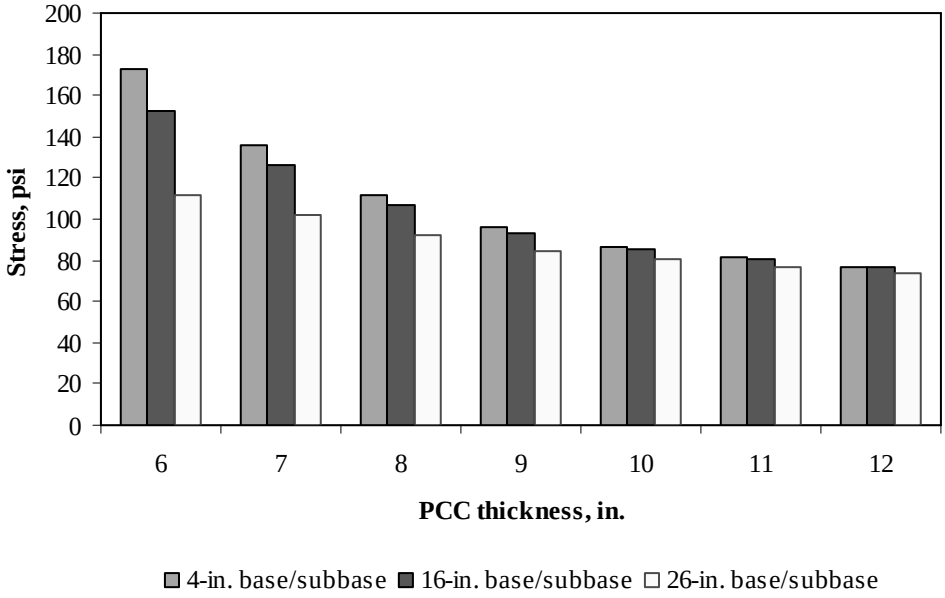


Figure F-4-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

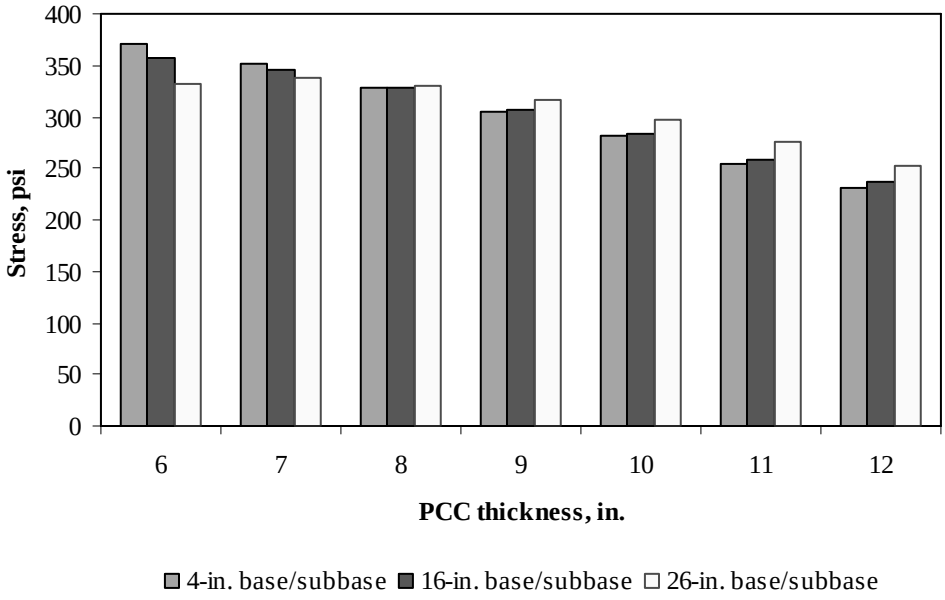


Figure F-4-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

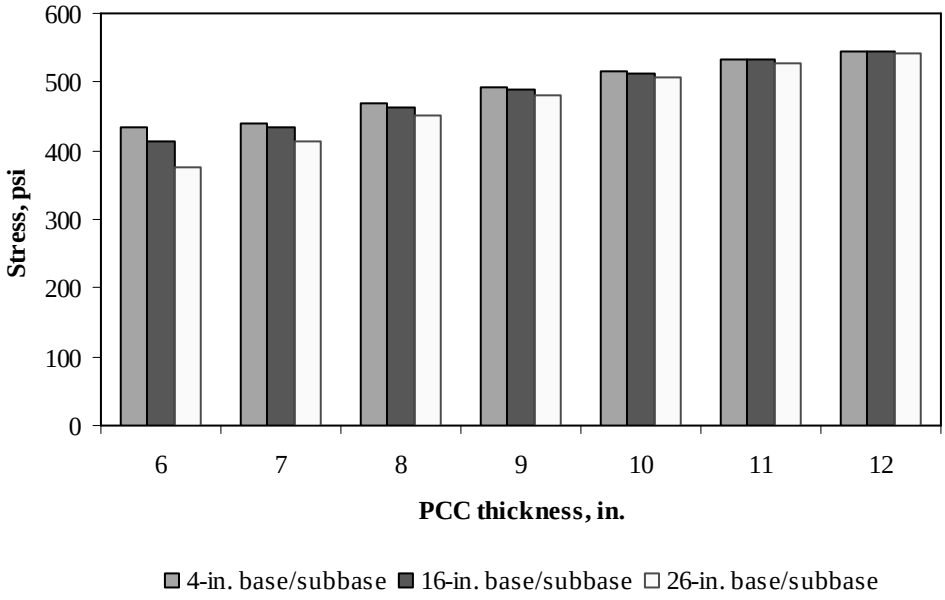


Figure F-4-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

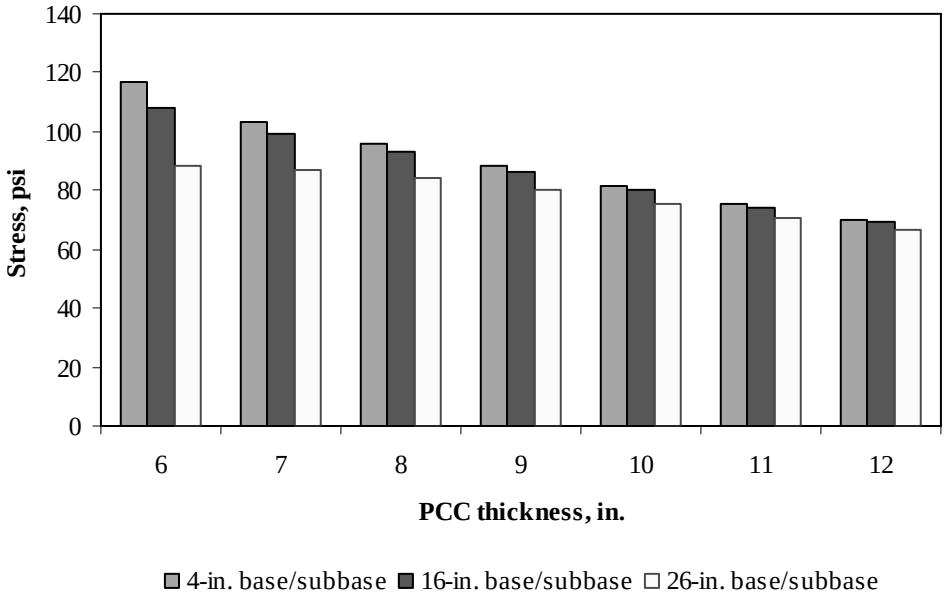


Figure F-4-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

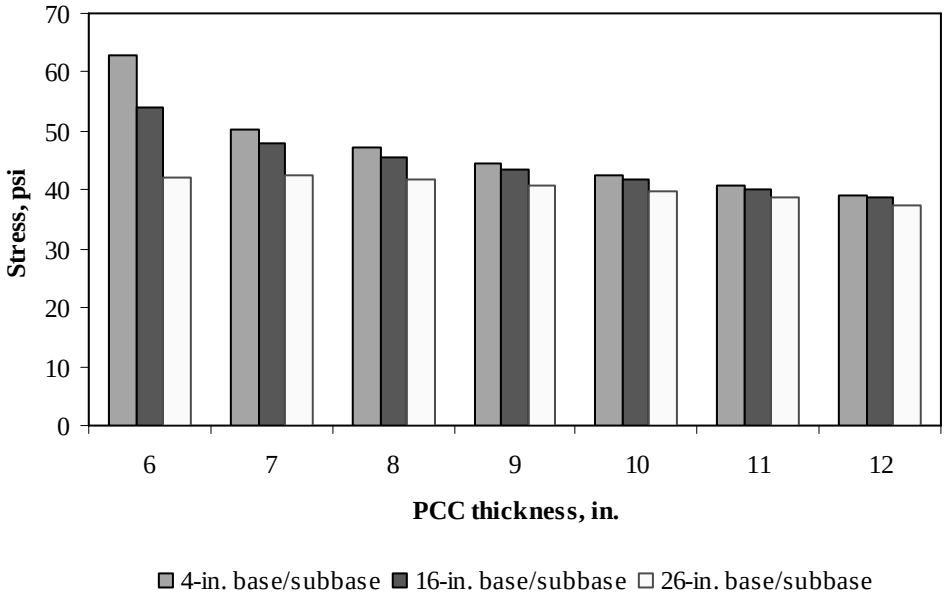


Figure F-4-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

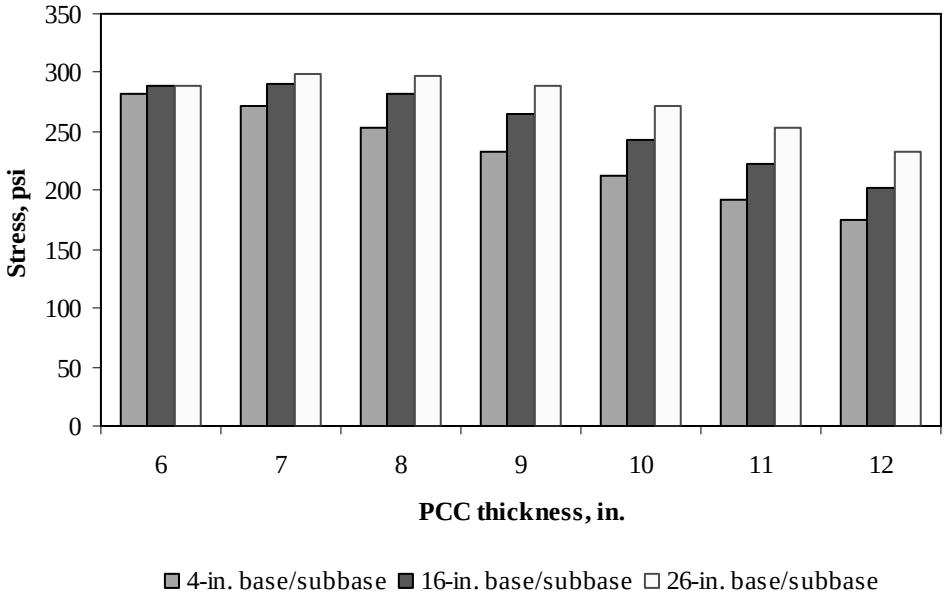


Figure F-4-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

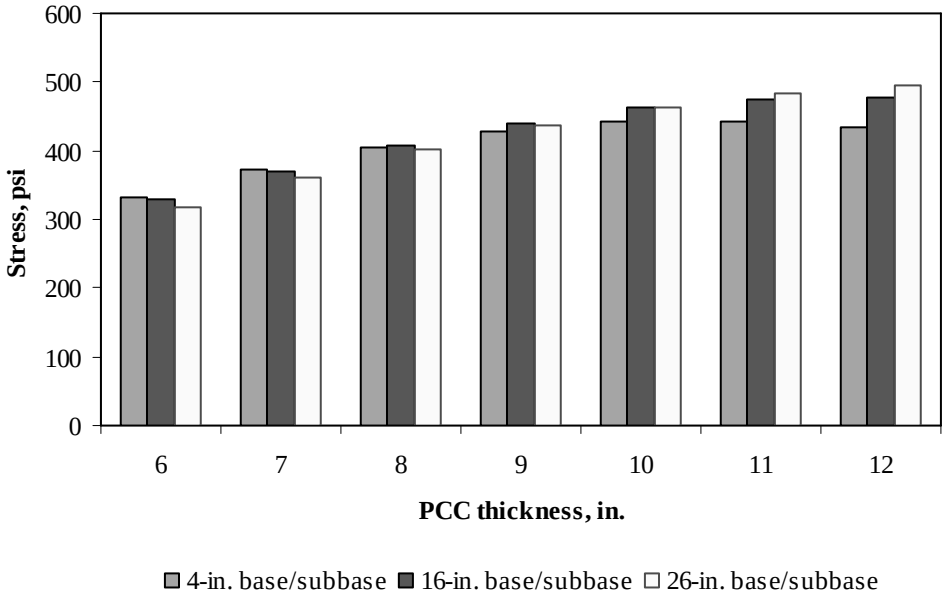


Figure F-4-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

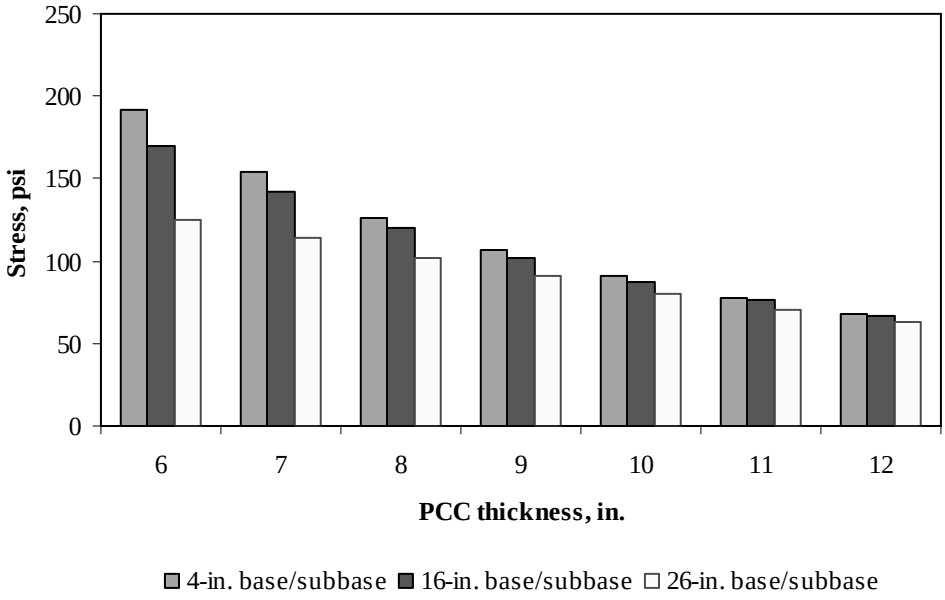


Figure F-4-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

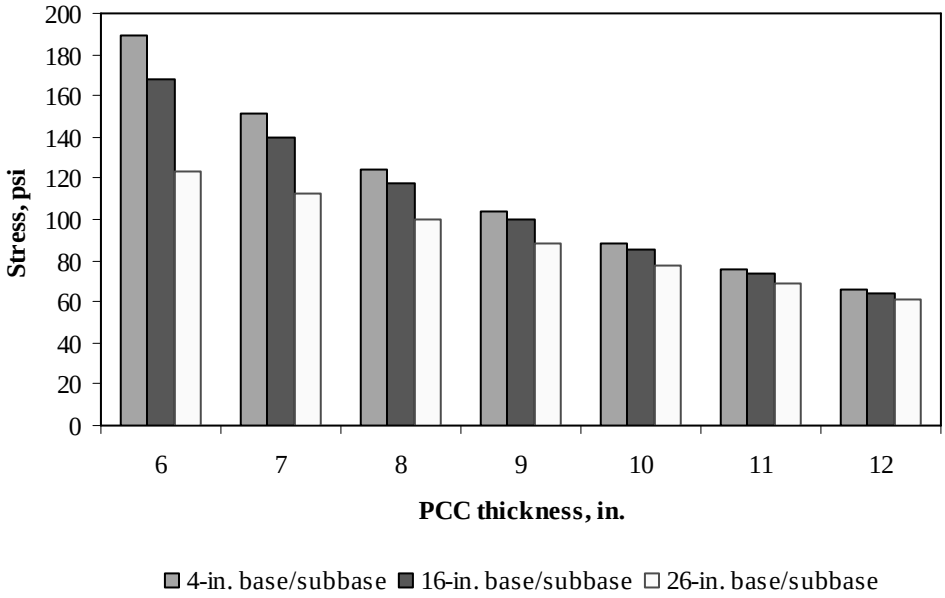


Figure F-4-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

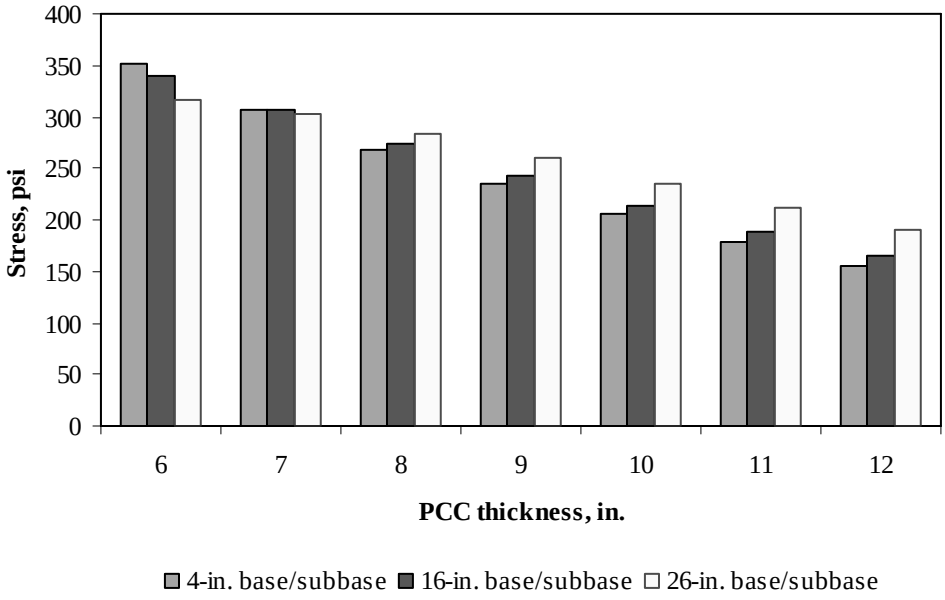


Figure F-4-11: Impact of PCC thickness and ba se/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of $20x10^{-6}$ $in.^{-1}$)

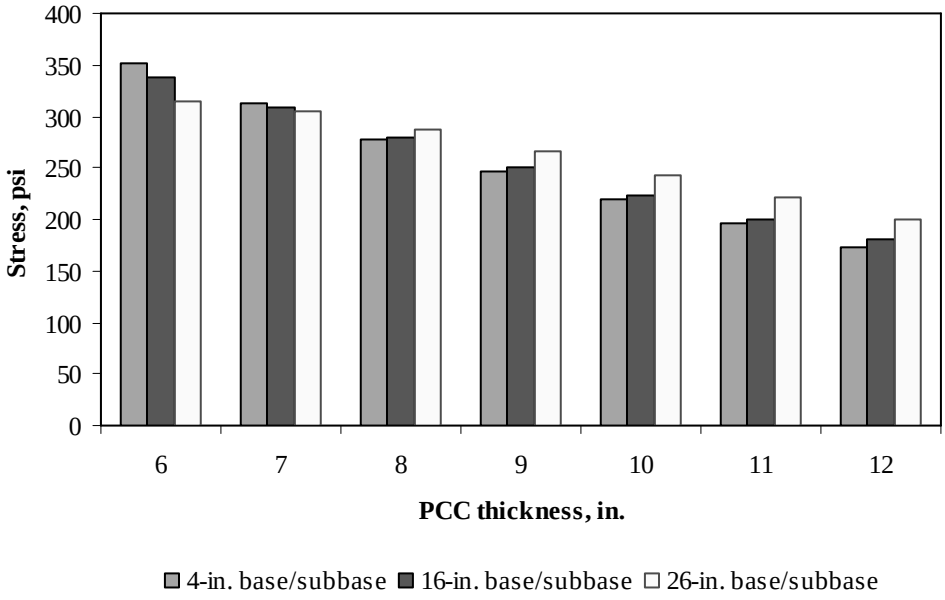


Figure F-4-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of $20x10^{-6}$ $in.^{-1}$)

Figures F-4-13 through F-4-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

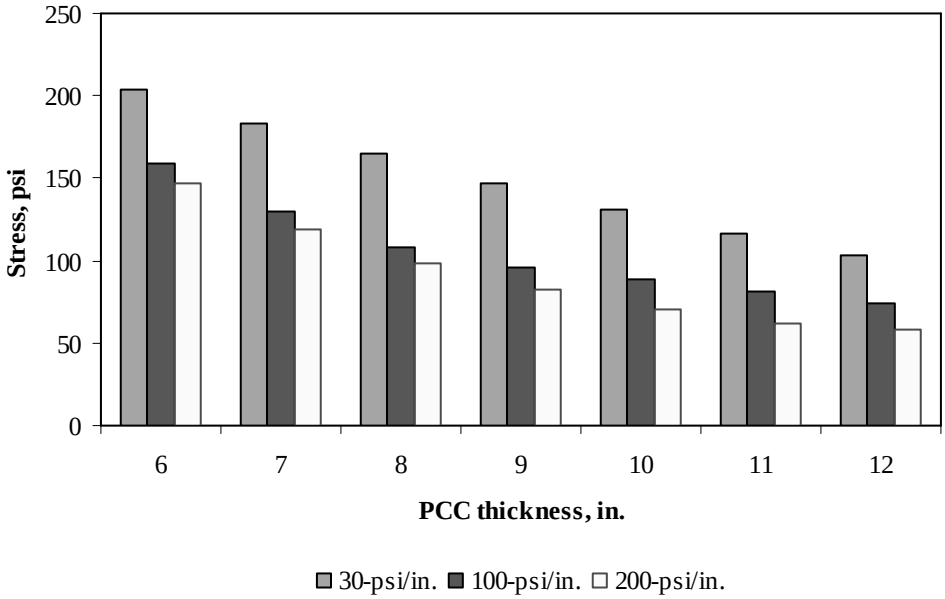


Figure F-4-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

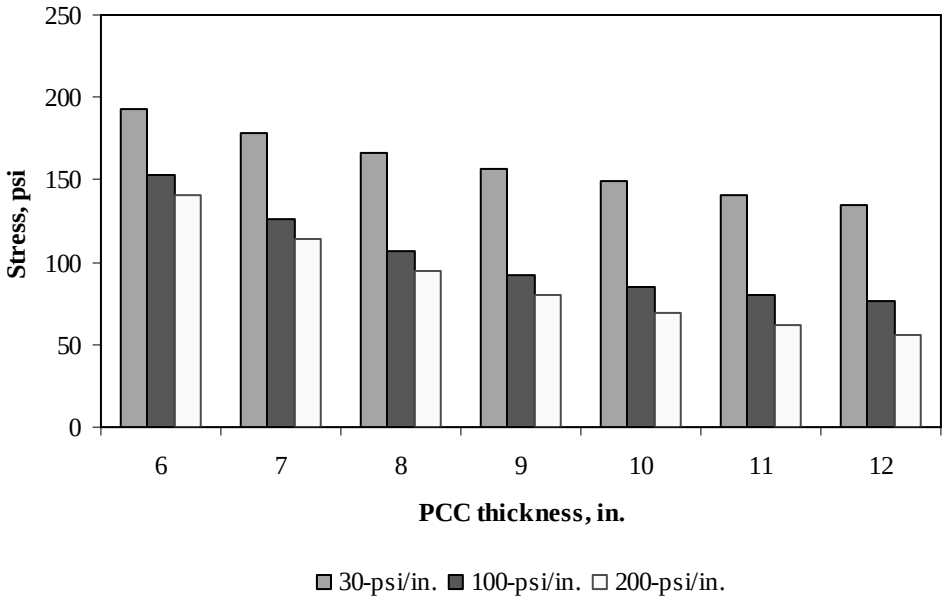


Figure F-4-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

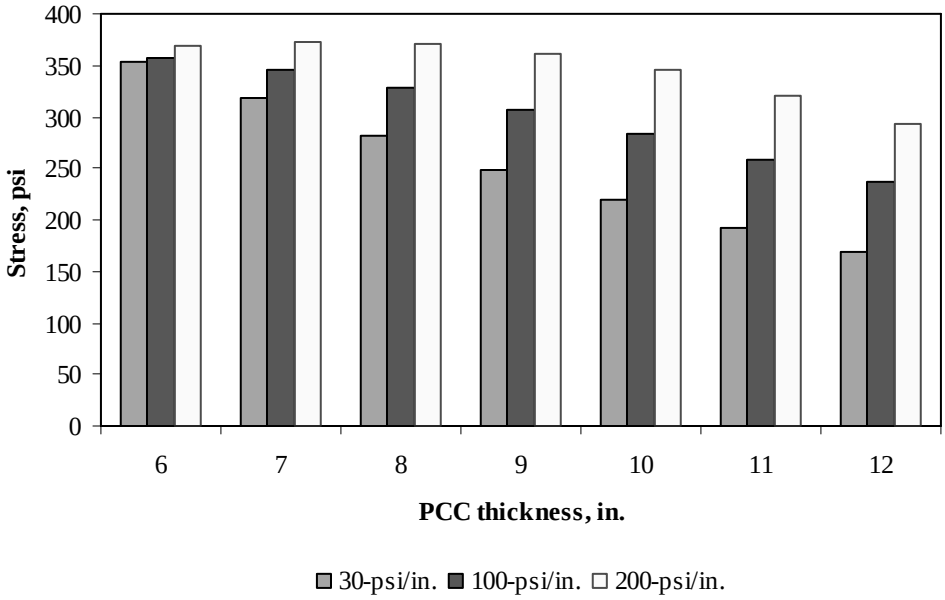


Figure F-4-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

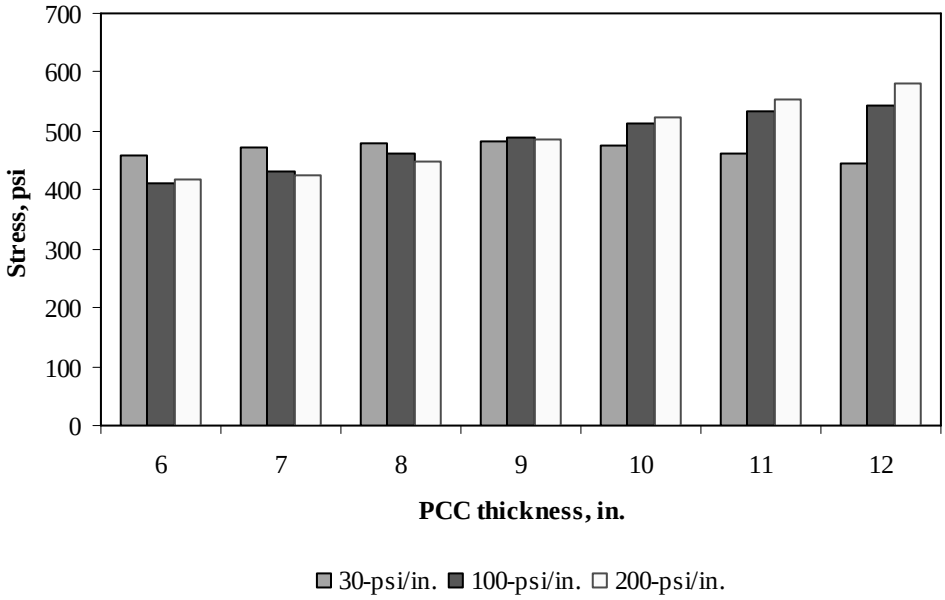


Figure F-4-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

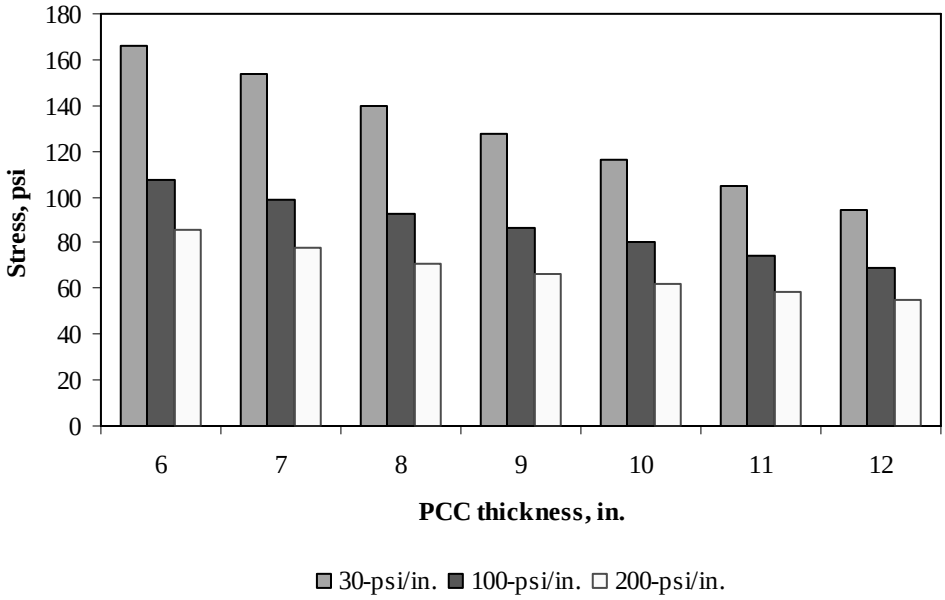


Figure F-4-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

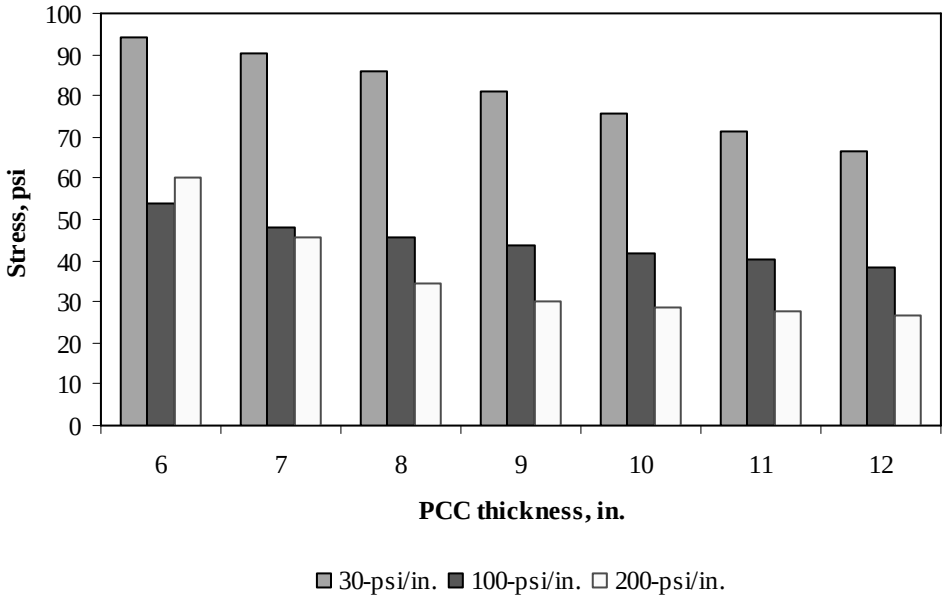


Figure F-4-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

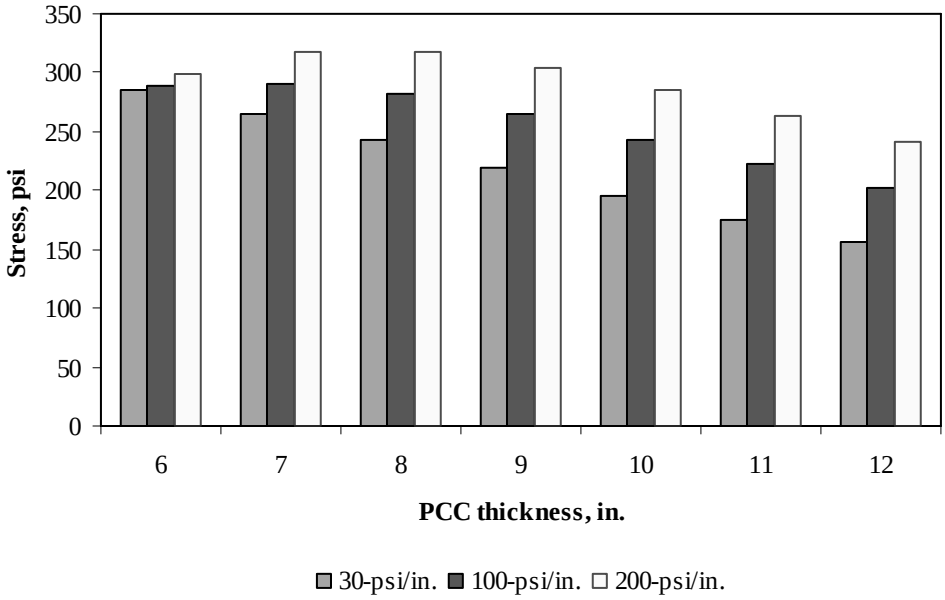


Figure F-4-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

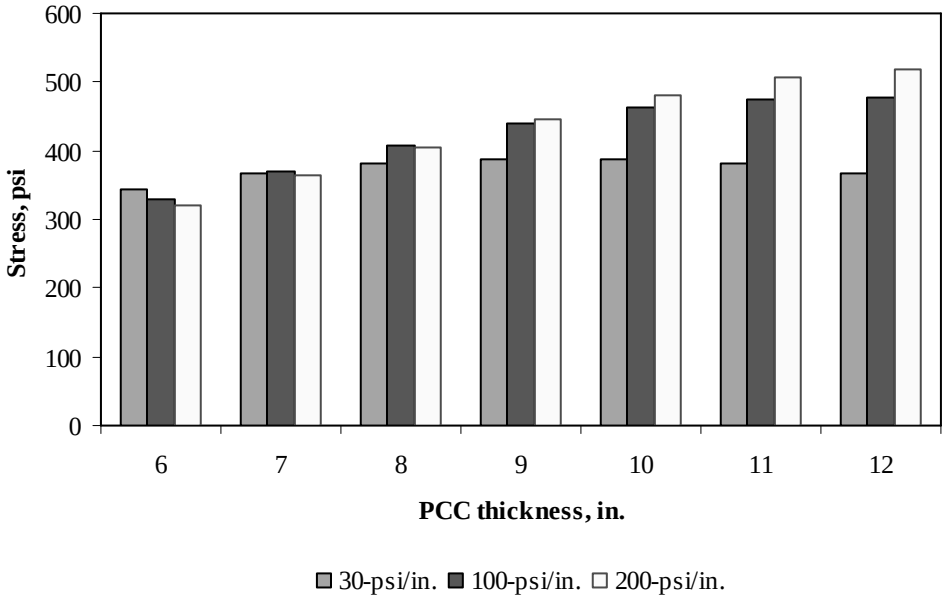


Figure F-4-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

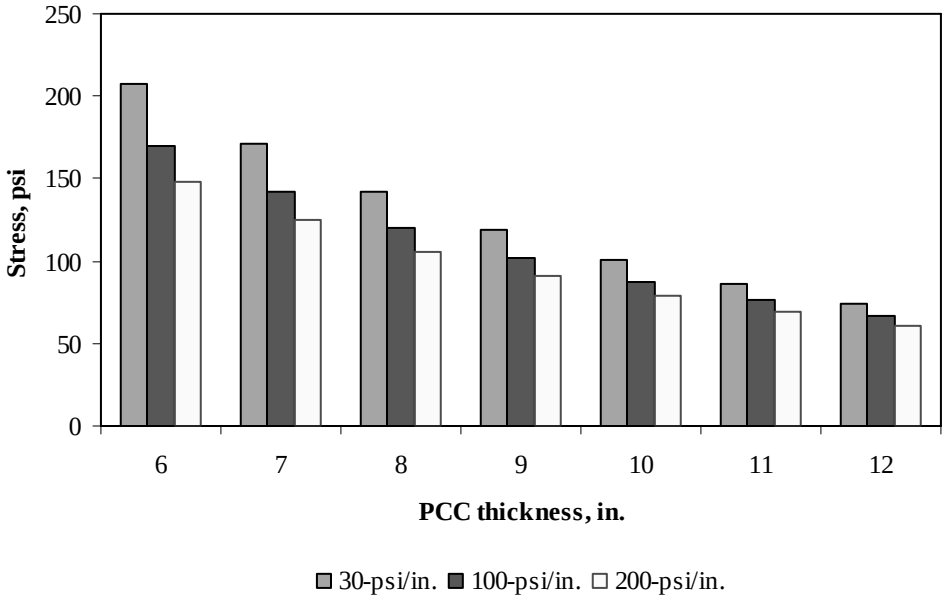


Figure F-4-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

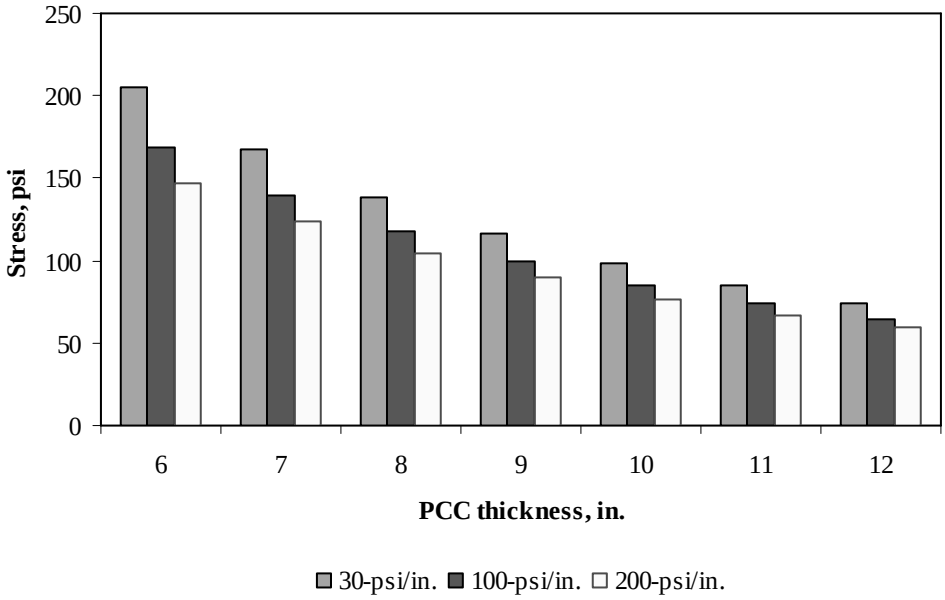


Figure F-4-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

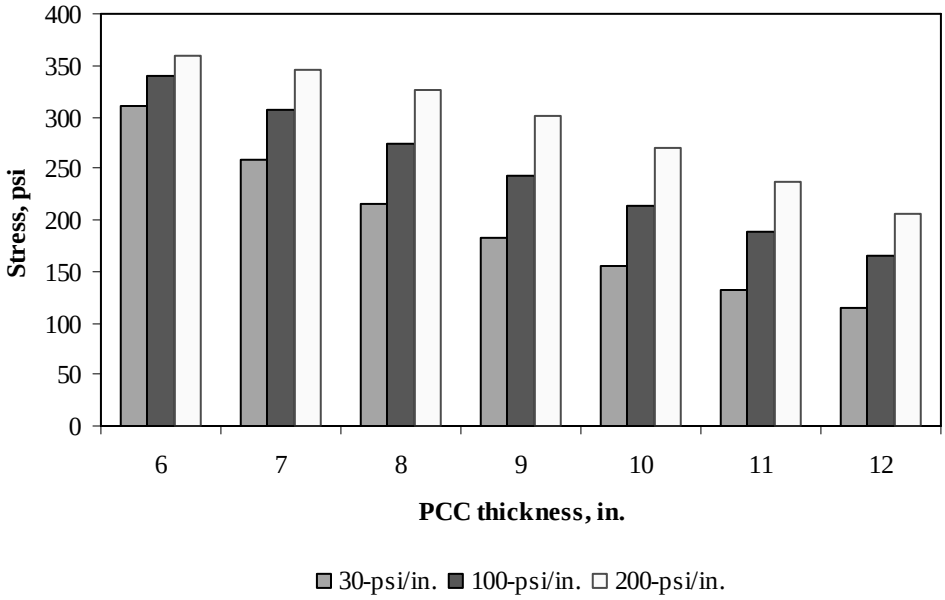


Figure F-4-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

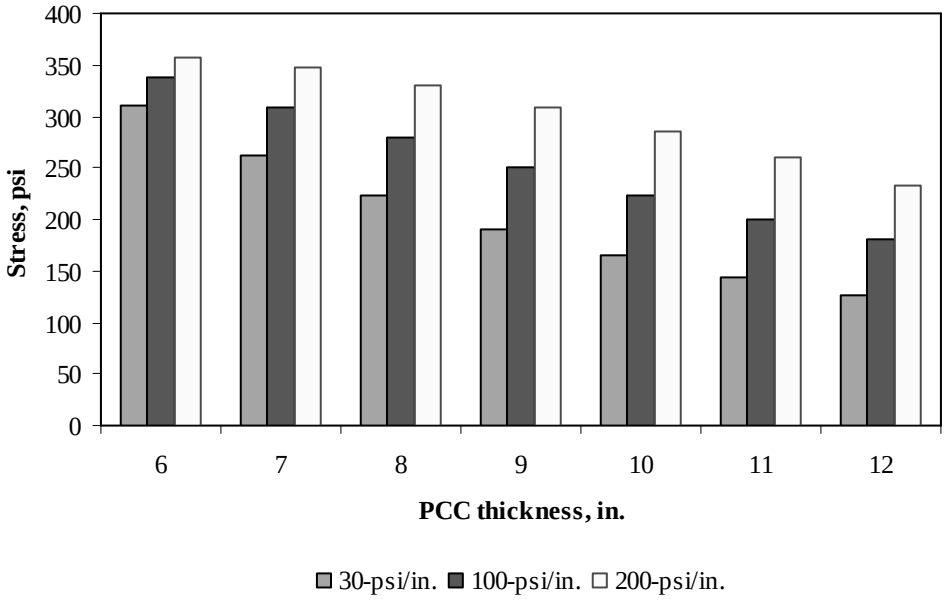


Figure F-4-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-4-25 through F-4-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

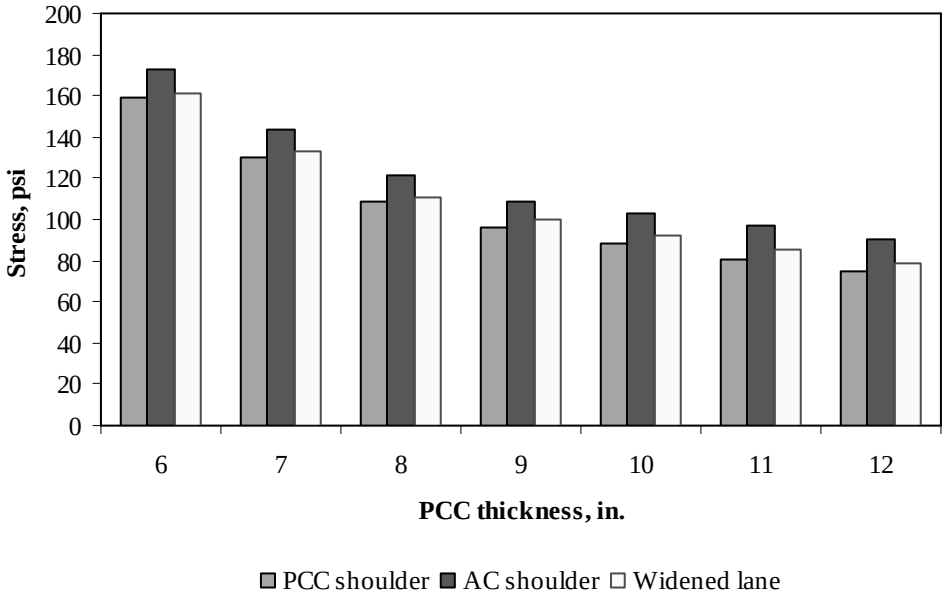


Figure F-4-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

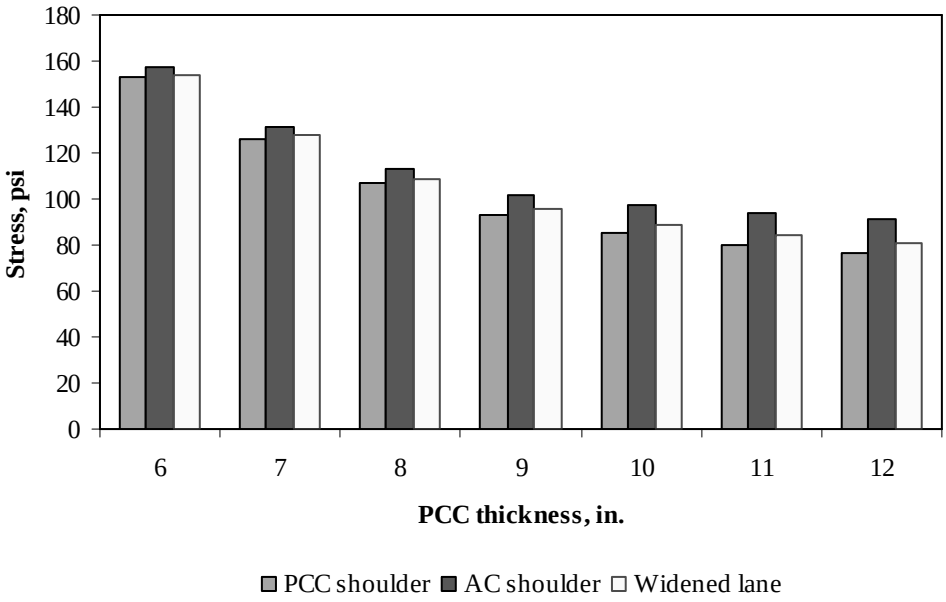


Figure F-4-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

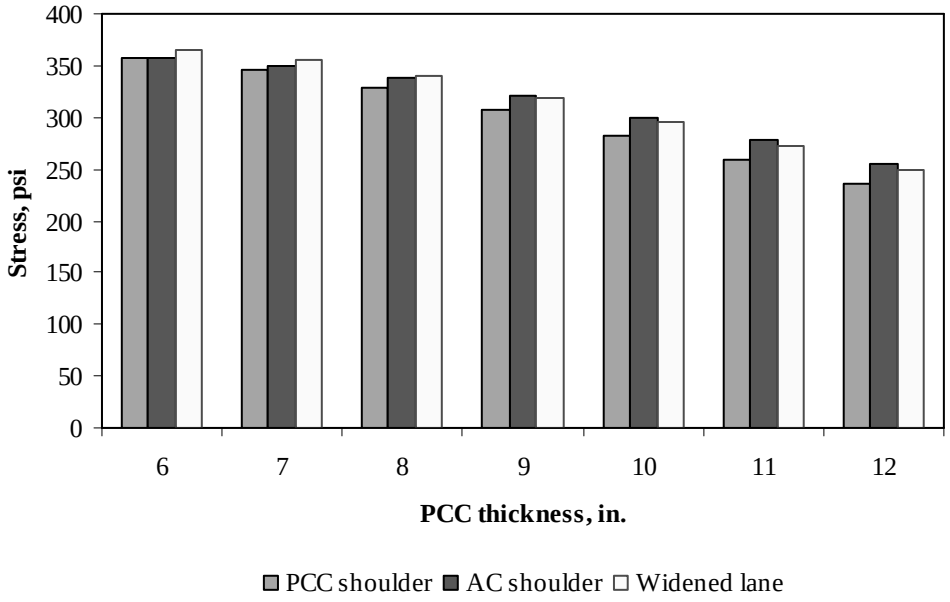


Figure F-4-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

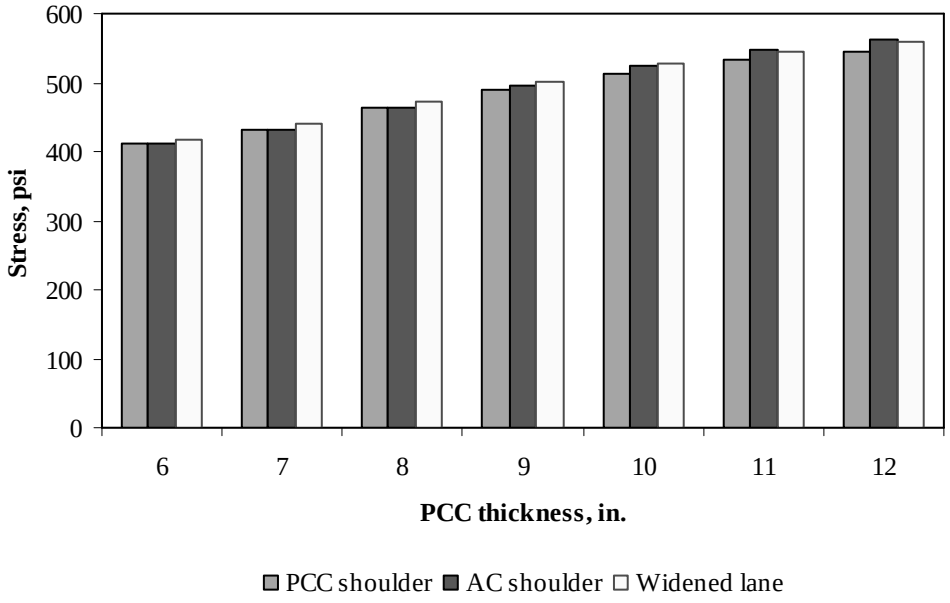


Figure F-4-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

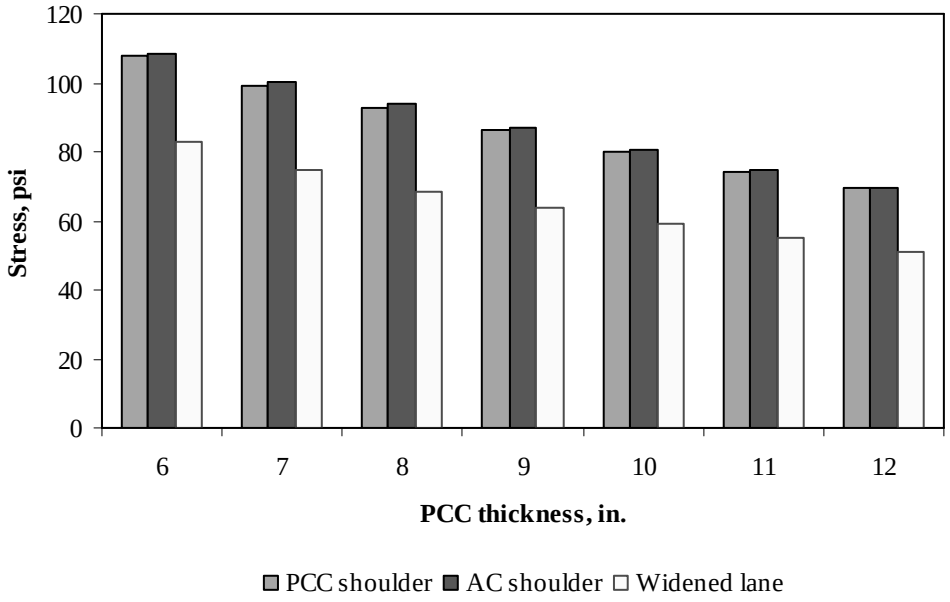


Figure F-4-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

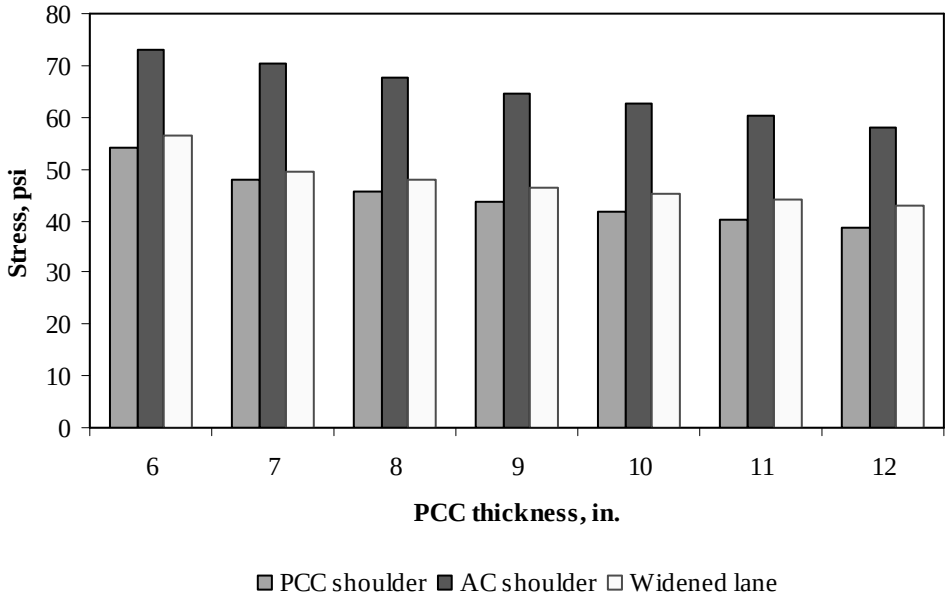


Figure F-4-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

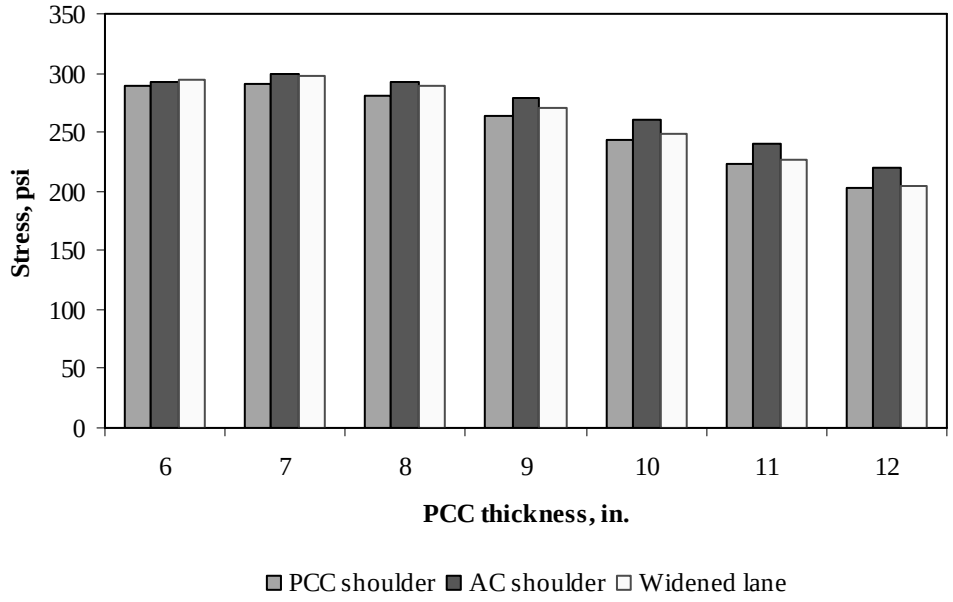


Figure F-4-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

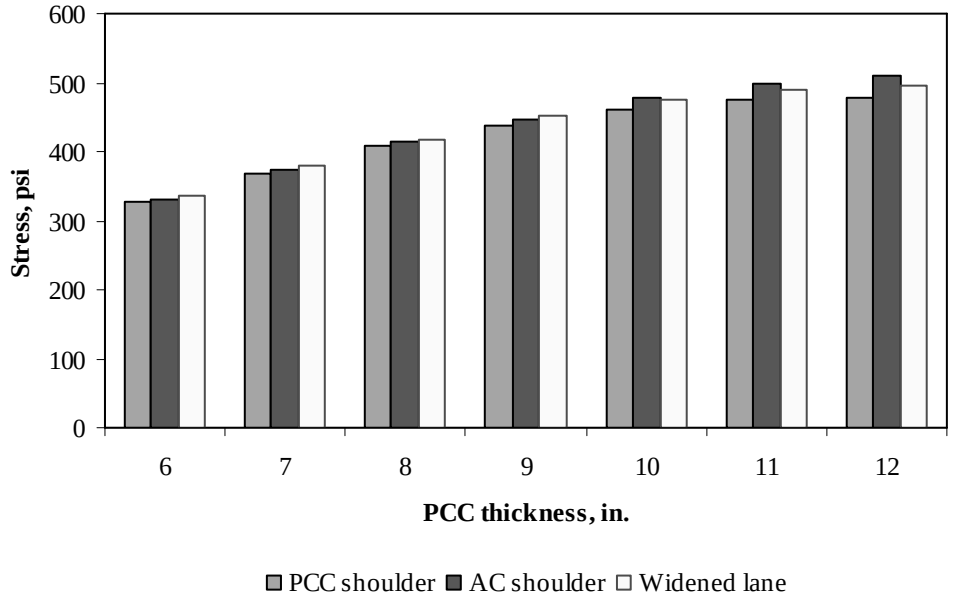


Figure F-4-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

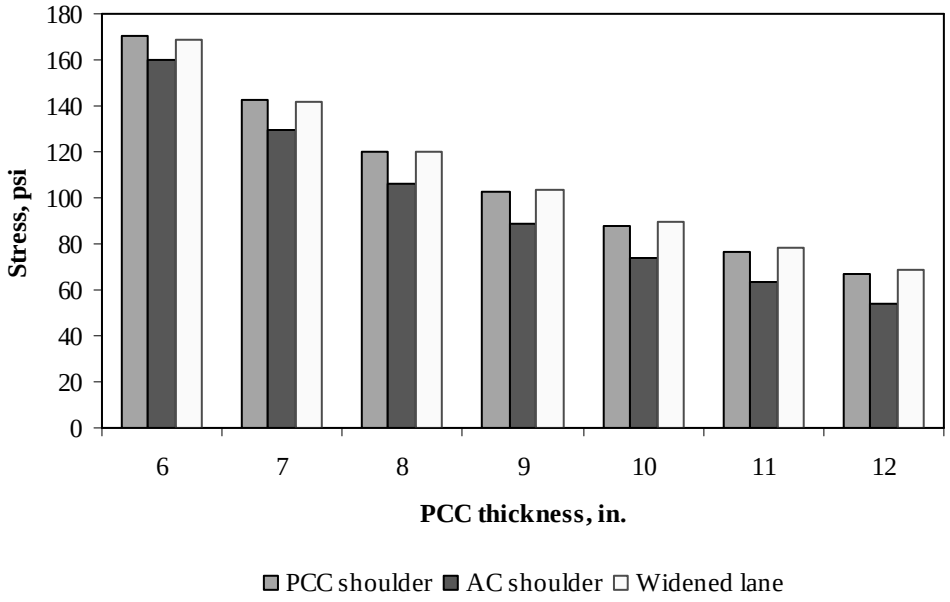


Figure F-4-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

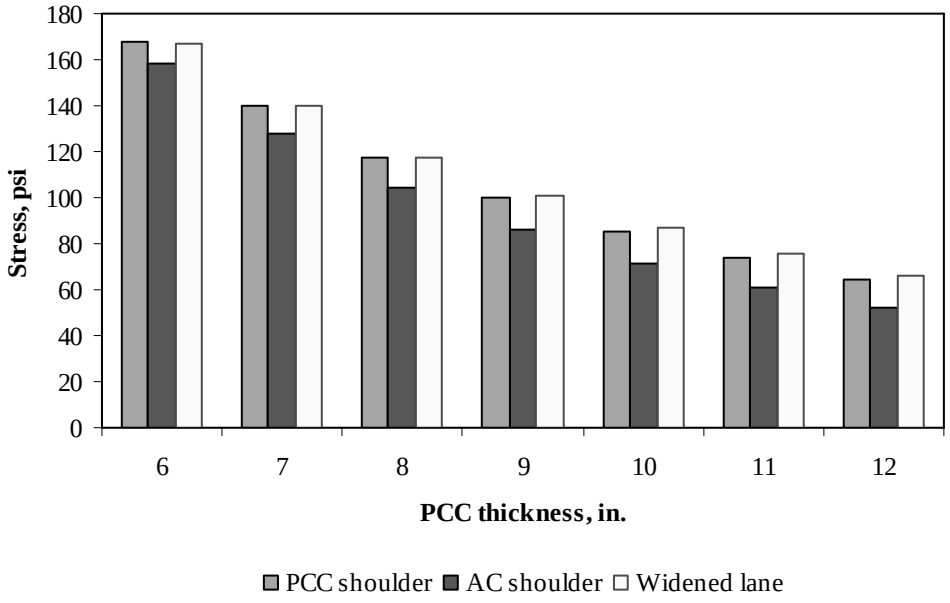


Figure F-4-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

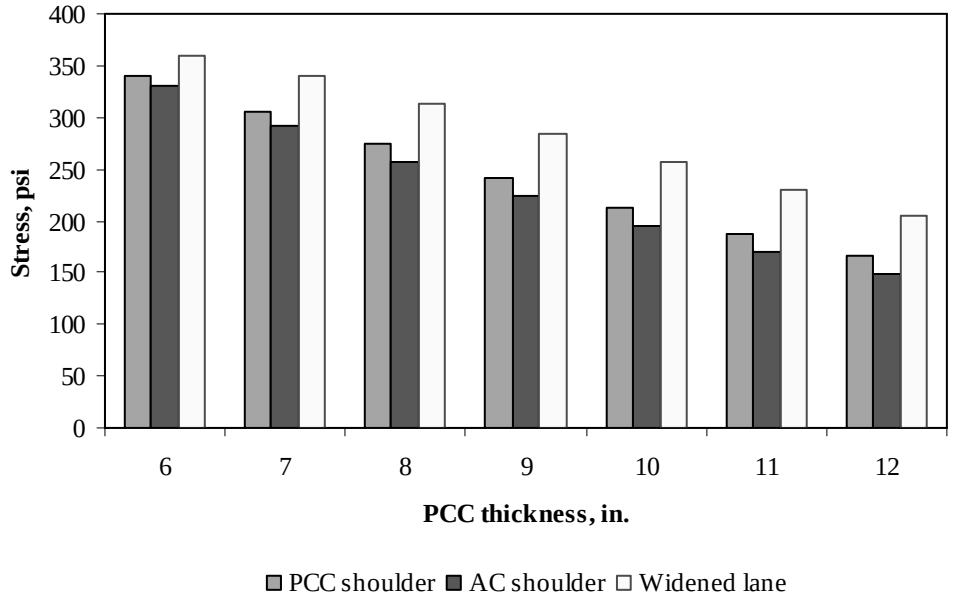


Figure F-4-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

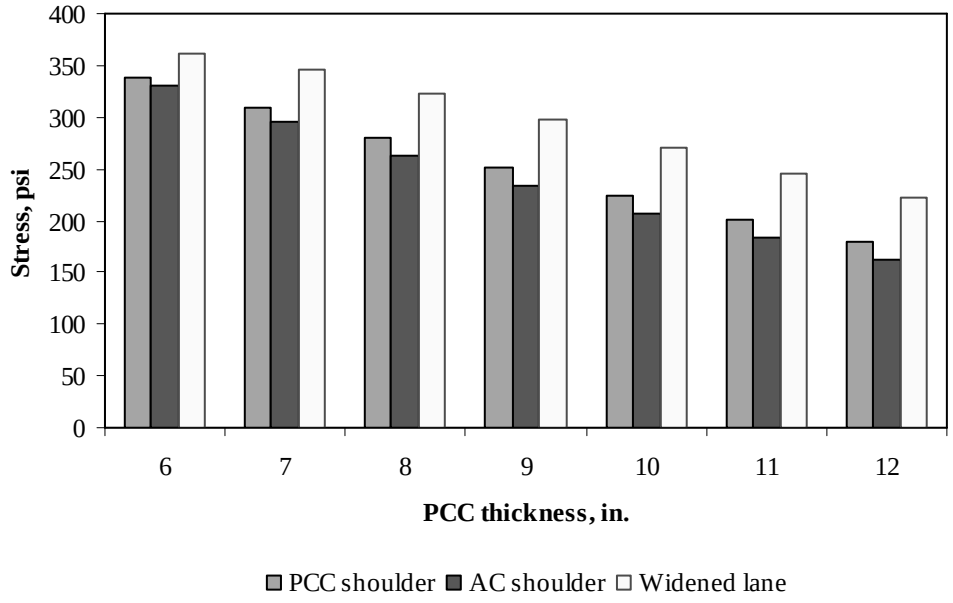


Figure F-4-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-4-37 through F-4-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

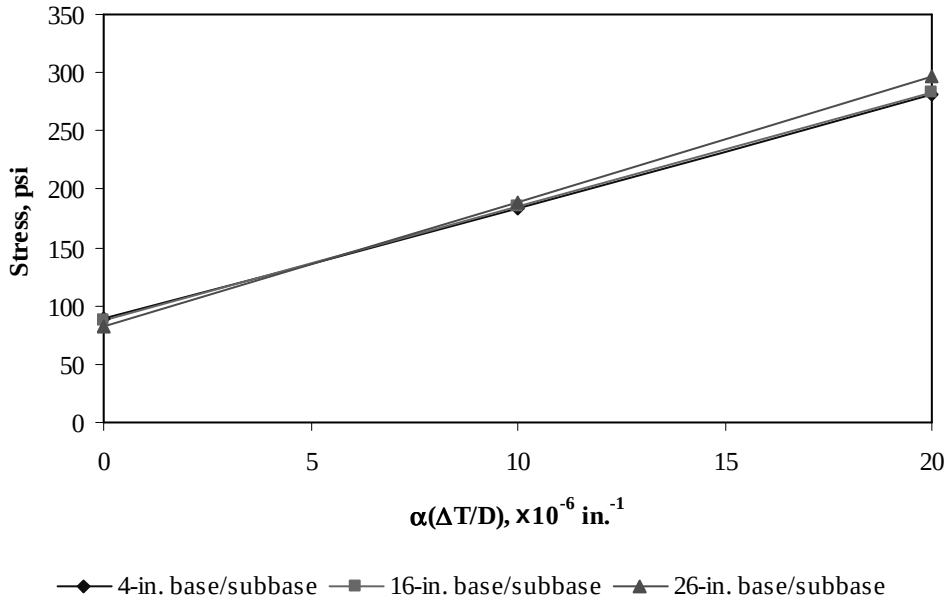


Figure F-4-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

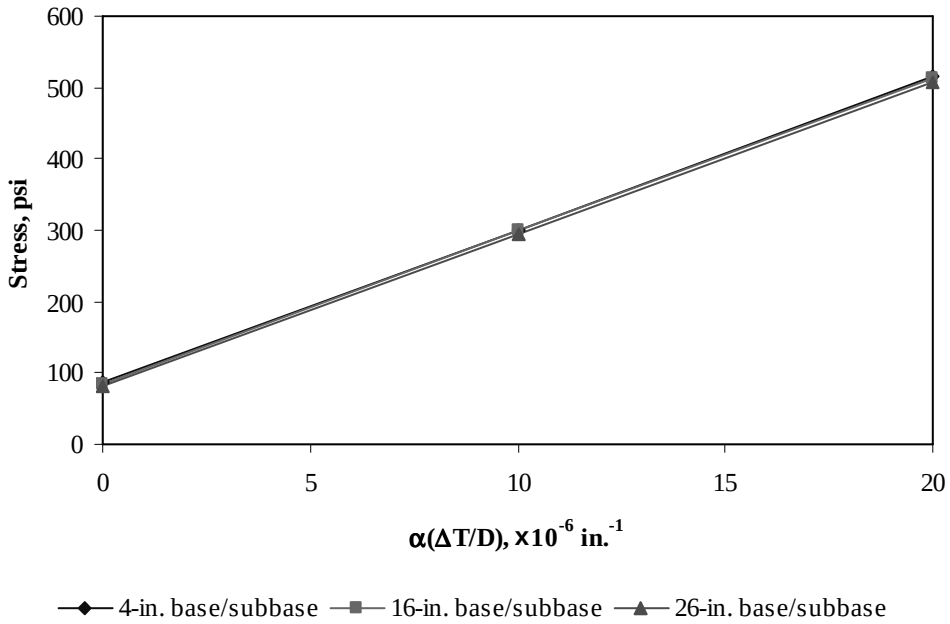


Figure F-4-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

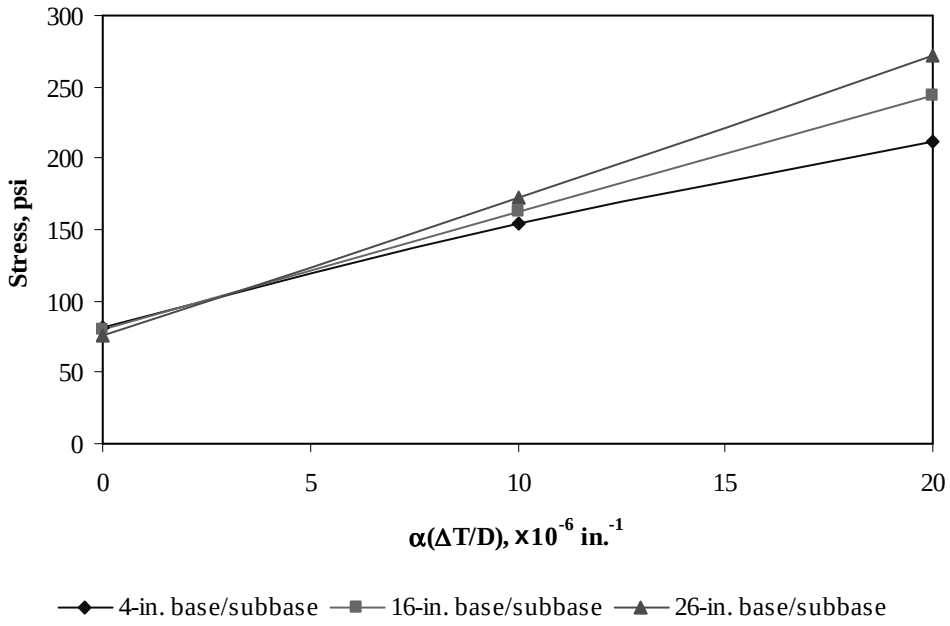


Figure F-4-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

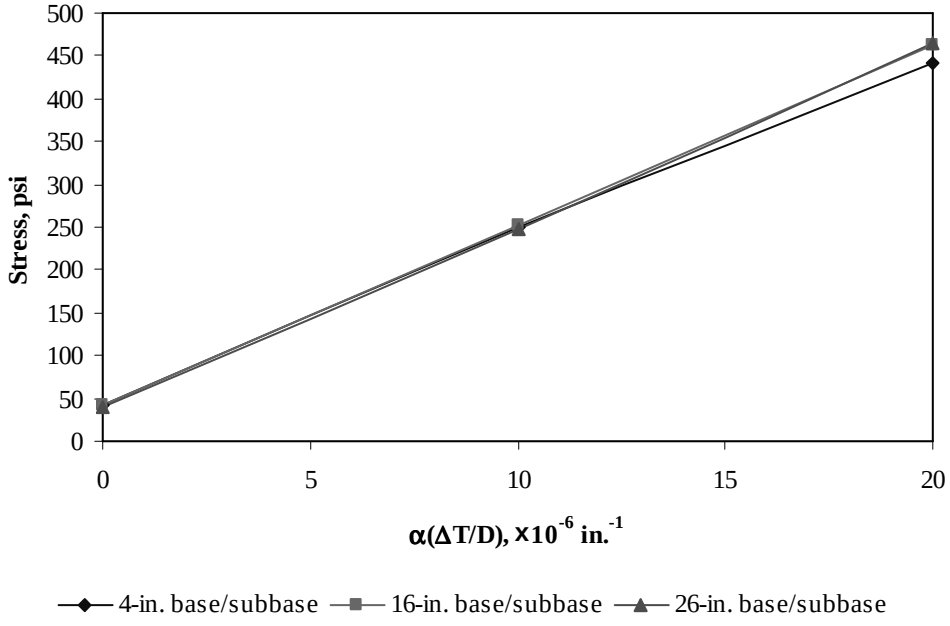


Figure F-4-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

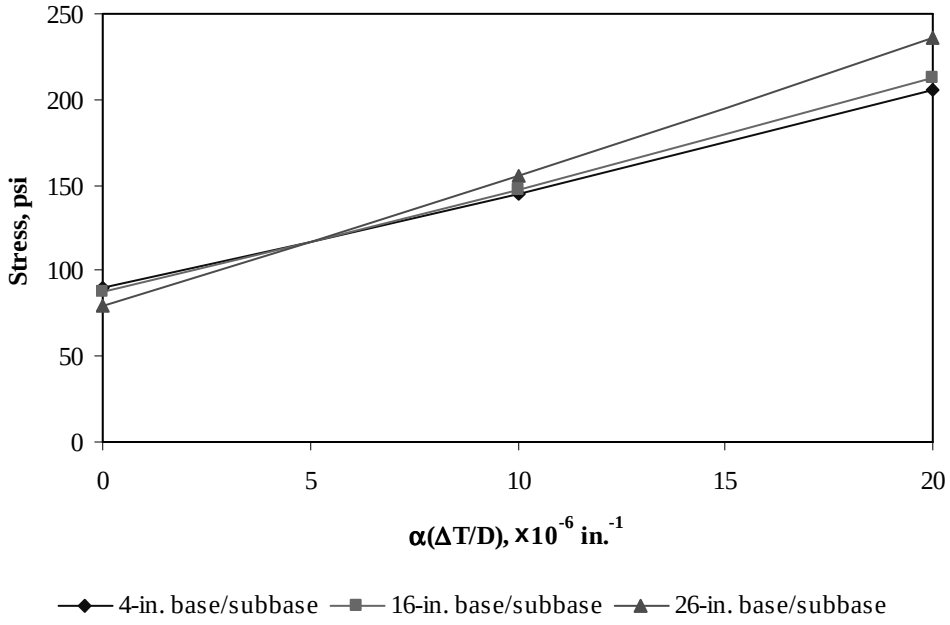


Figure F-4-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

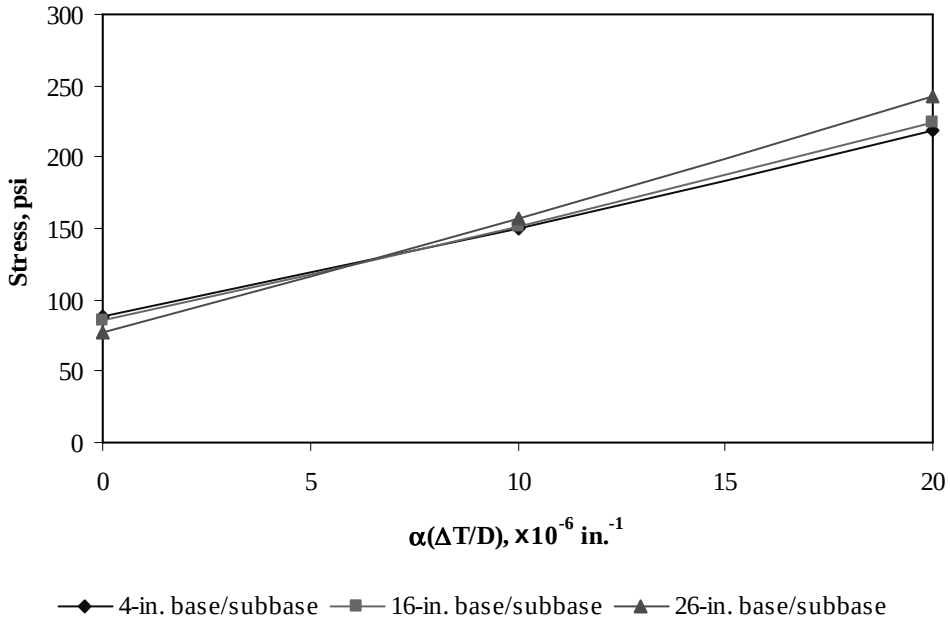


Figure F-4-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-4-43 through F-4-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

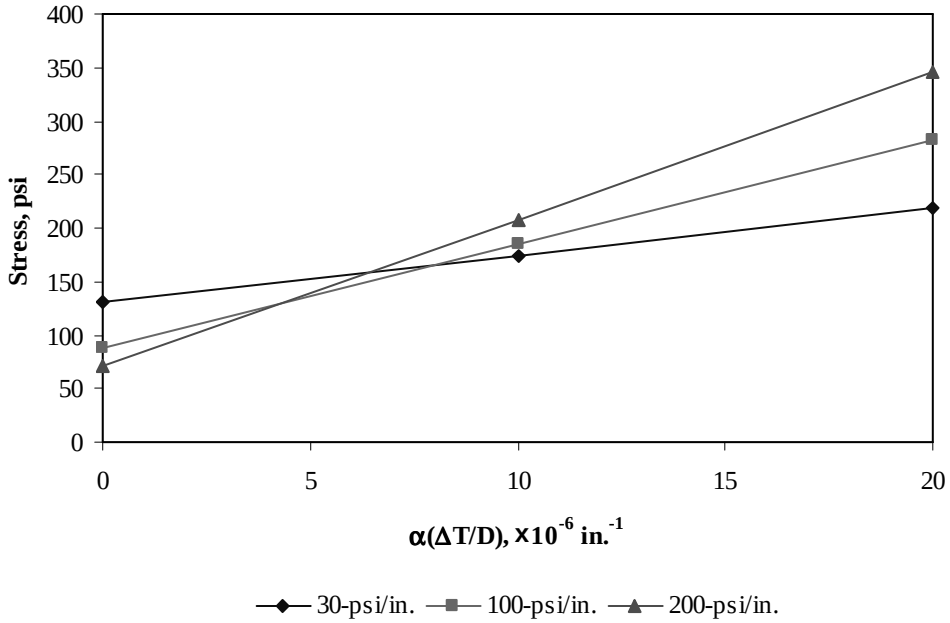


Figure F-4-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

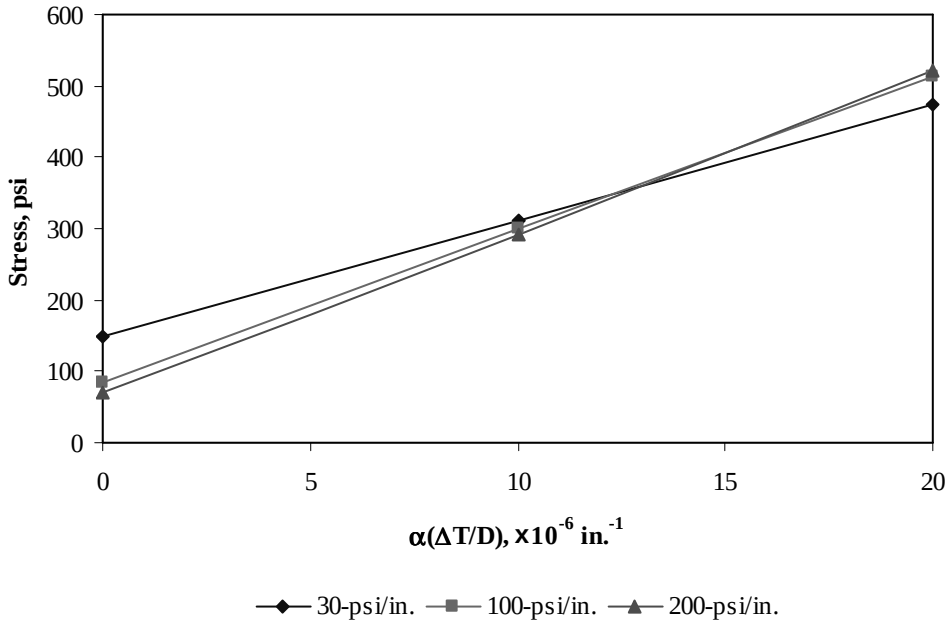


Figure F-4-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

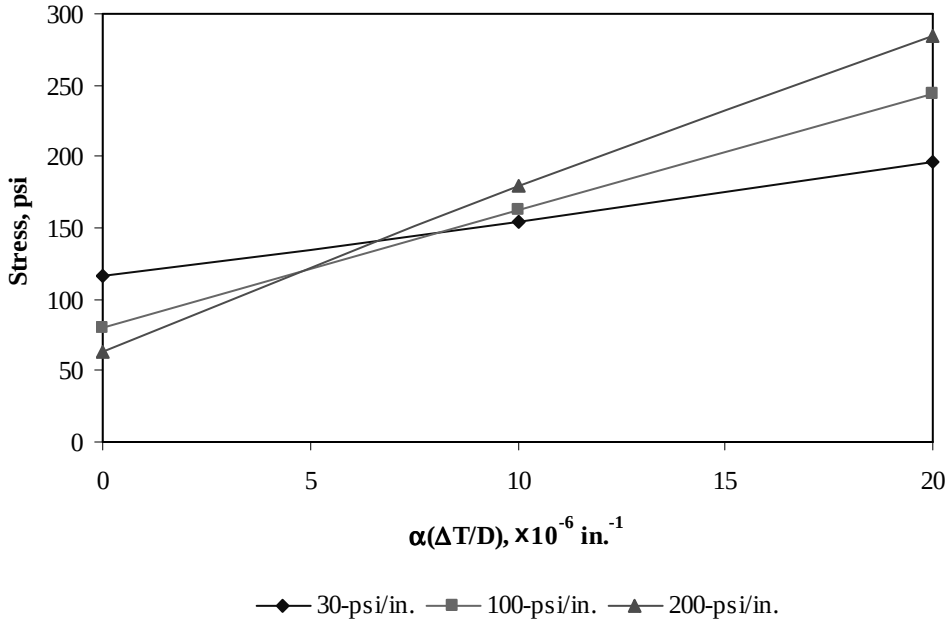


Figure F-4-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

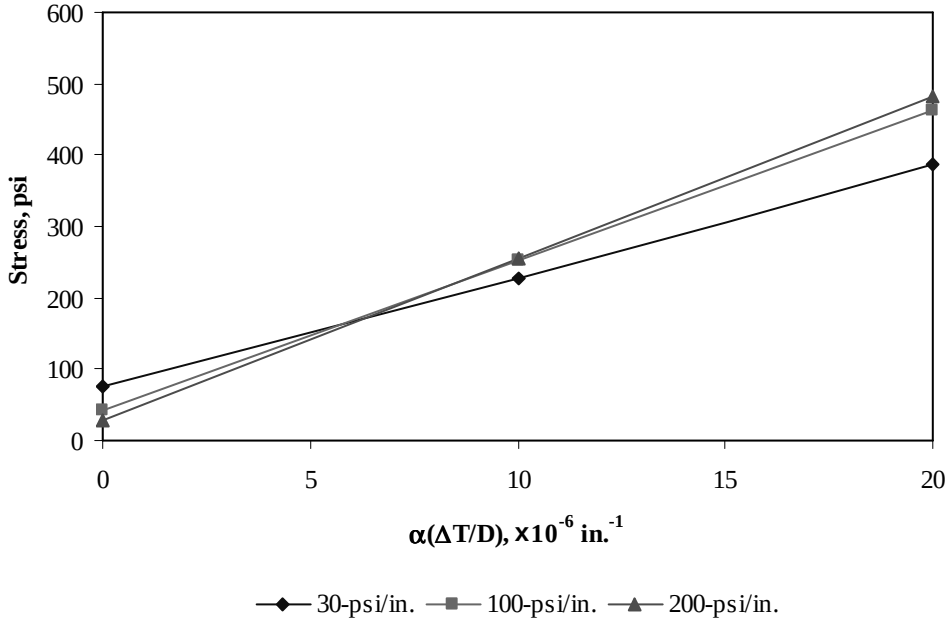


Figure F-4-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

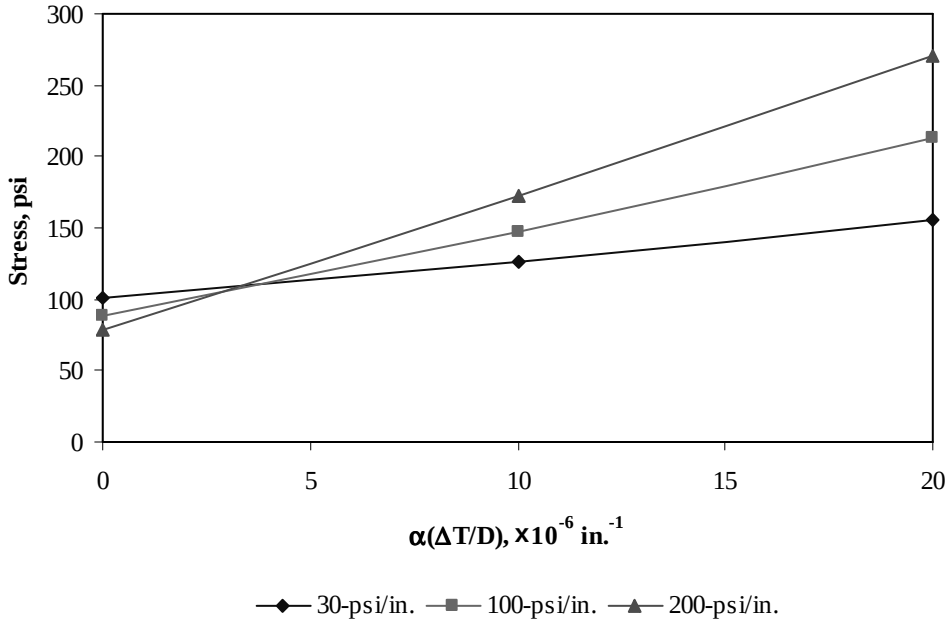


Figure F-4-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

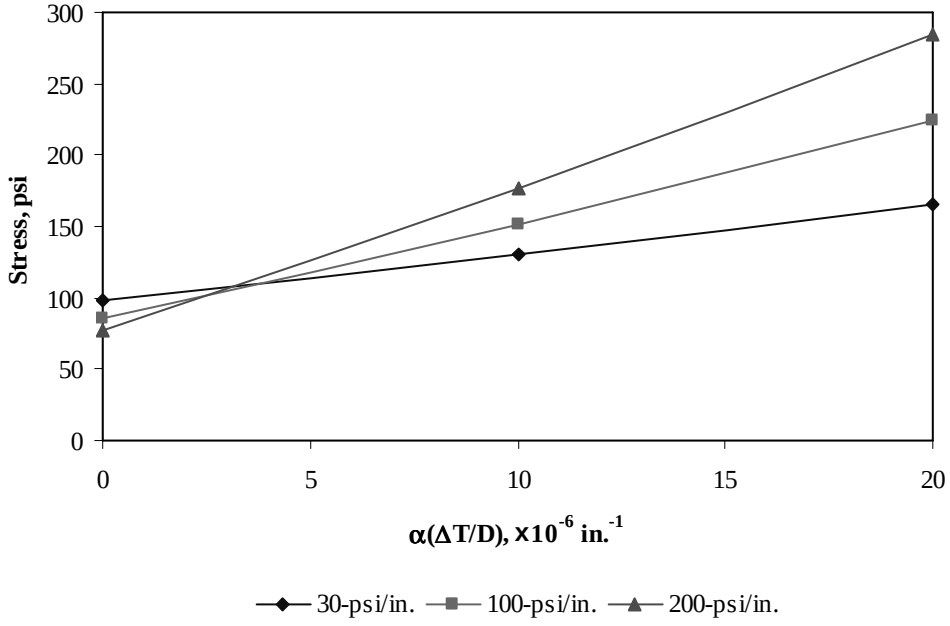


Figure F-4-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-4-49 through F-4-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

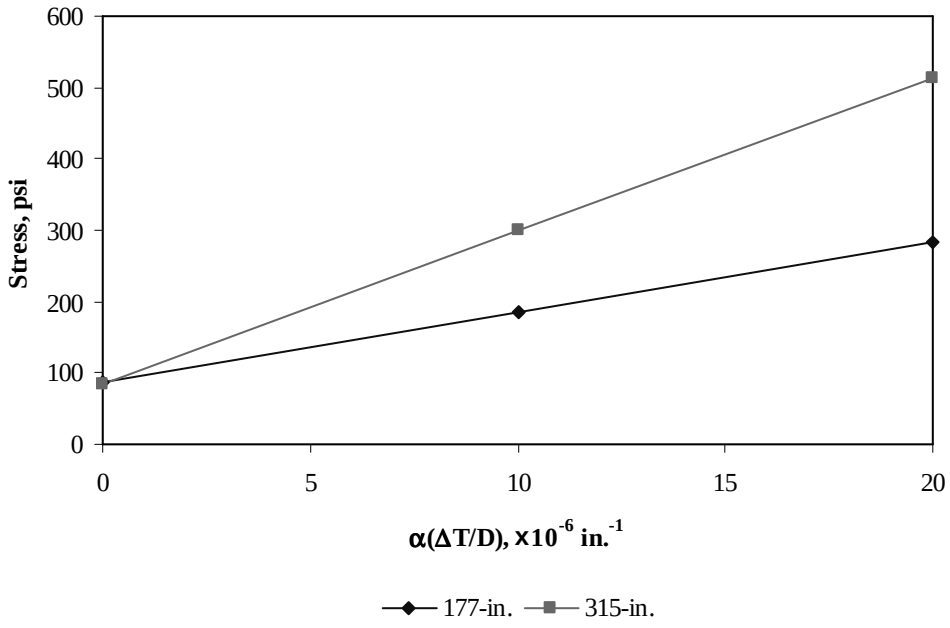


Figure F-4-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

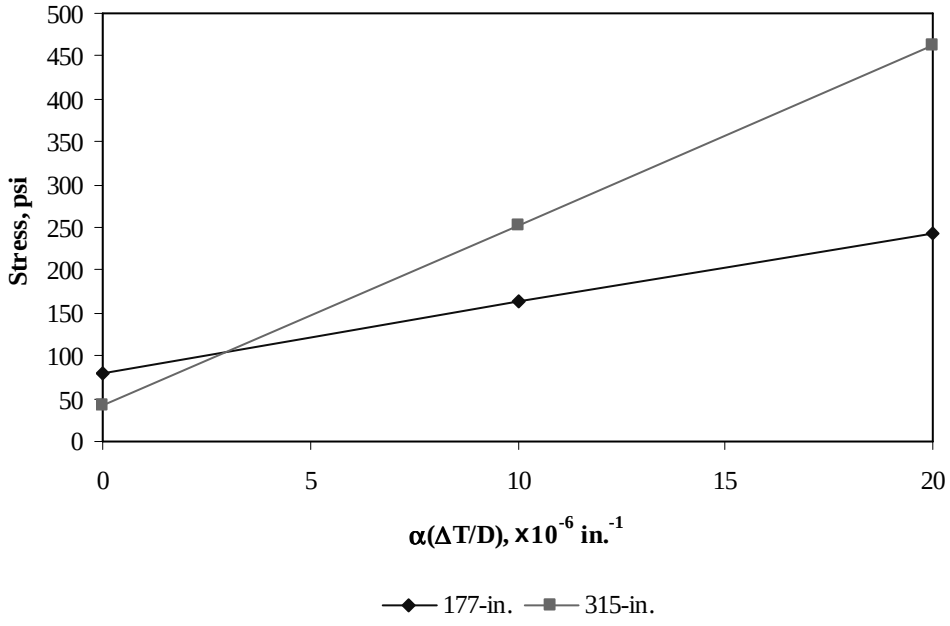


Figure F-4-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

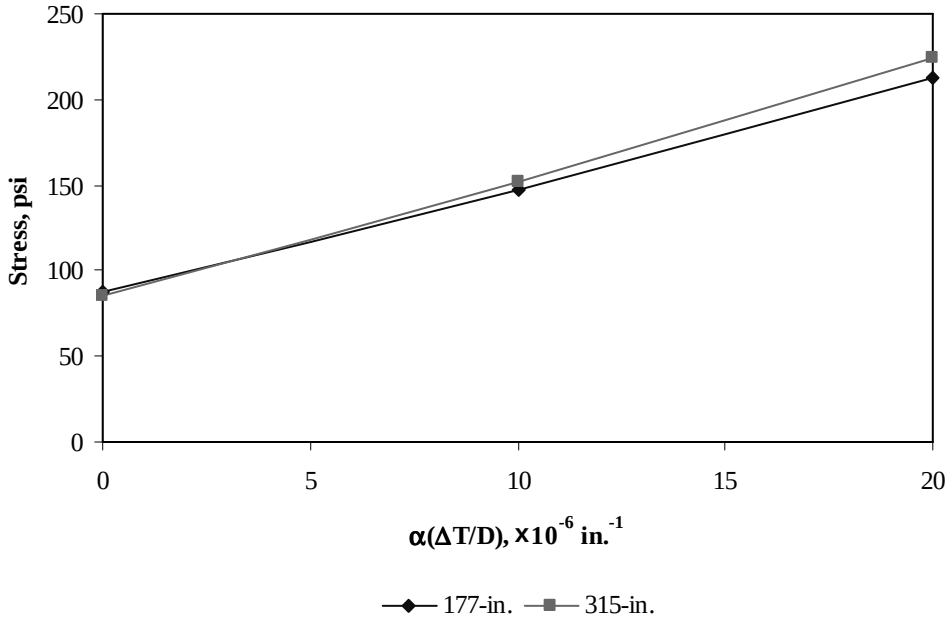
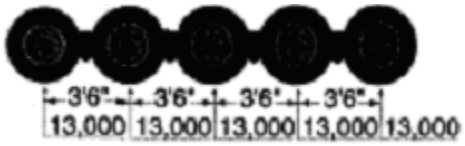


Figure F-4-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-5

Documentation of Pavement Responses for



65-kips Multi-axle (5)

Figures F-5-1 through F-5-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

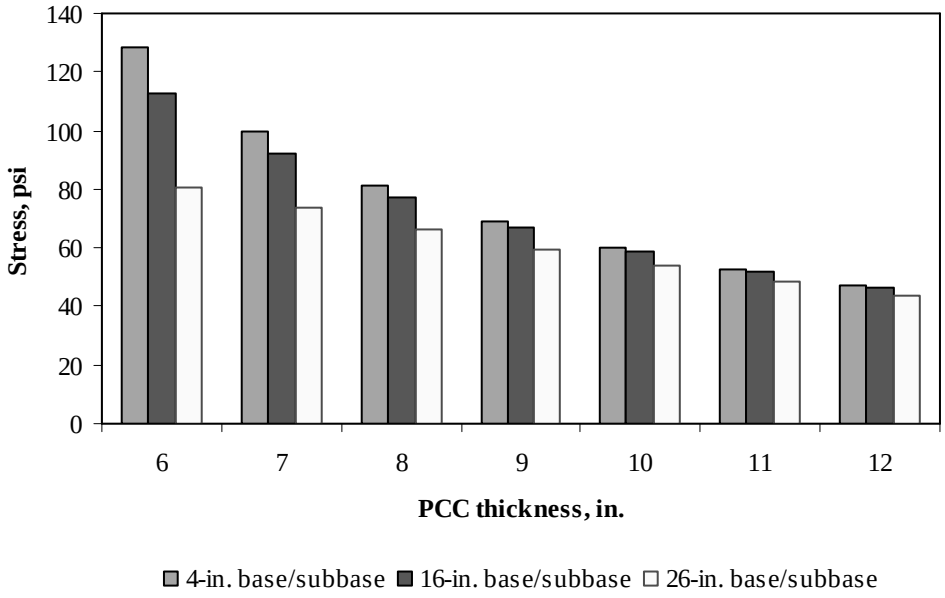


Figure F-5-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

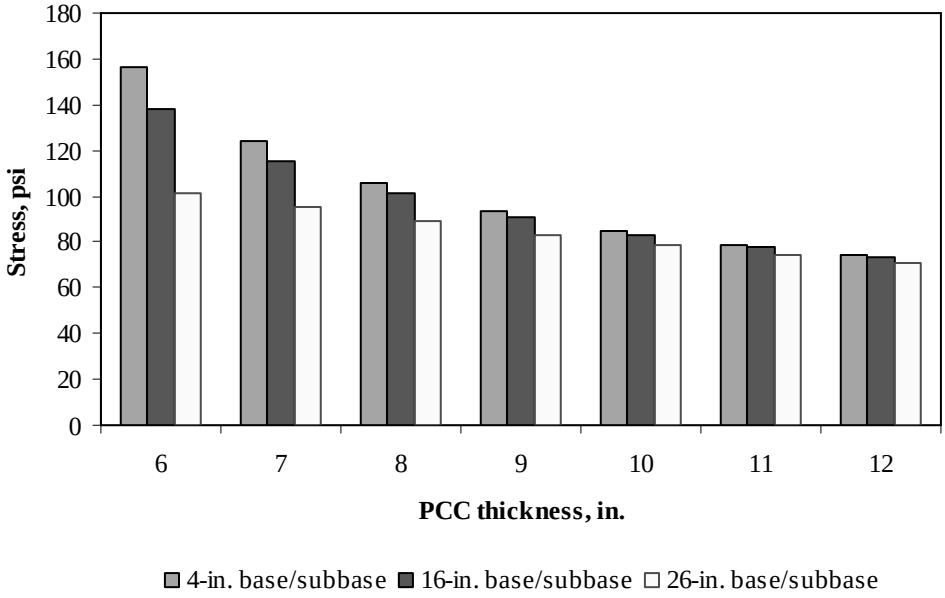


Figure F-5-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

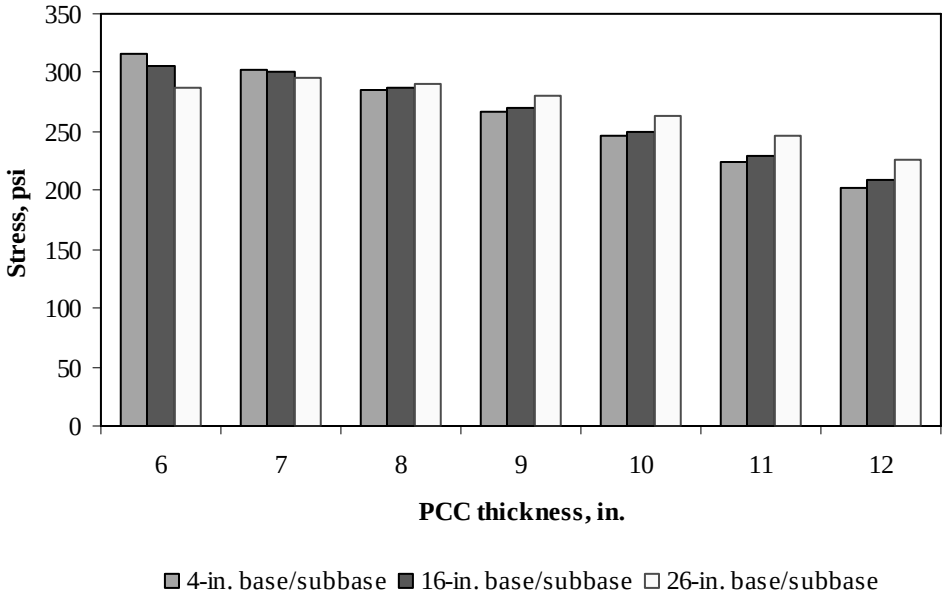


Figure F-5-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

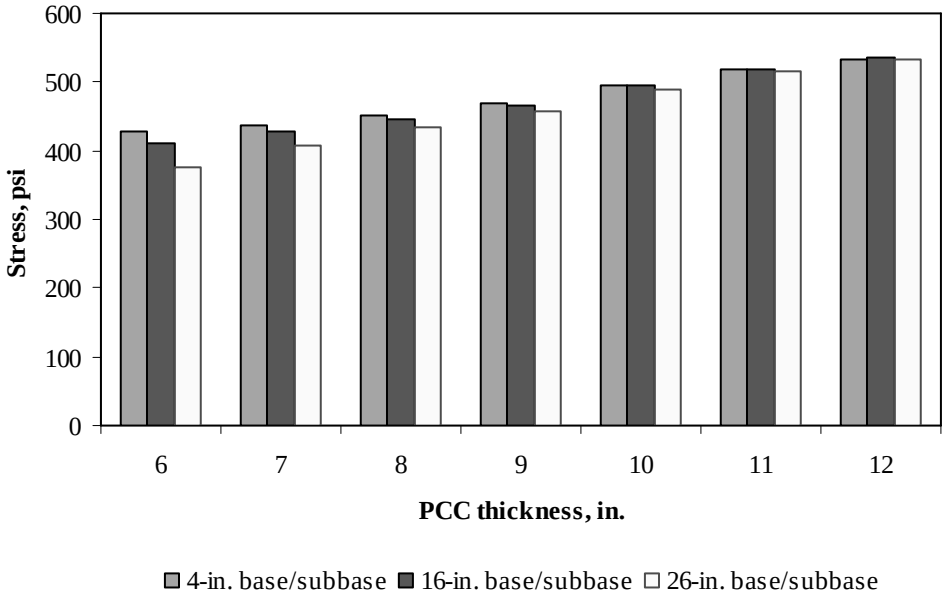


Figure F-5-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

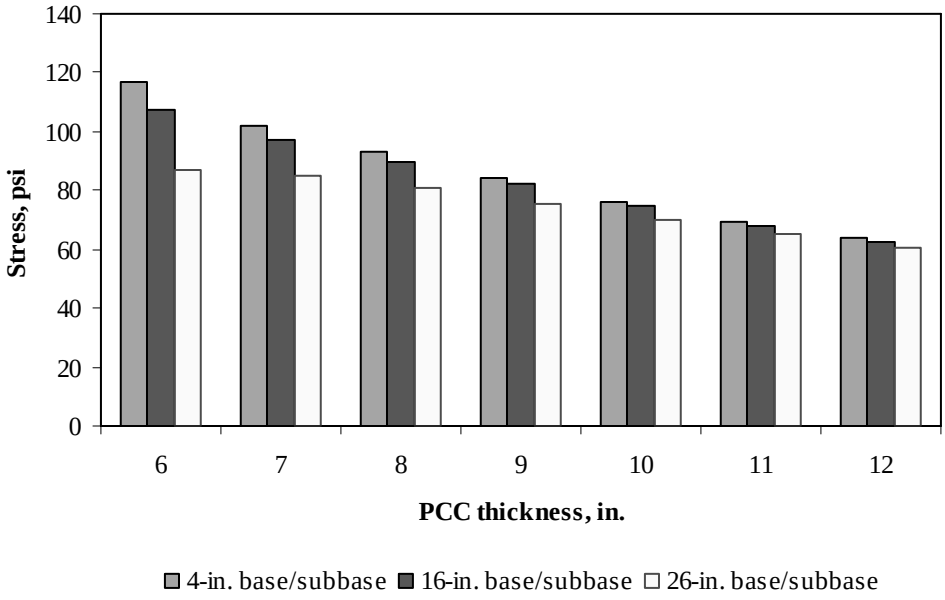


Figure F-5-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

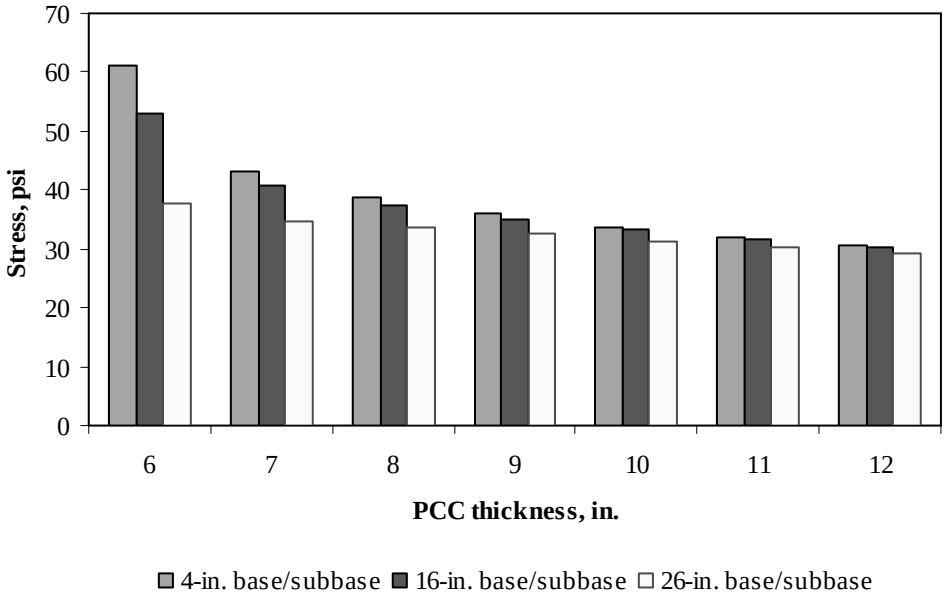


Figure F-5-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

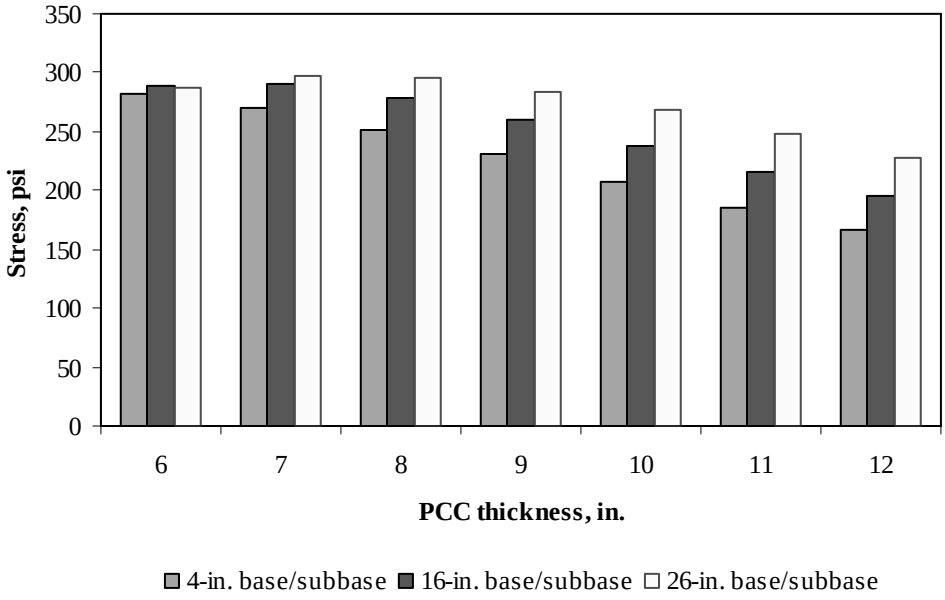


Figure F-5-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

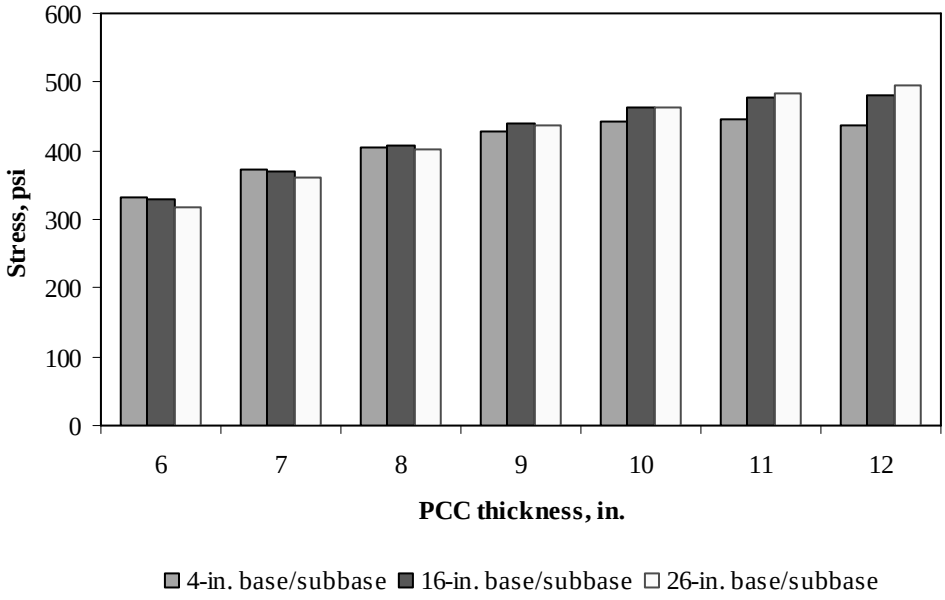


Figure F-5-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

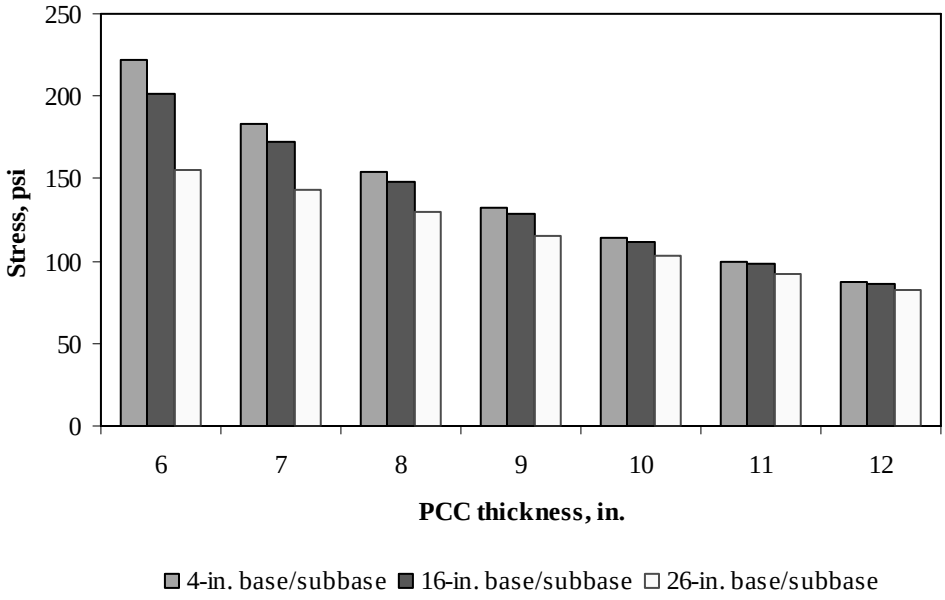


Figure F-5-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

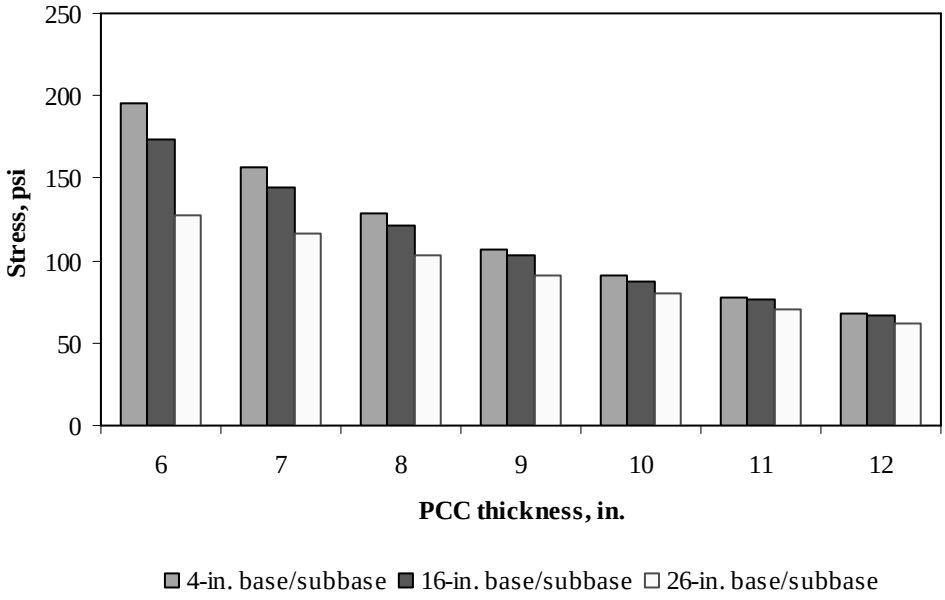


Figure F-5-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

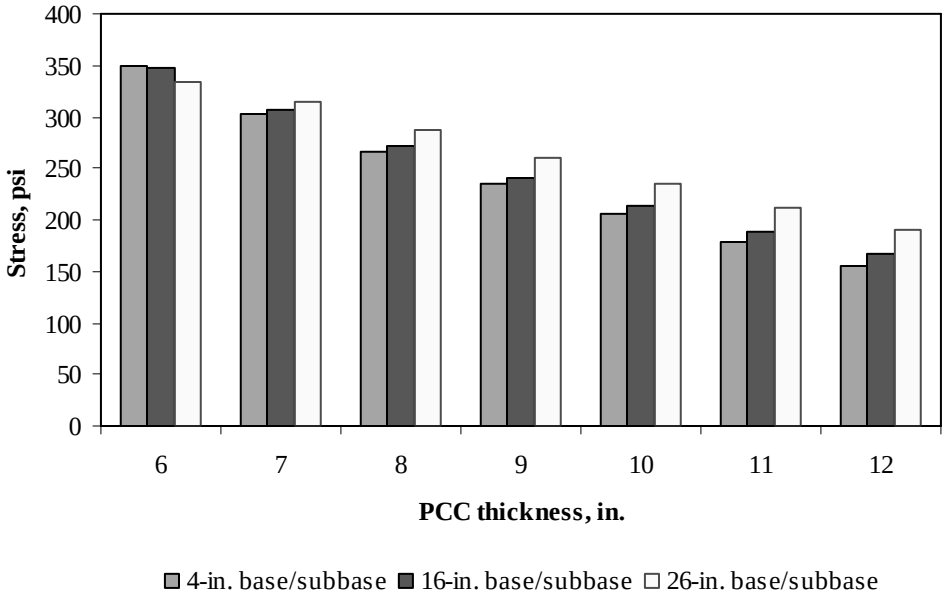


Figure F-5-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

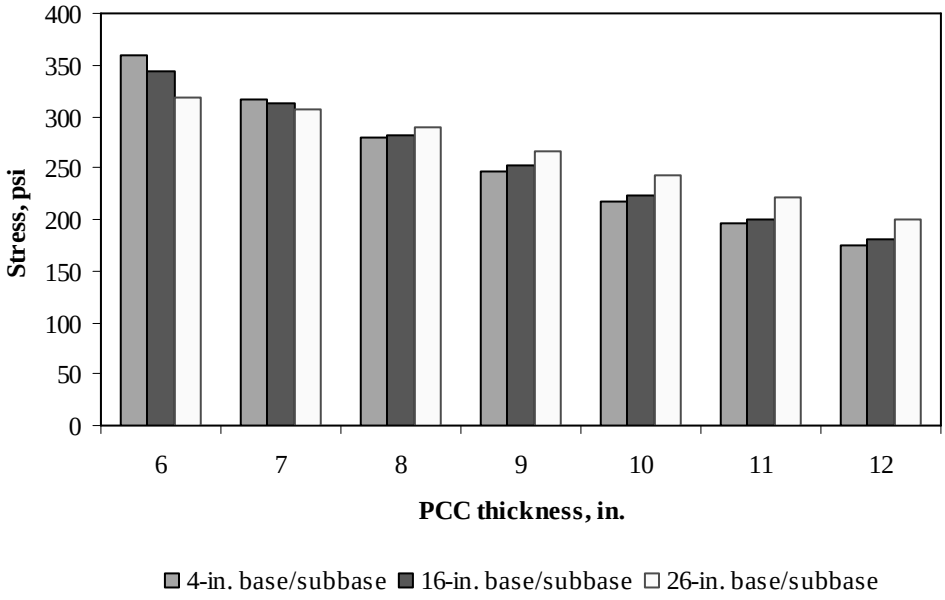


Figure F-5-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-5-13 through F-5-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

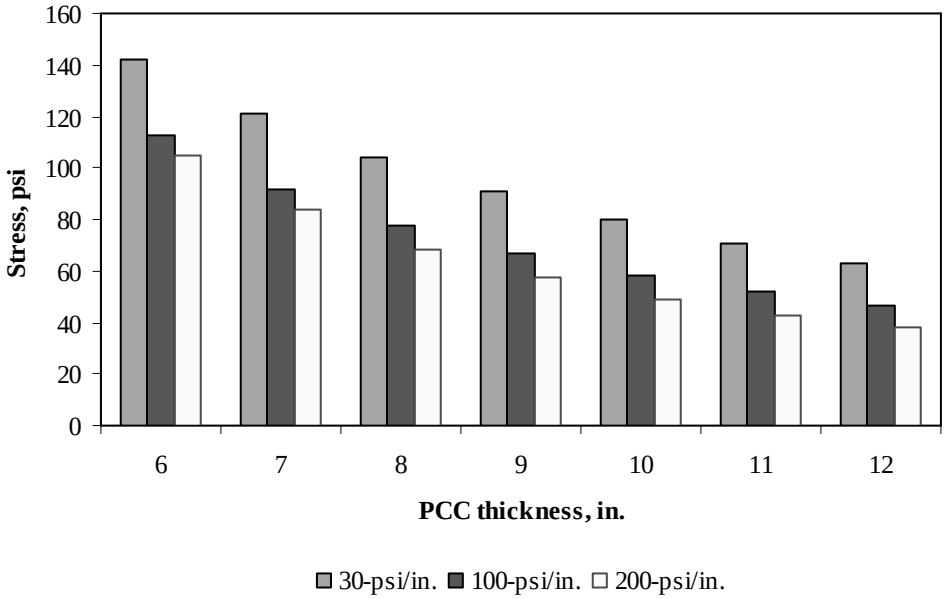


Figure F-5-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

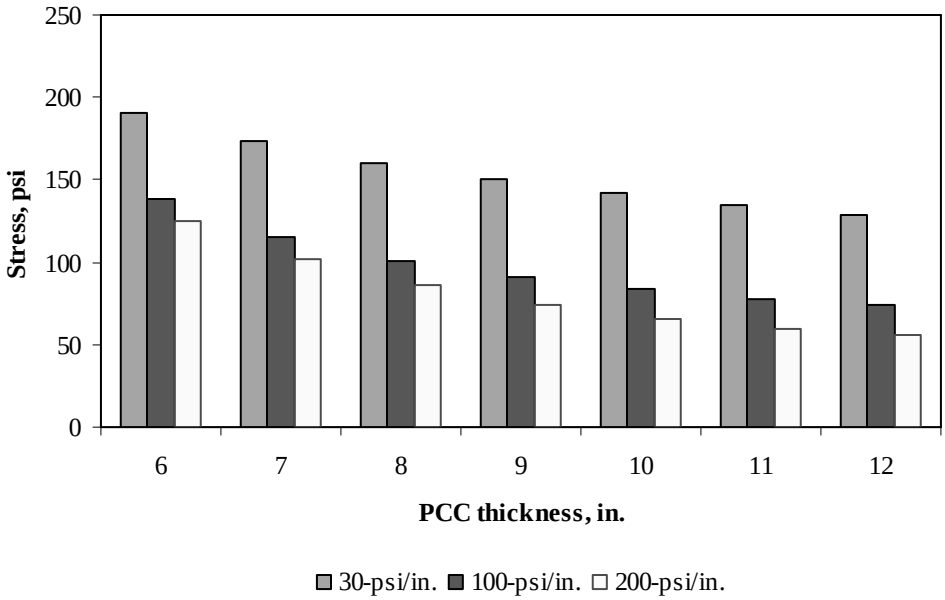


Figure F-5-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

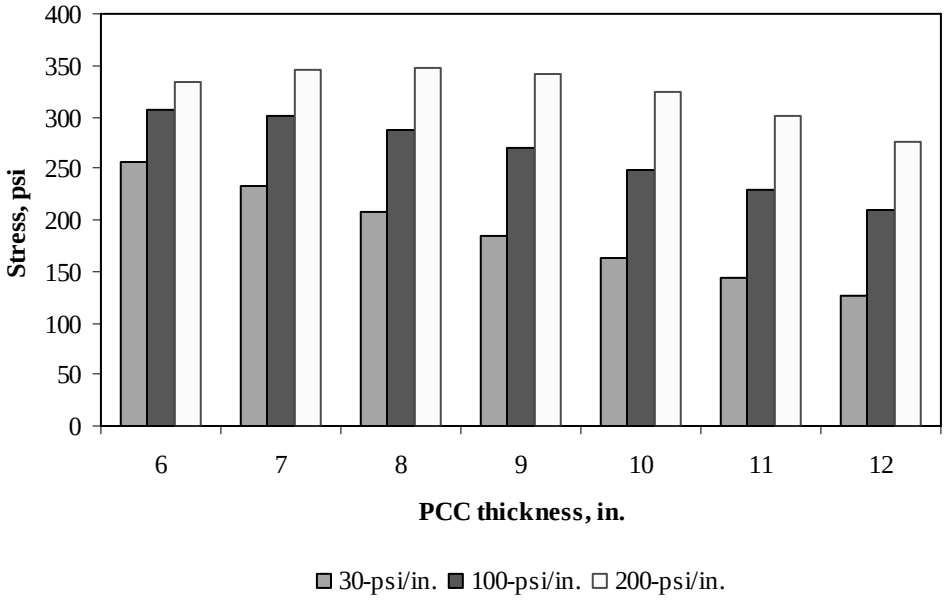


Figure F-5-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

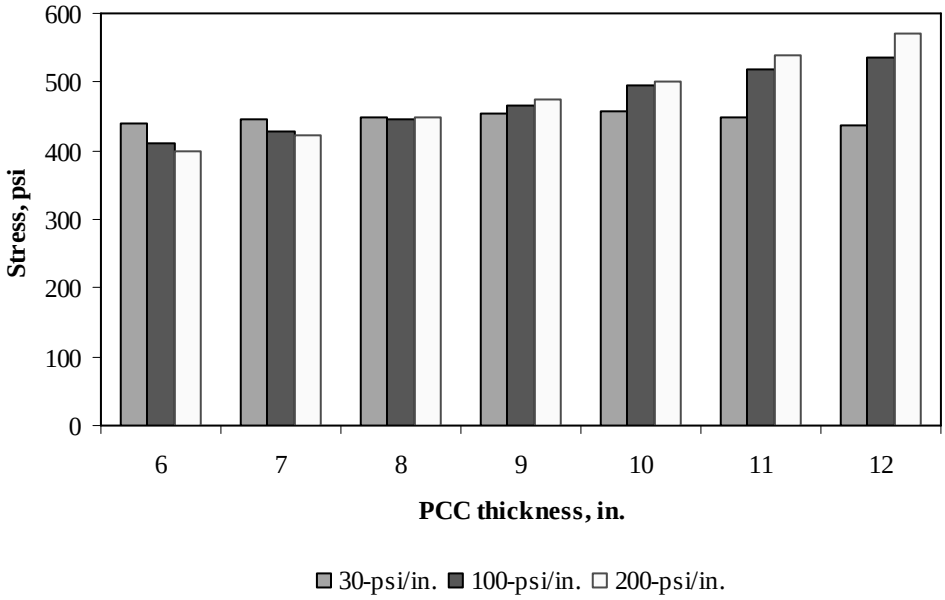


Figure F-5-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

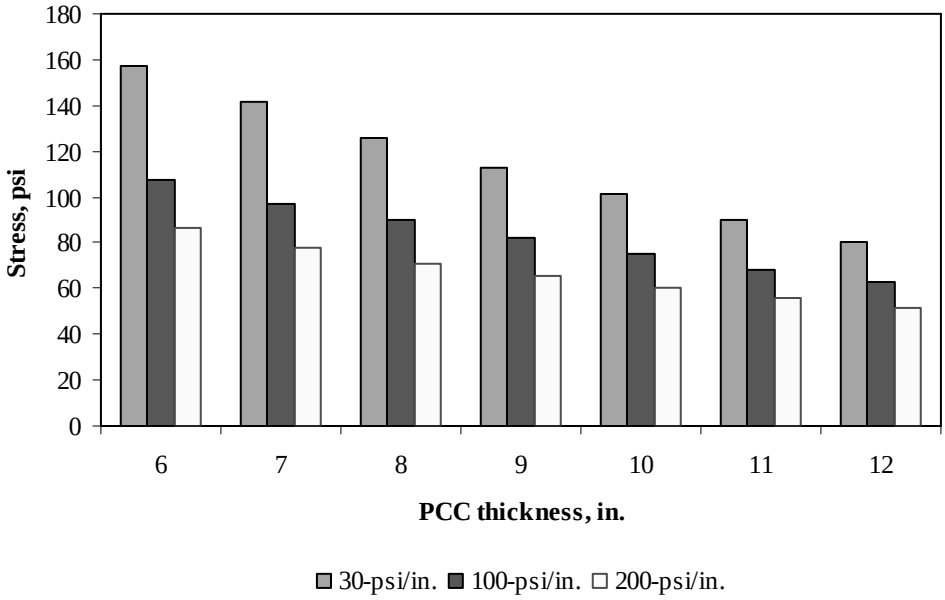


Figure F-5-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

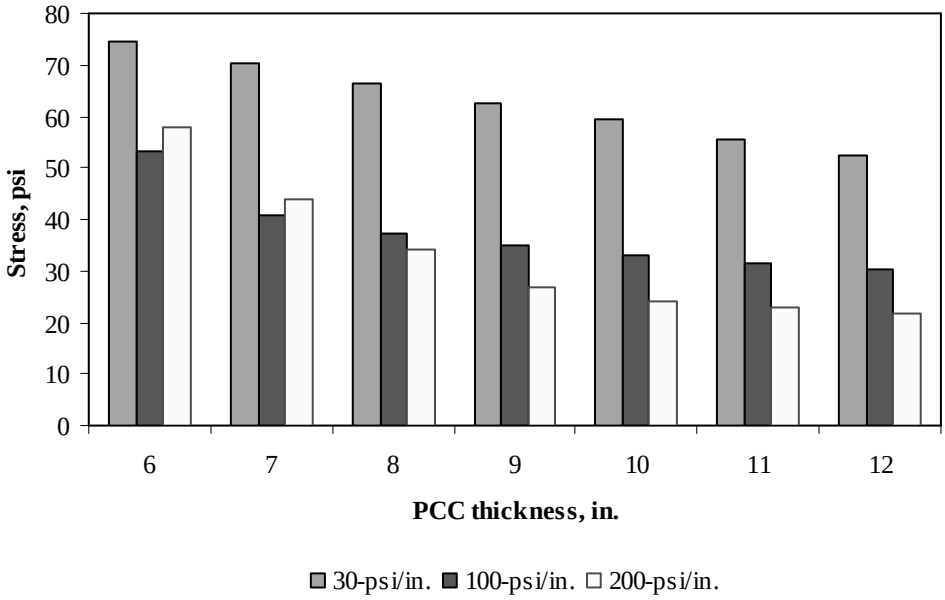


Figure F-5-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

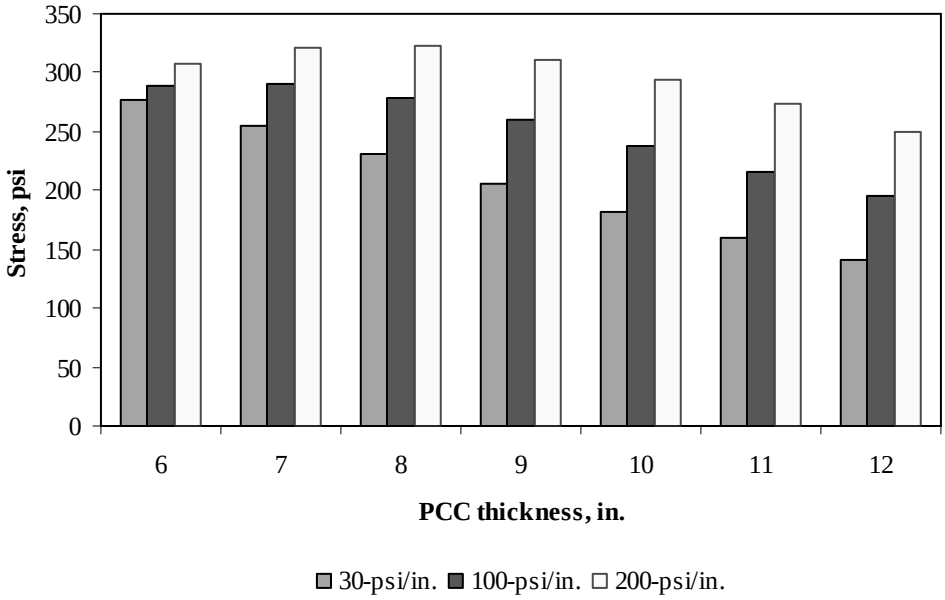


Figure F-5-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

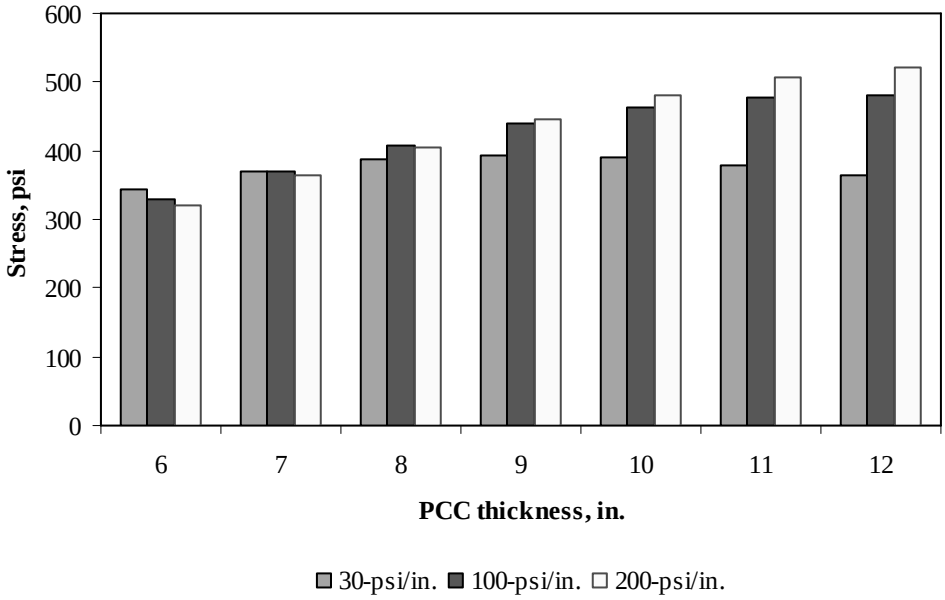


Figure F-5-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

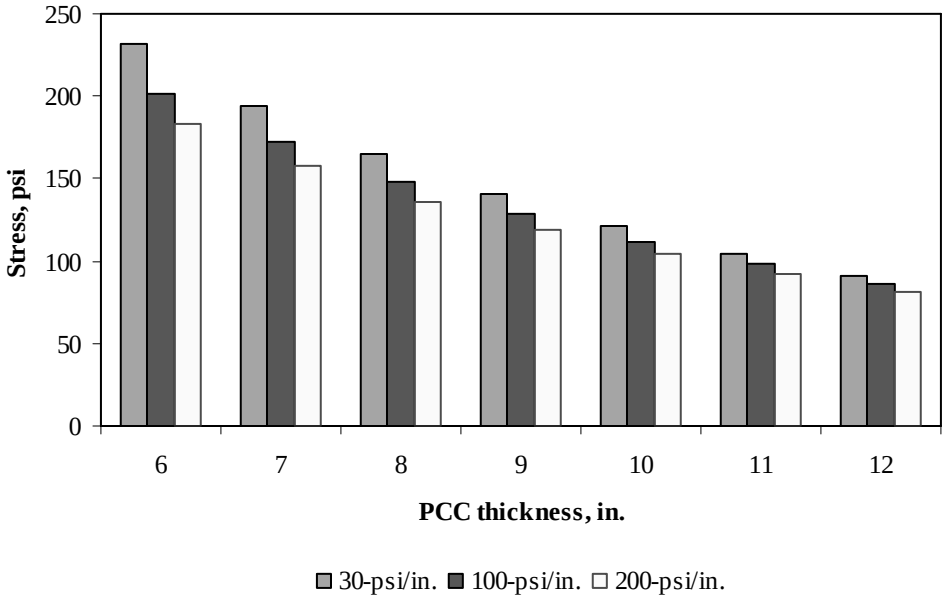


Figure F-5-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

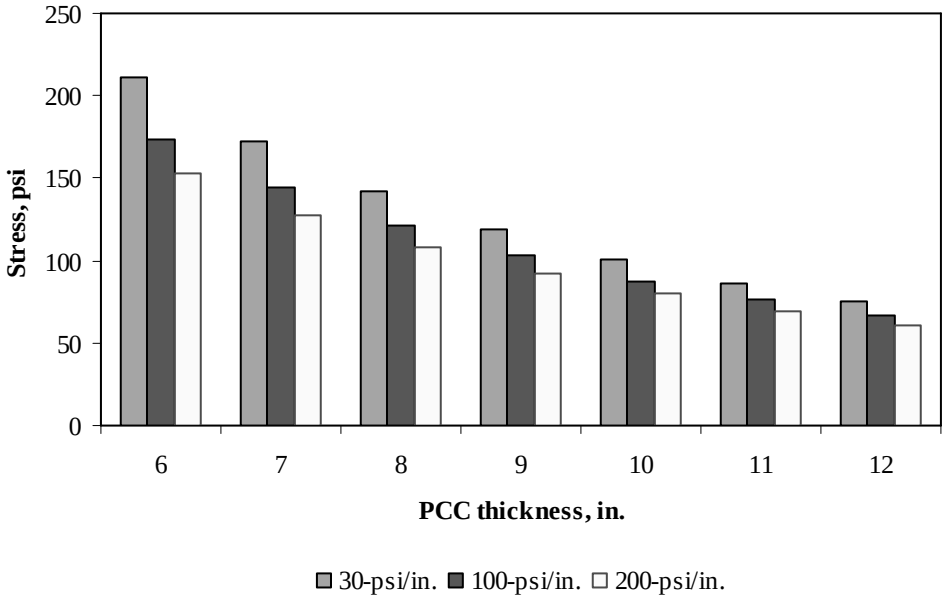


Figure F-5-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

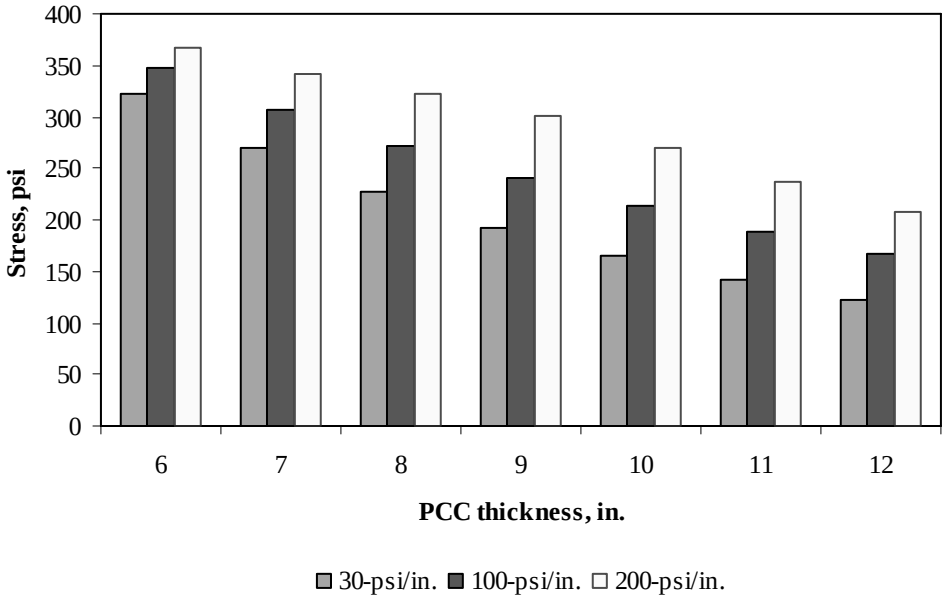


Figure F-5-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

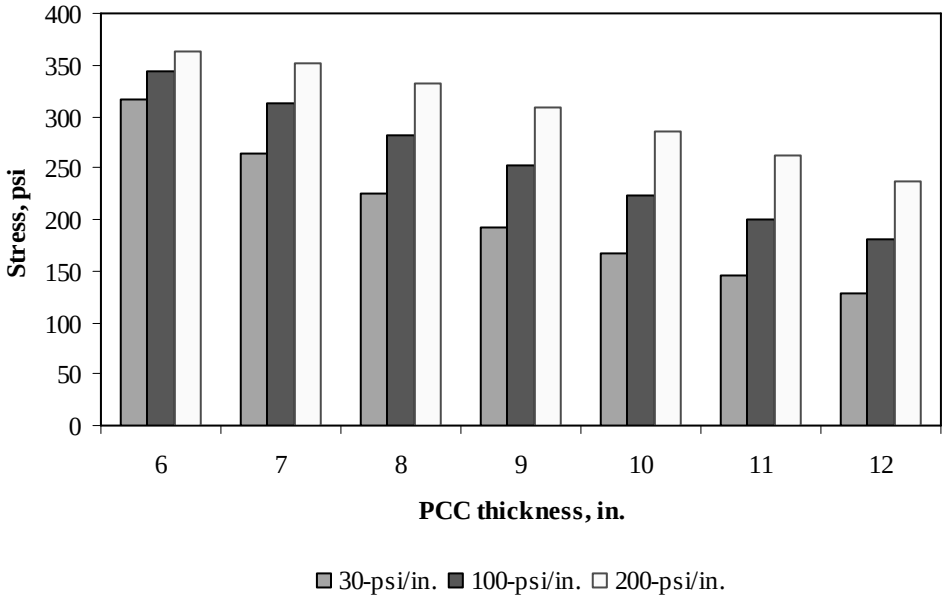


Figure F-5-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-5-25 through F-5-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

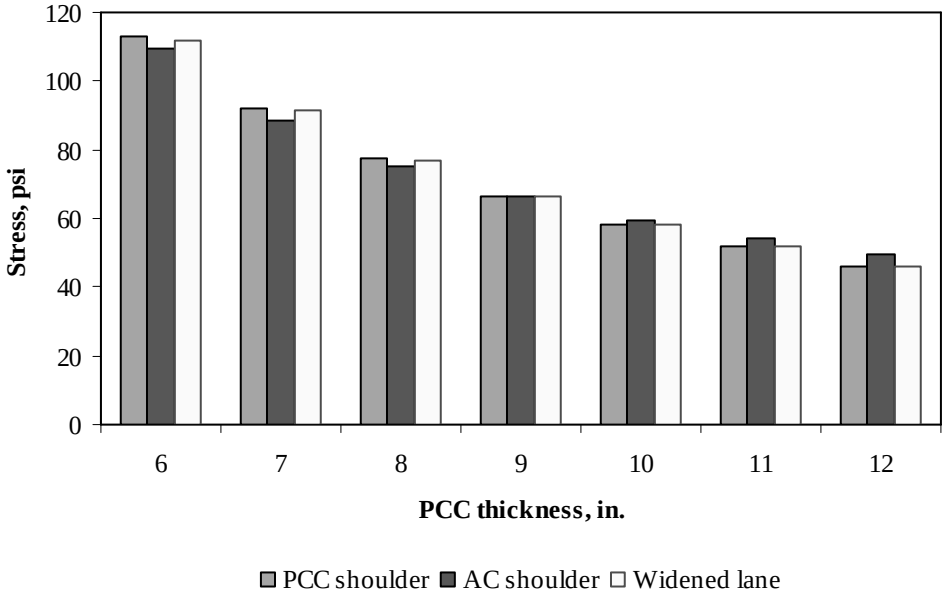


Figure F-5-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

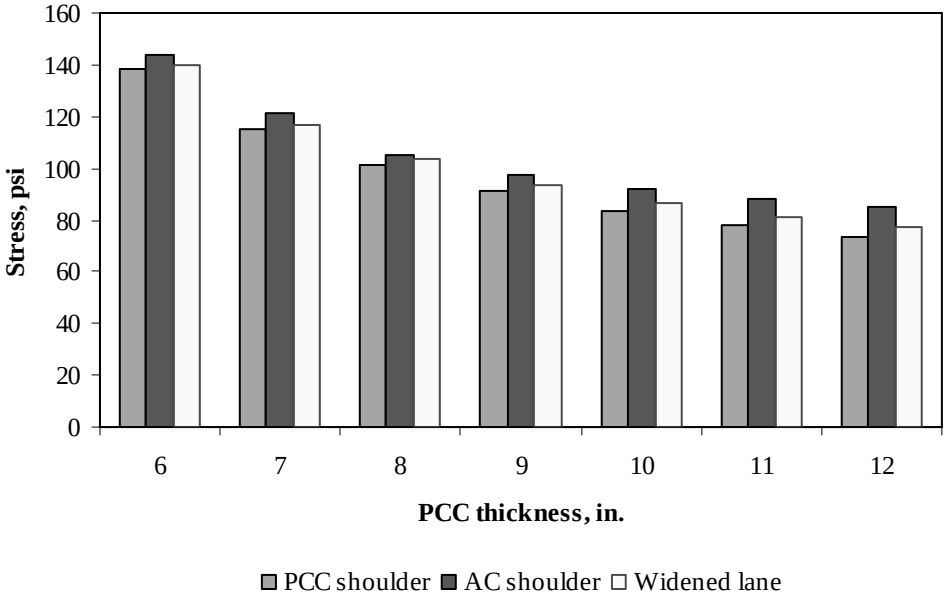


Figure F-5-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

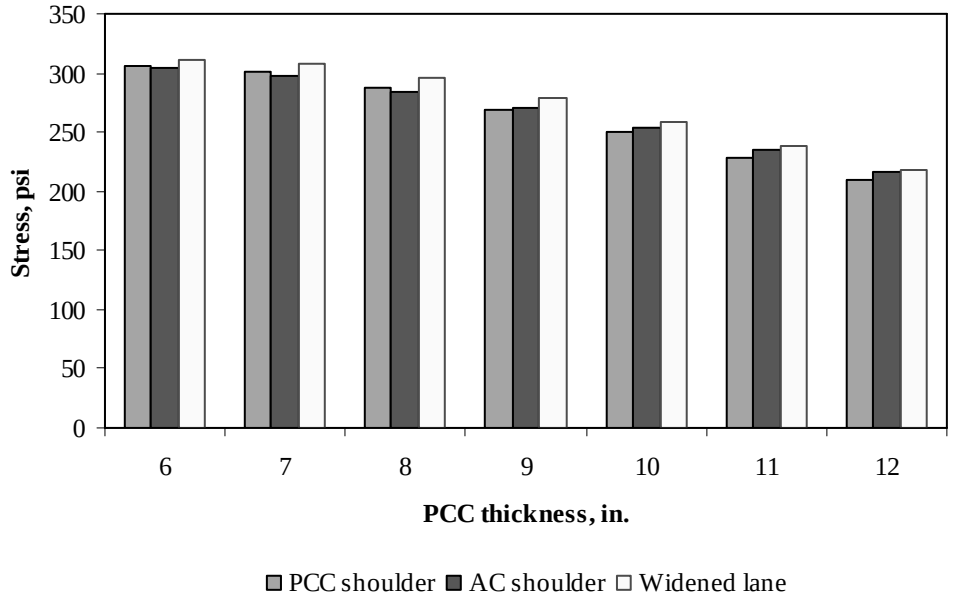


Figure F-5-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

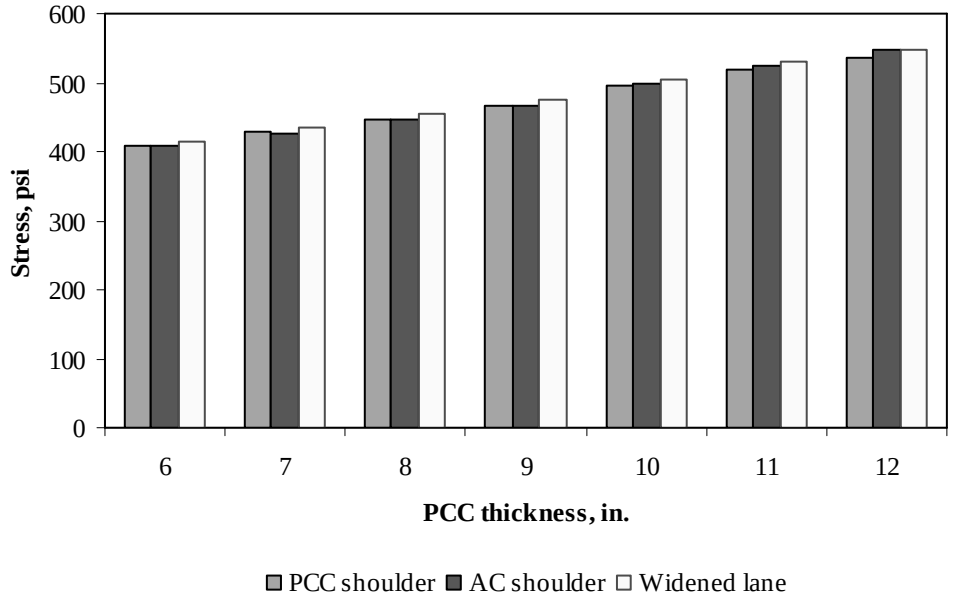


Figure F-5-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

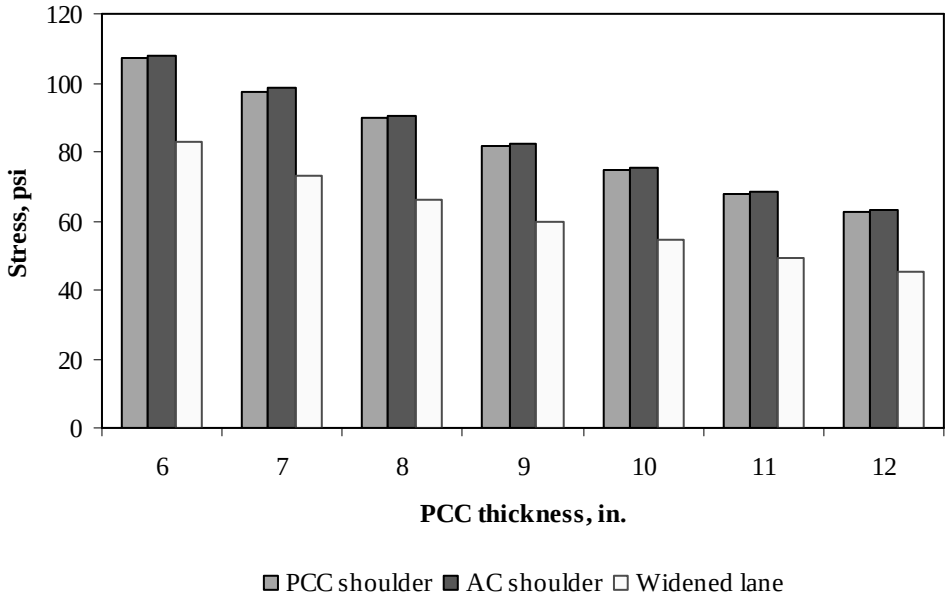


Figure F-5-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

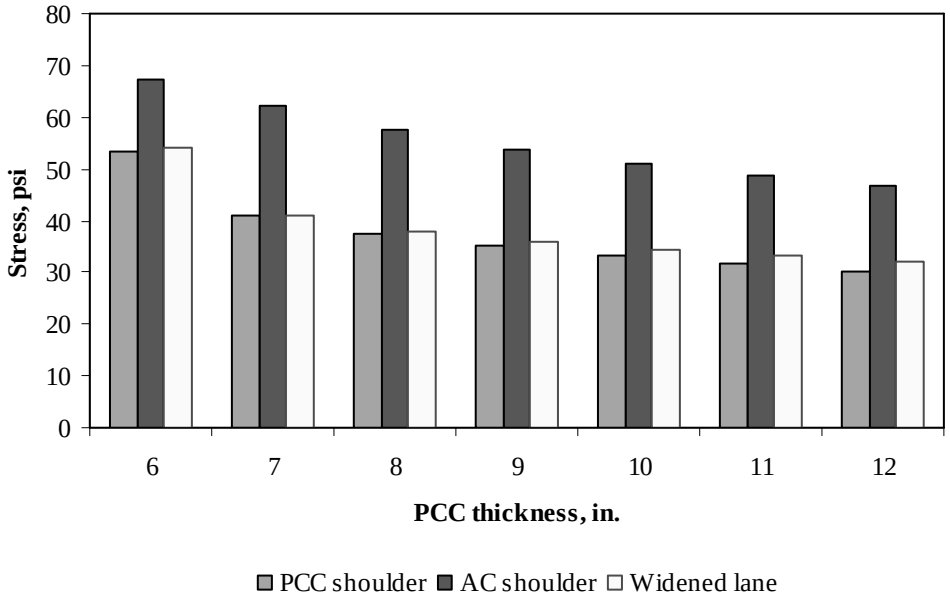


Figure F-5-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

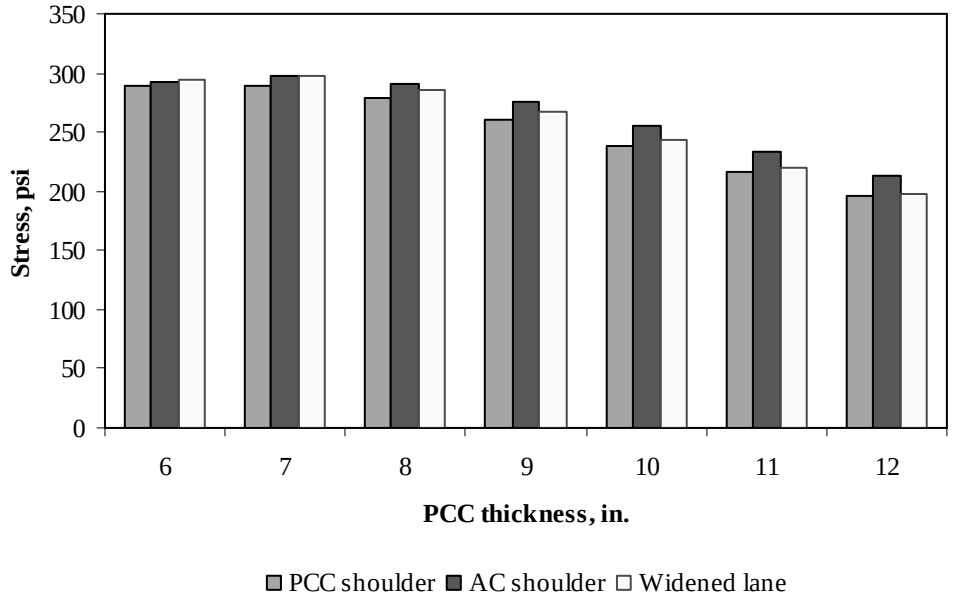


Figure F-5-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

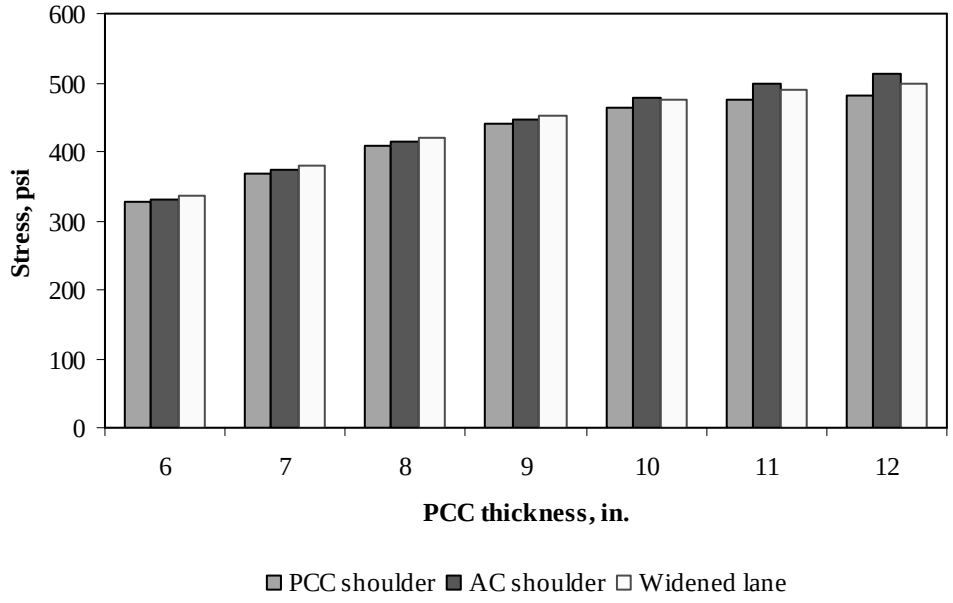


Figure F-5-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

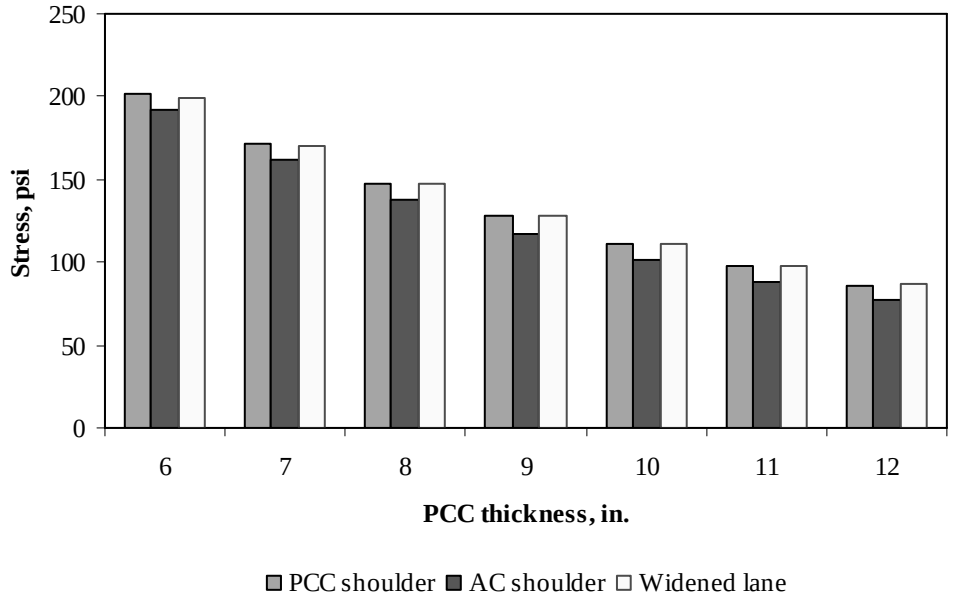


Figure F-5-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

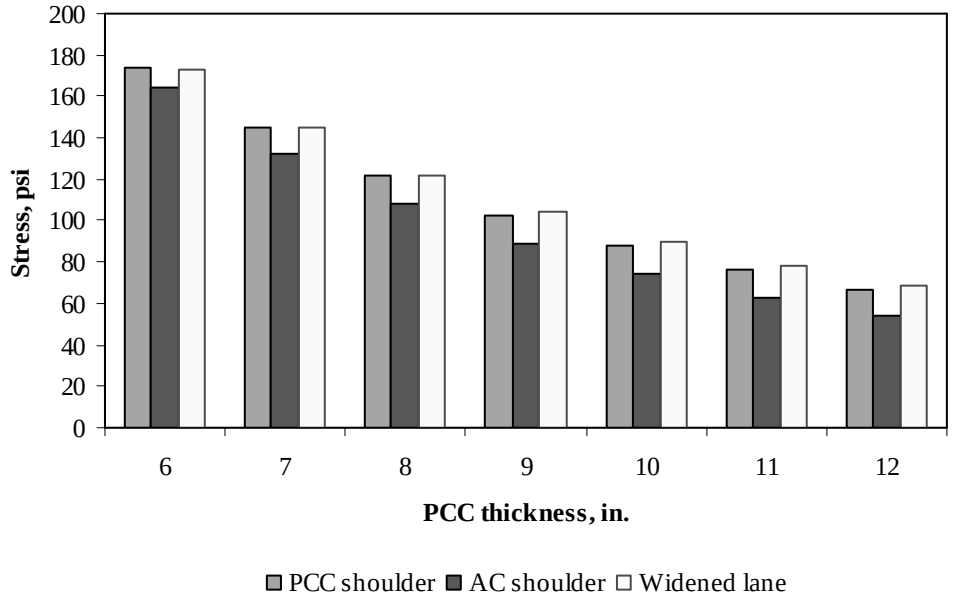


Figure F-5-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

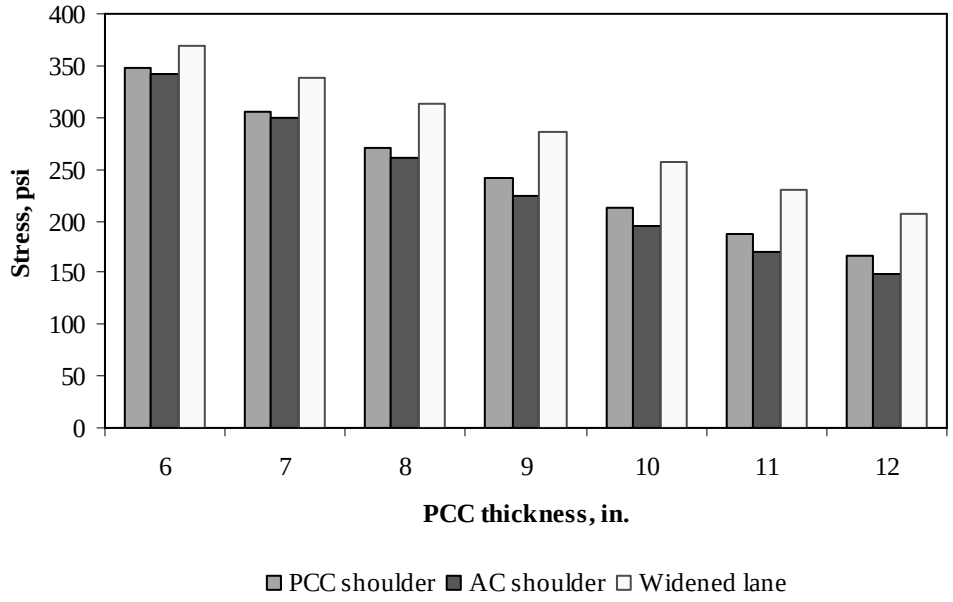


Figure F-5-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

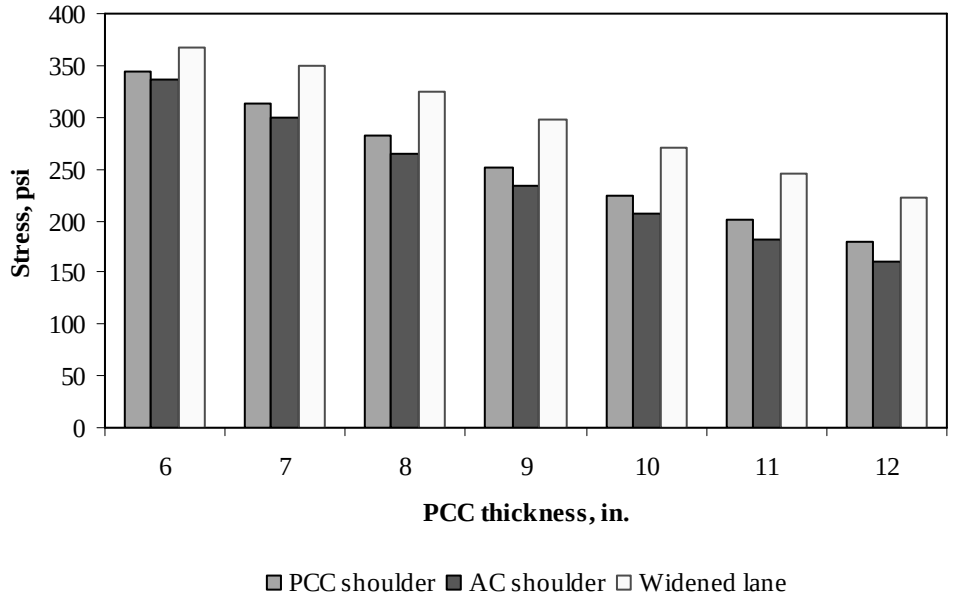


Figure F-5-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-5-37 through F-5-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

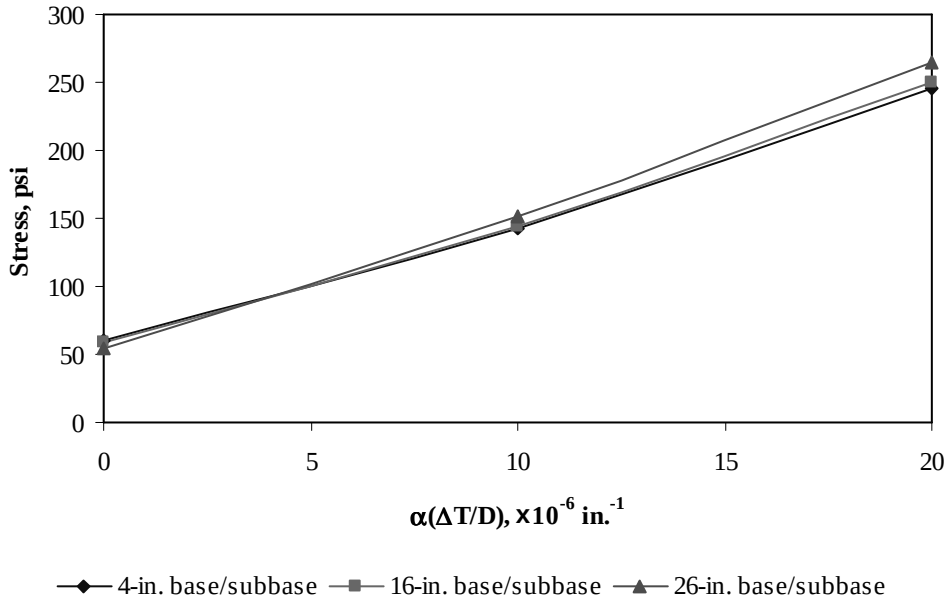


Figure F-5-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

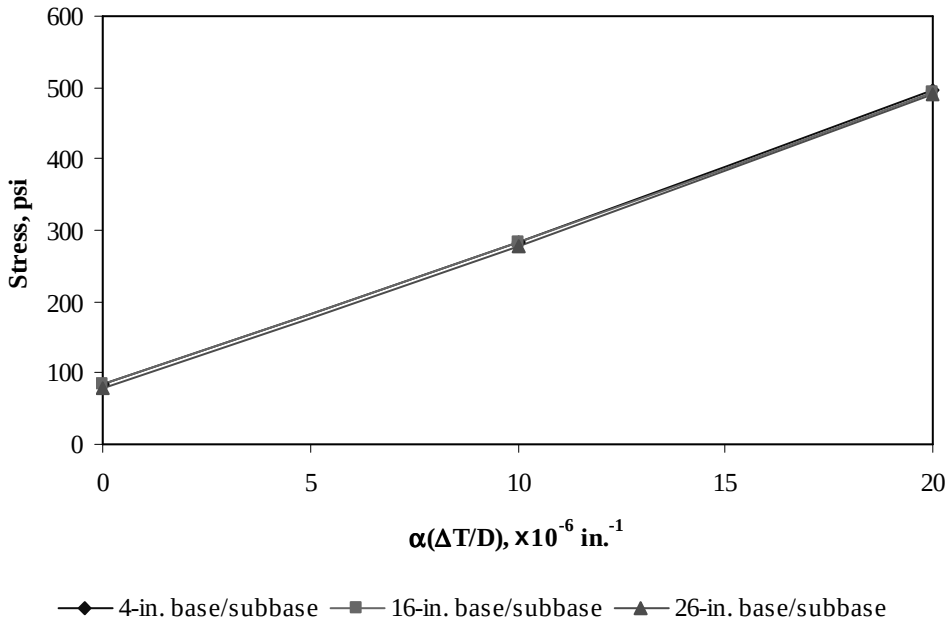


Figure F-5-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

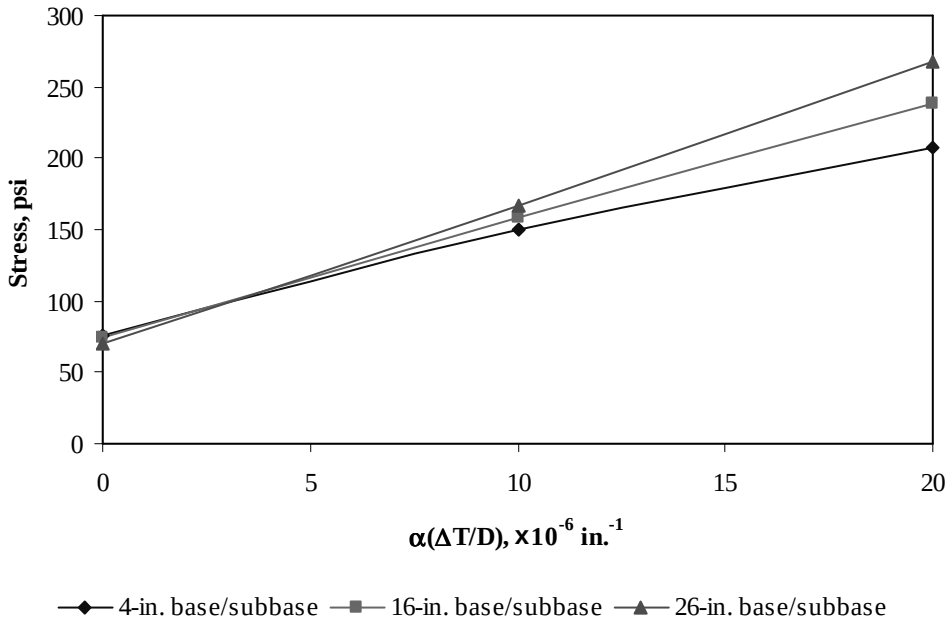


Figure F-5-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

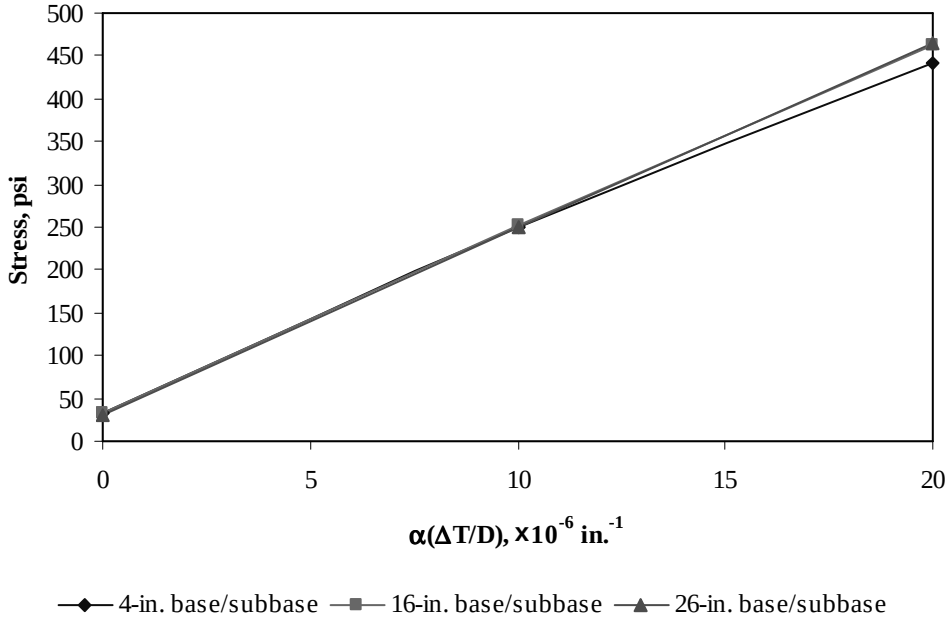


Figure F-5-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

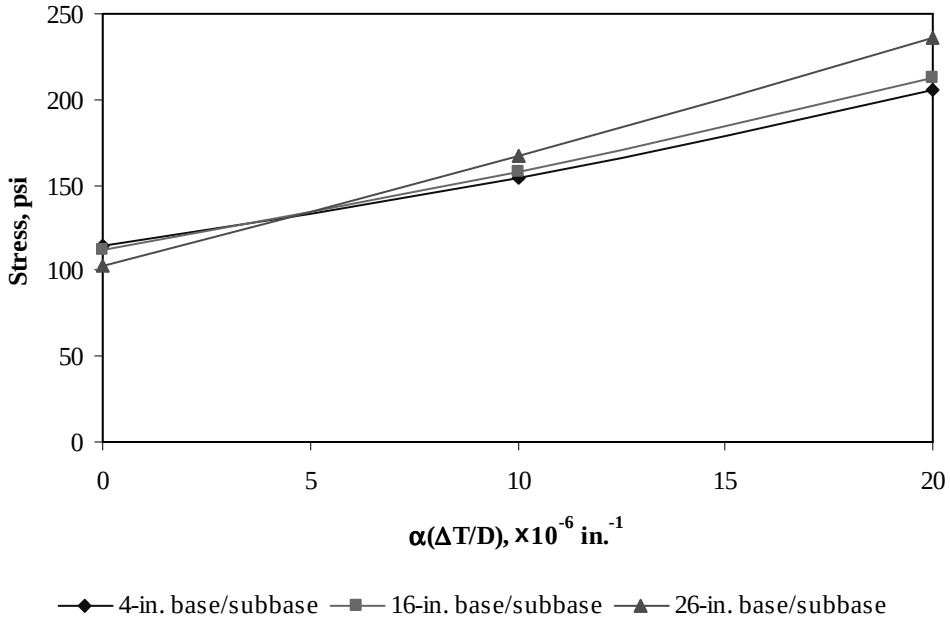


Figure F-5-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

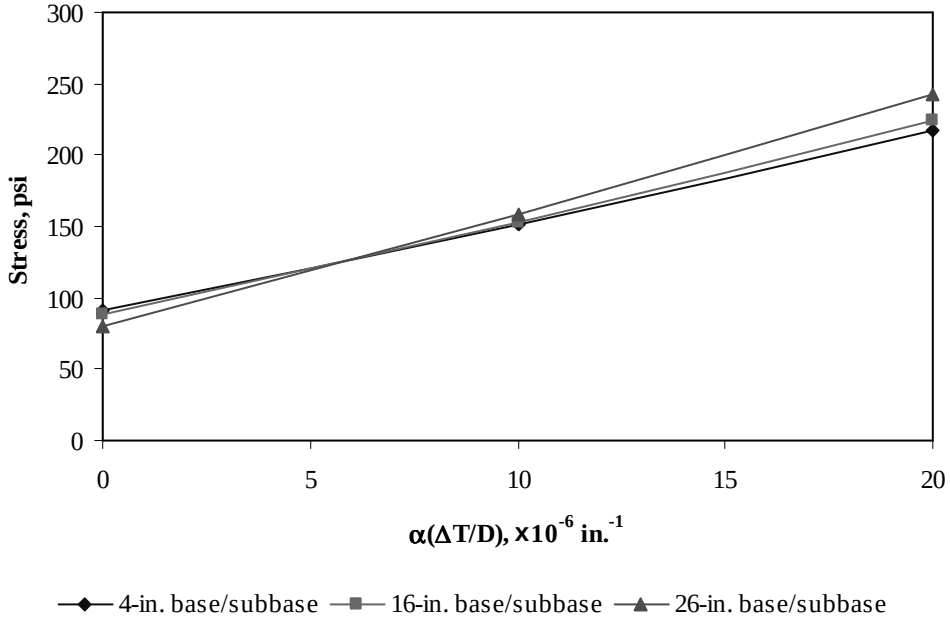


Figure F-5-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-5-43 through F-5-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

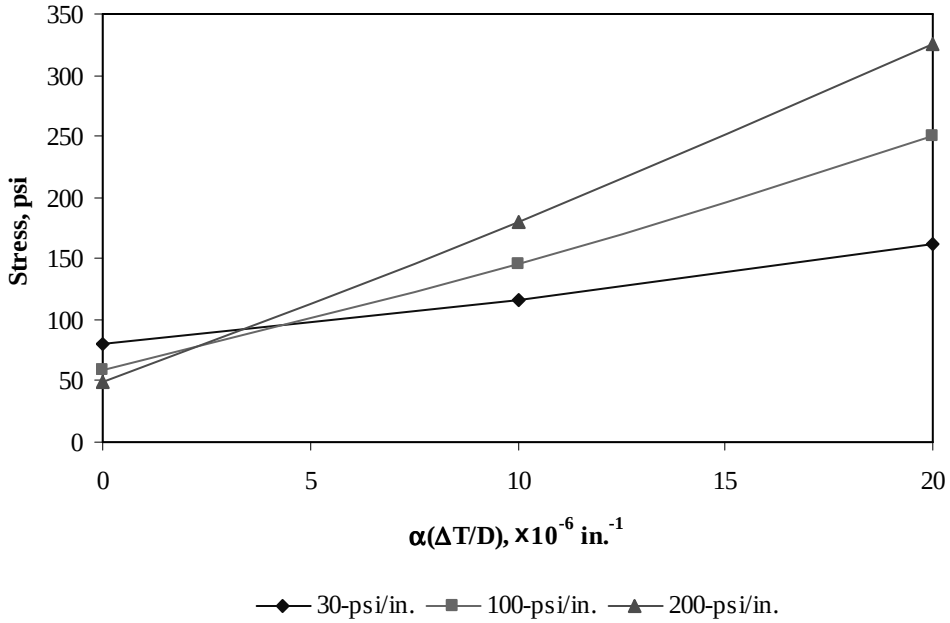


Figure F-5-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

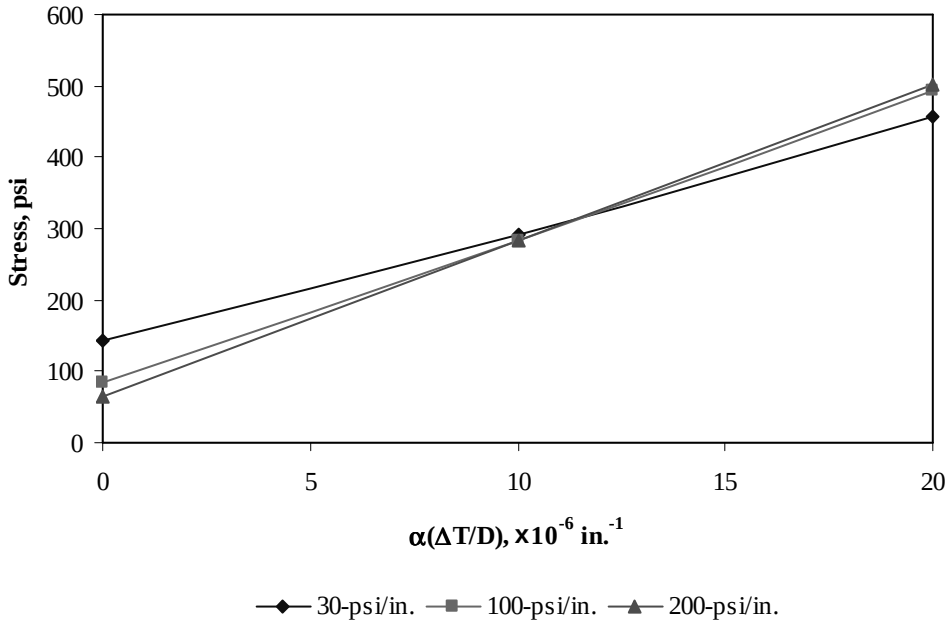


Figure F-5-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

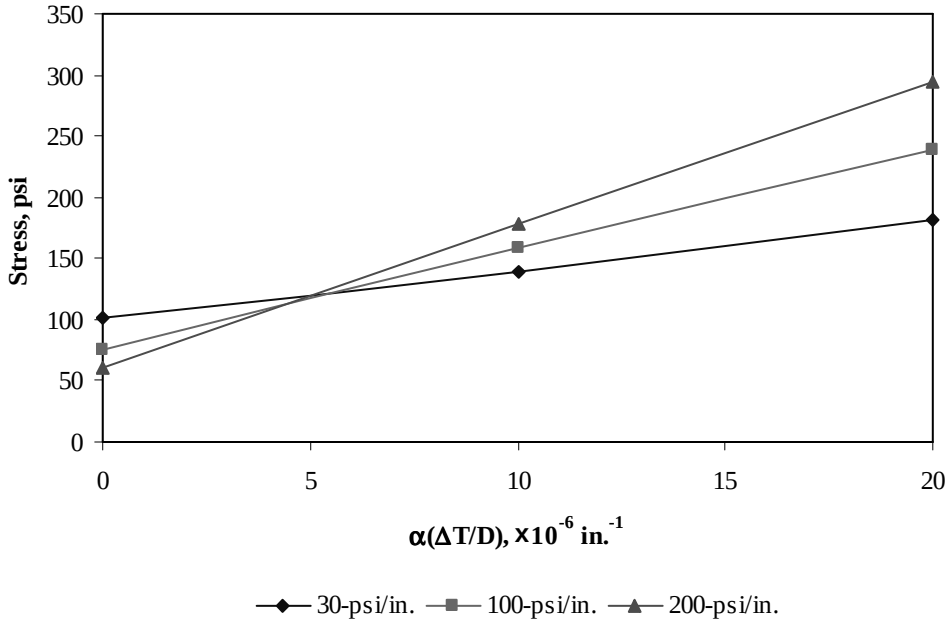


Figure F-5-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

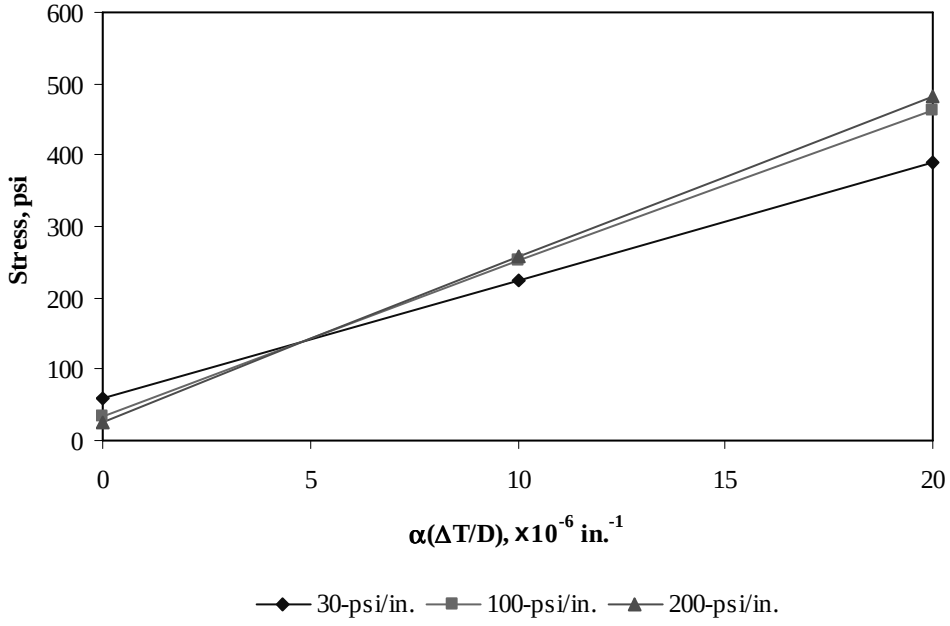


Figure F-5-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

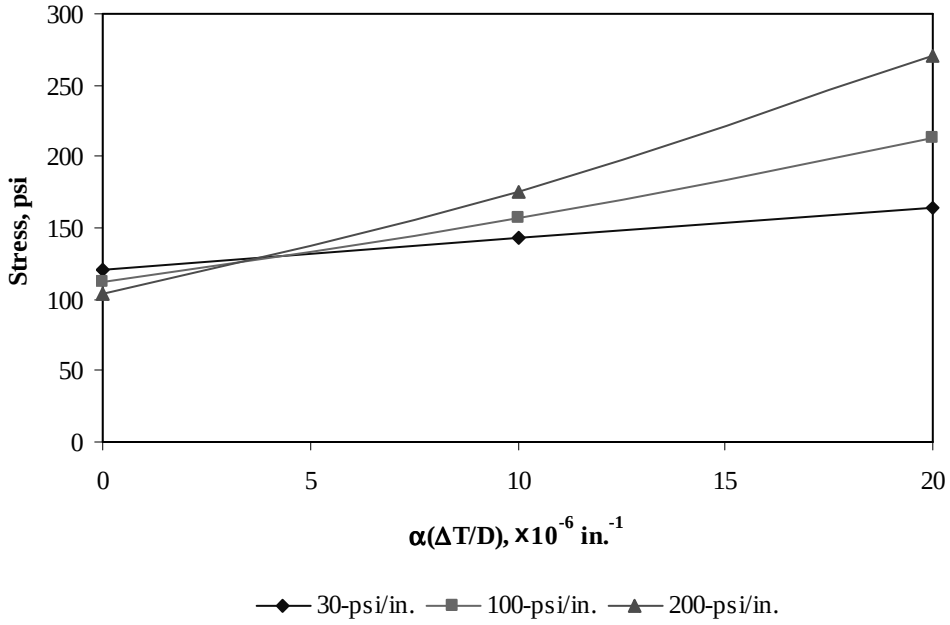


Figure F-5-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

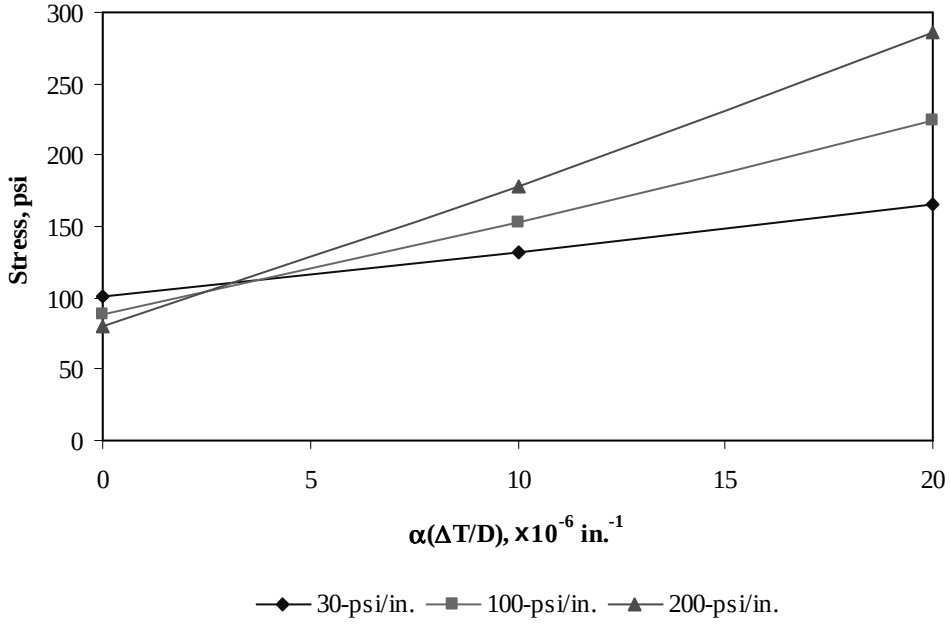


Figure F-5-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-5-49 through F-5-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

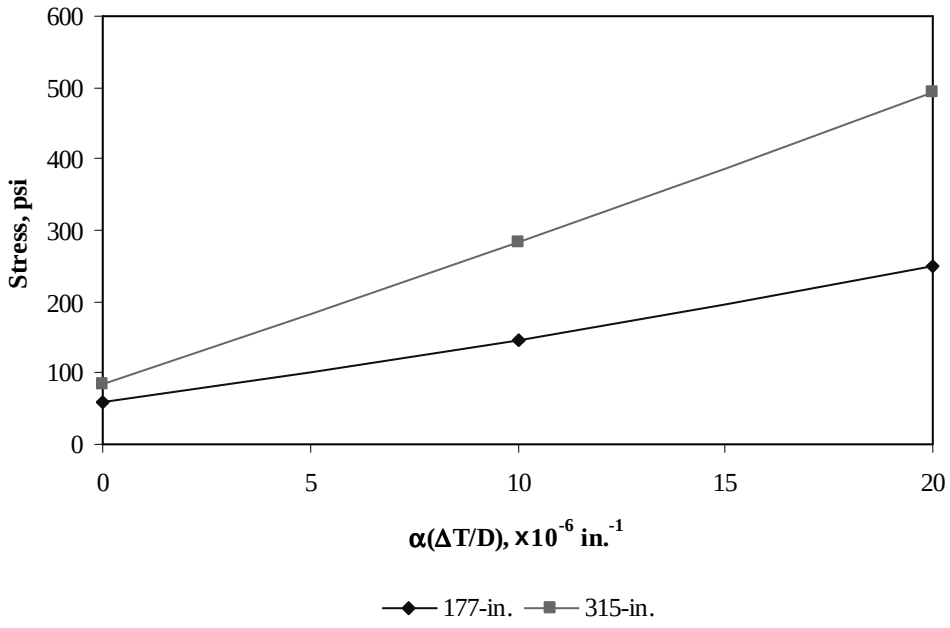


Figure F-5-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

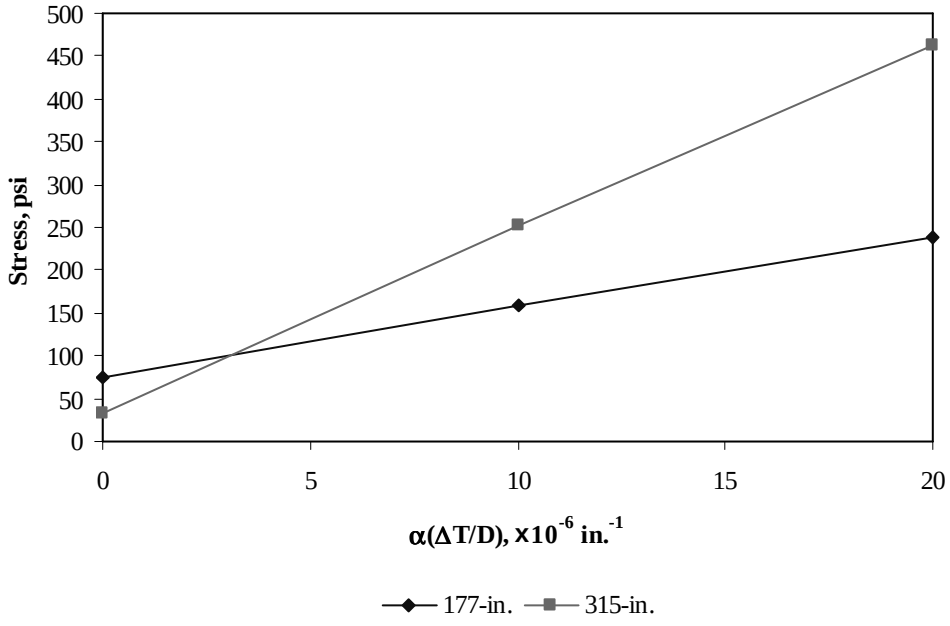


Figure F-5-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

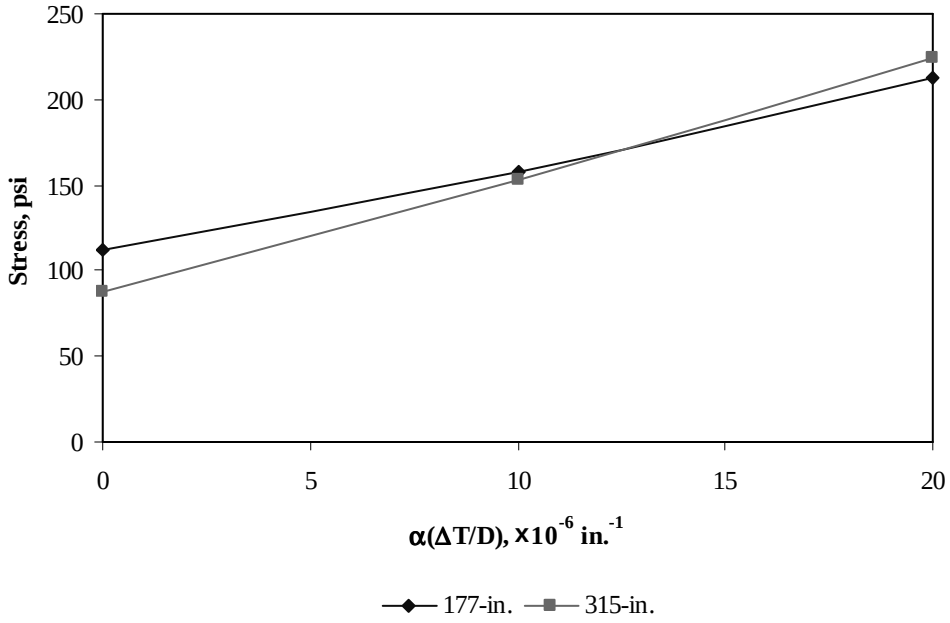
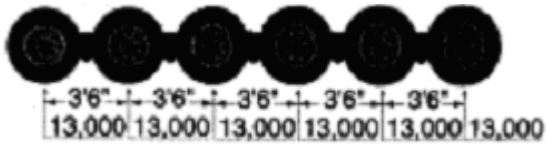


Figure F-5-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-6

Documentation of Pavement Responses for



78-kips Multi-axle (6)

Figures F-6-1 through F-6-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

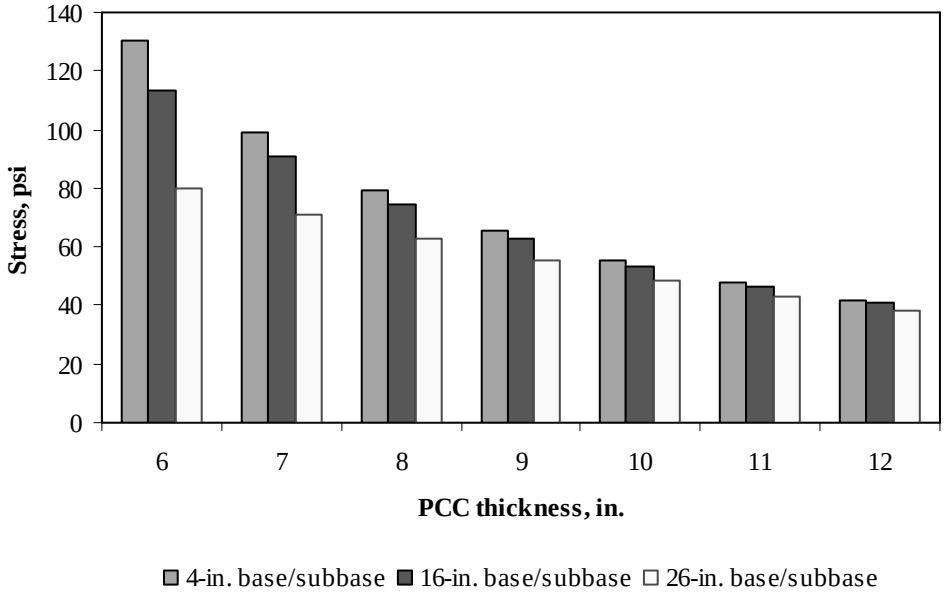


Figure F-6-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

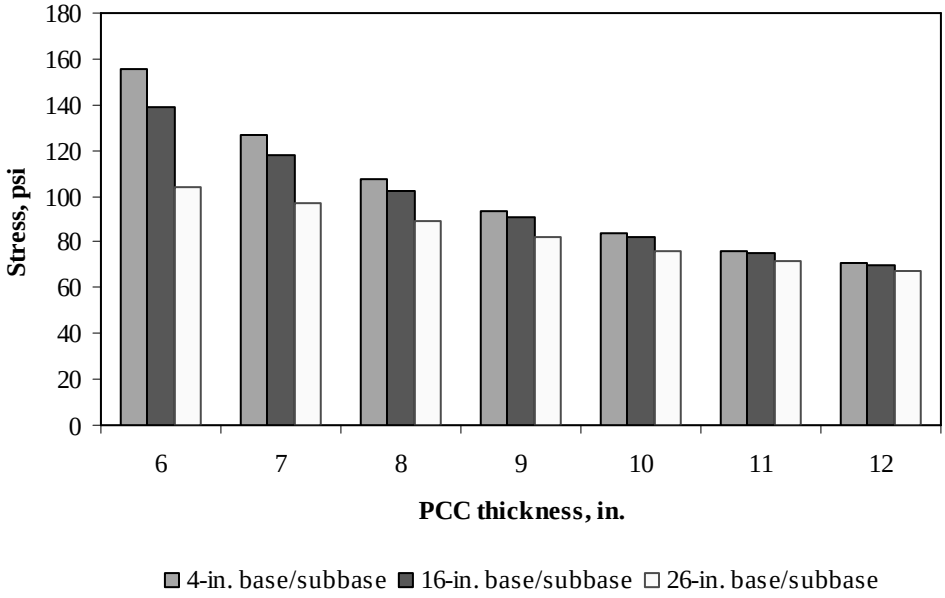


Figure F-6-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

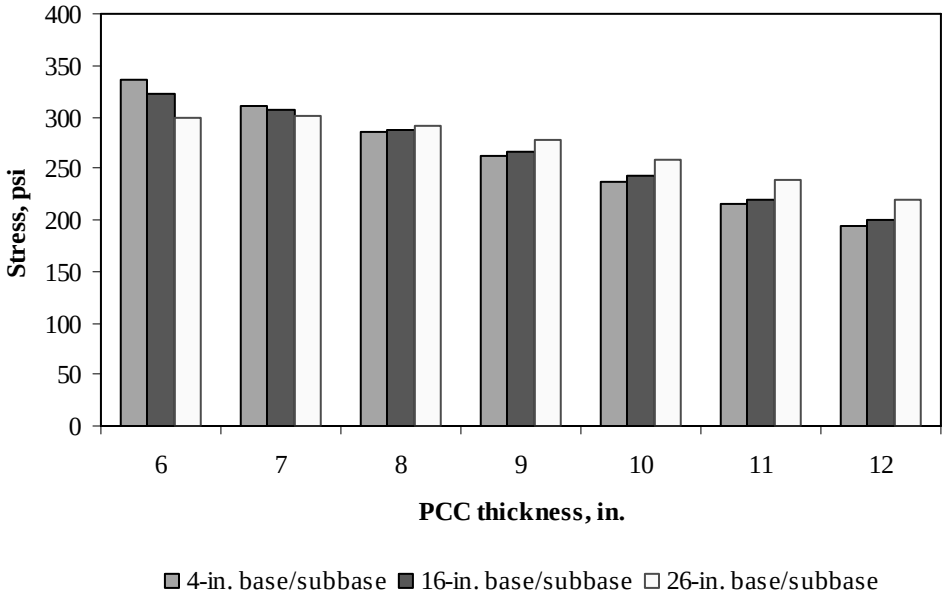


Figure F-6-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

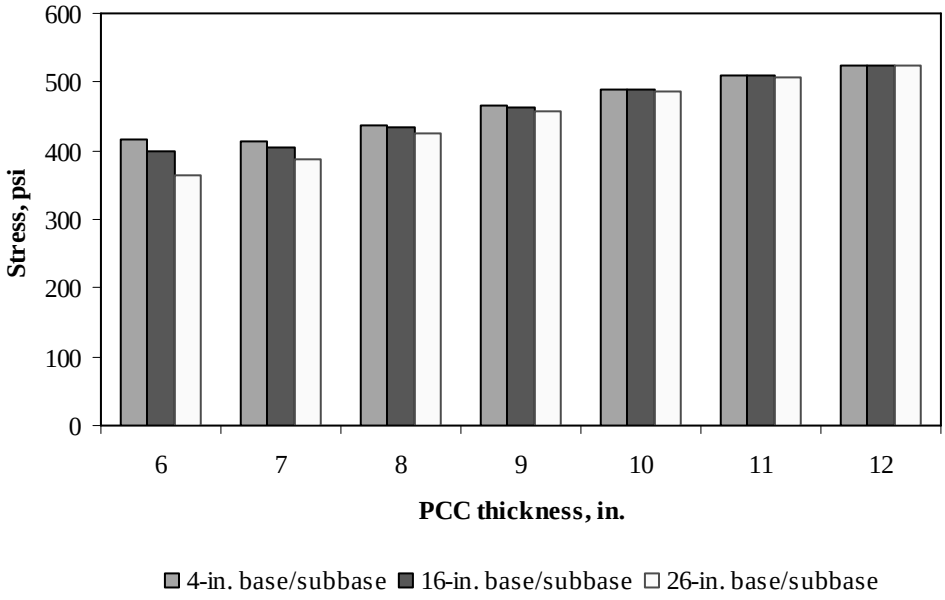


Figure F-6-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

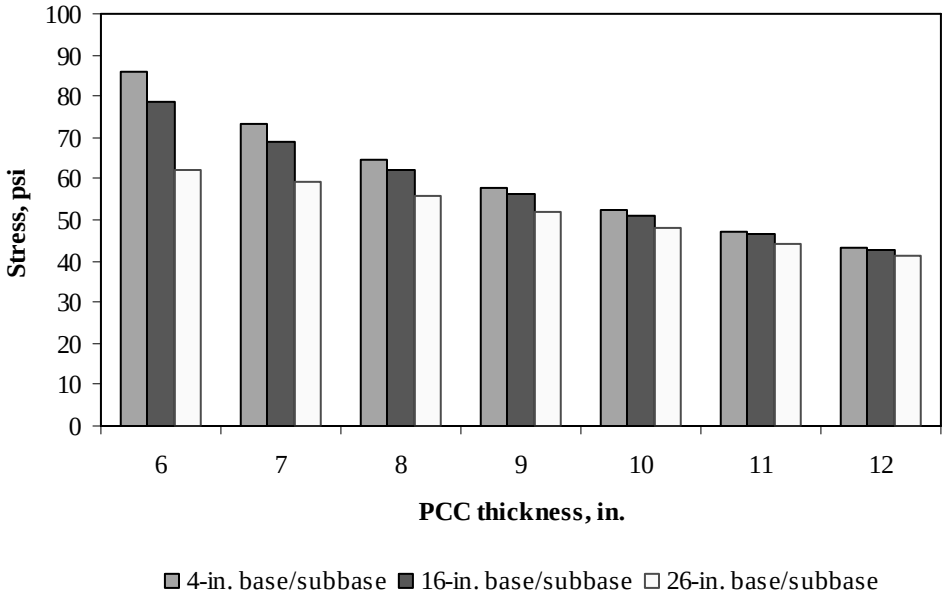


Figure F-6-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

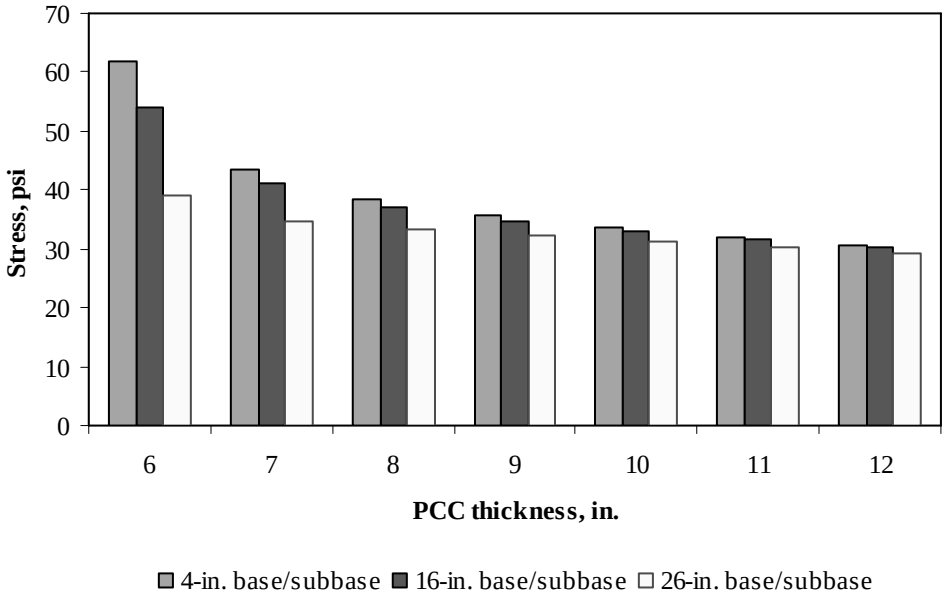


Figure F-6-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

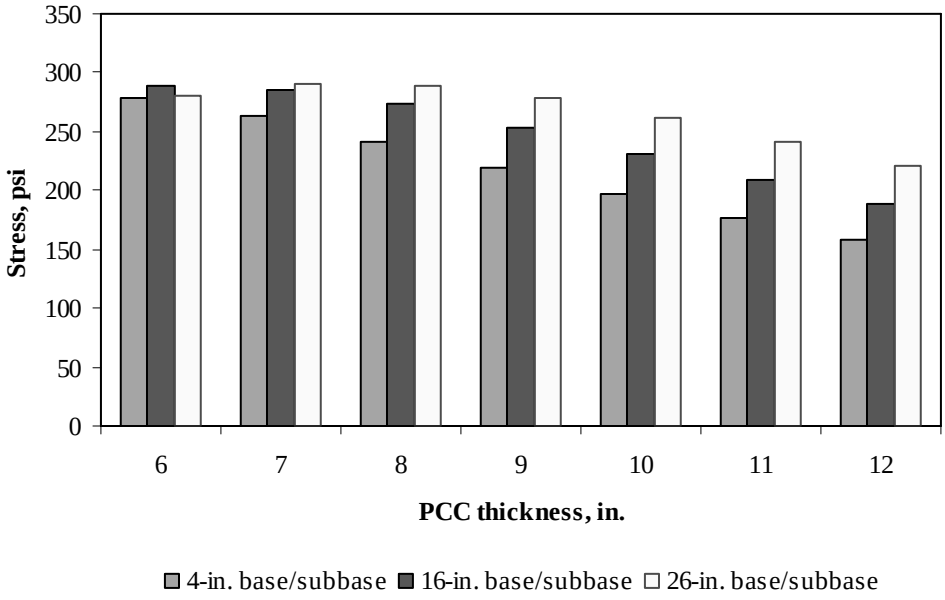


Figure F-6-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

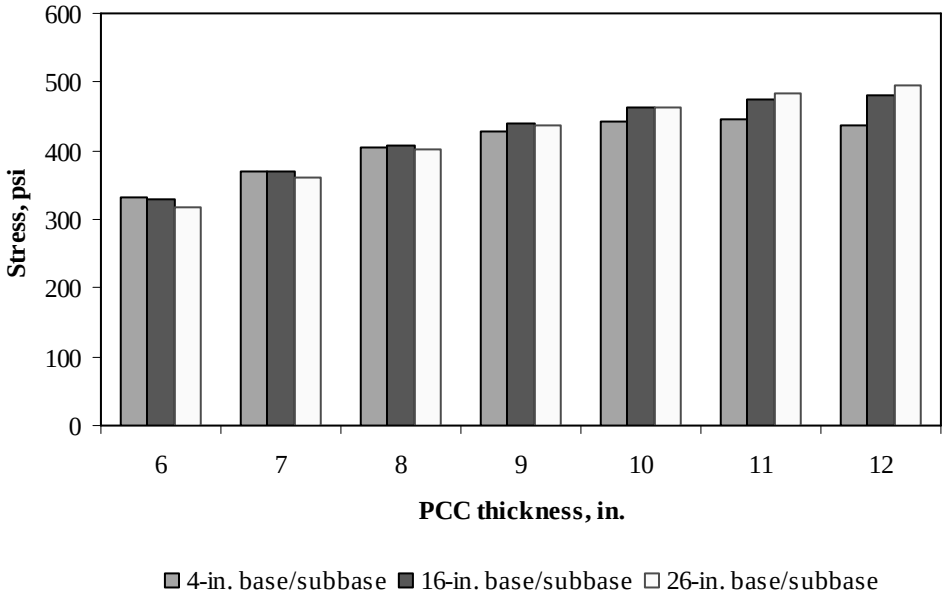


Figure F-6-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

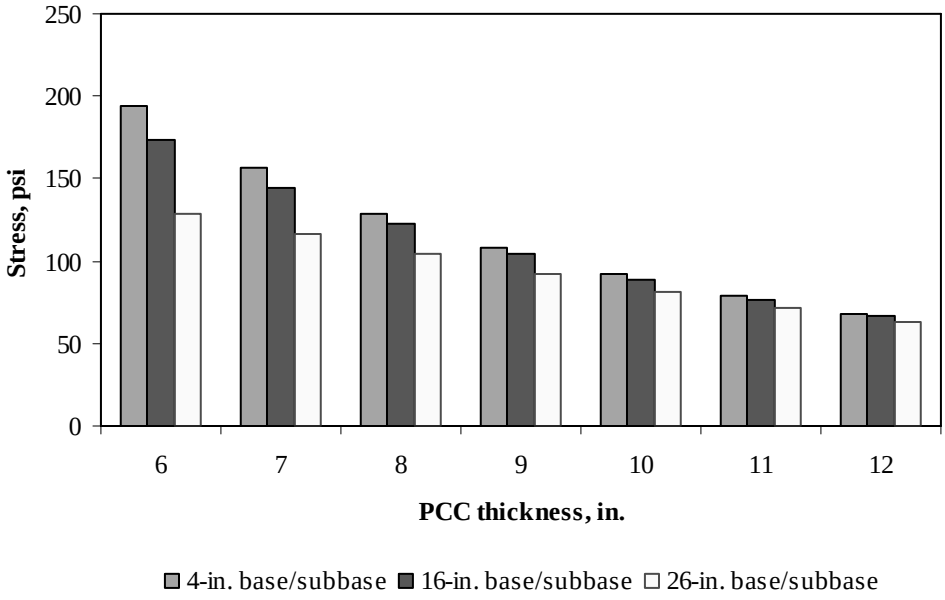


Figure F-6-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

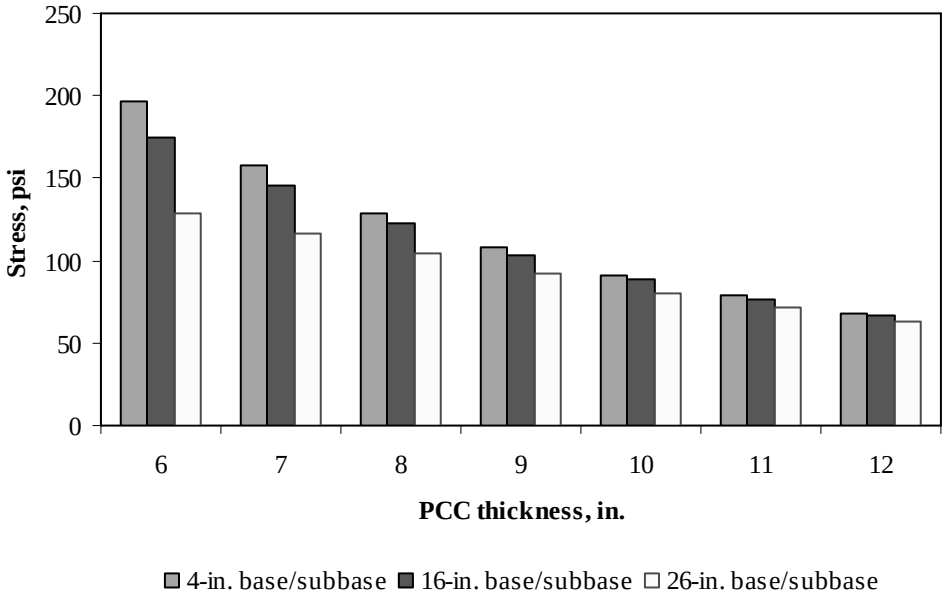


Figure F-6-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

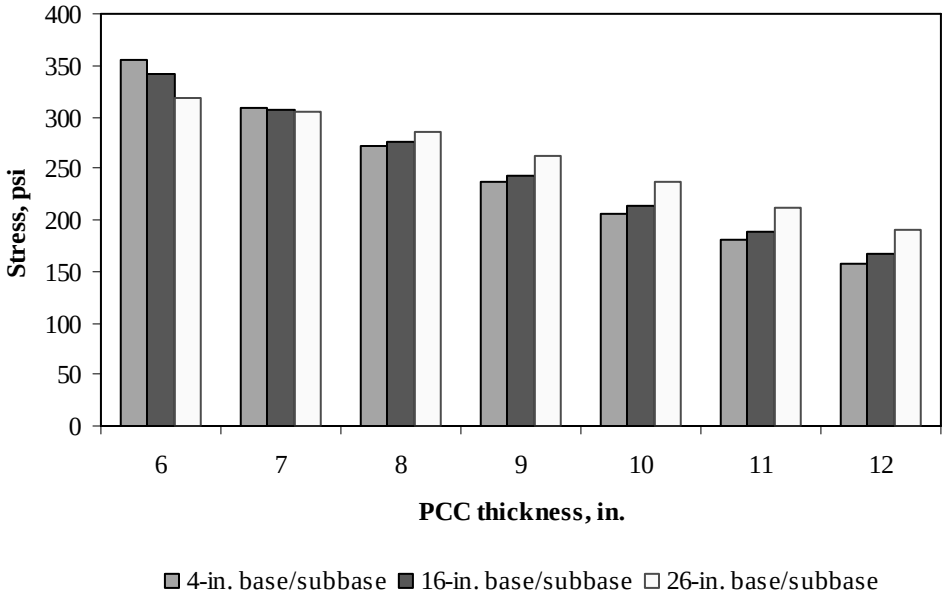


Figure F-6-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of $20x10^{-6}$ $in.^{-1}$)

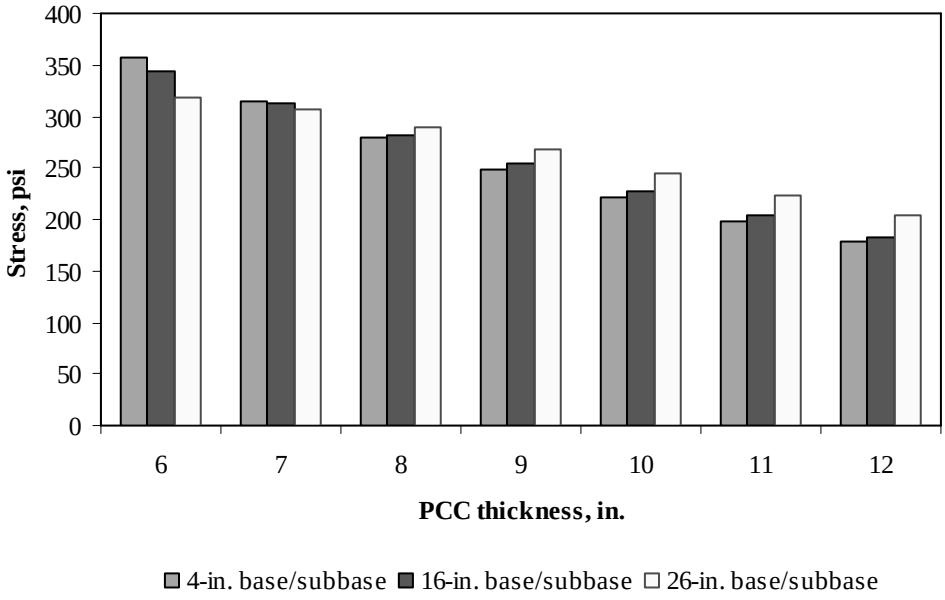


Figure F-6-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of $20x10^{-6}$ $in.^{-1}$)

Figures F-6-13 through F-6-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

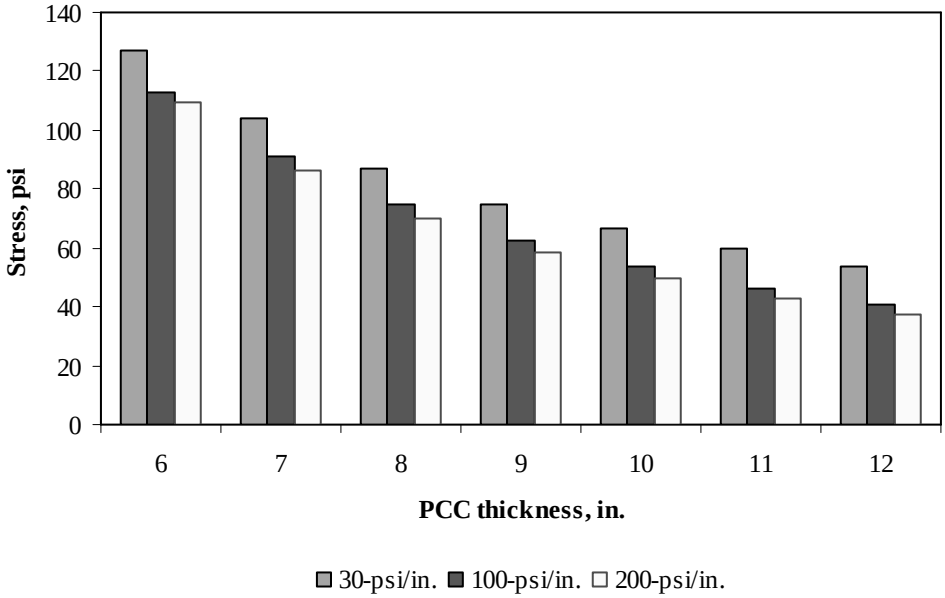


Figure F-6-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

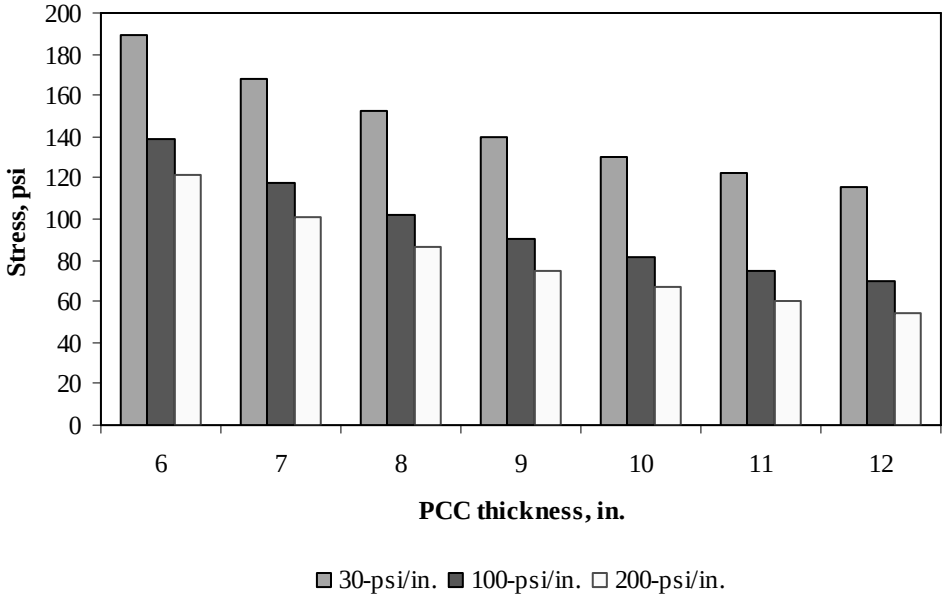


Figure F-6-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

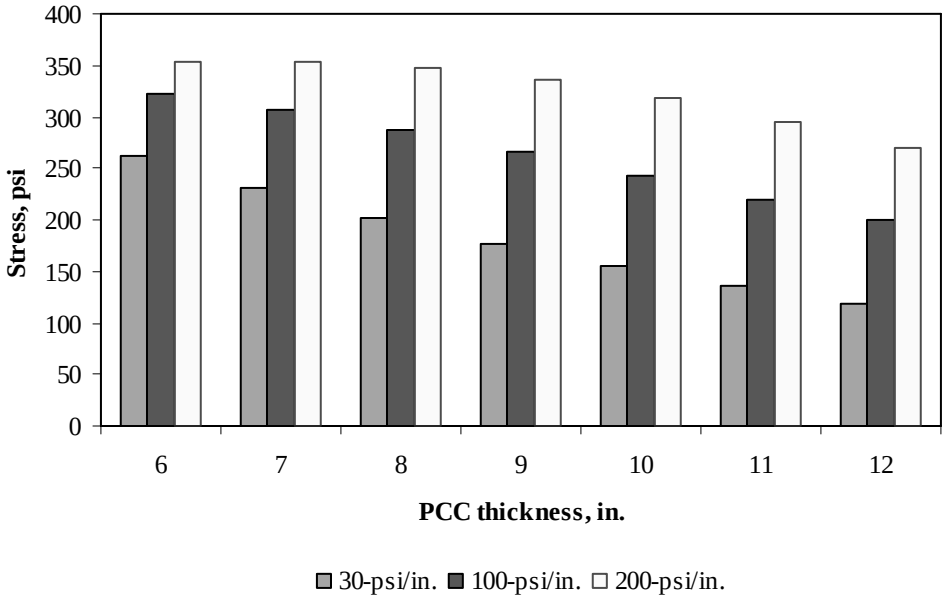


Figure F-6-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

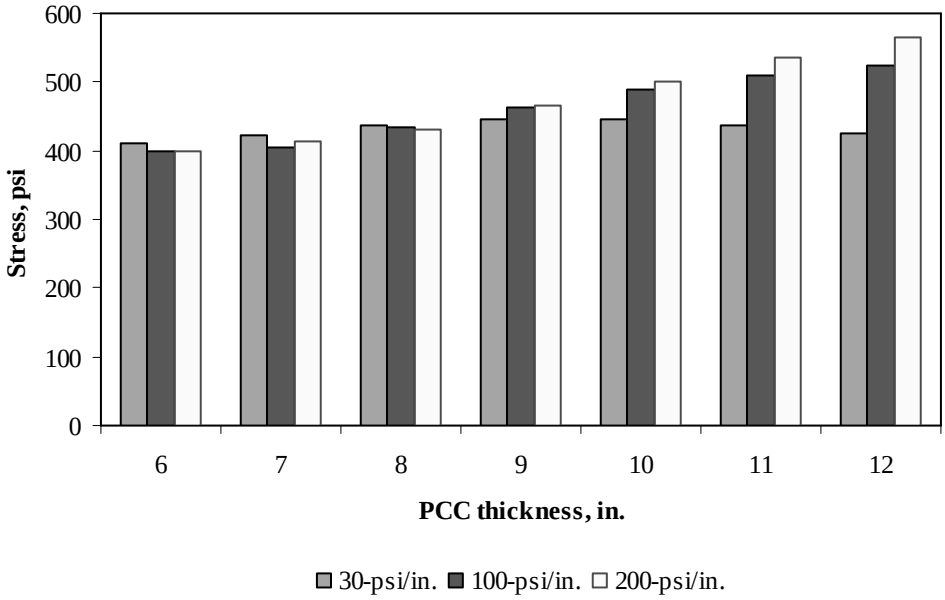


Figure F-6-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

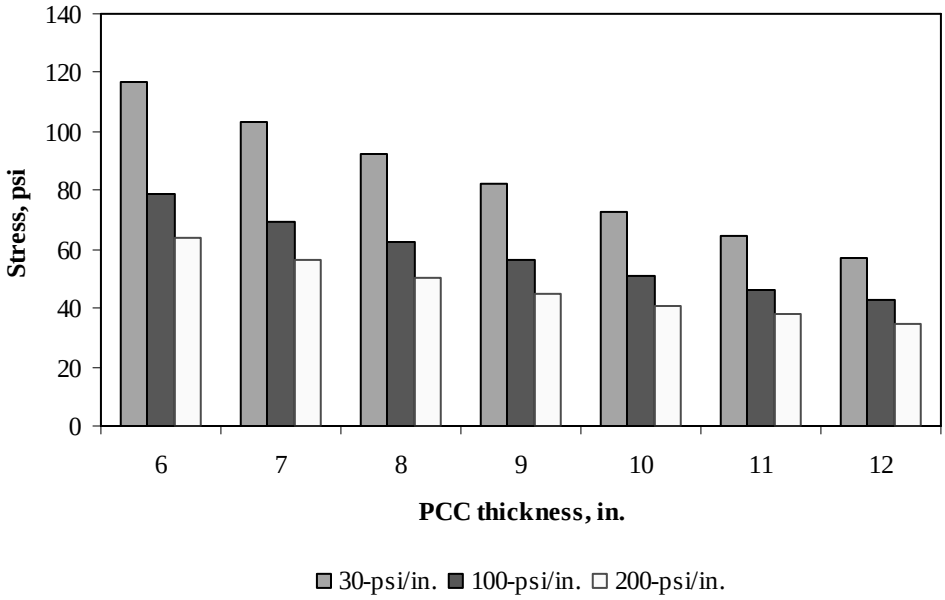


Figure F-6-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

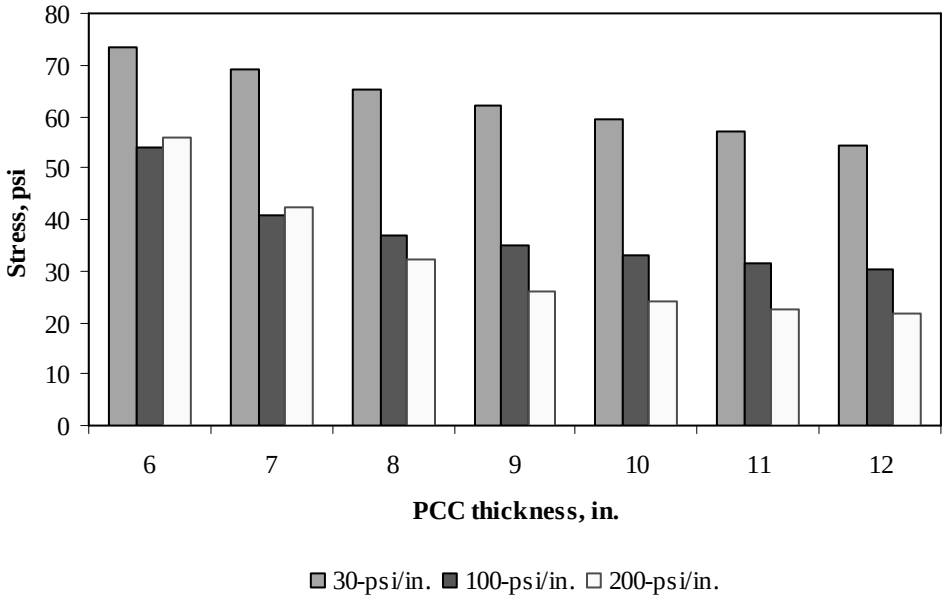


Figure F-6-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

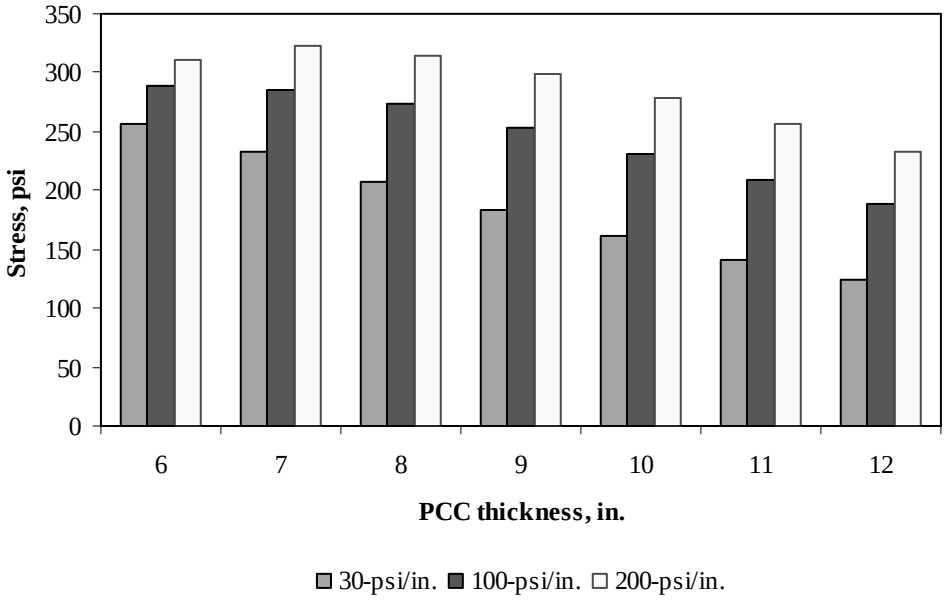


Figure F-6-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

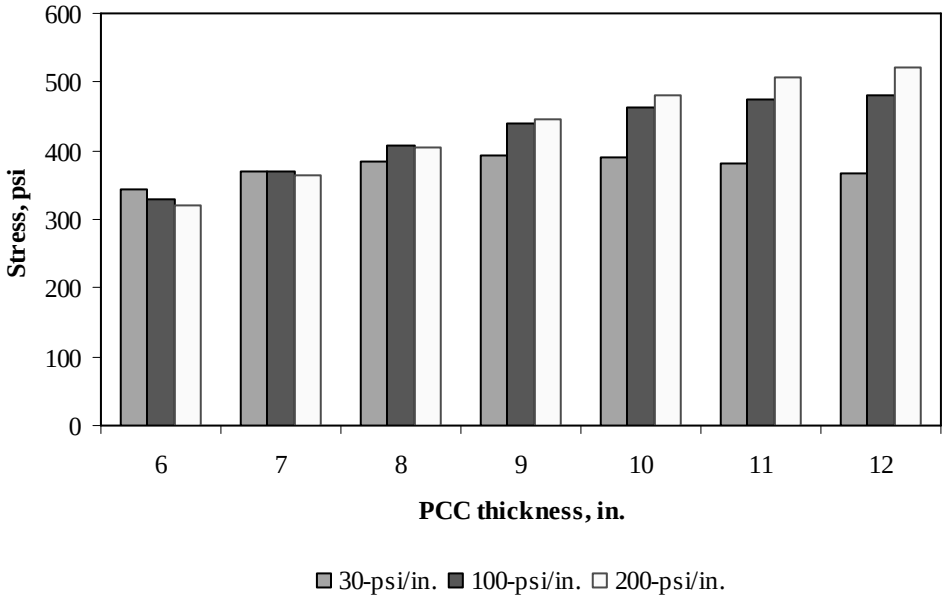


Figure F-6-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

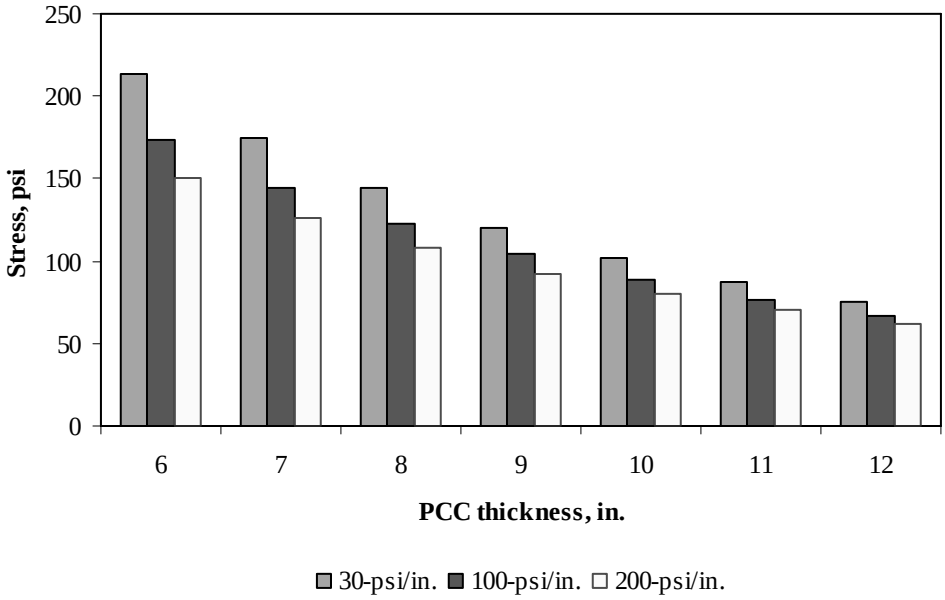


Figure F-6-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

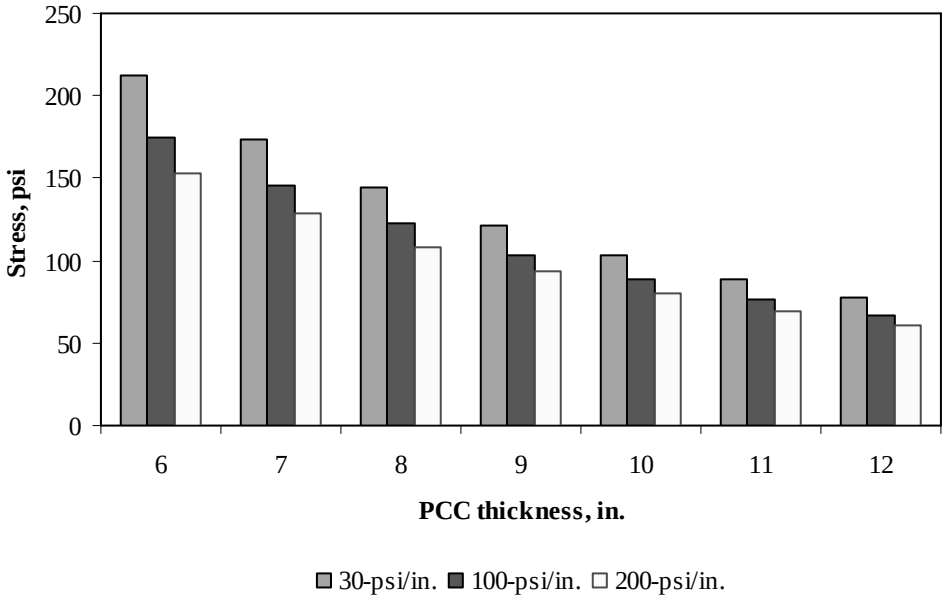


Figure F-6-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

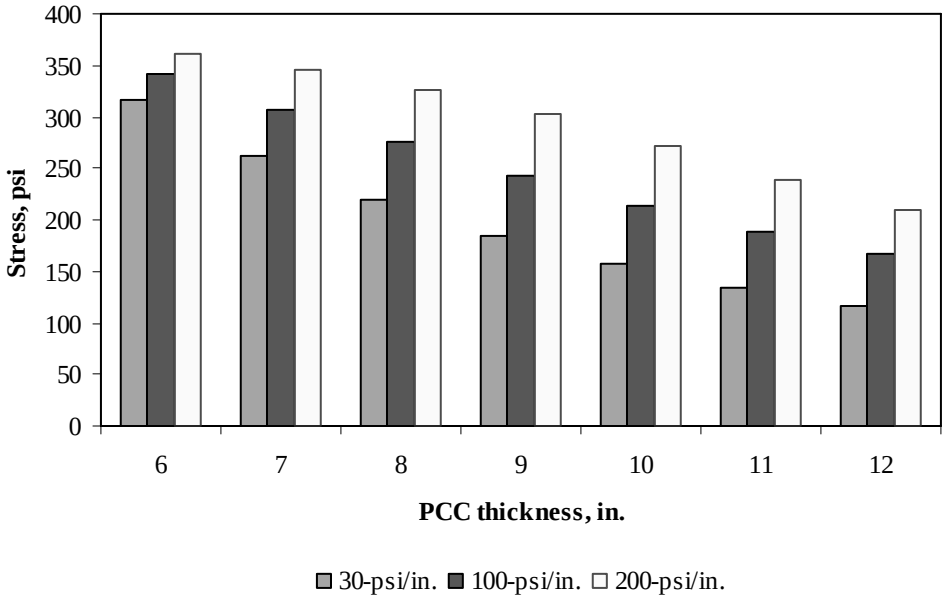


Figure F-6-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

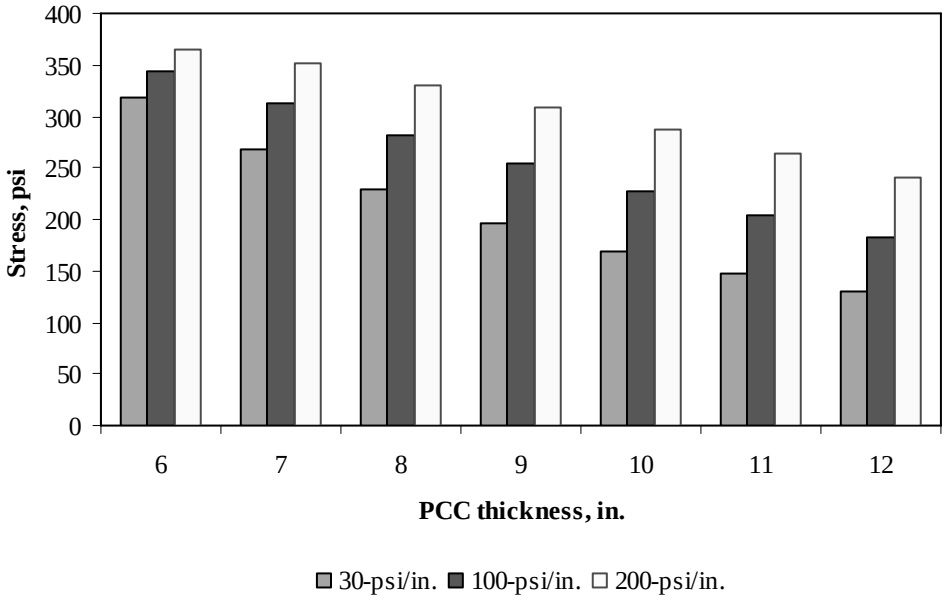


Figure F-6-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-6-25 through F-6-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

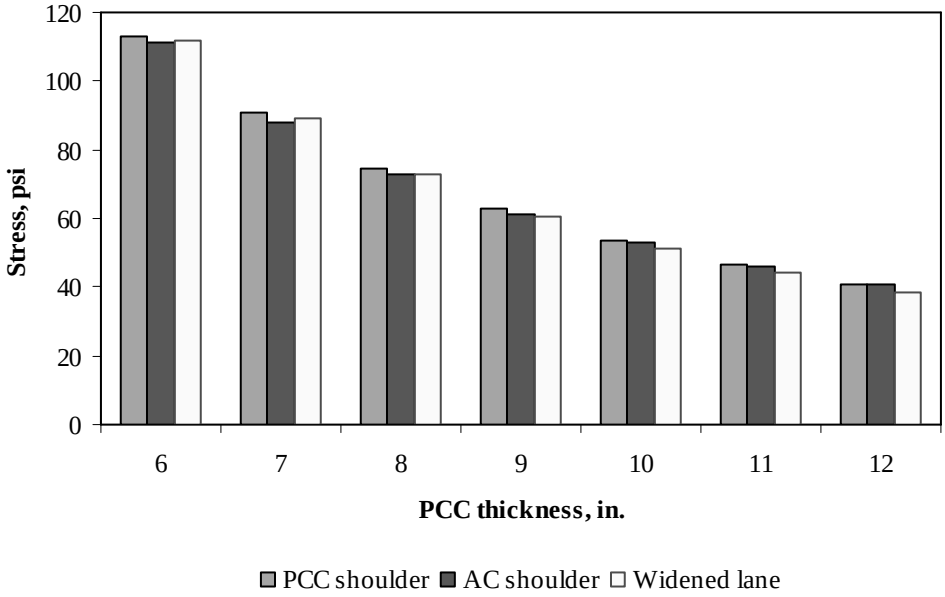


Figure F-6-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

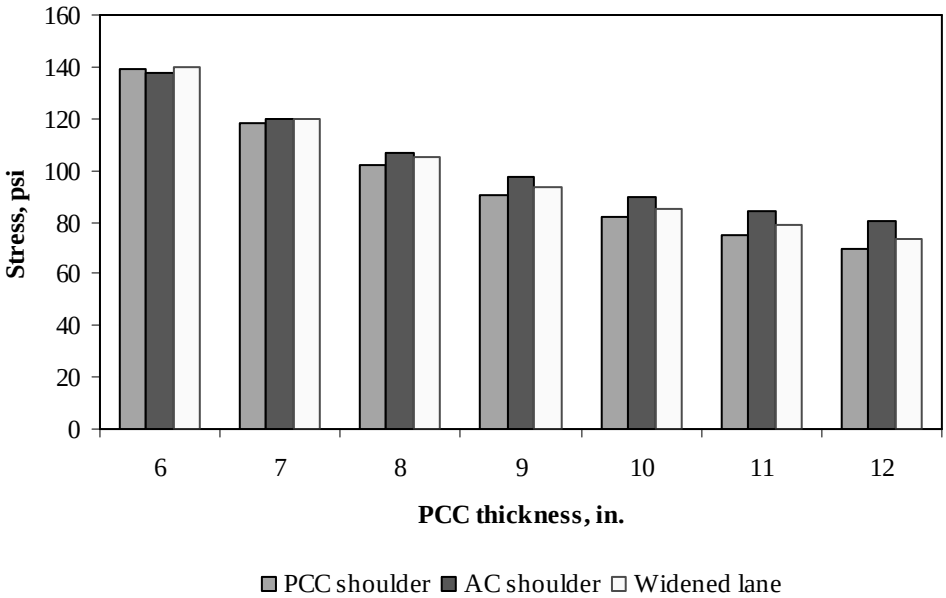


Figure F-6-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

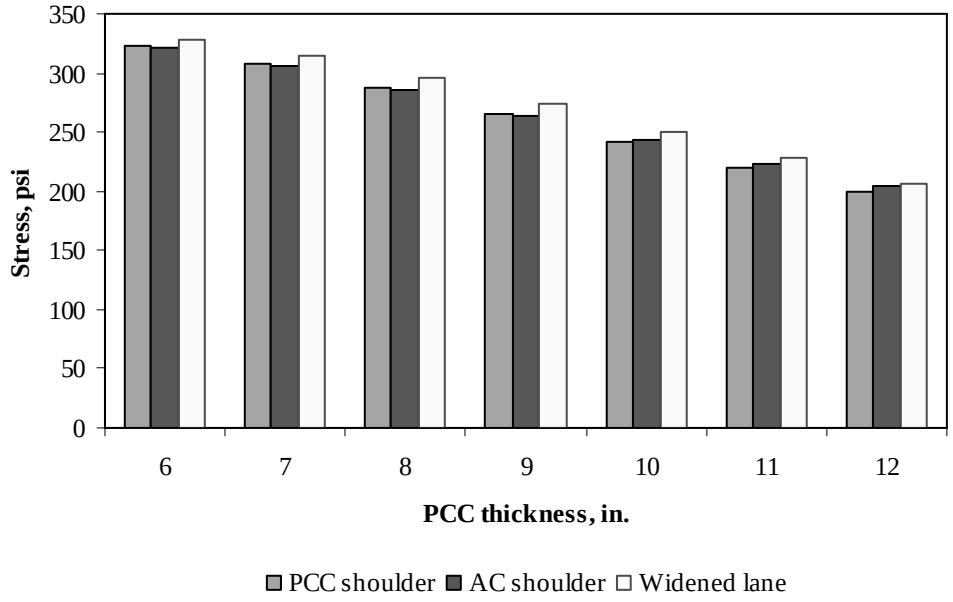


Figure F-6-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

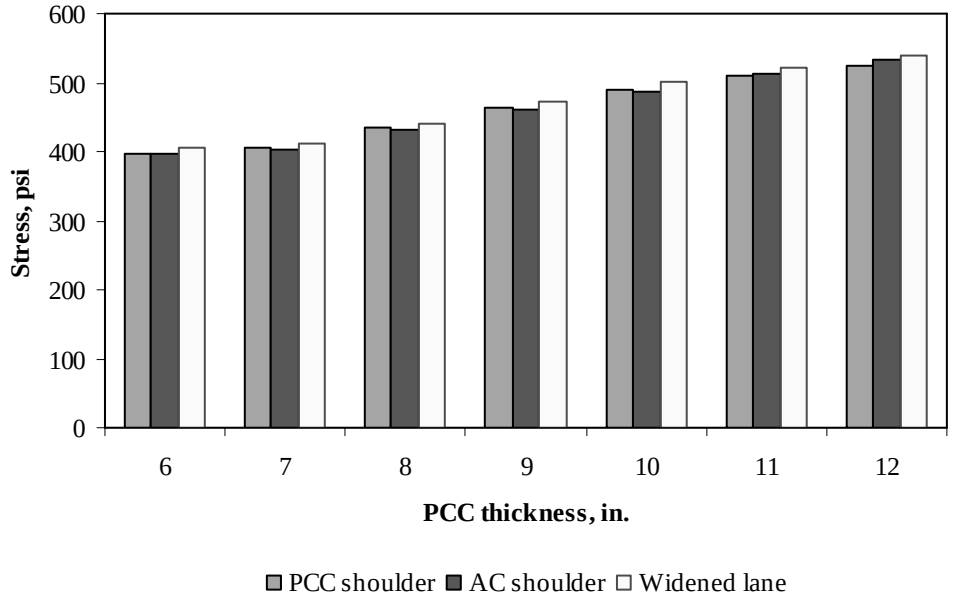


Figure F-6-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

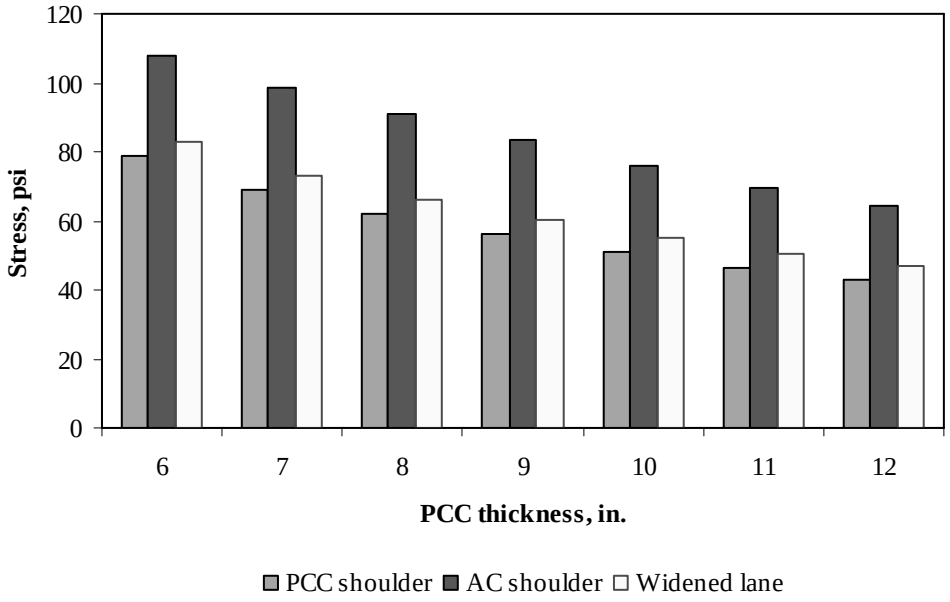


Figure F-6-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

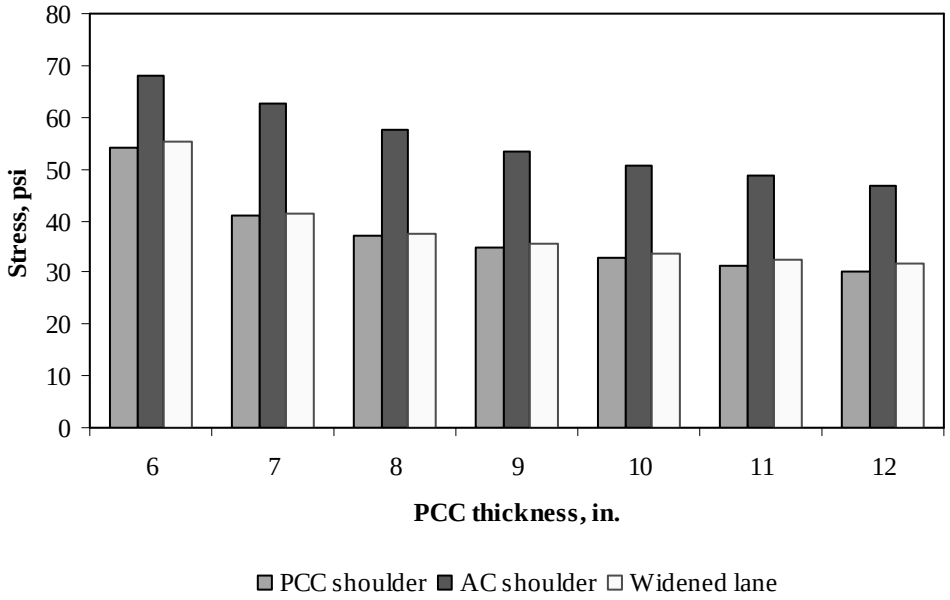


Figure F-6-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

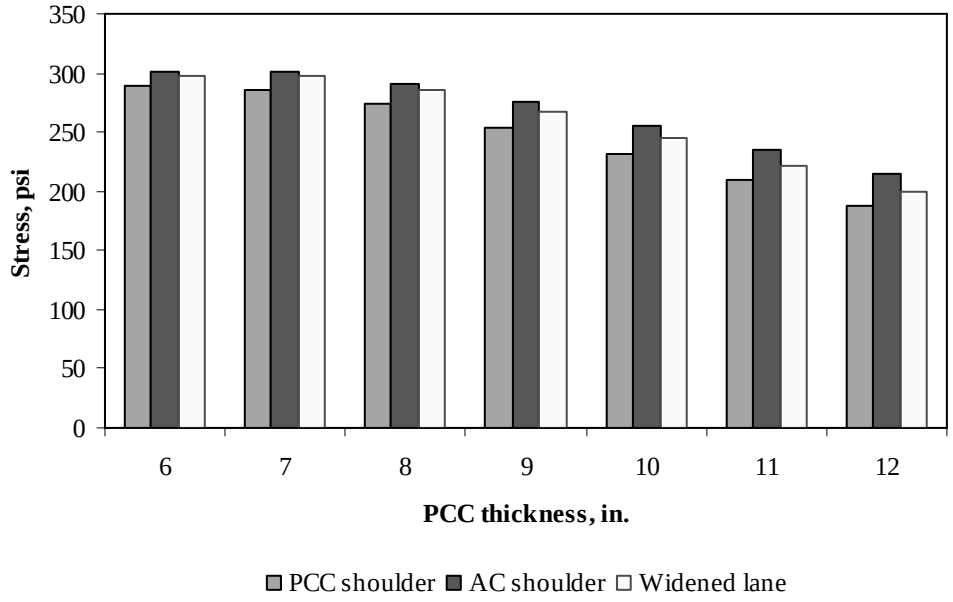


Figure F-6-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

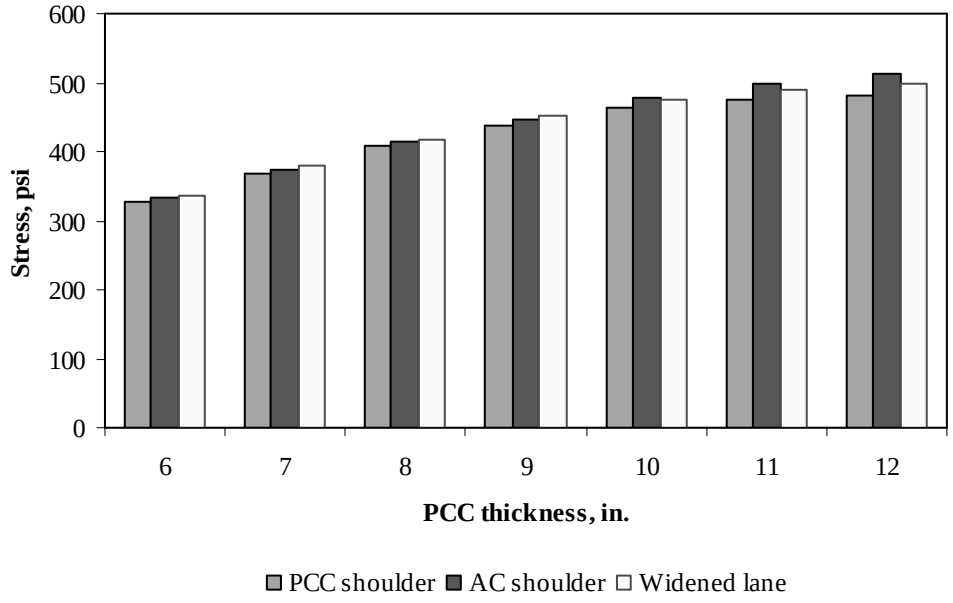


Figure F-6-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

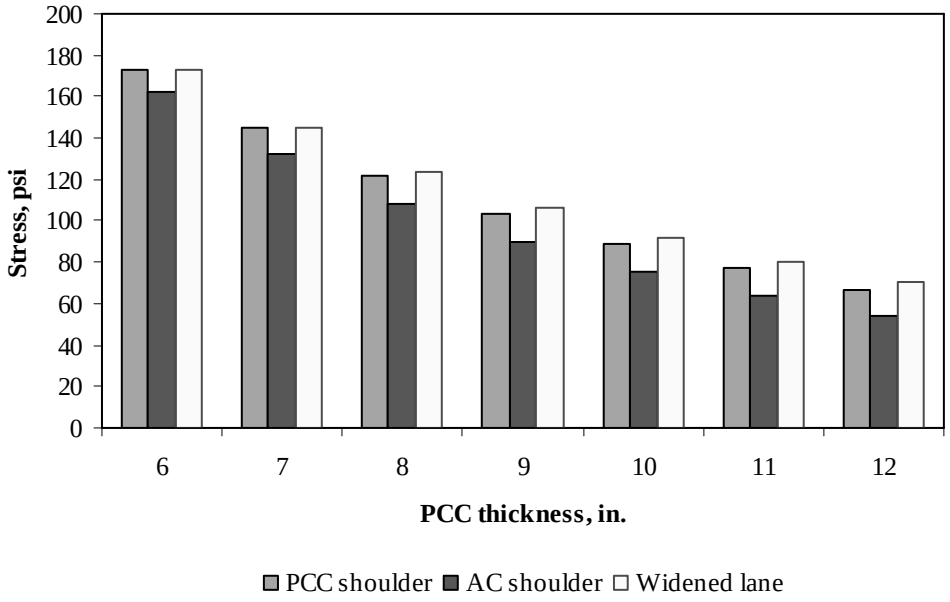


Figure F-6-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

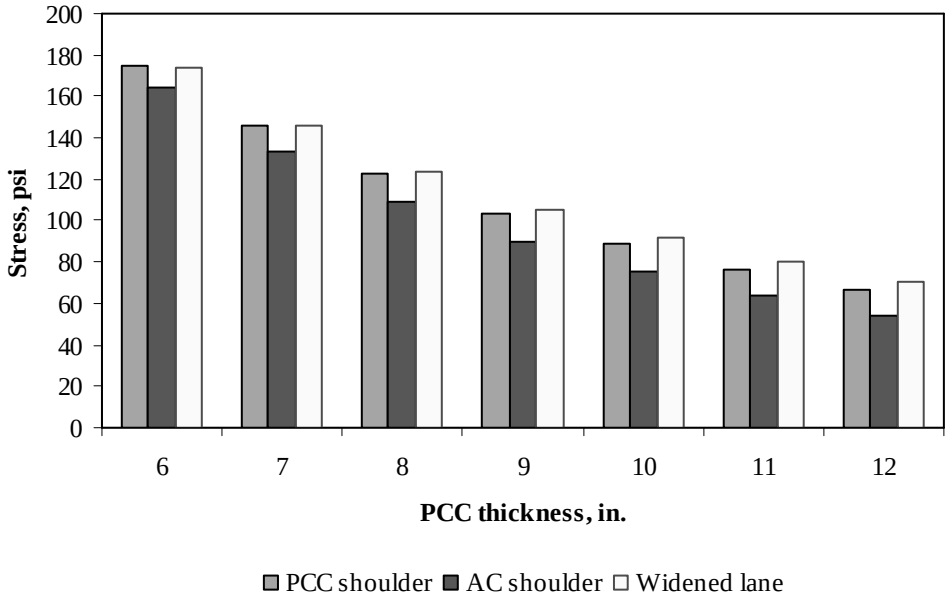


Figure F-6-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

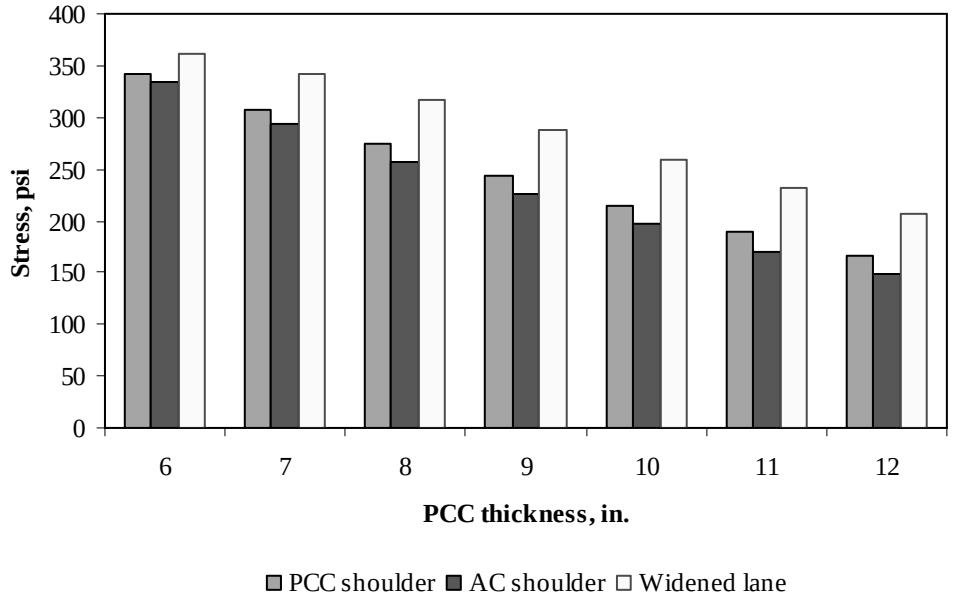


Figure F-6-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

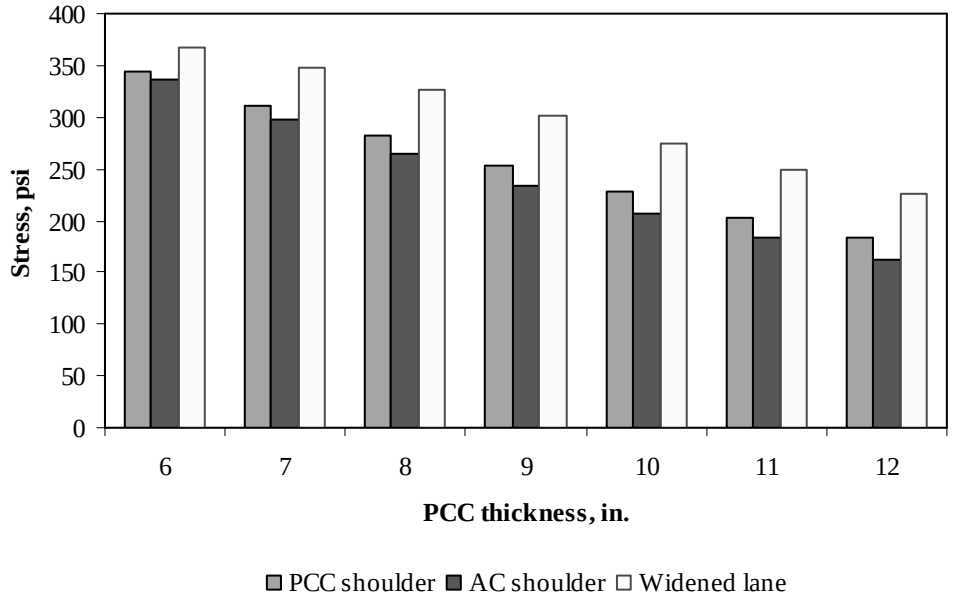


Figure F-6-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-6-37 through F-6-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

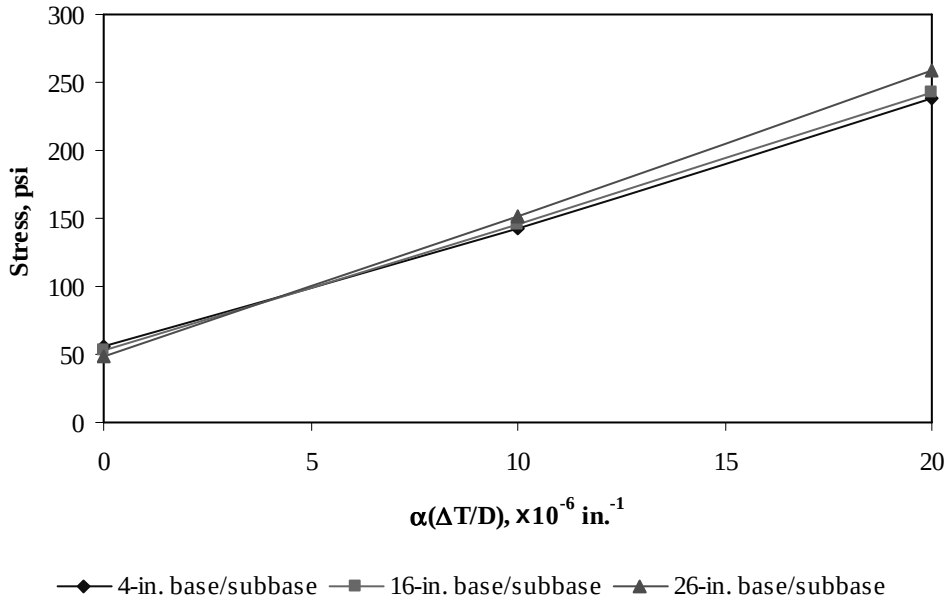


Figure F-6-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

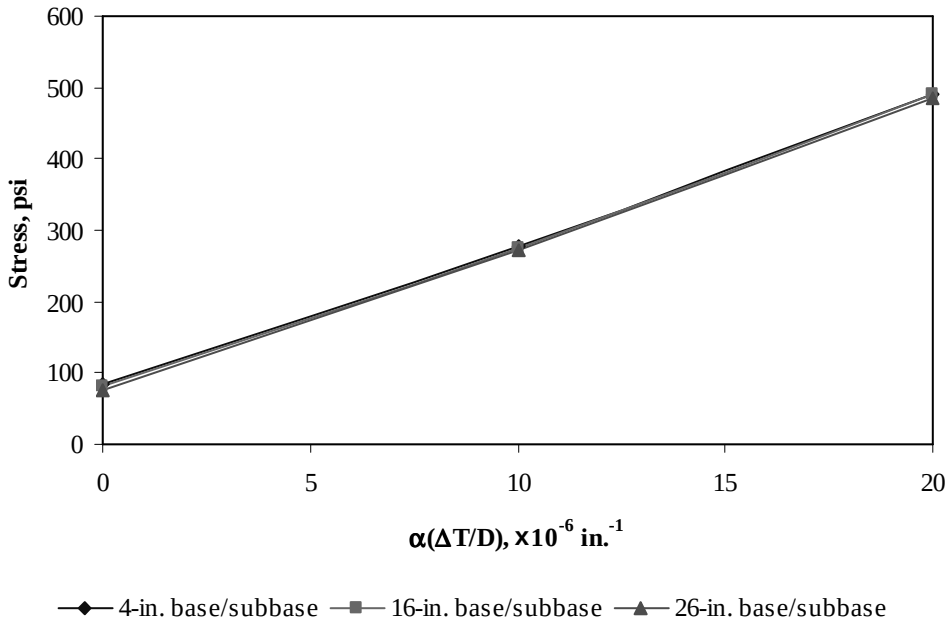


Figure F-6-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

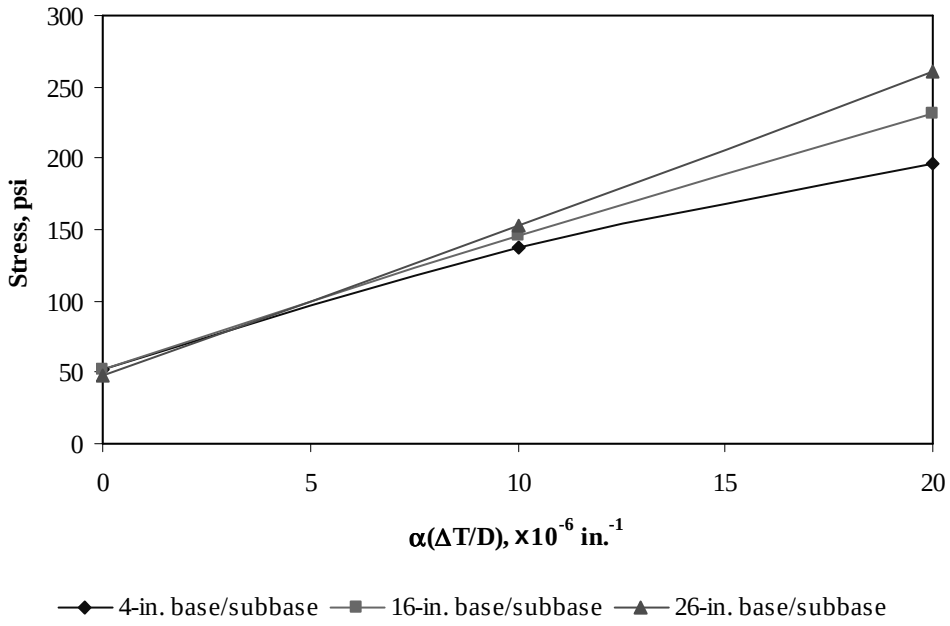


Figure F-6-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

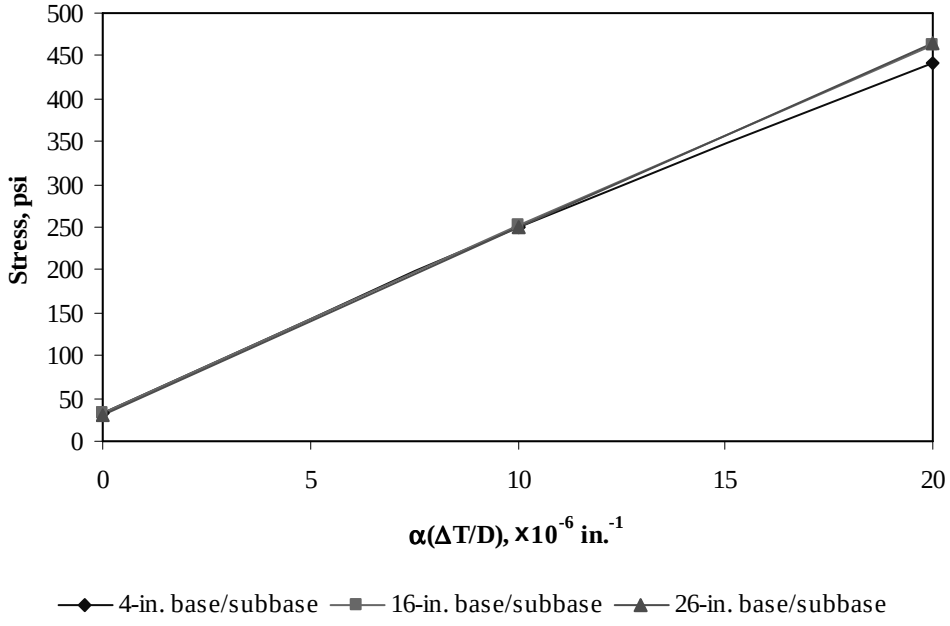


Figure F-6-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

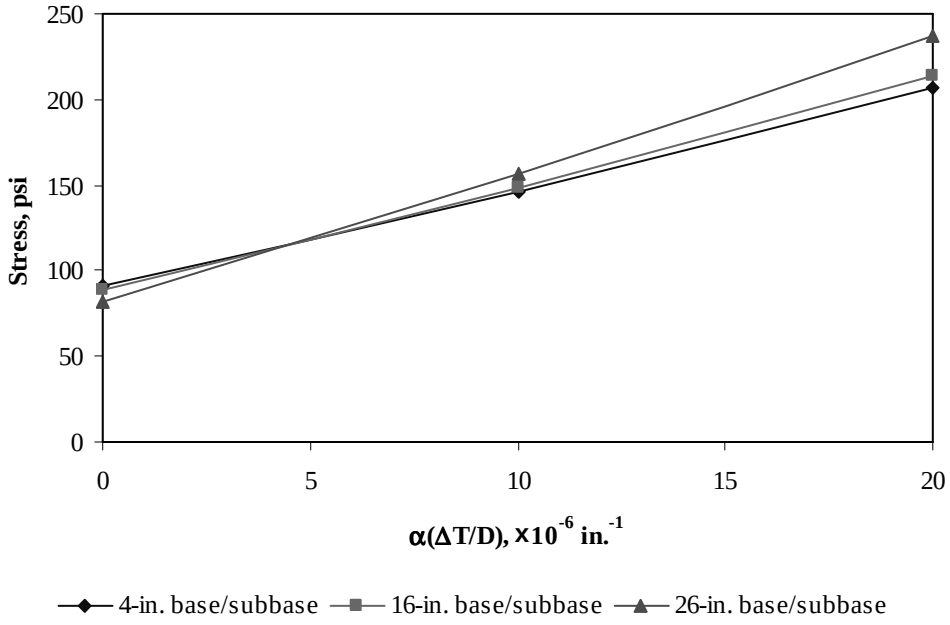


Figure F-6-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

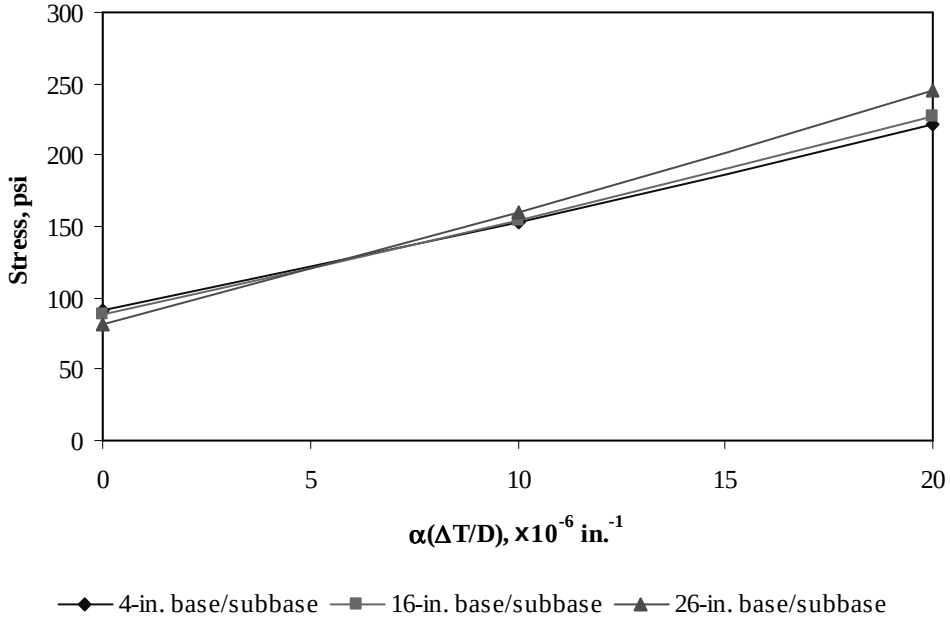


Figure F-6-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-6-43 through F-6-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

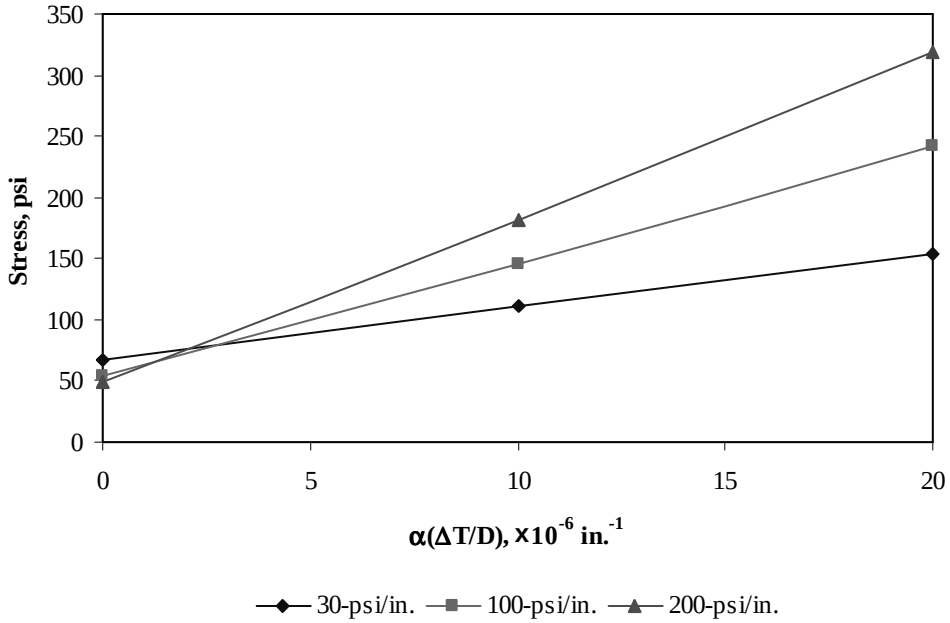


Figure F-6-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

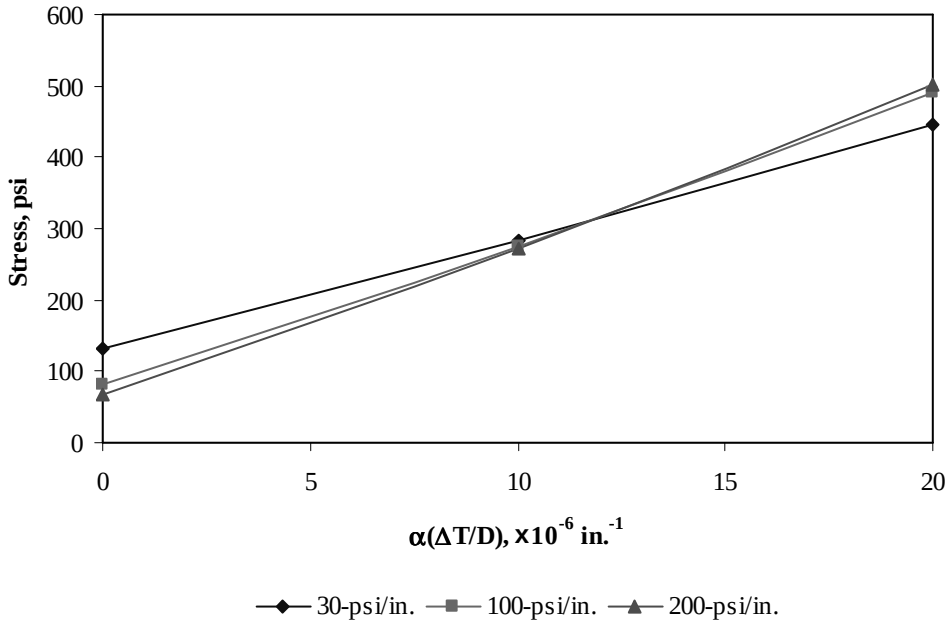


Figure F-6-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

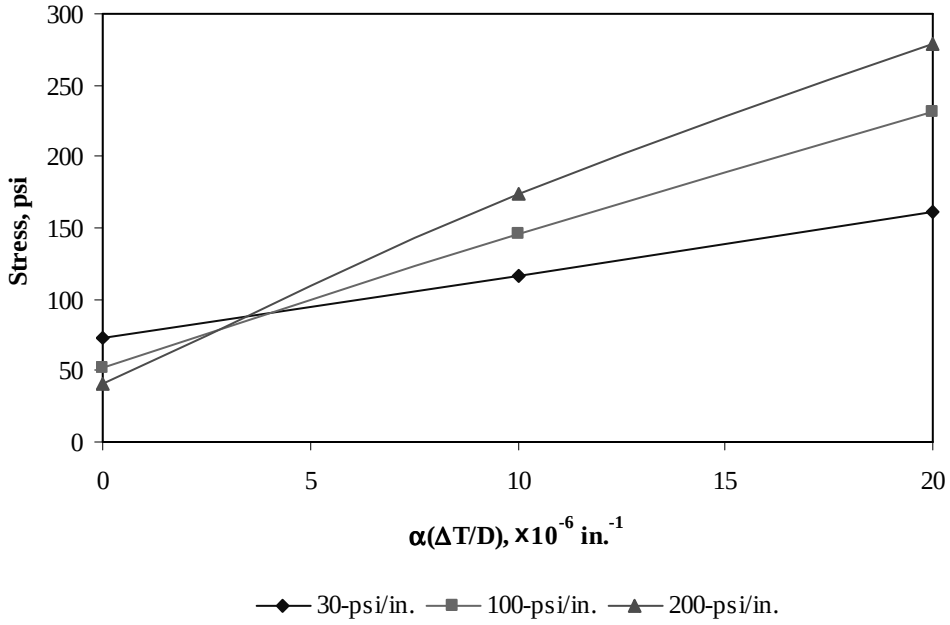


Figure F-6-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

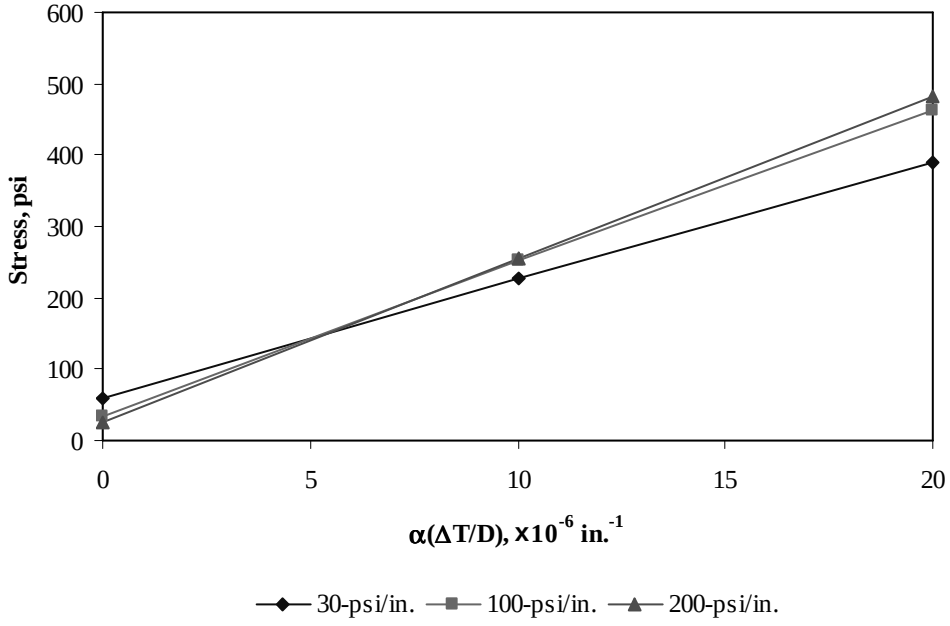


Figure F-6-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

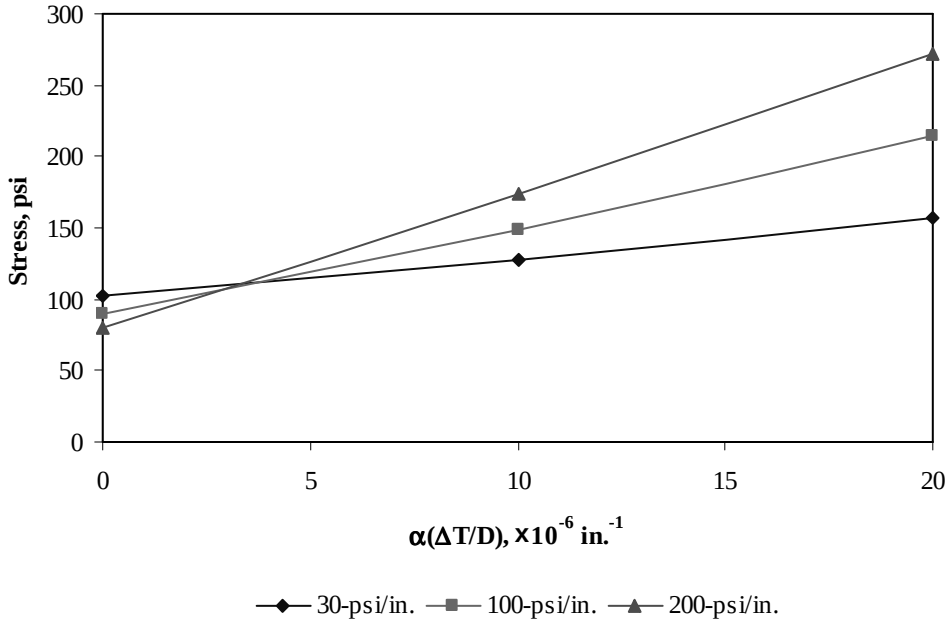


Figure F-6-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

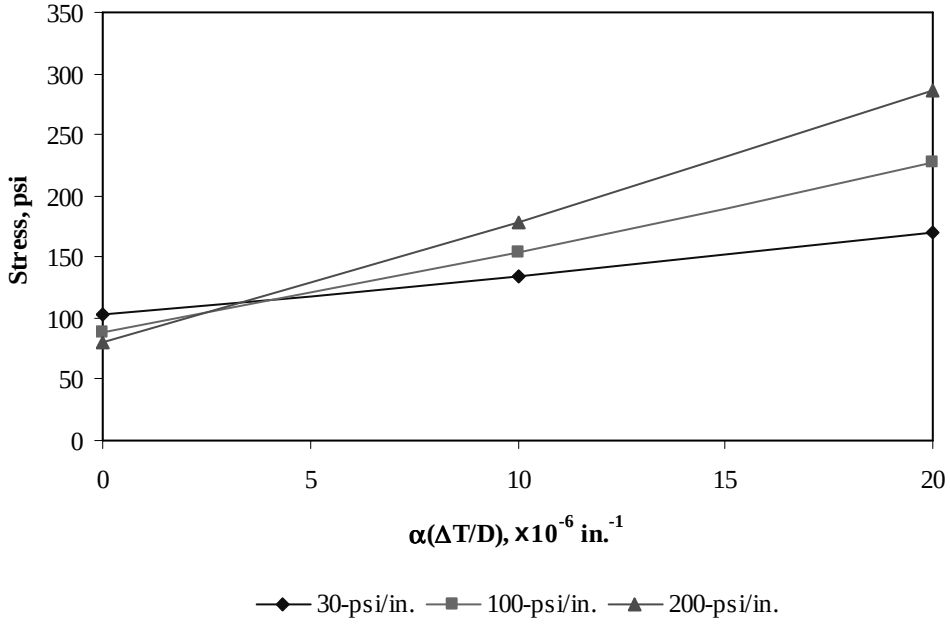


Figure F-6-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-6-49 through F-6-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

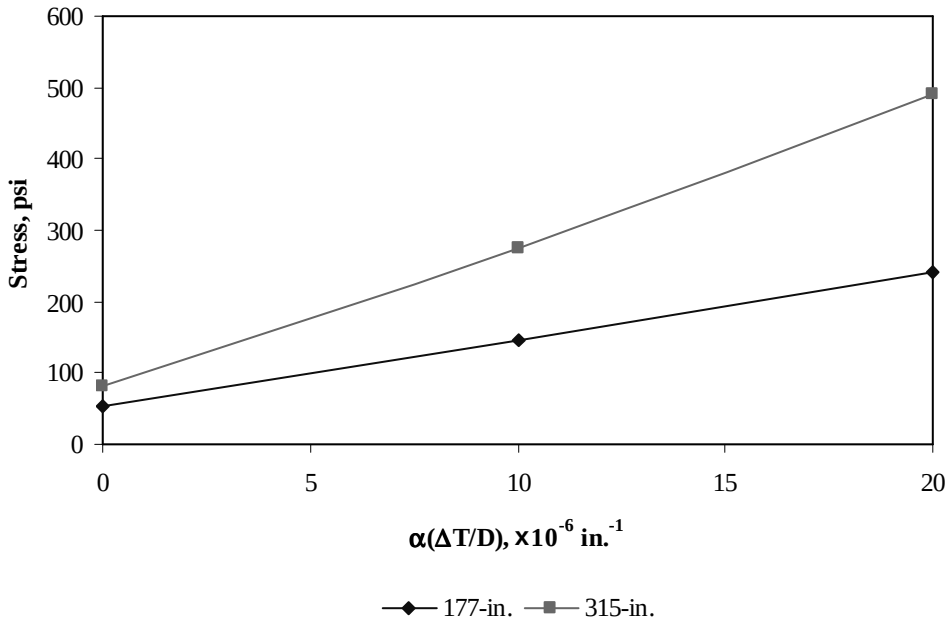


Figure F-6-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

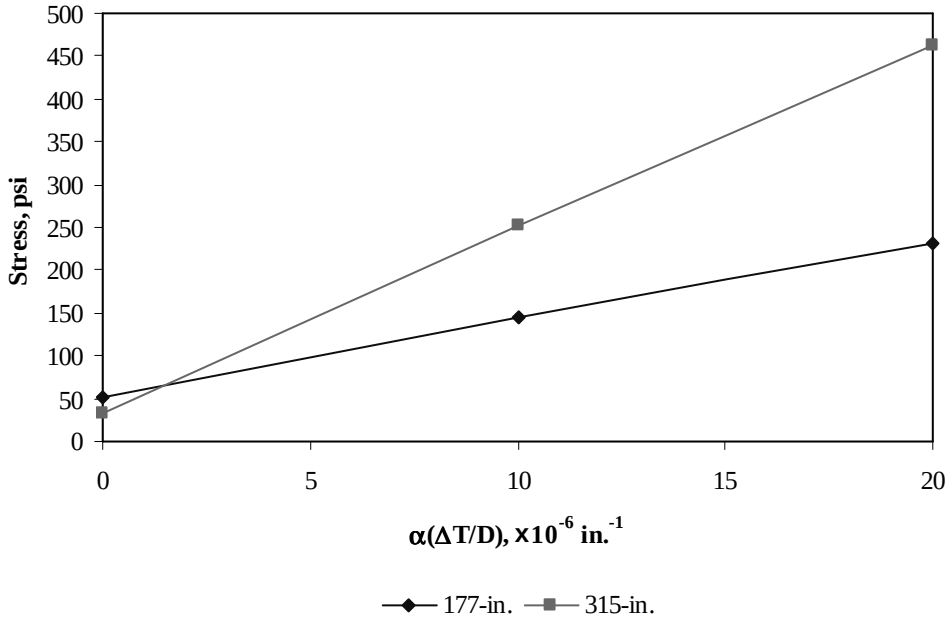


Figure F-6-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

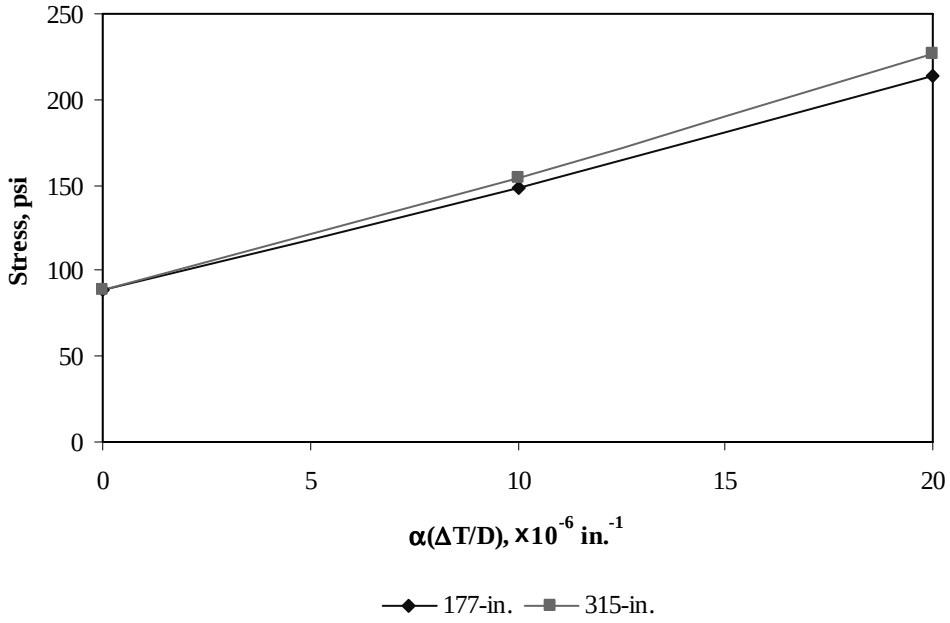


Figure F-6-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-7

Documentation of Pavement Responses for

91-kips Multi-axle (7)

Figures F-7-1 through F-7-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

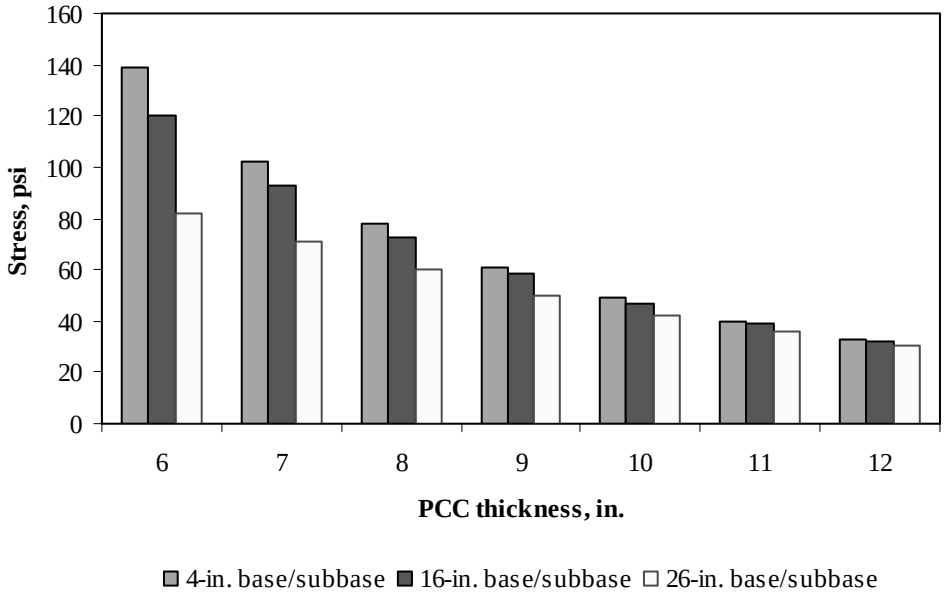


Figure F-7-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

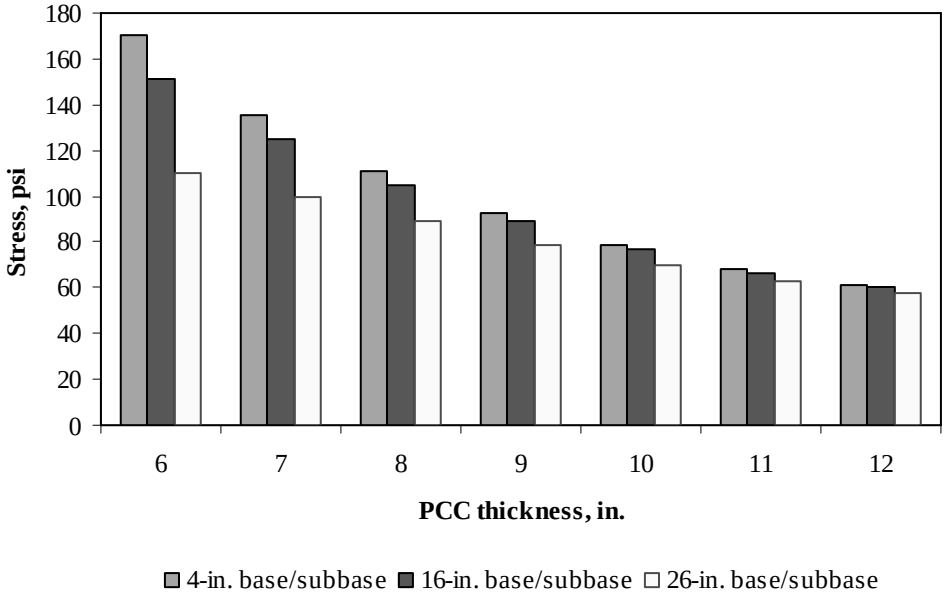


Figure F-7-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

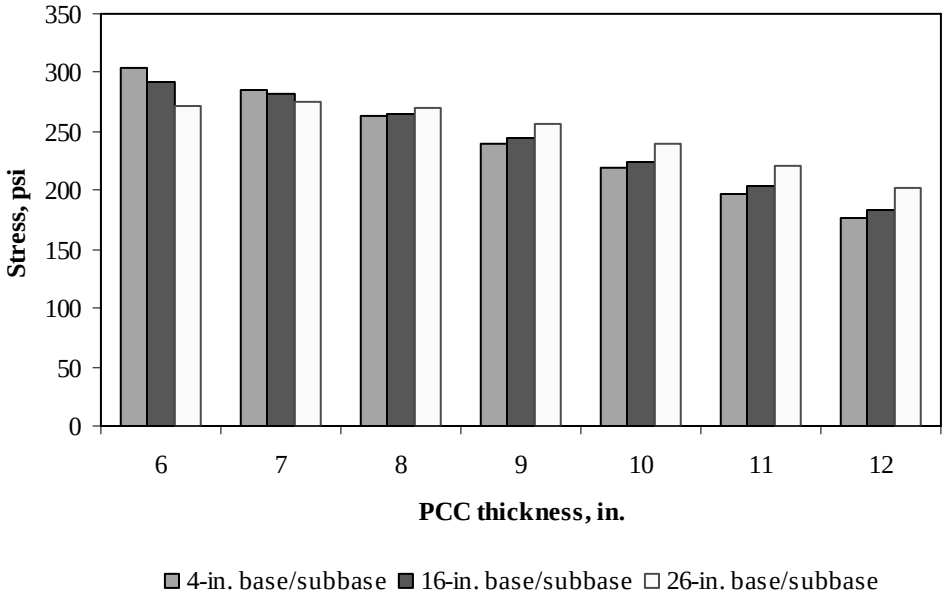


Figure F-7-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

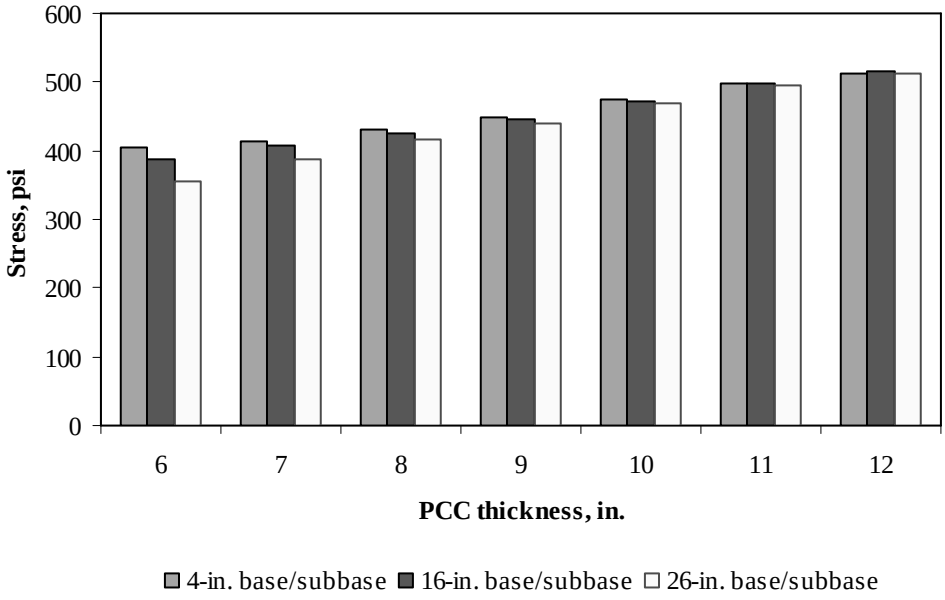


Figure F-7-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

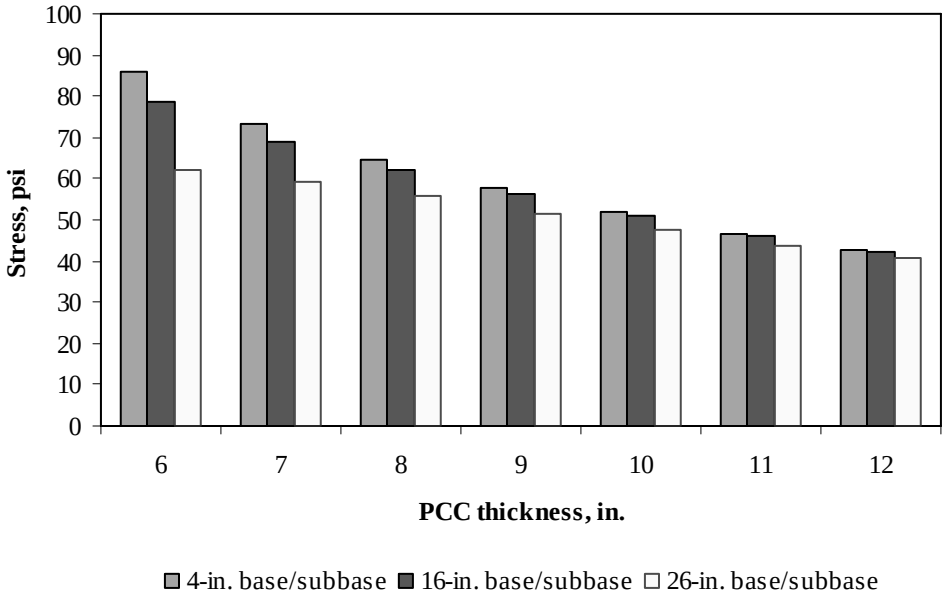


Figure F-7-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

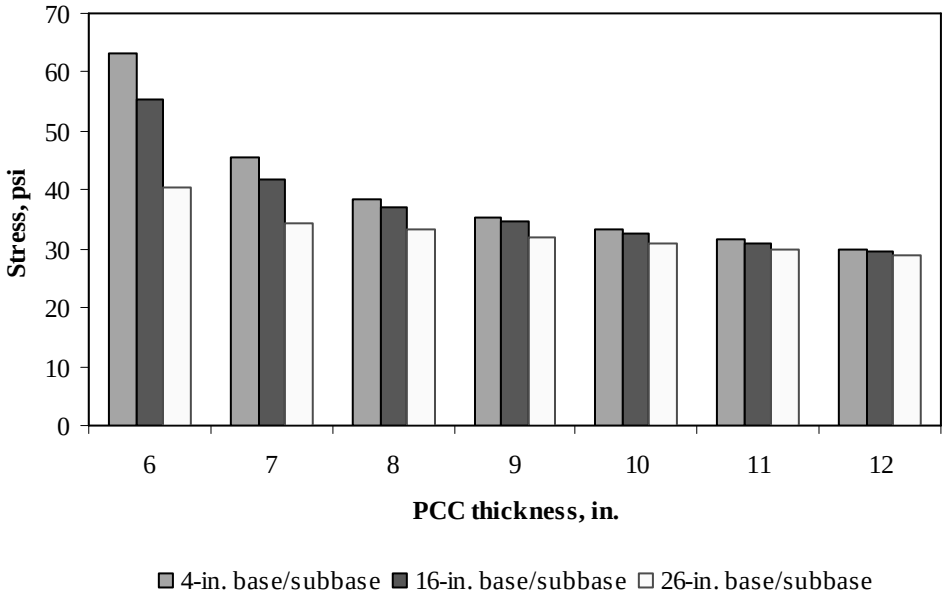


Figure F-7-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

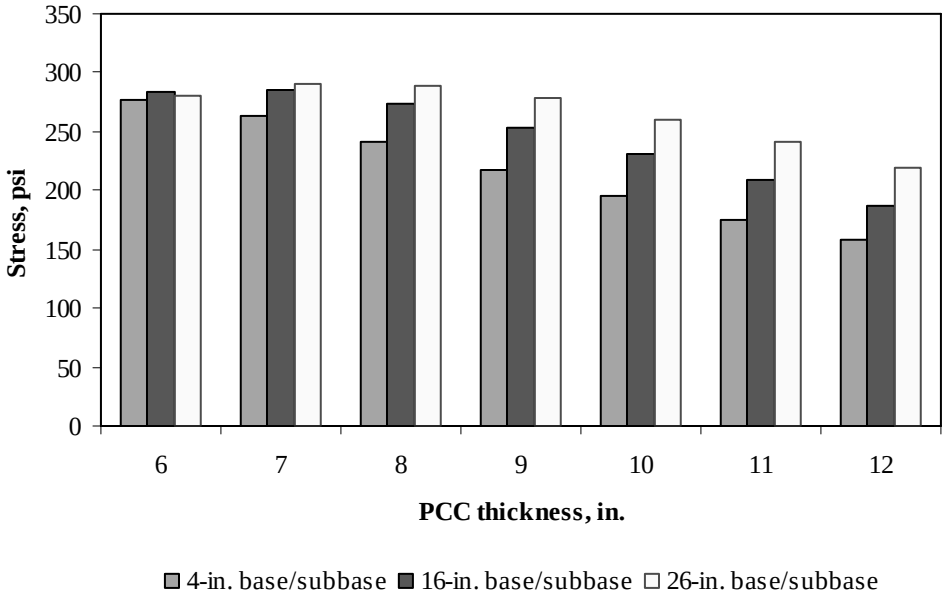


Figure F-7-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

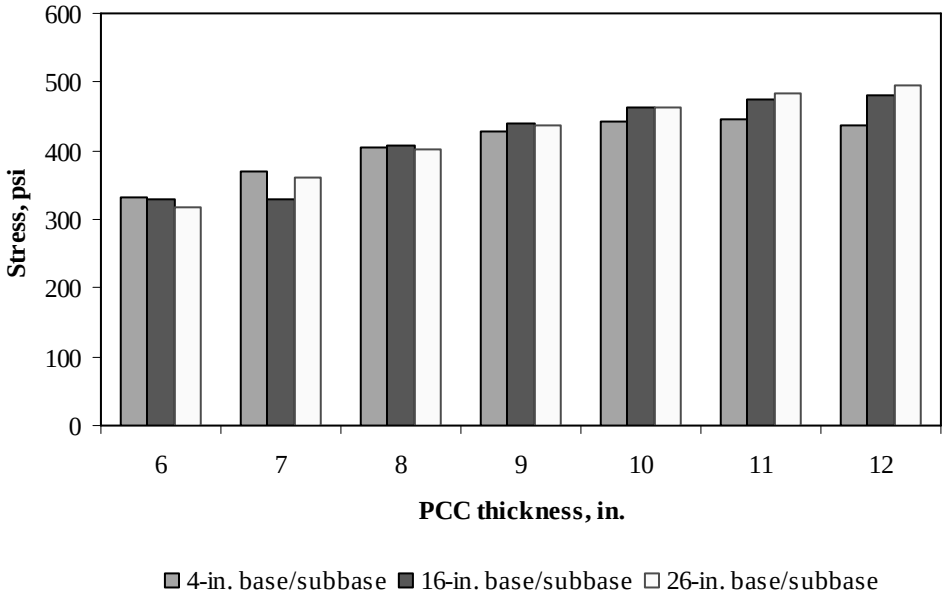


Figure F-7-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

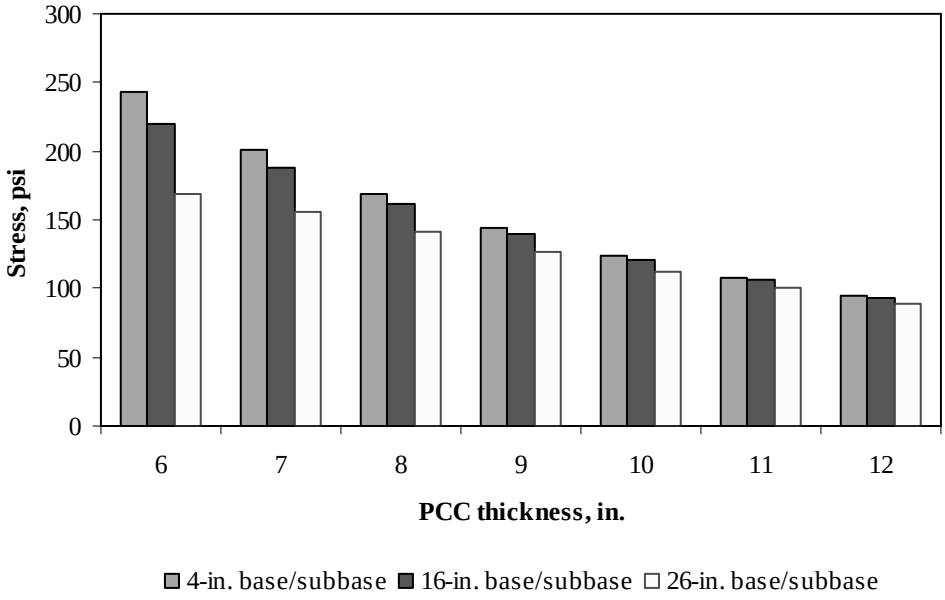


Figure F-7-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

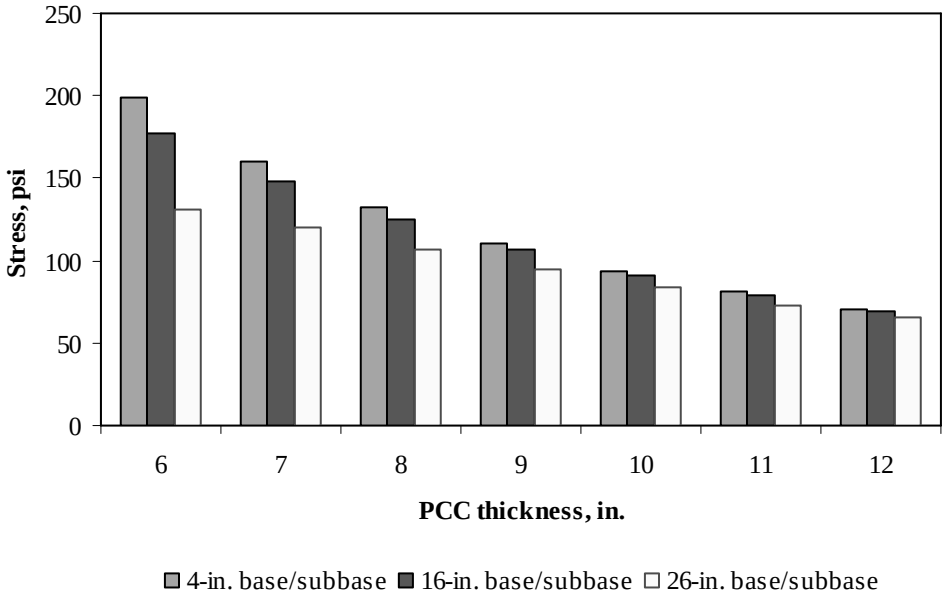


Figure F-7-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

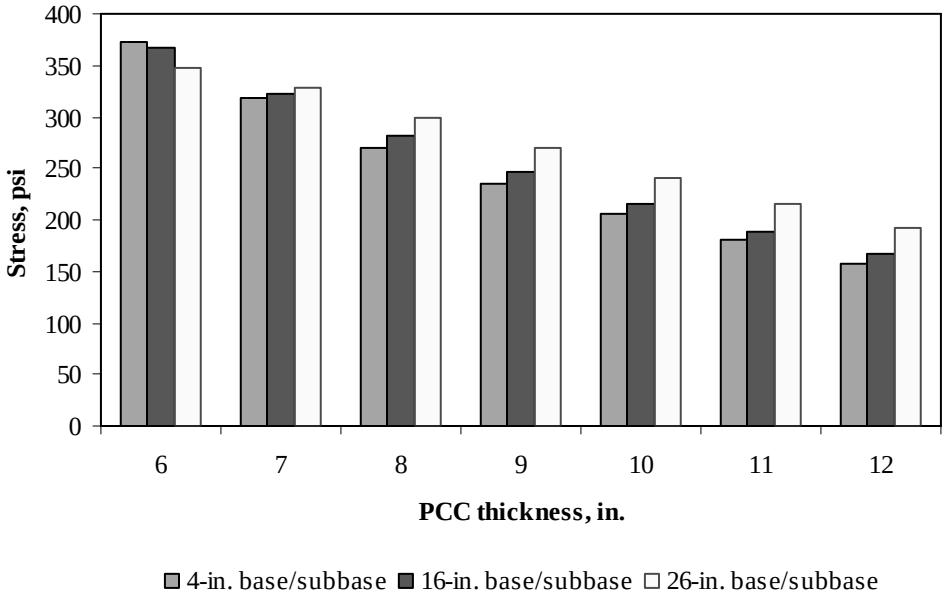


Figure F-7-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

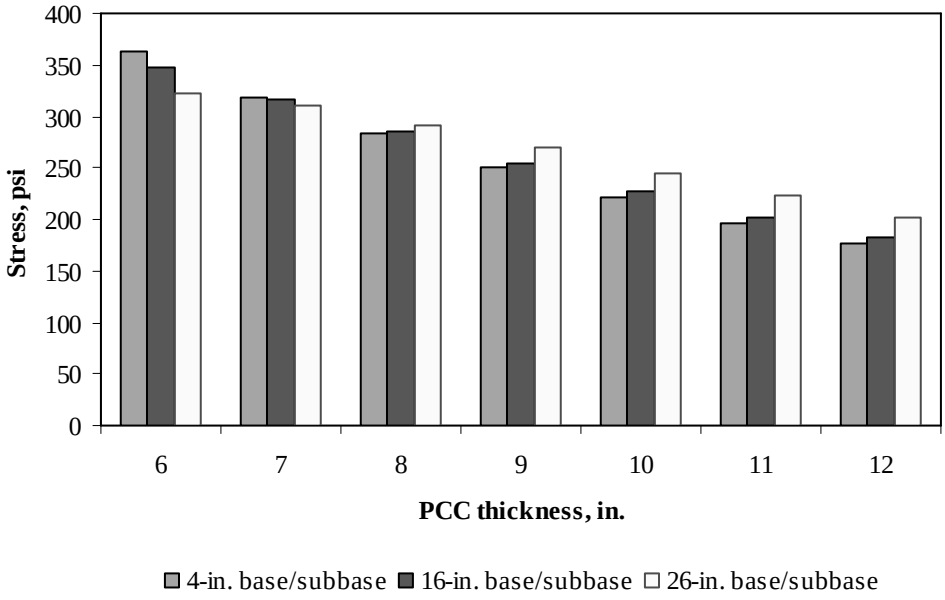


Figure F-7-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-7-13 through F-7-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

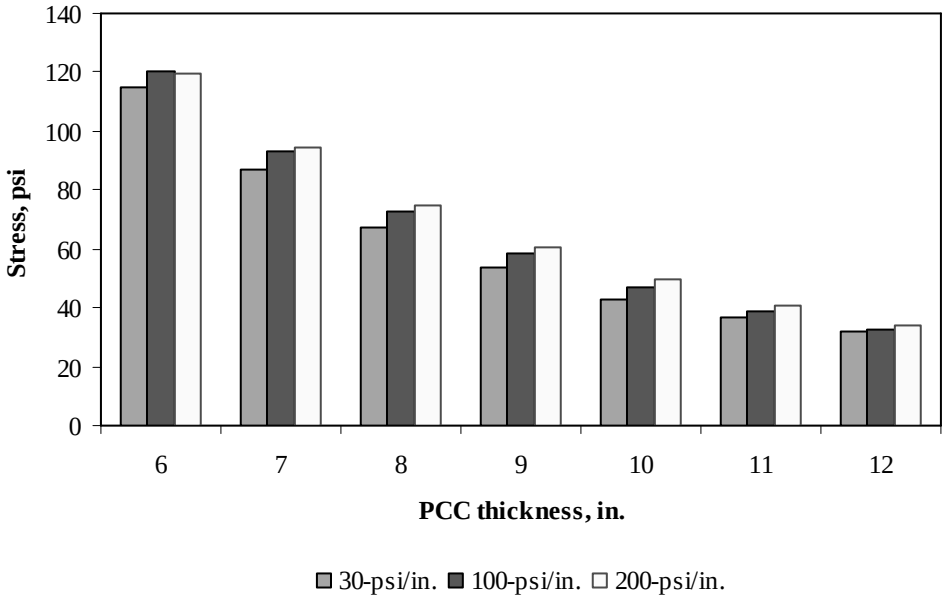


Figure F-7-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

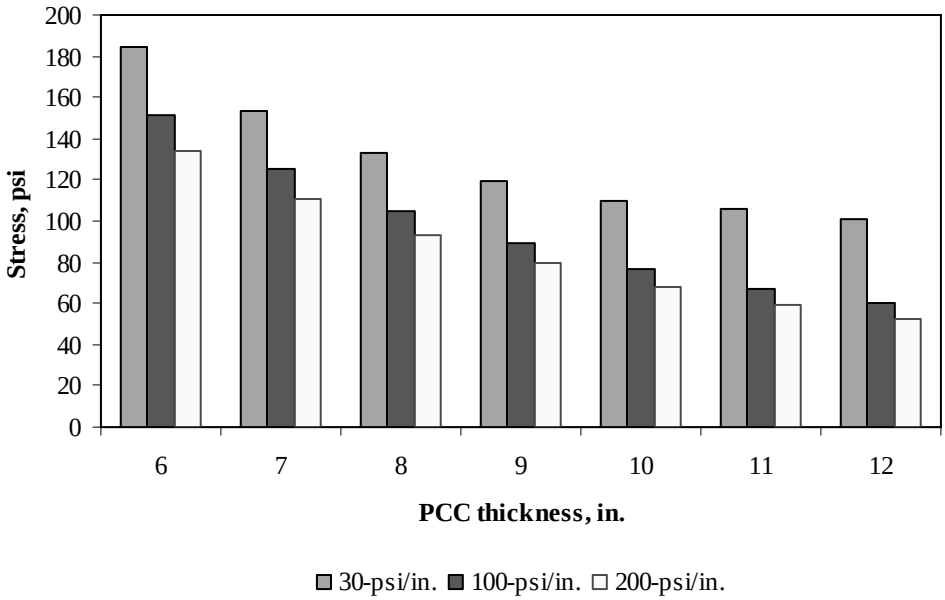


Figure F-7-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

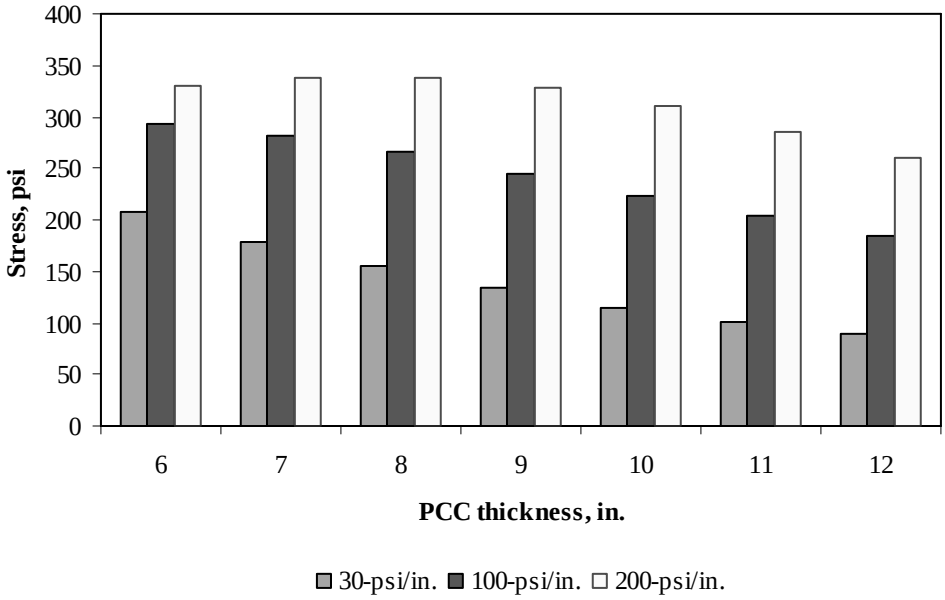


Figure F-7-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

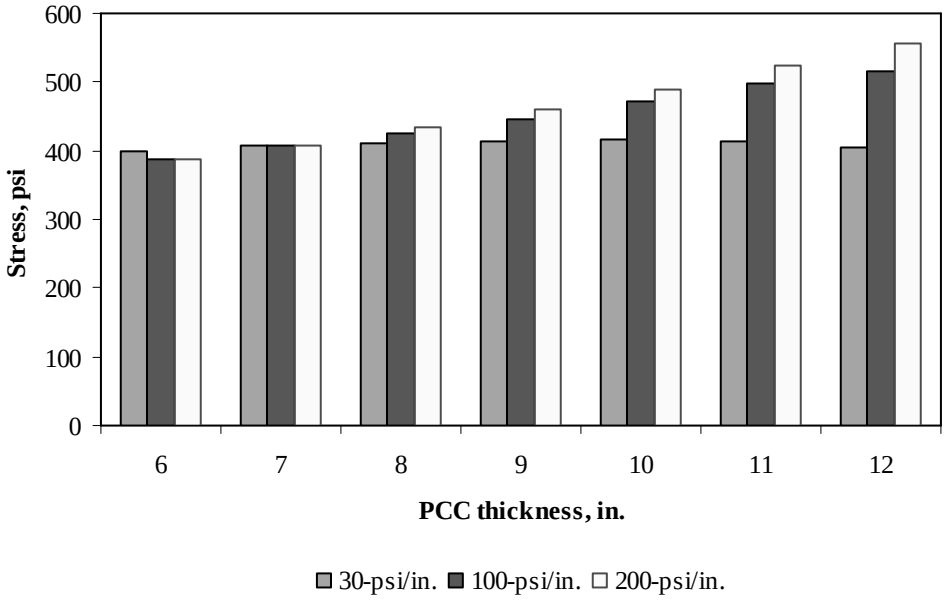


Figure F-7-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

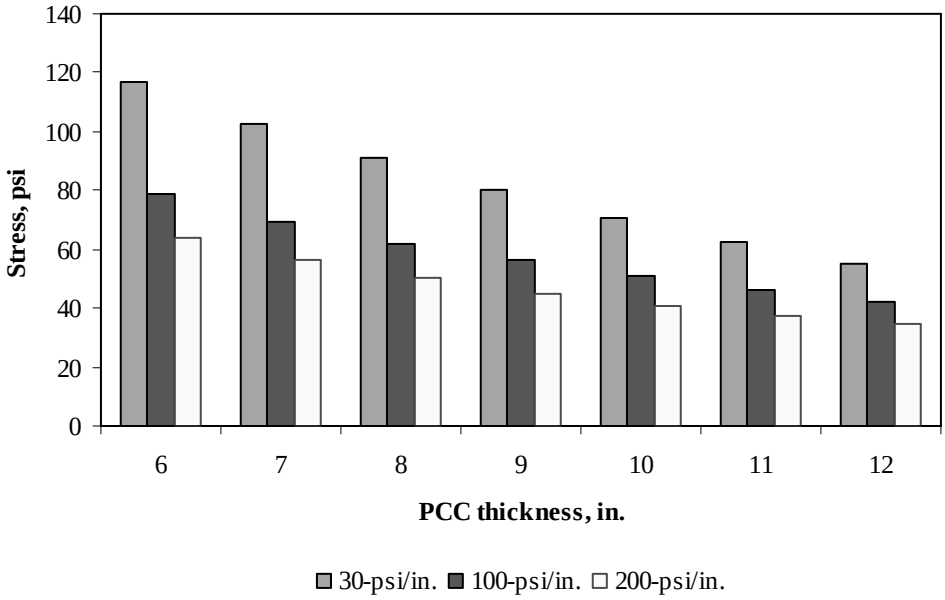


Figure F-7-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

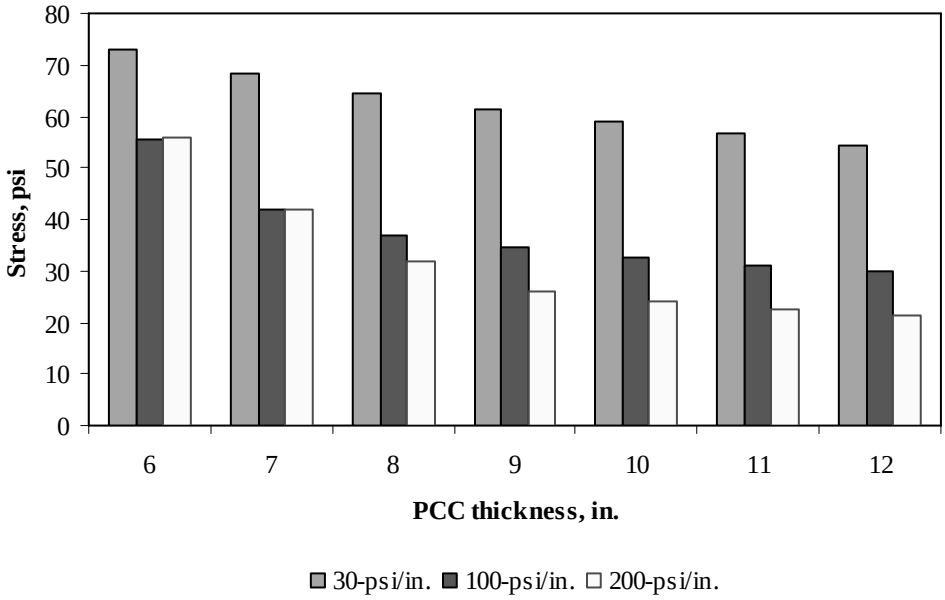


Figure F-7-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

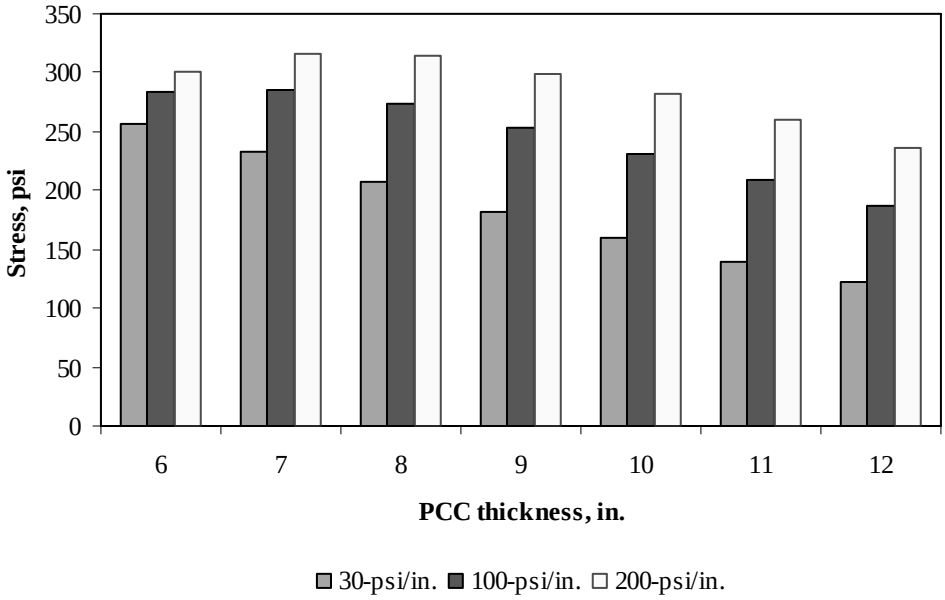


Figure F-7-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

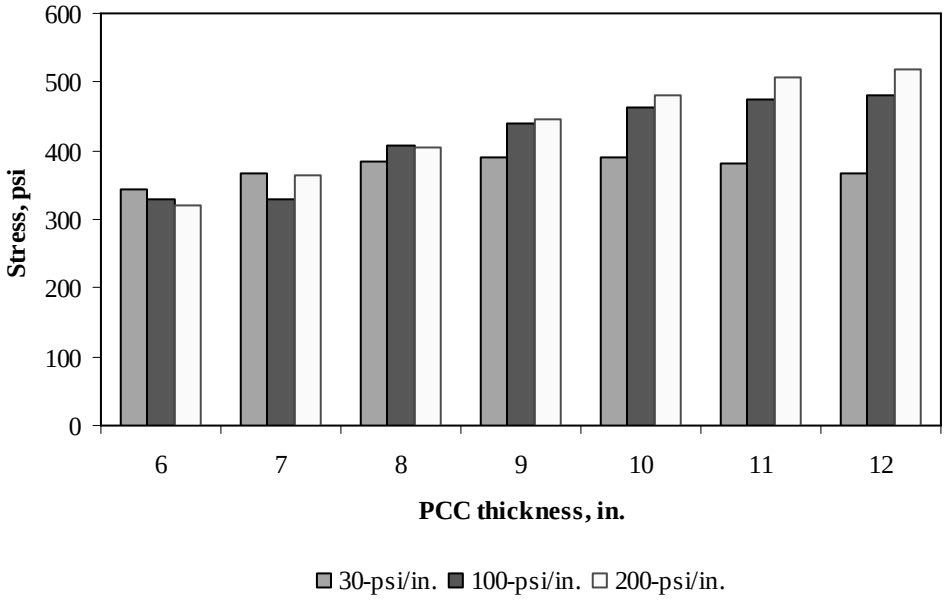


Figure F-7-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

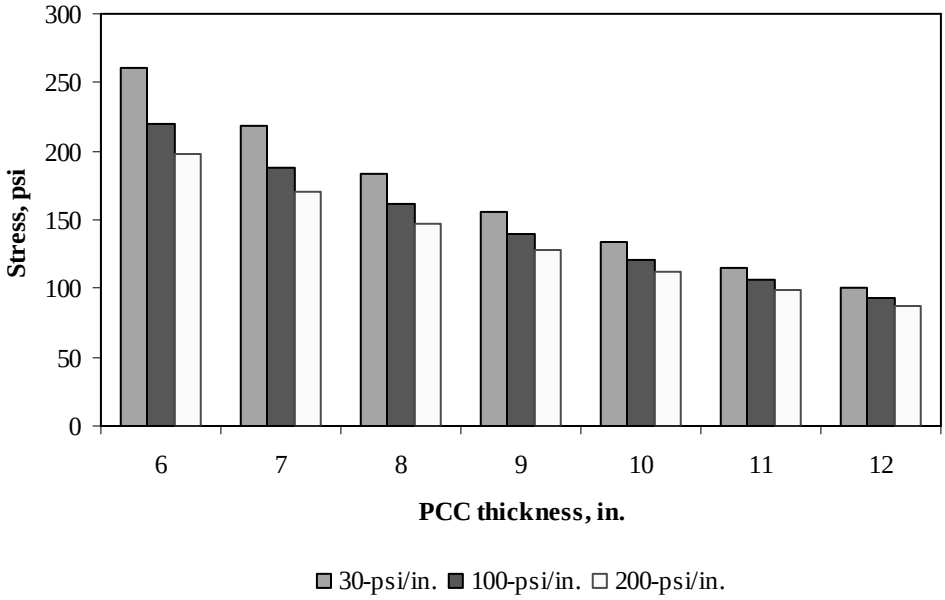


Figure F-7-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

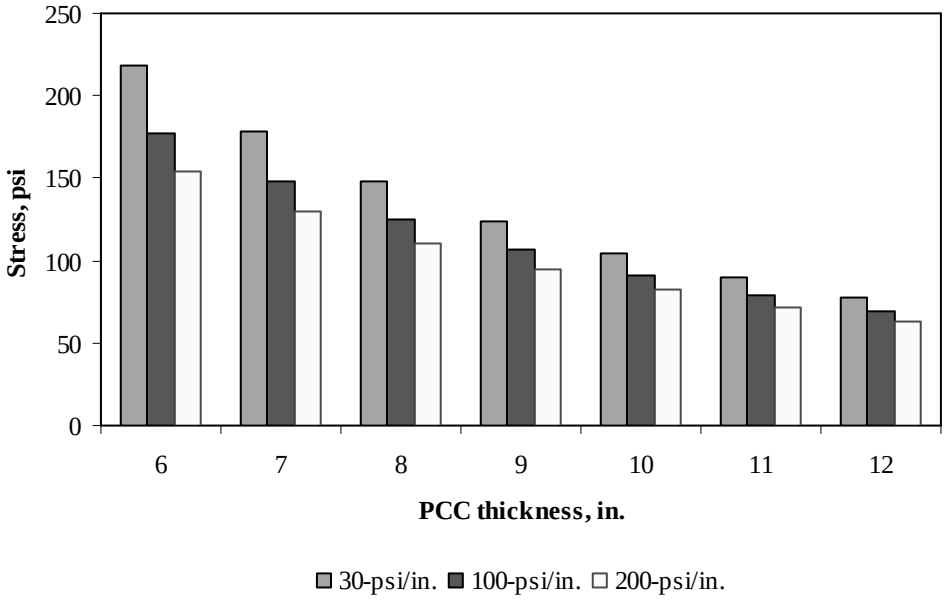


Figure F-7-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

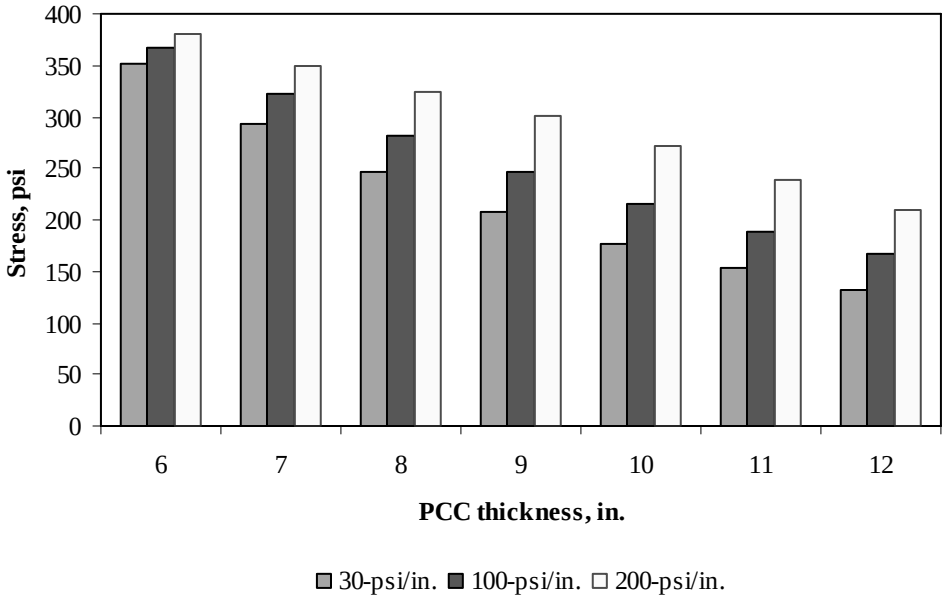


Figure F-7-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

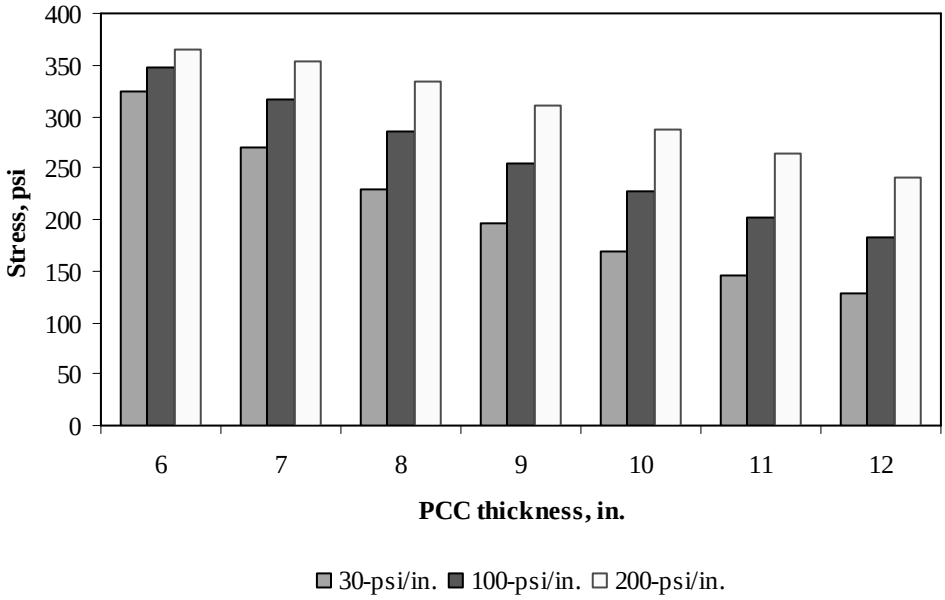


Figure F-7-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-7-25 through F-7-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

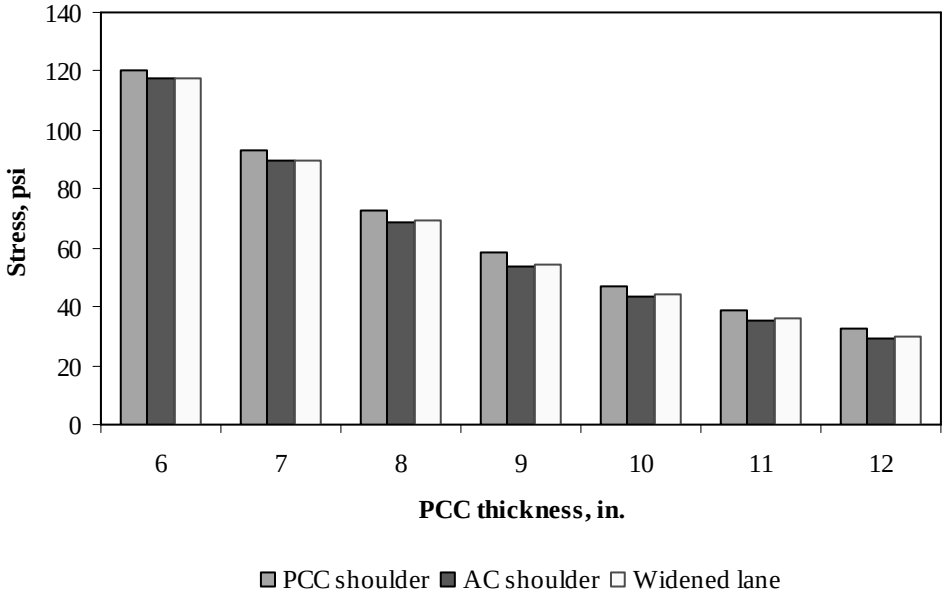


Figure F-7-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

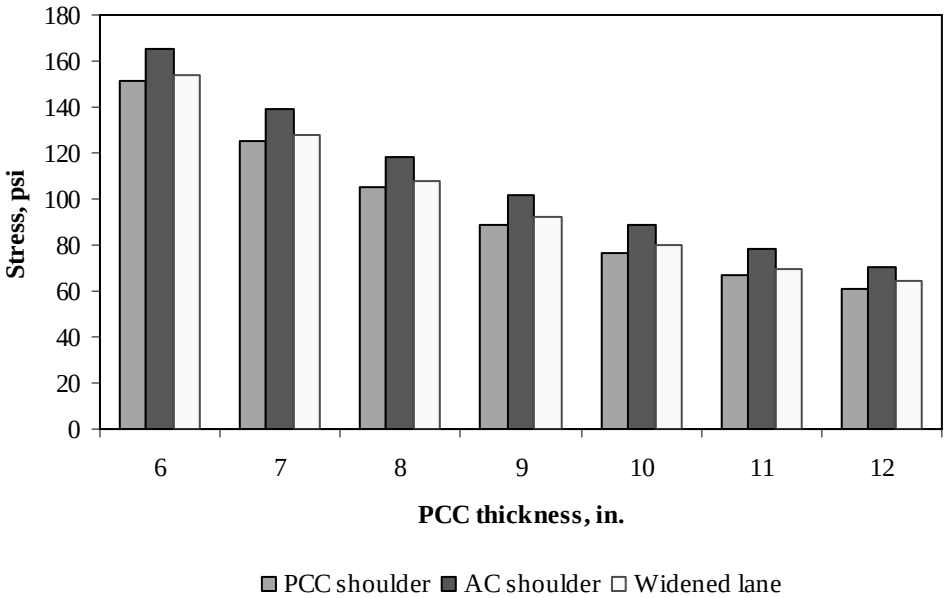


Figure F-7-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

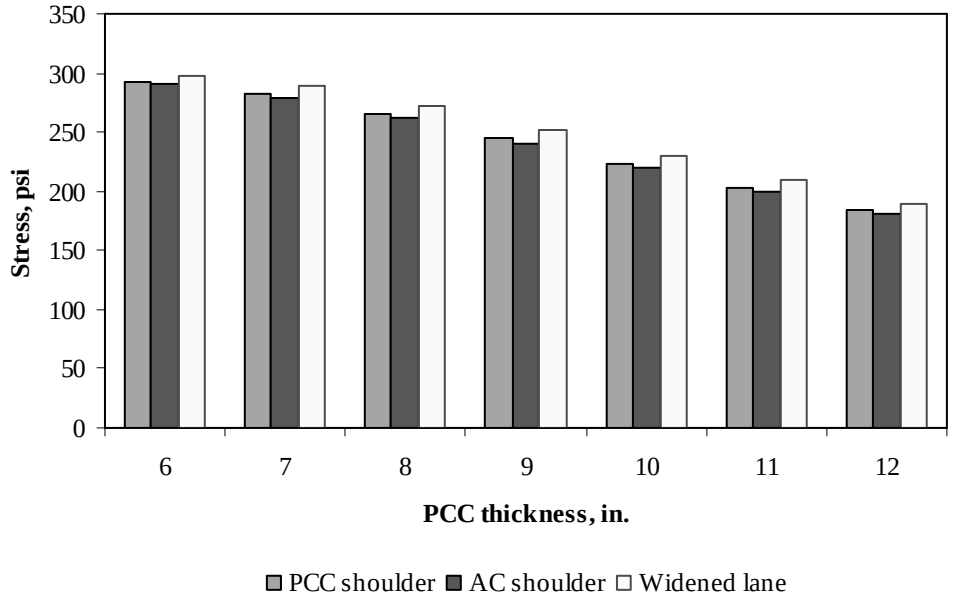


Figure F-7-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

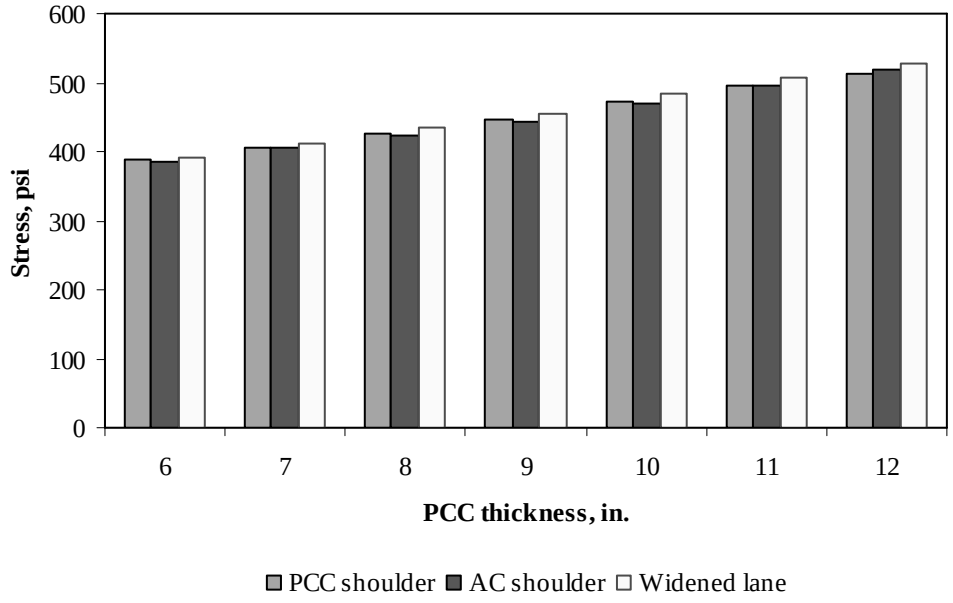


Figure F-7-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

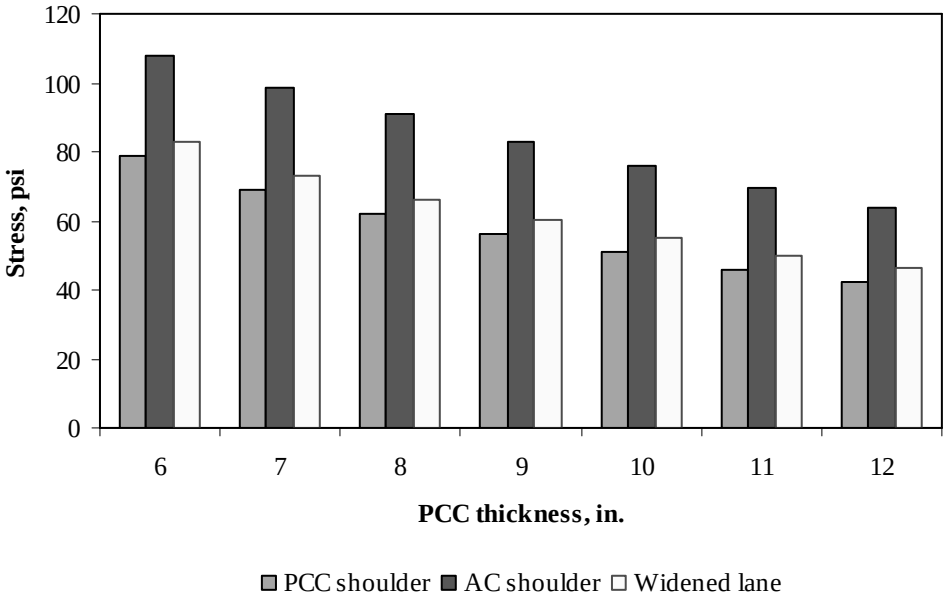


Figure F-7-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

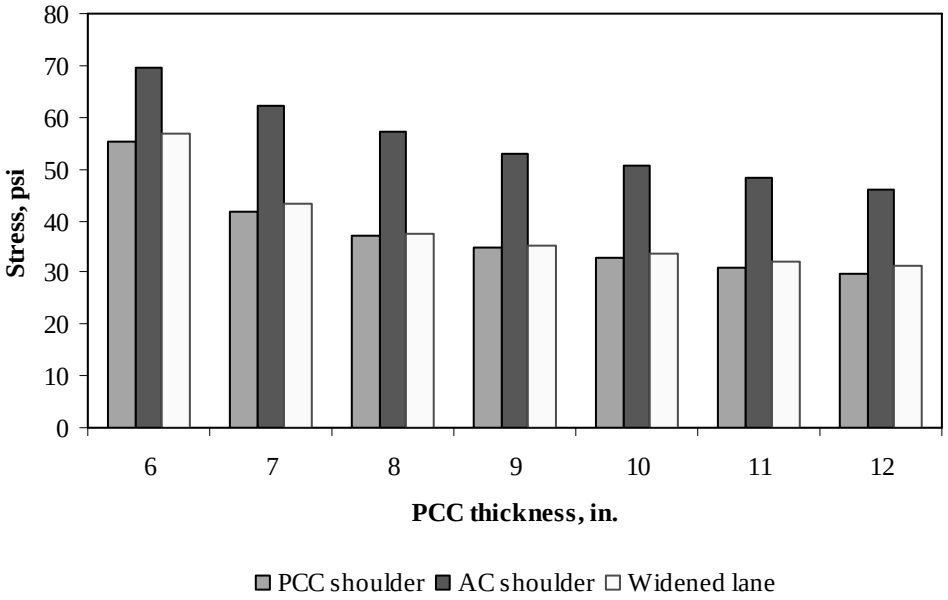


Figure F-7-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

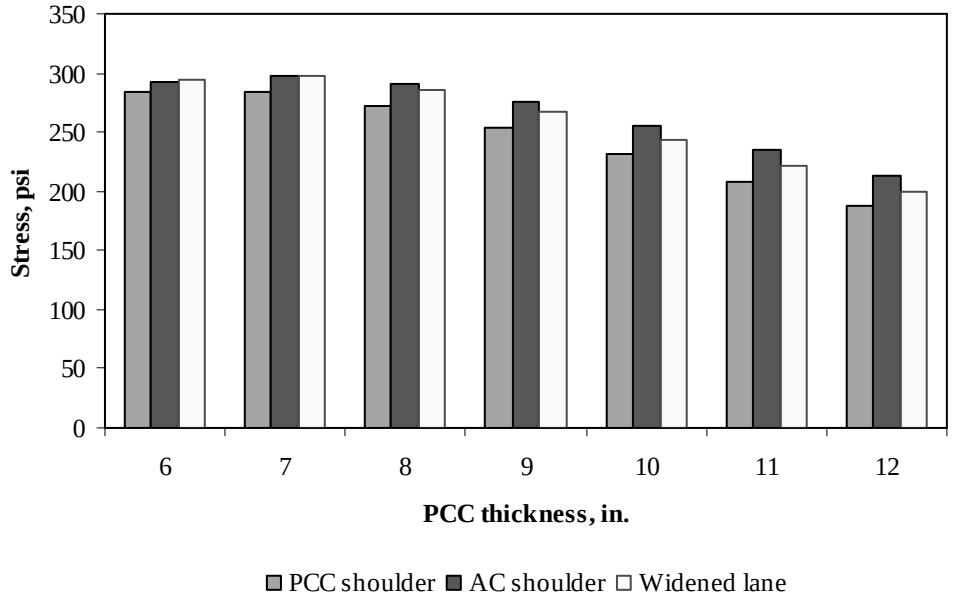


Figure F-7-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

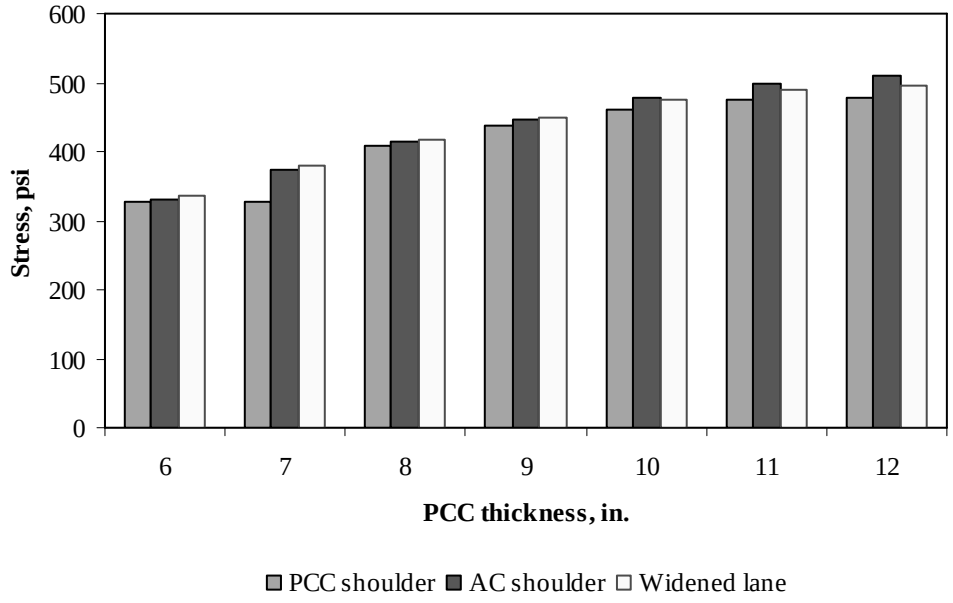


Figure F-7-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

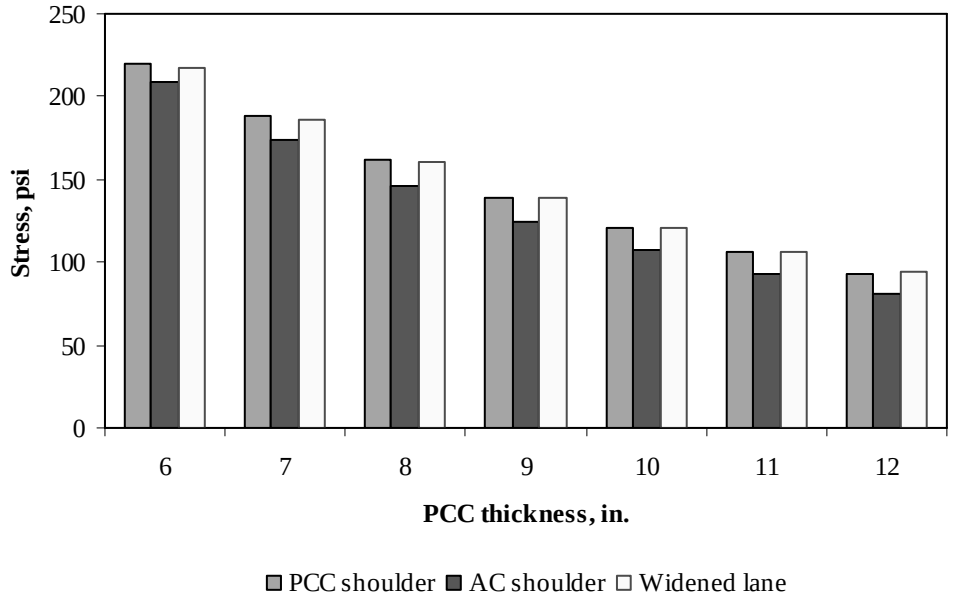


Figure F-7-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

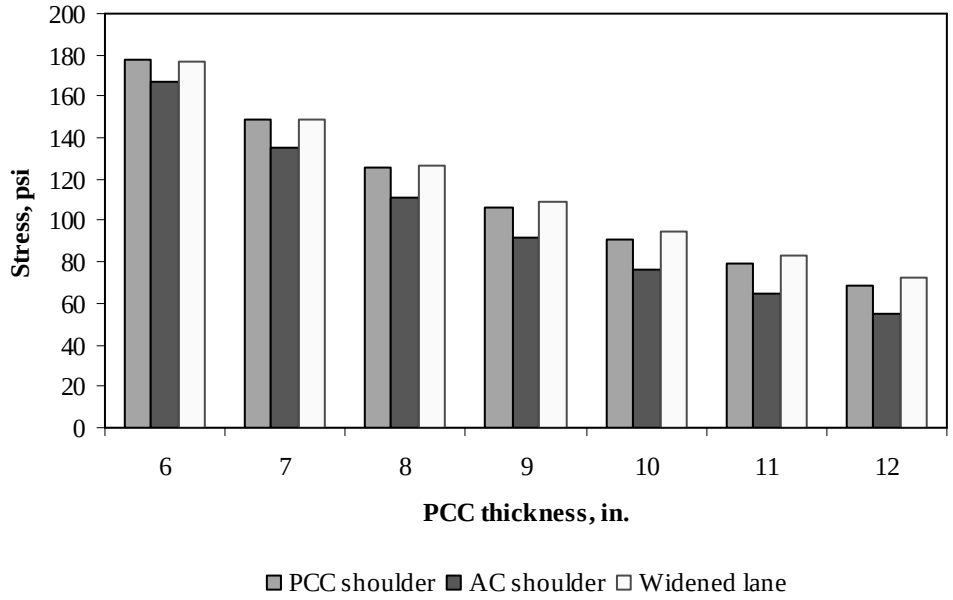


Figure F-7-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

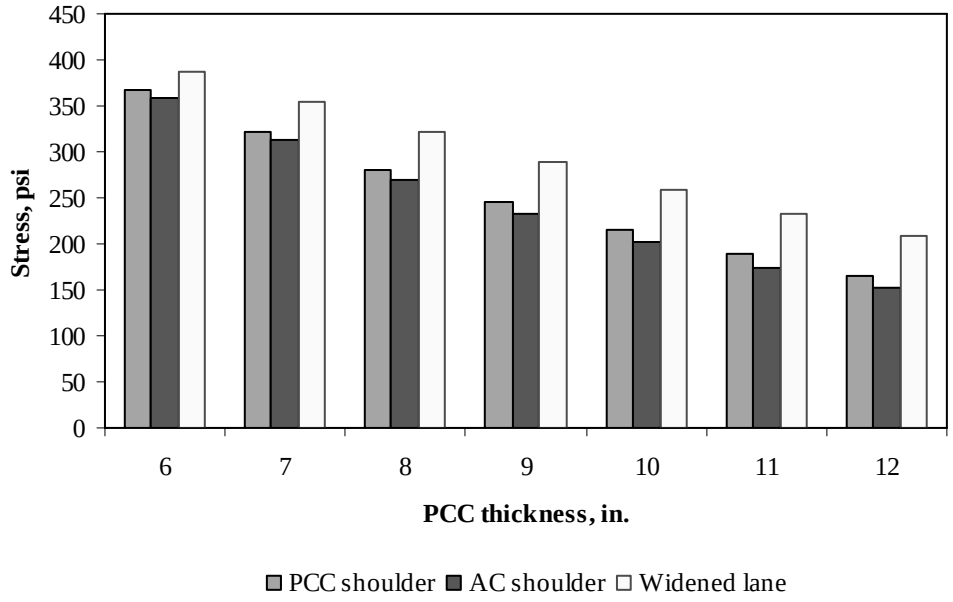


Figure F-7-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

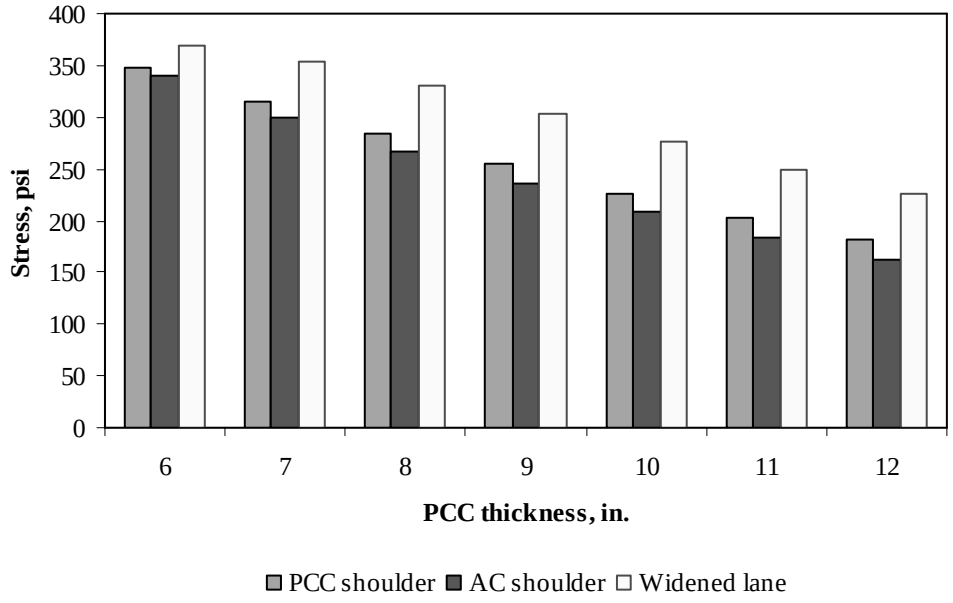


Figure F-7-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-7-37 through F-7-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

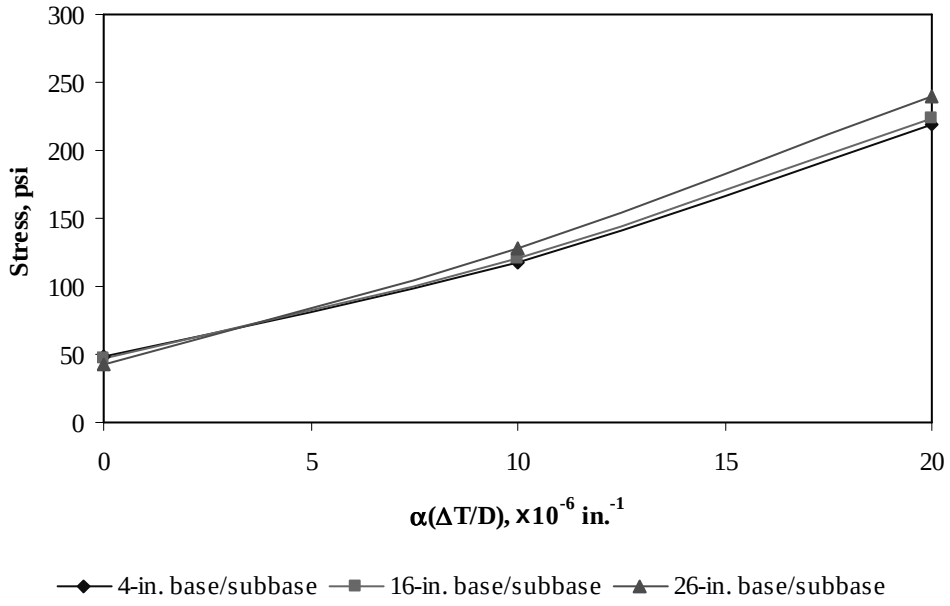


Figure F-7-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

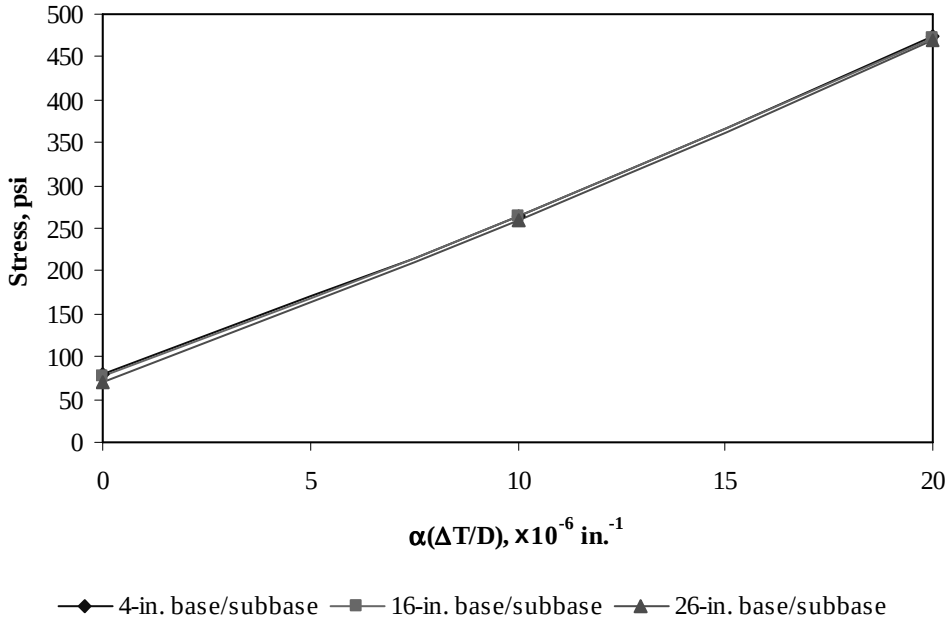


Figure F-7-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

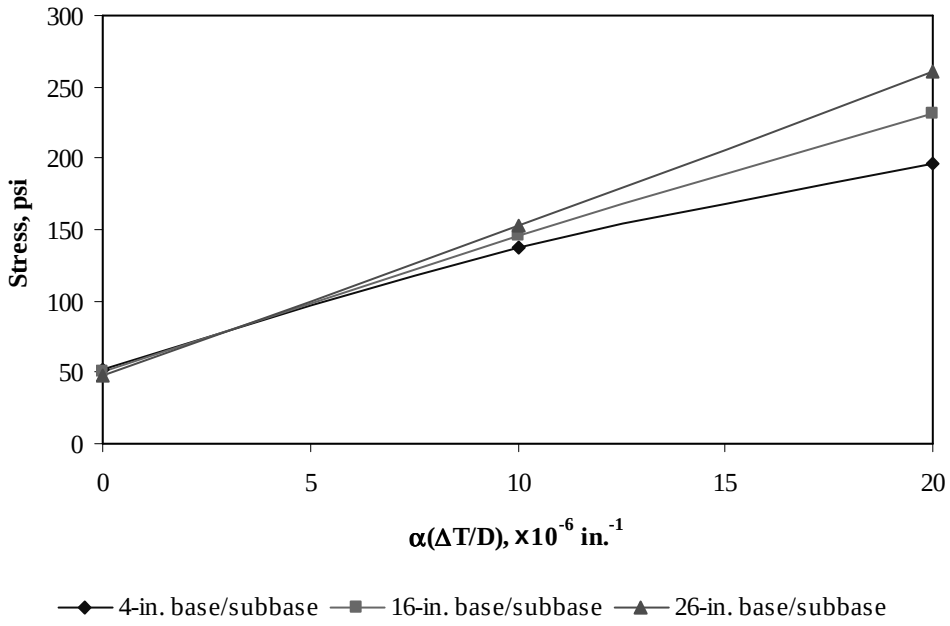


Figure F-7-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

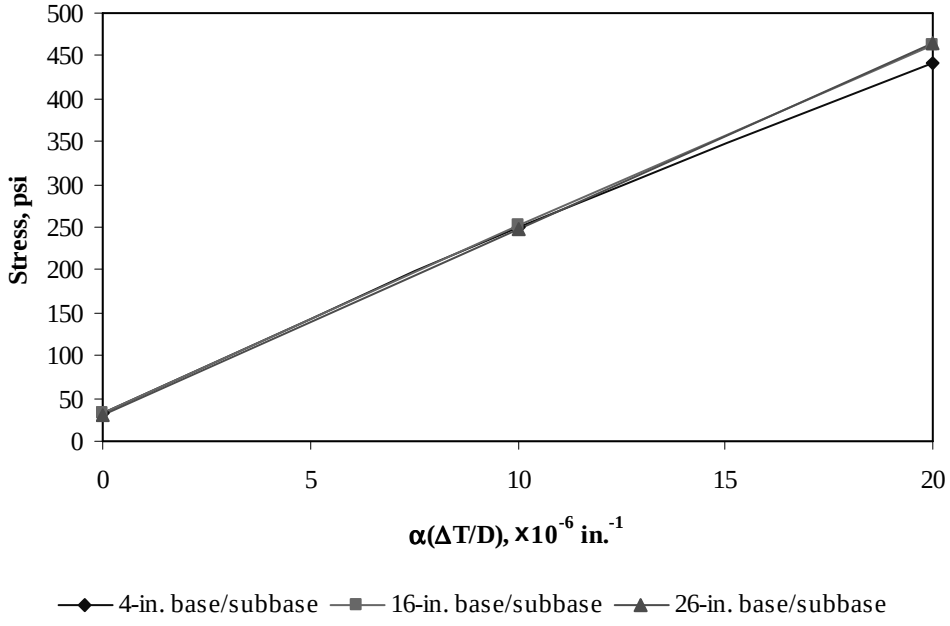


Figure F-7-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

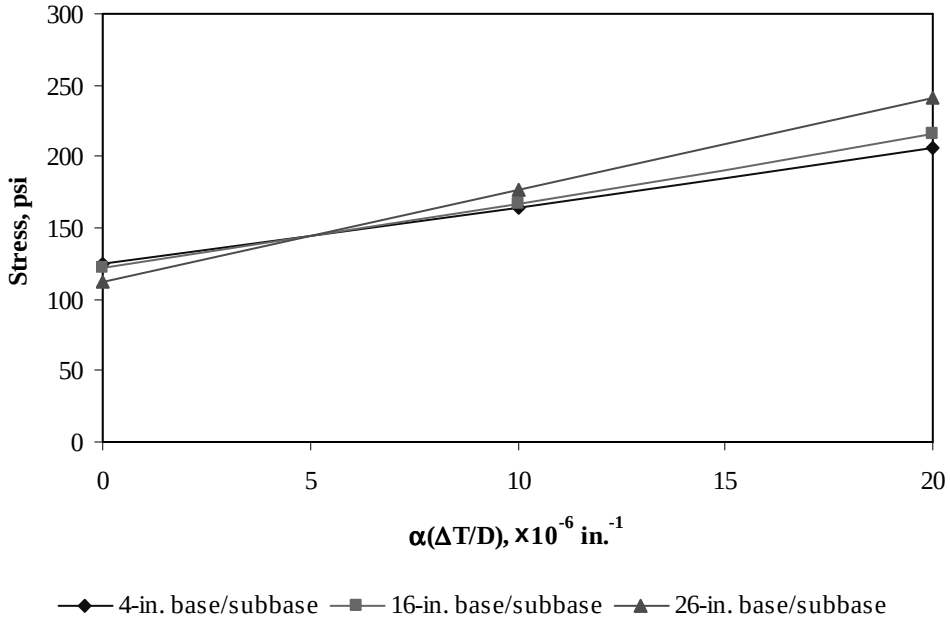


Figure F-7-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

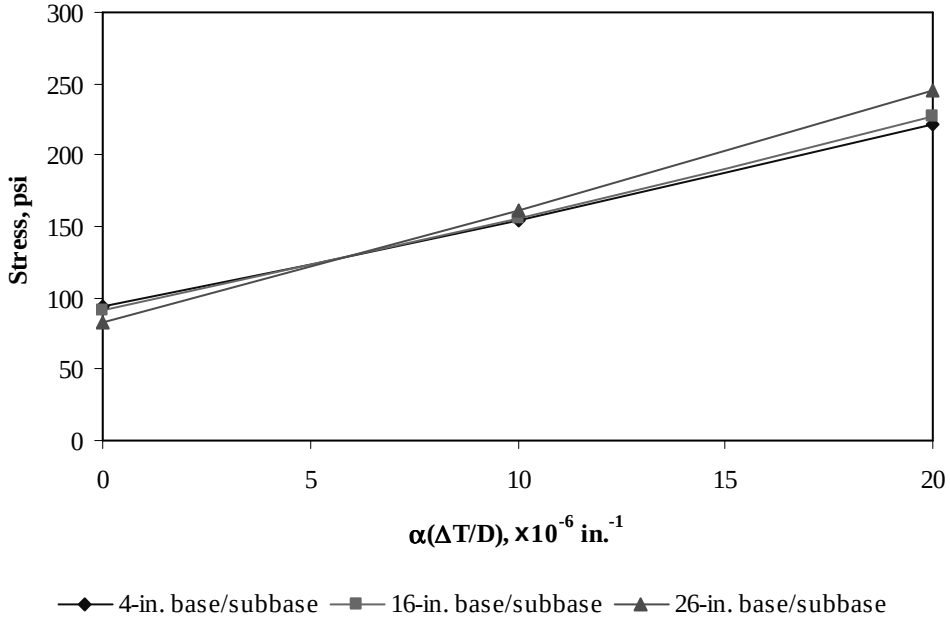


Figure F-7-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-7-43 through F-7-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

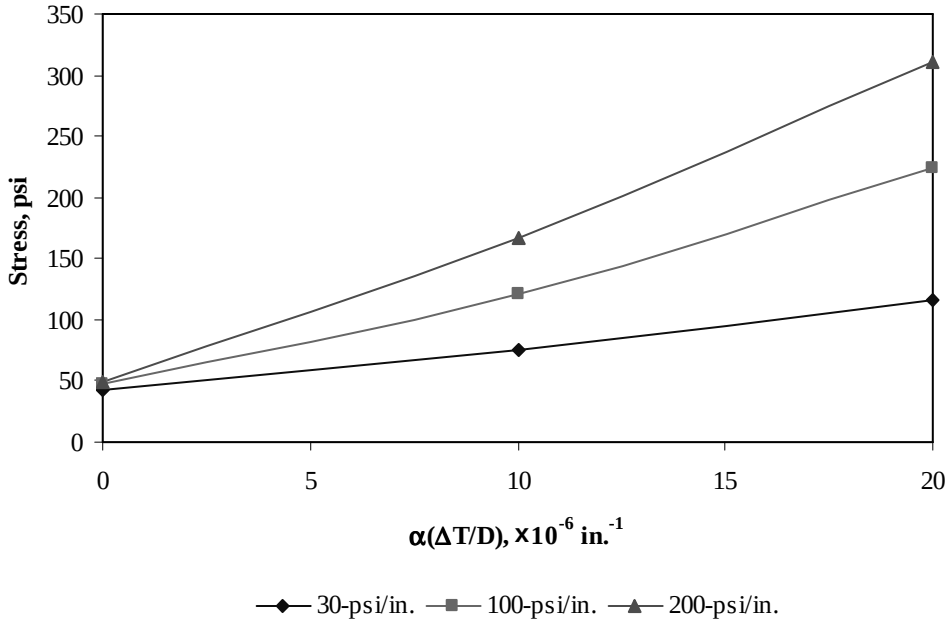


Figure F-7-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

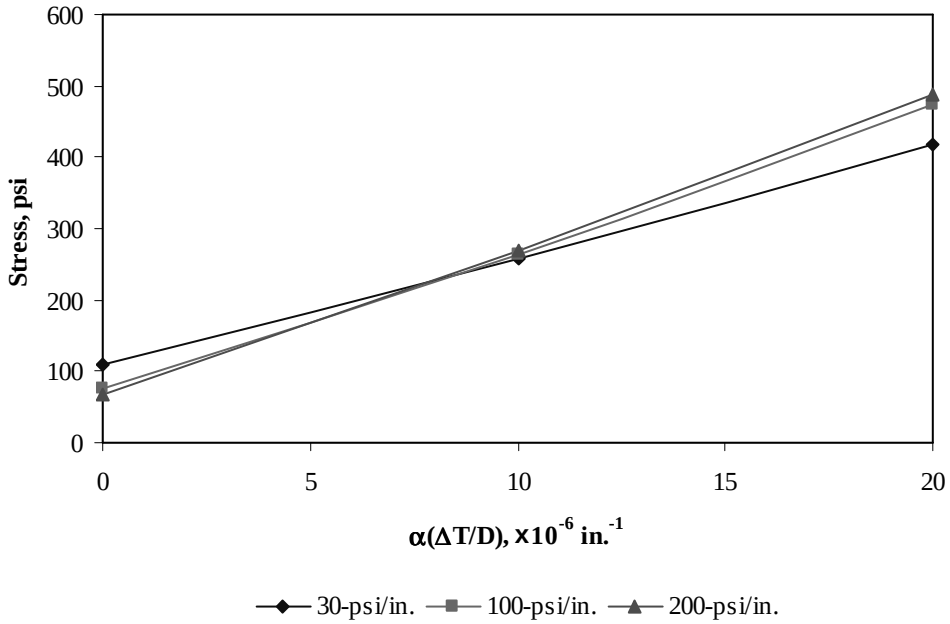


Figure F-7-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

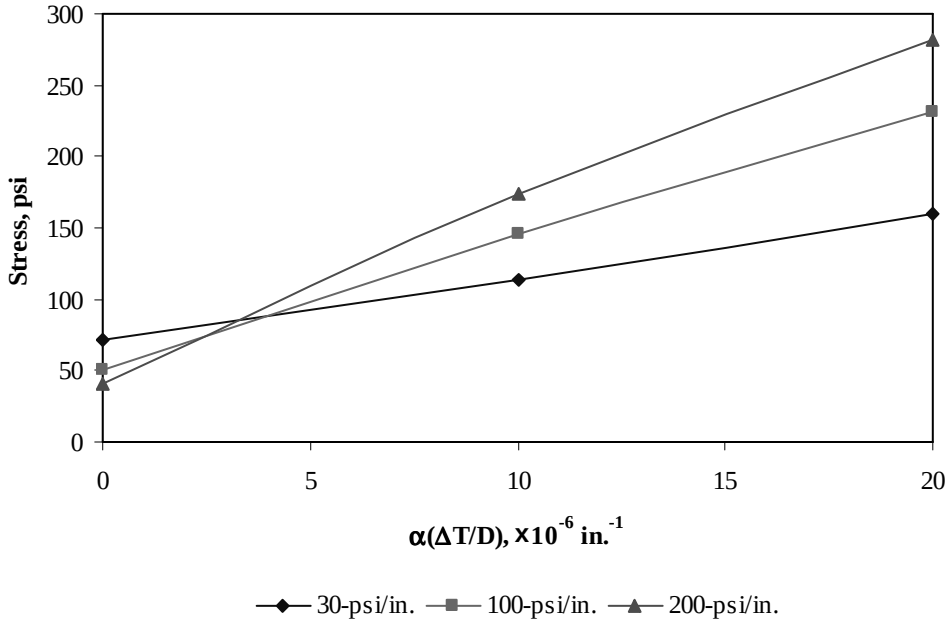


Figure F-7-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

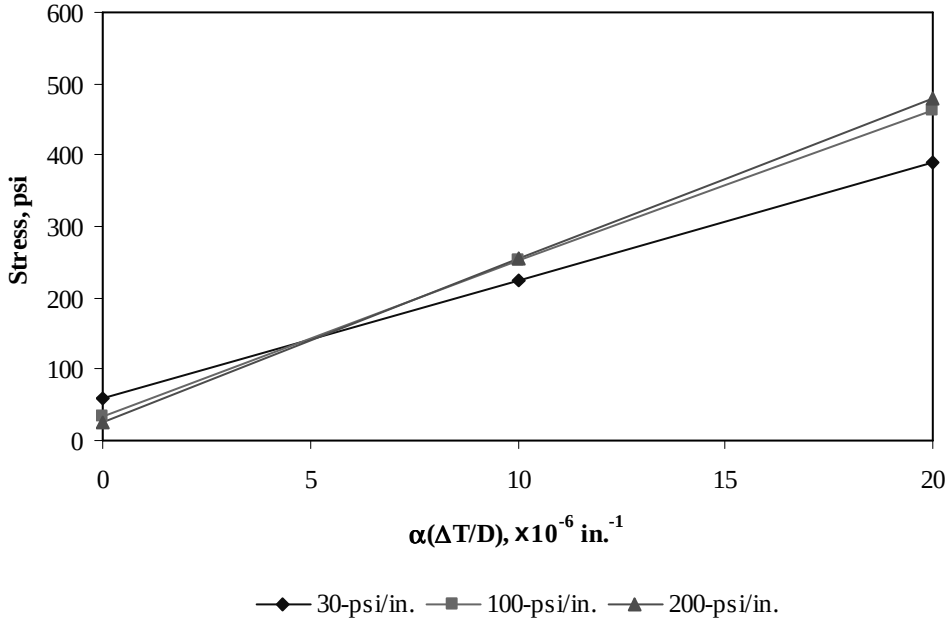


Figure F-7-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

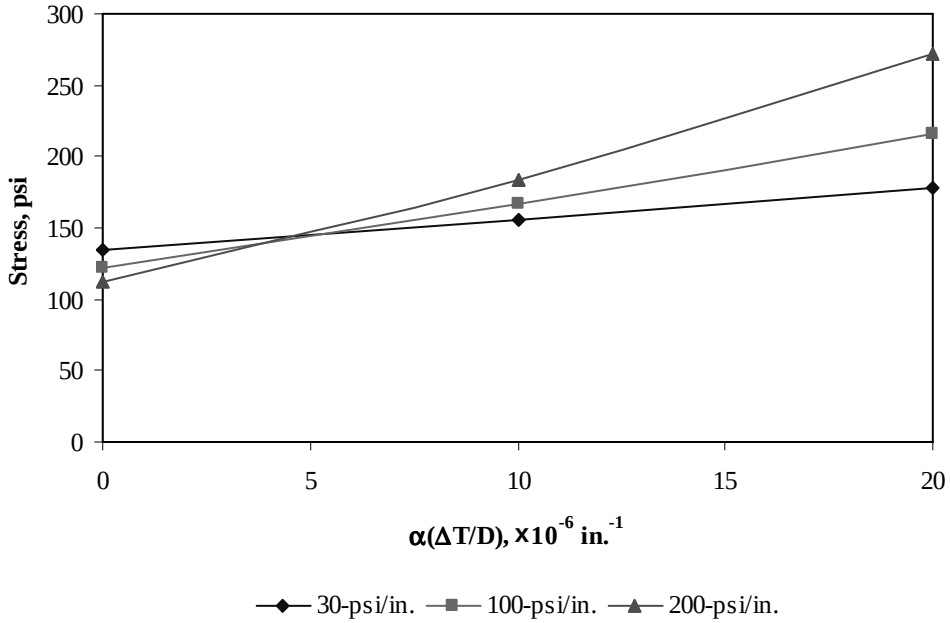


Figure F-7-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

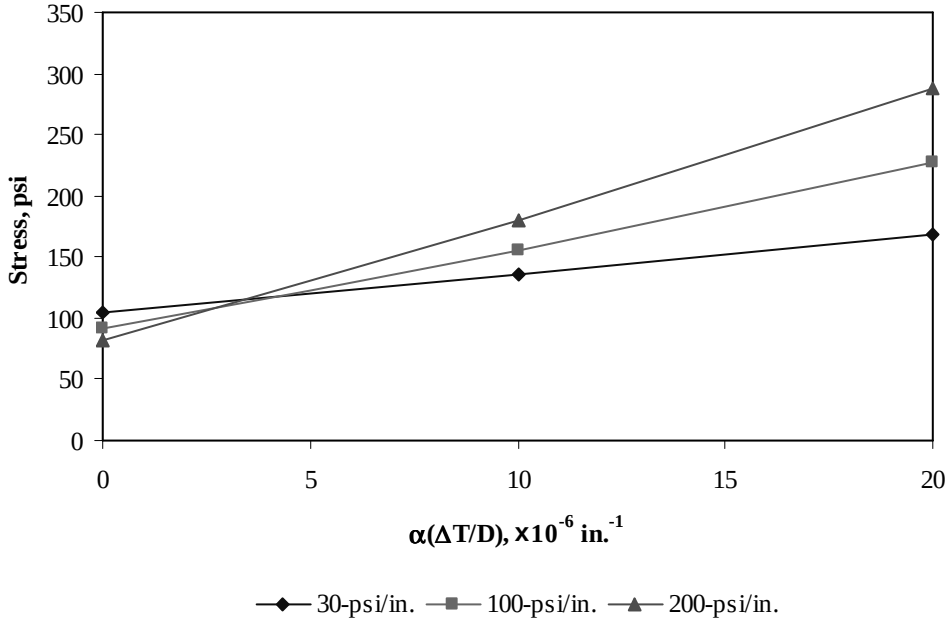


Figure F-7-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-7-49 through F-7-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

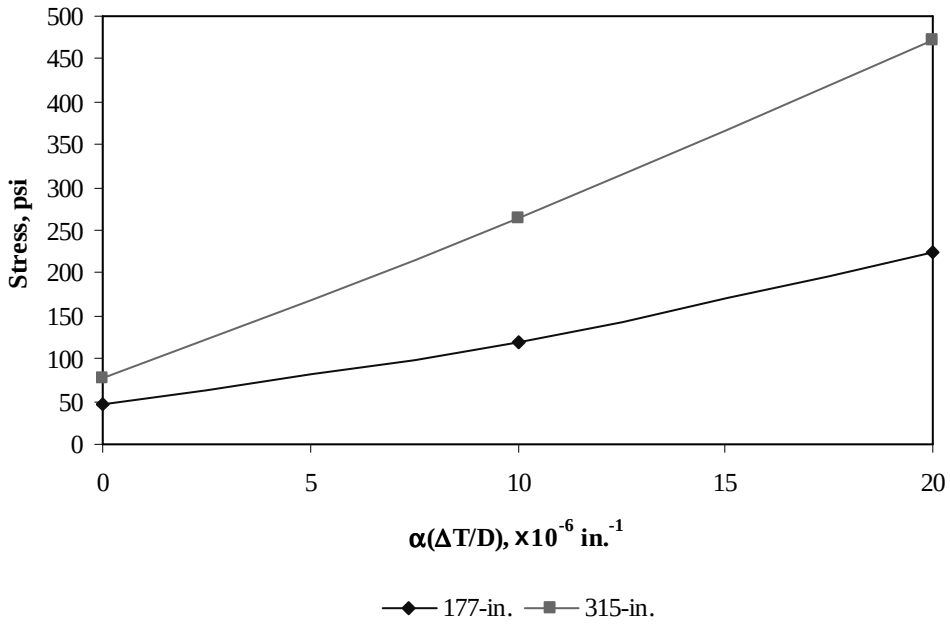


Figure F-7-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

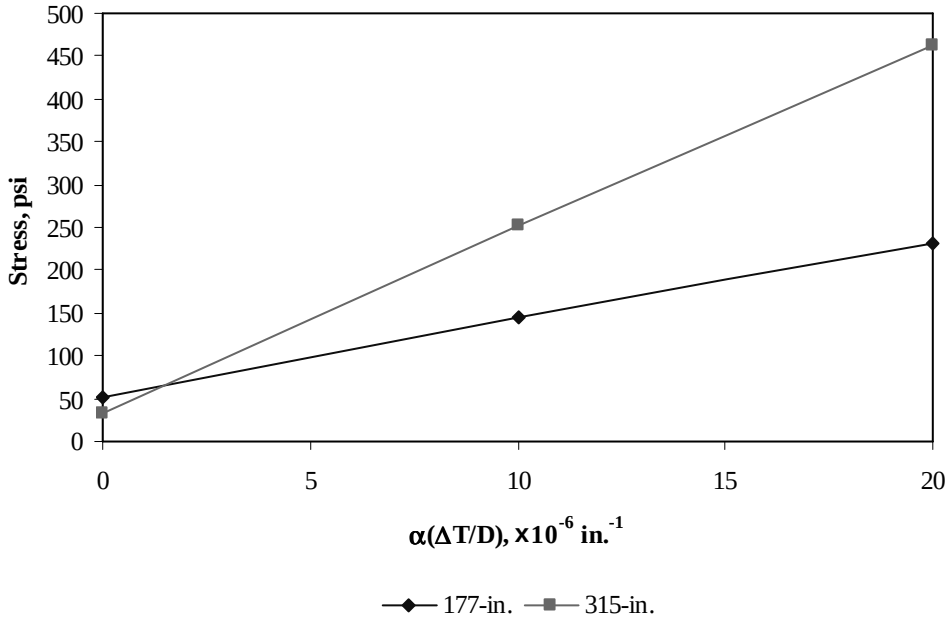


Figure F-7-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

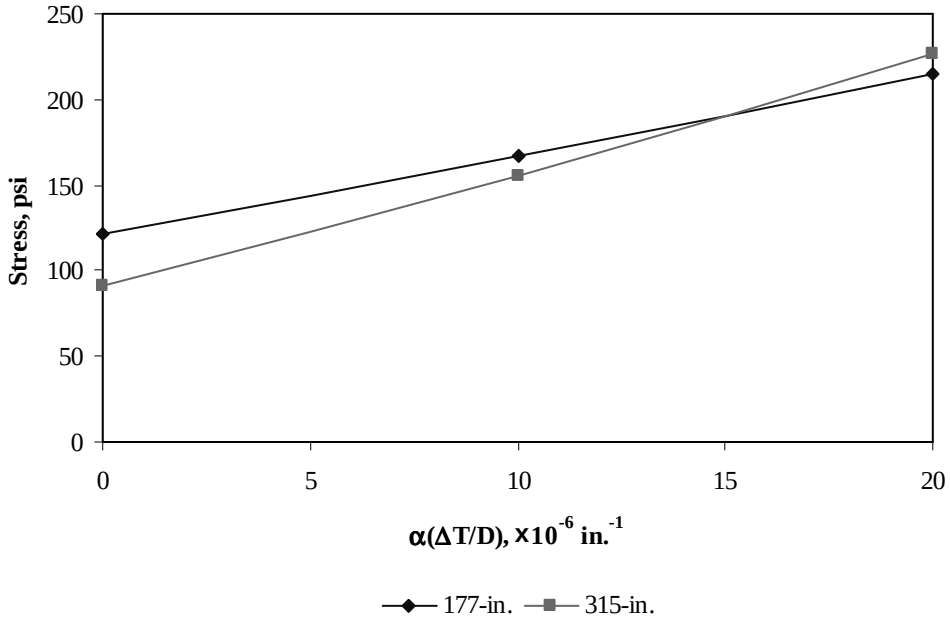
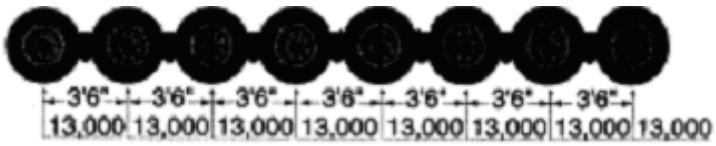


Figure F-7-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-8

Documentation of Pavement Responses for



104-kips Multi-axle (8)

Figures F-8-1 through F-8-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

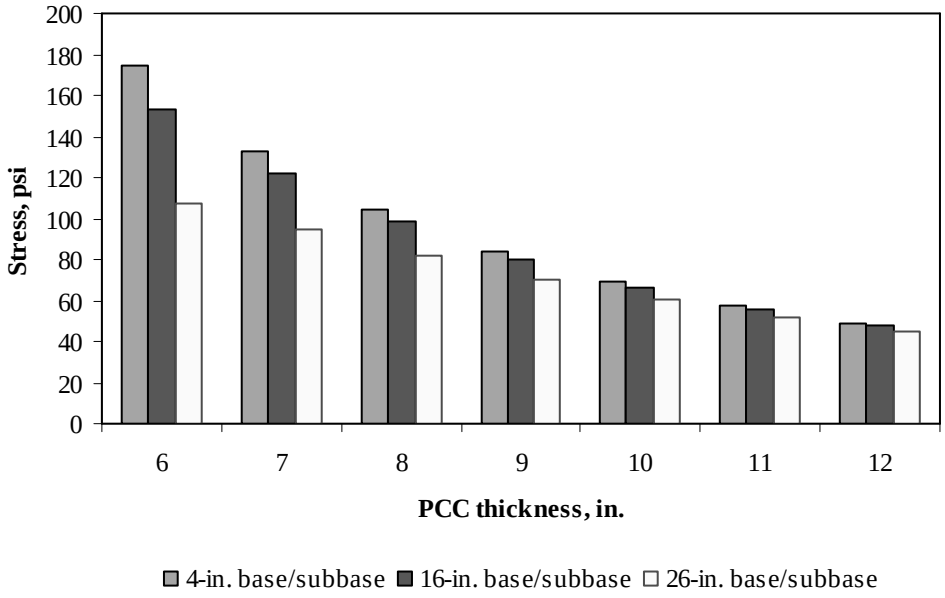


Figure F-8-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

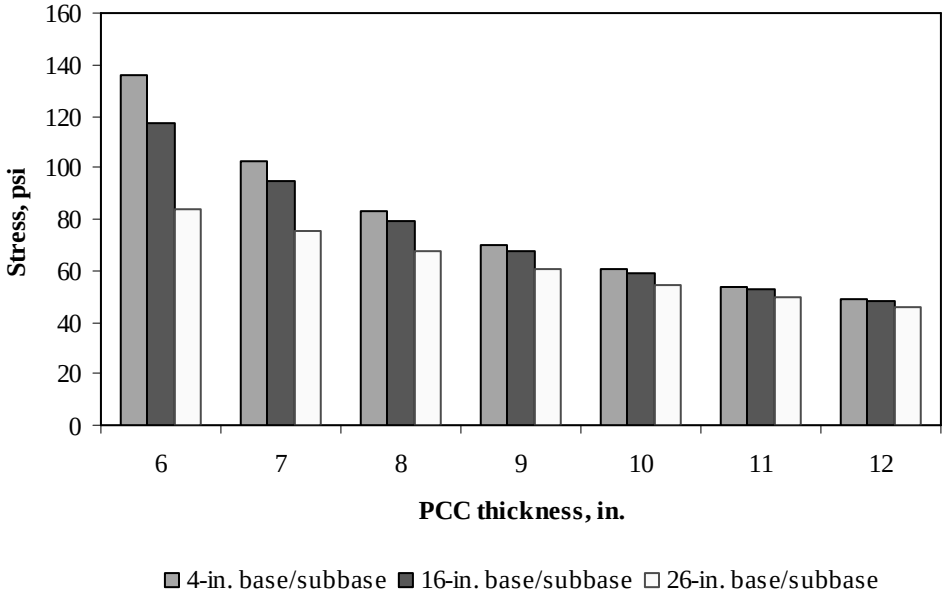


Figure F-8-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

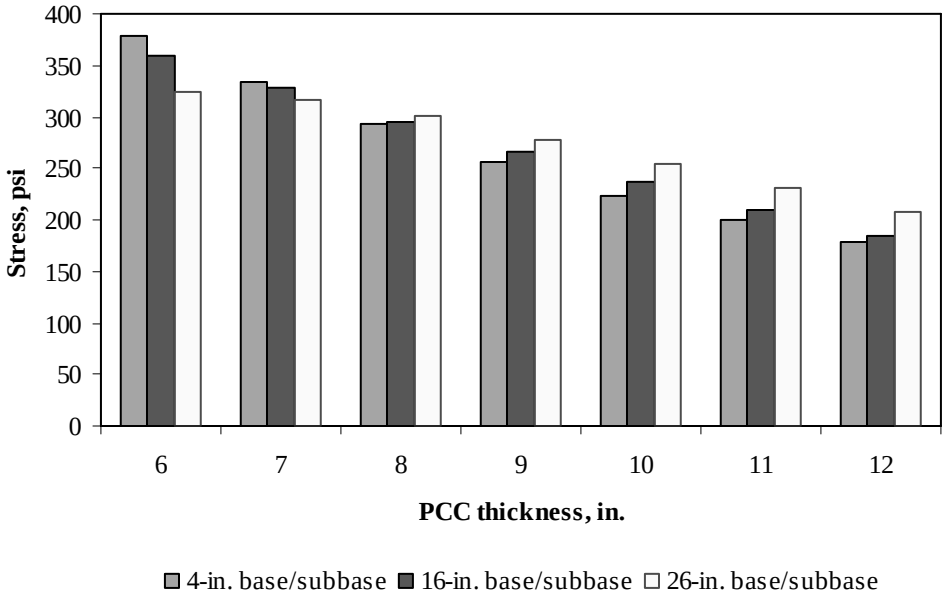


Figure F-8-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

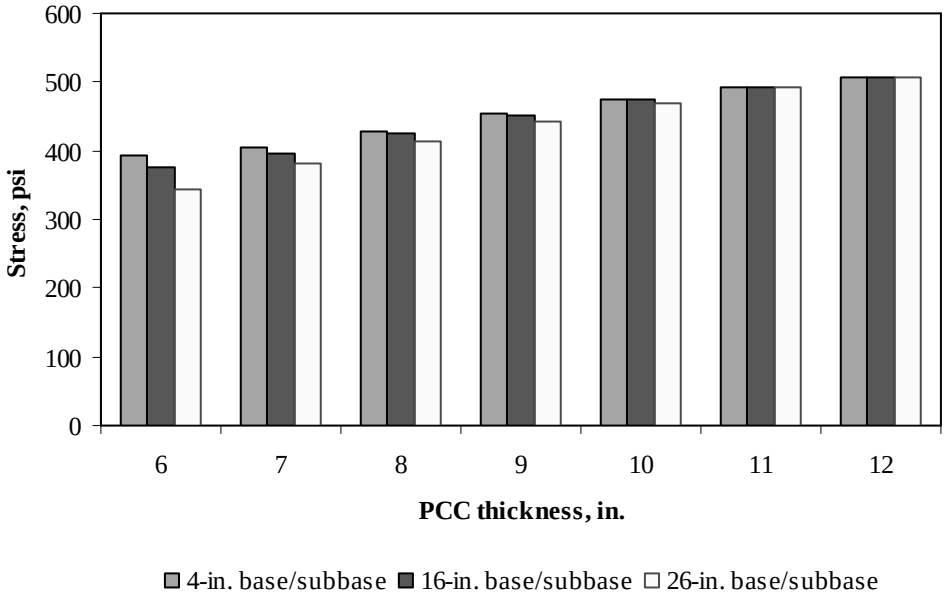


Figure F-8-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

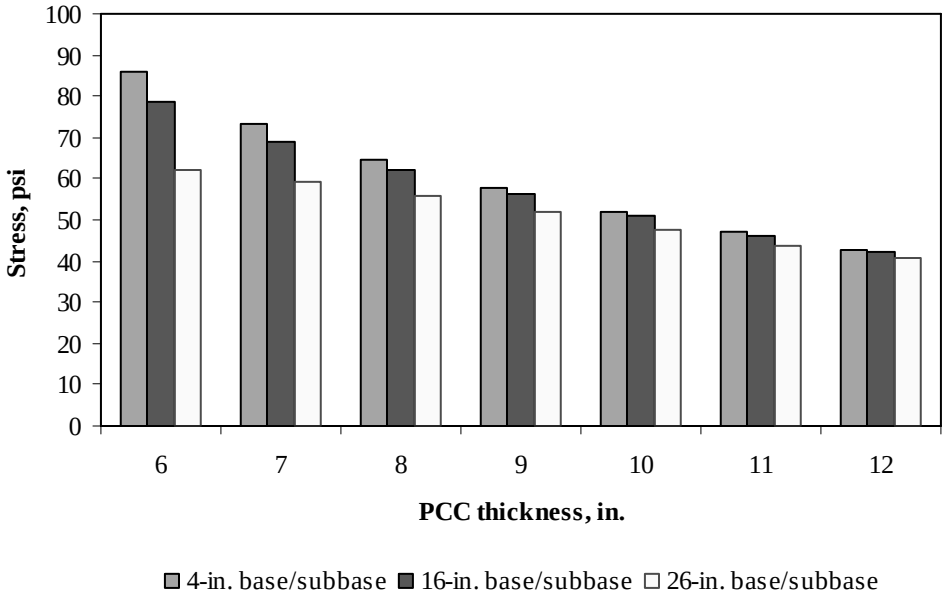


Figure F-8-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

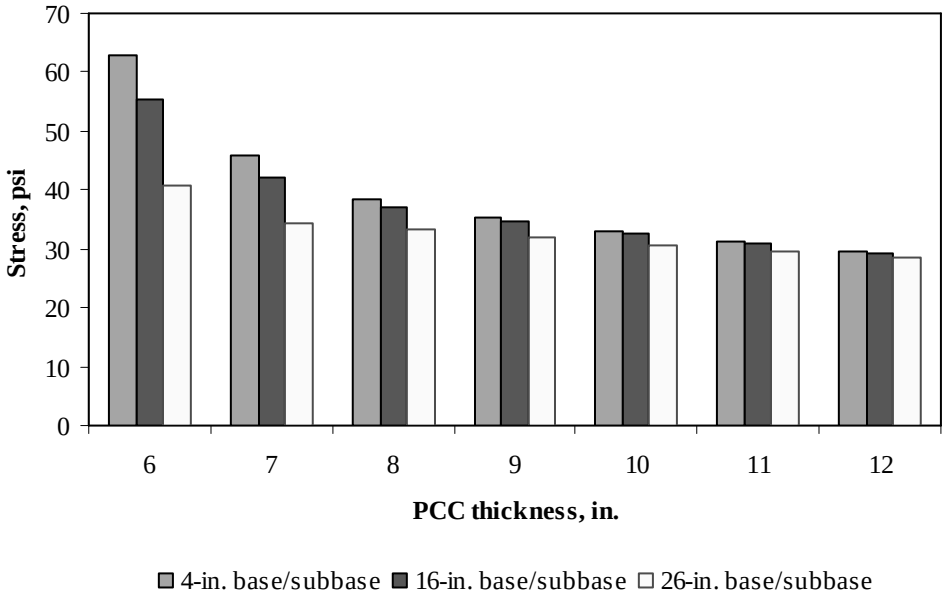


Figure F-8-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

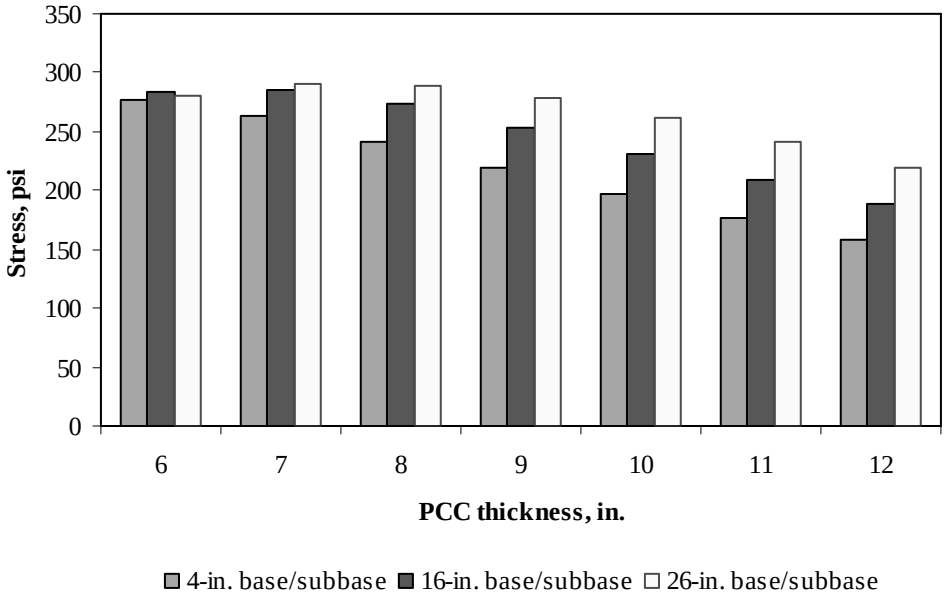


Figure F-8-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

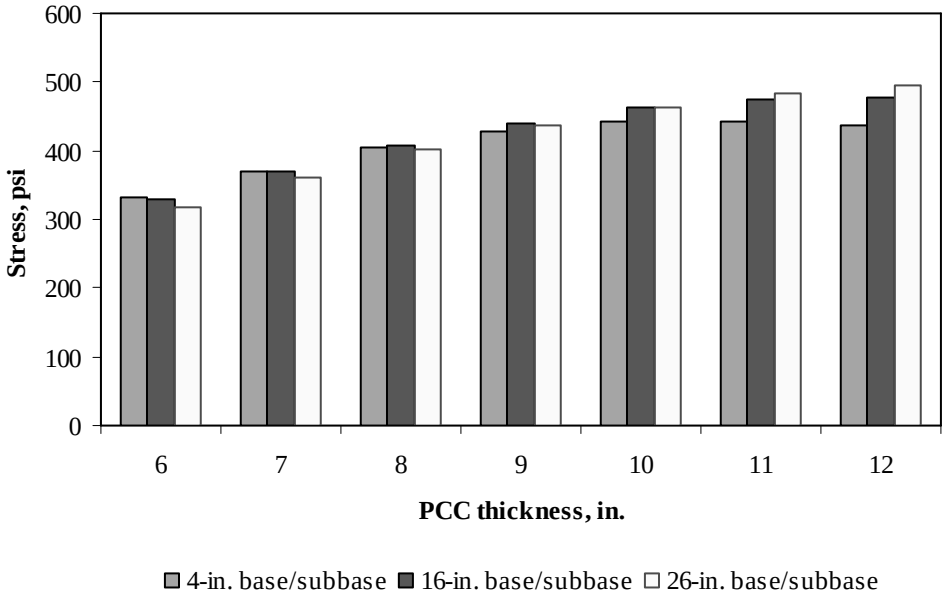


Figure F-8-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

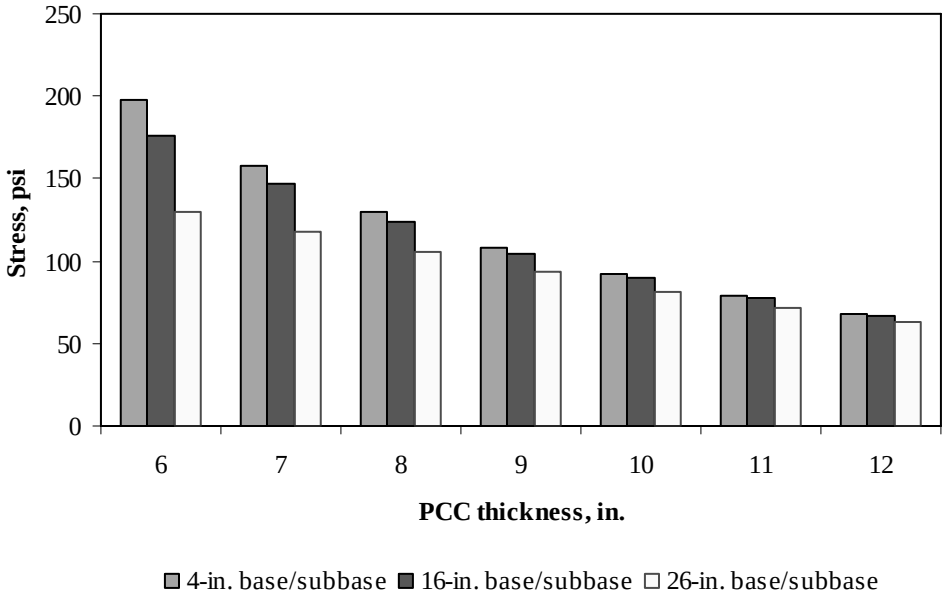


Figure F-8-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

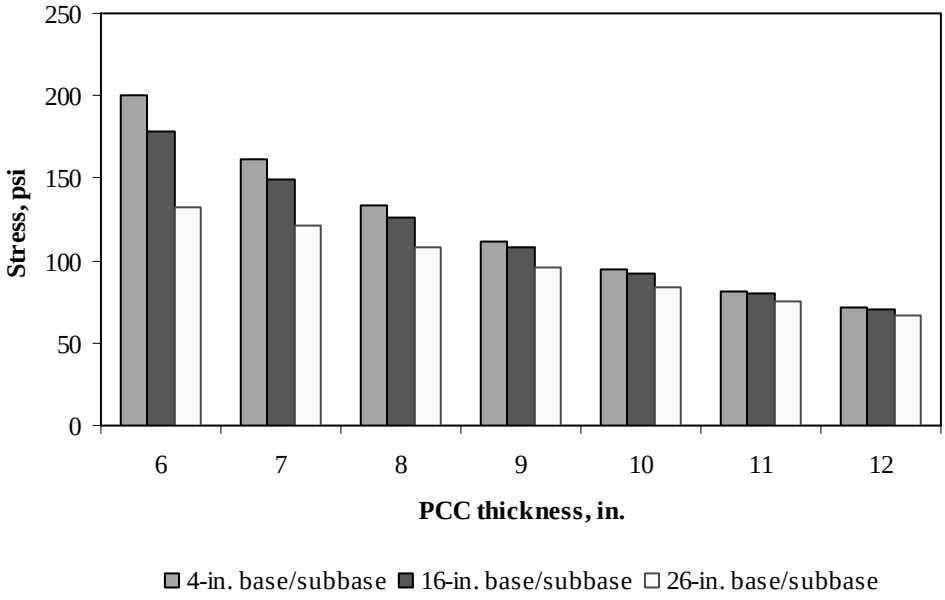


Figure F-8-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

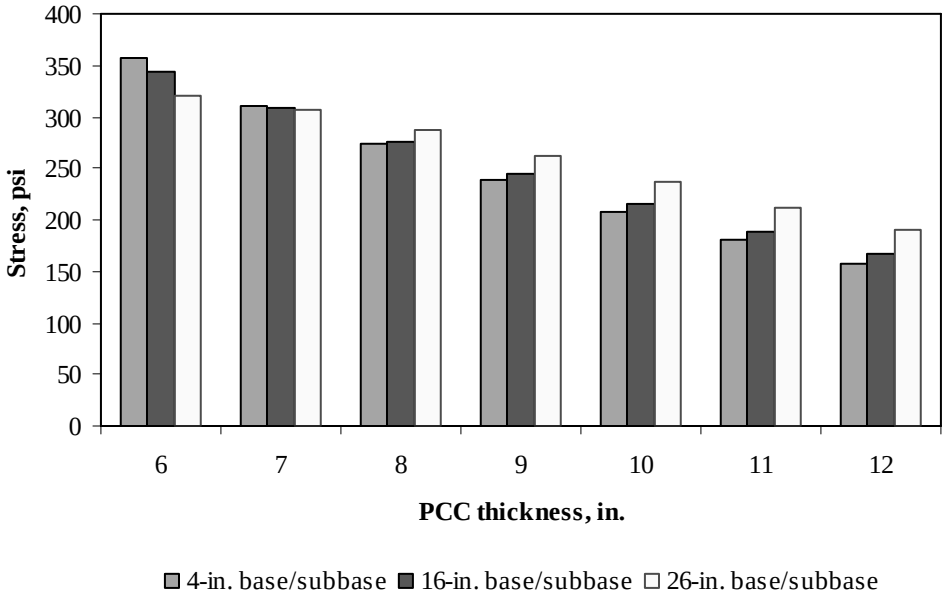


Figure F-8-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

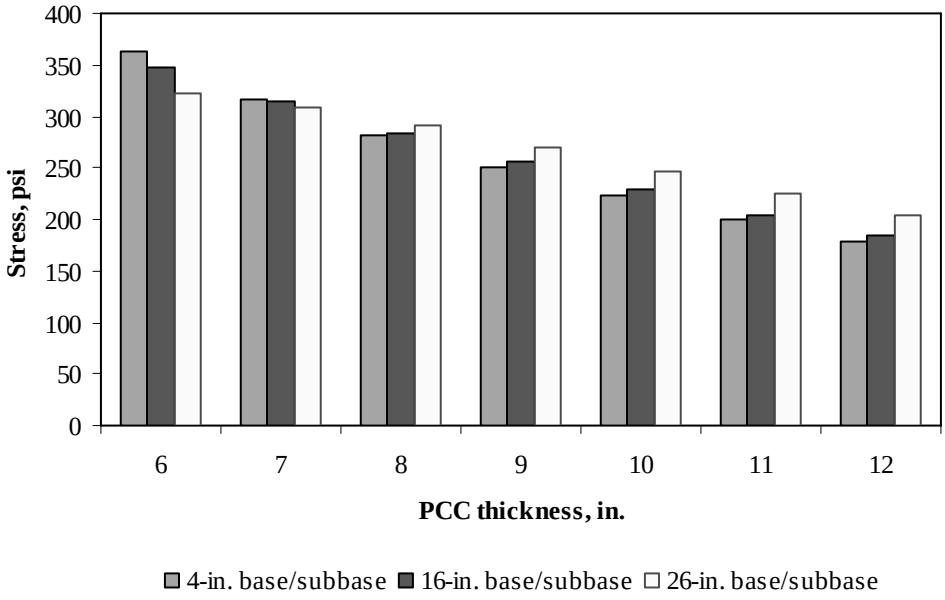


Figure F-8-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-8-13 through F-8-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

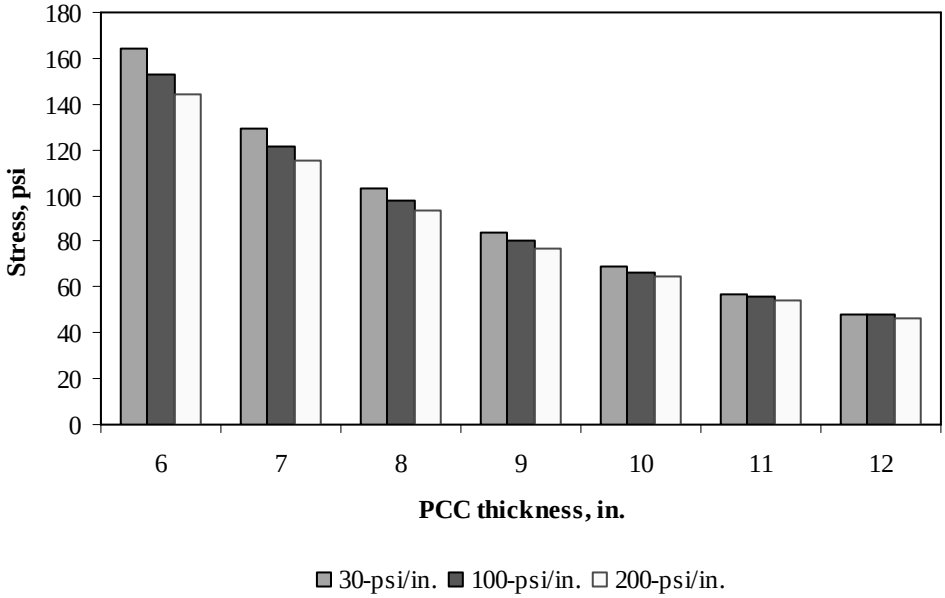


Figure F-8-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

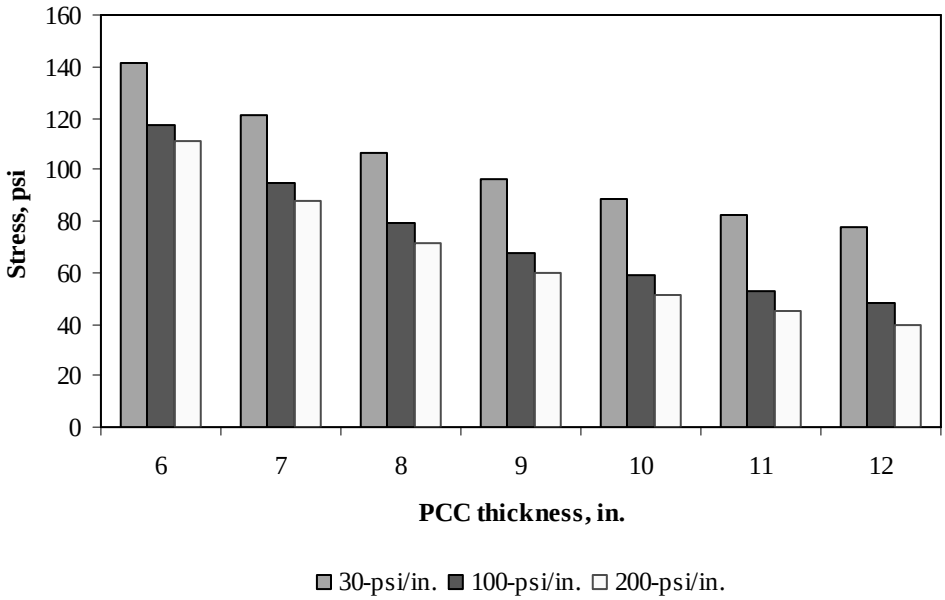


Figure F-8-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

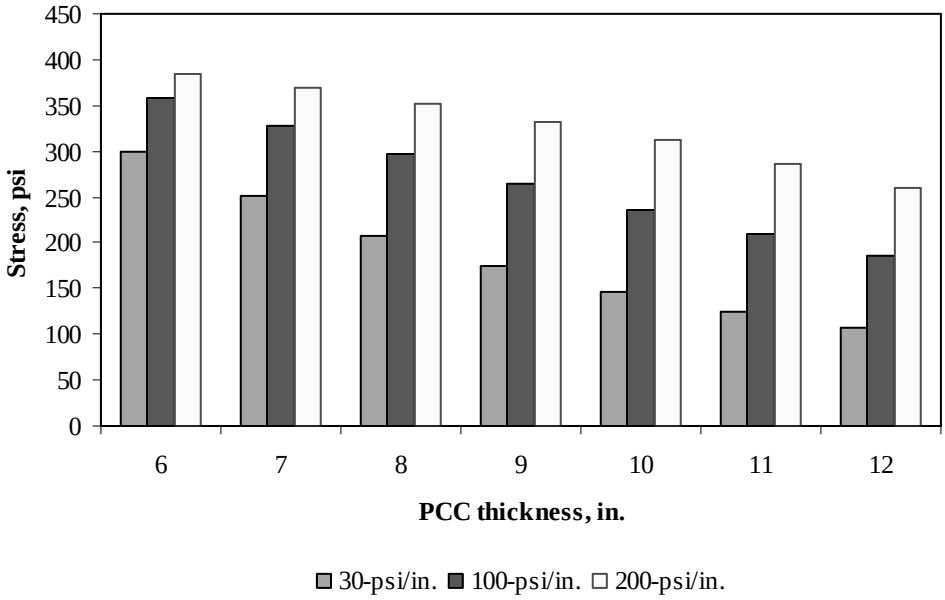


Figure F-8-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

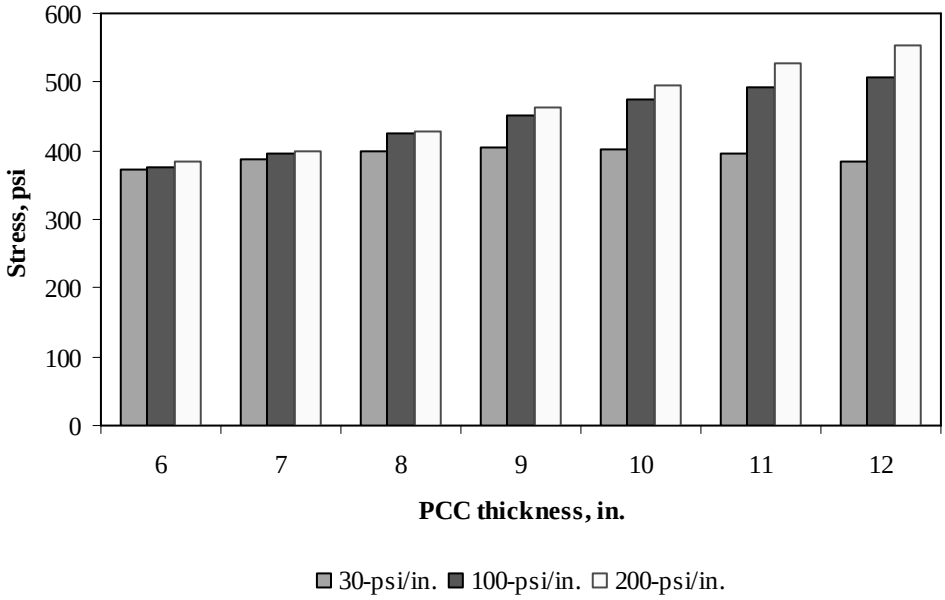


Figure F-8-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

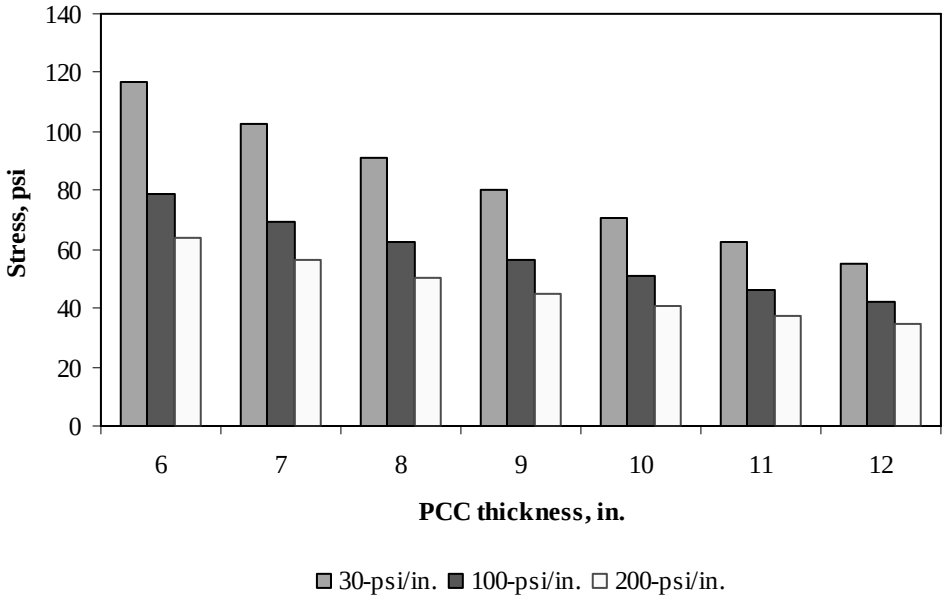


Figure F-8-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

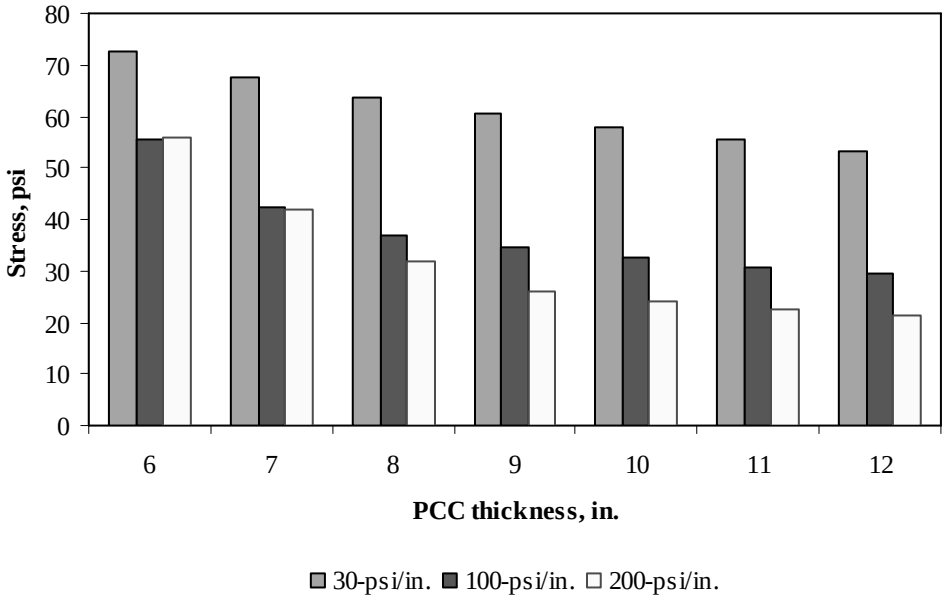


Figure F-8-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

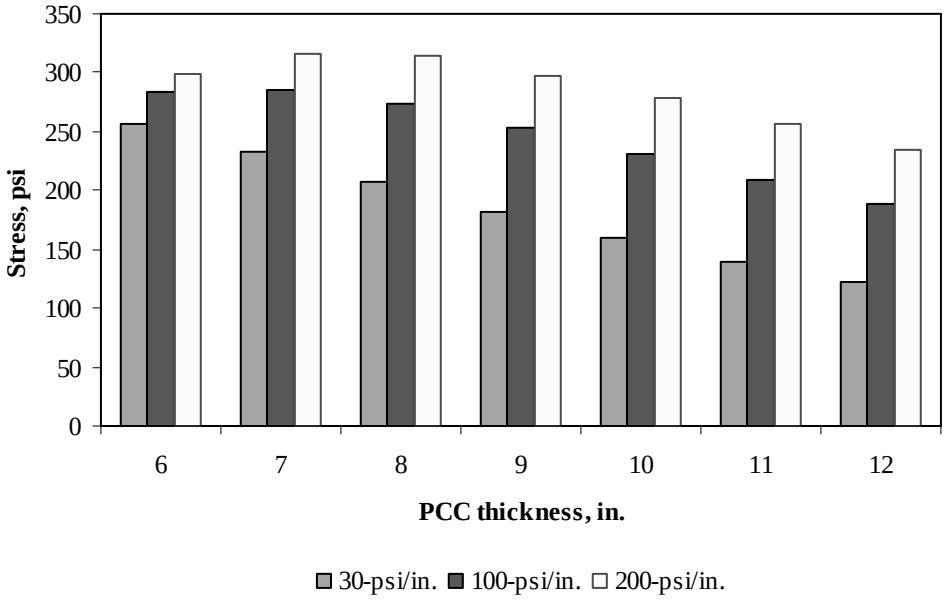


Figure F-8-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

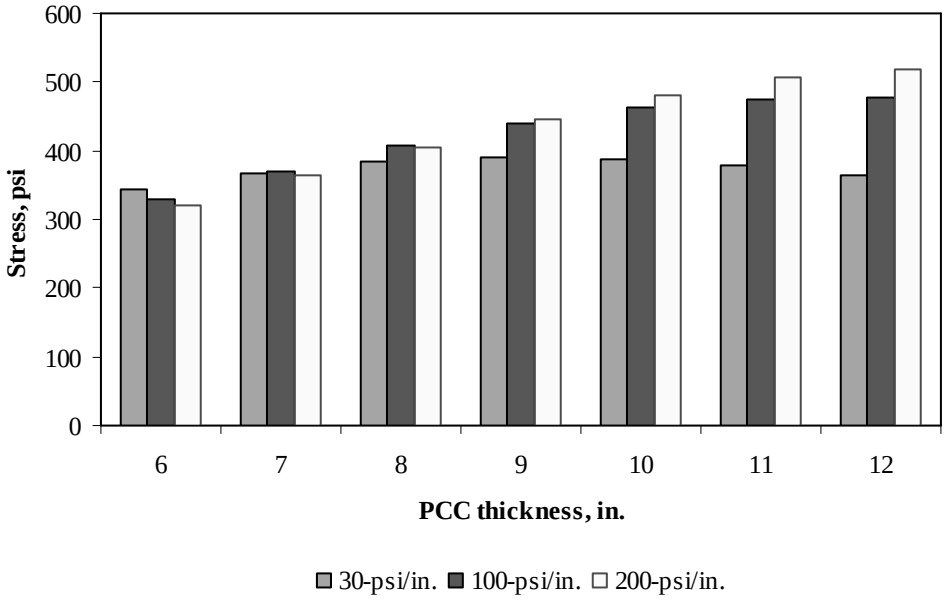


Figure F-8-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

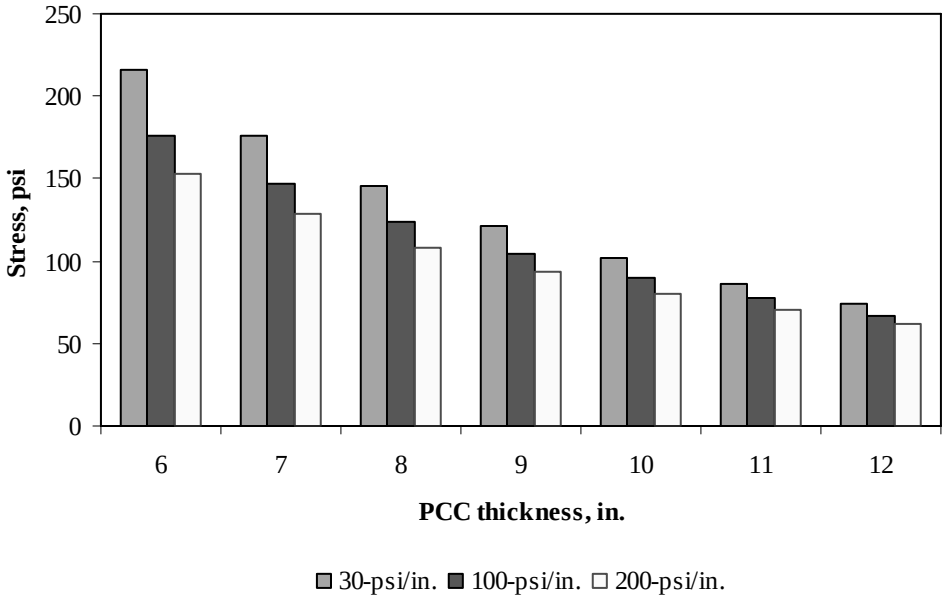


Figure F-8-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

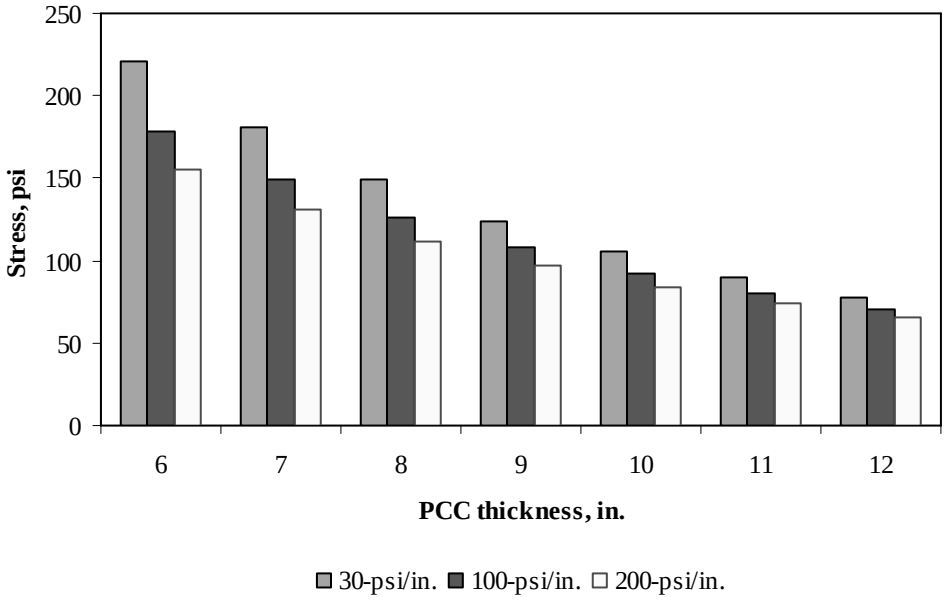


Figure F-8-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

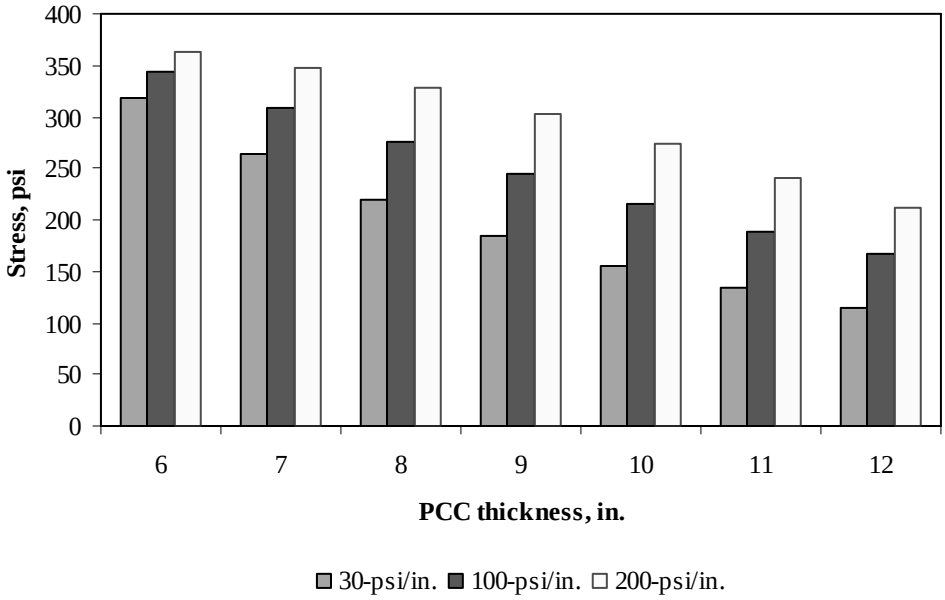


Figure F-8-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

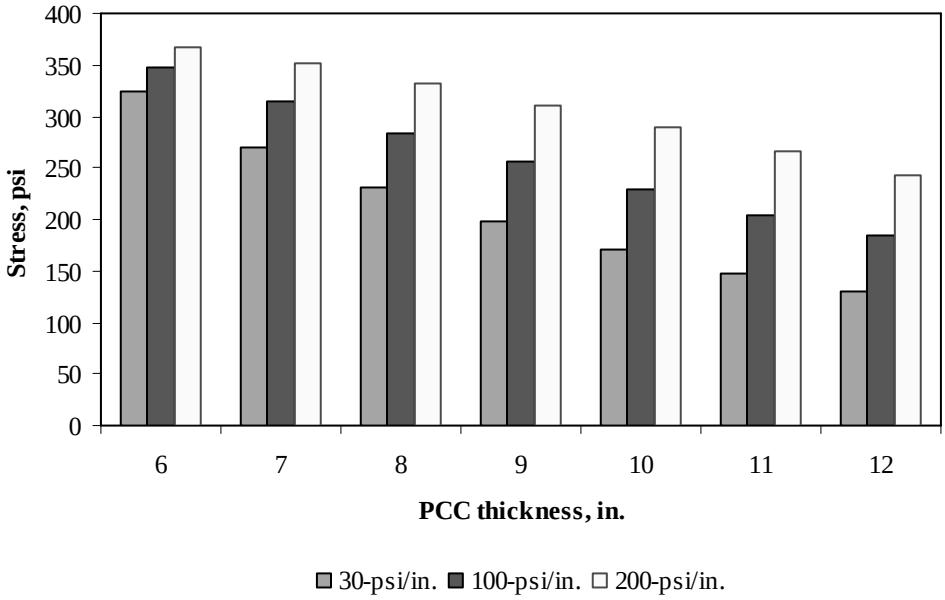


Figure F-8-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-8-25 through F-8-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

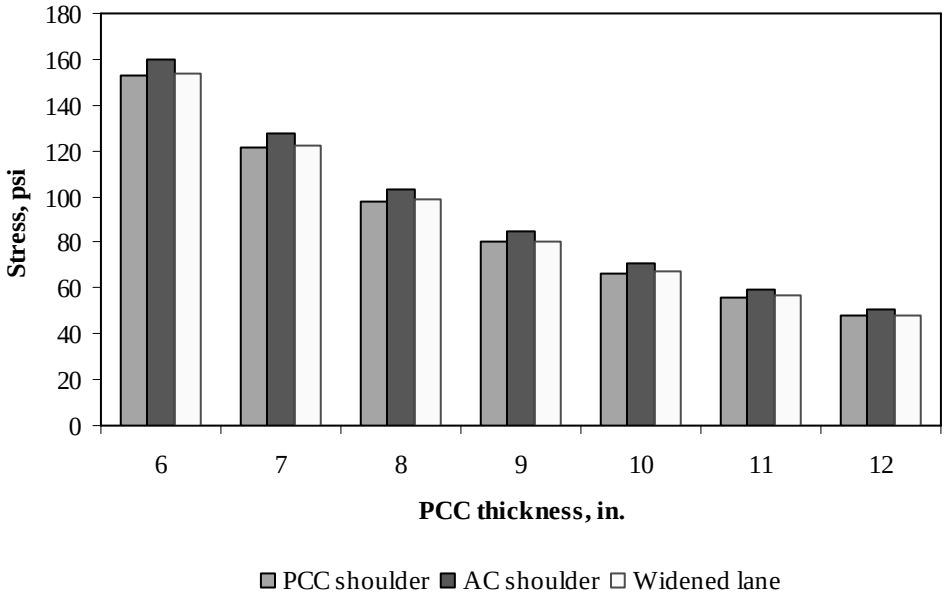


Figure F-8-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

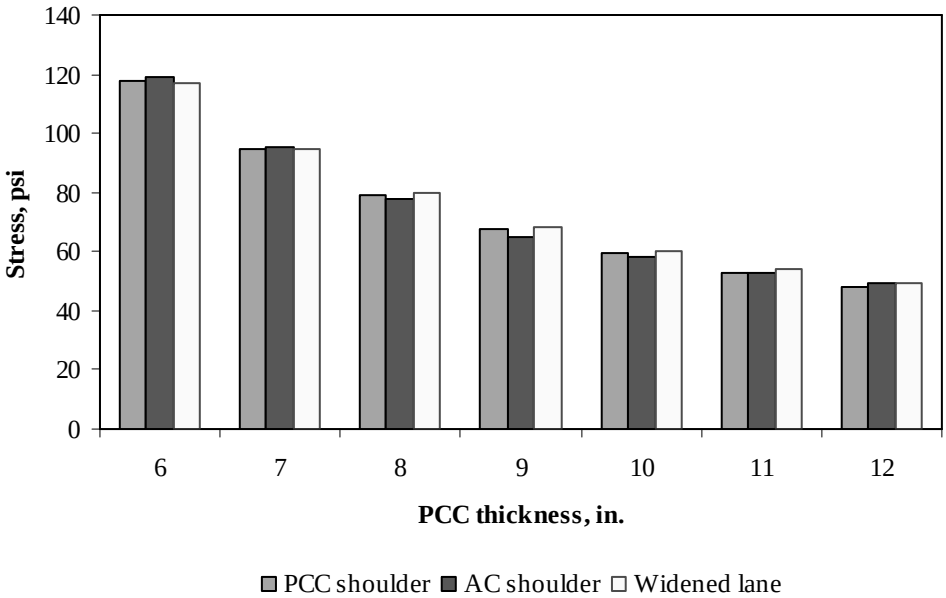


Figure F-8-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

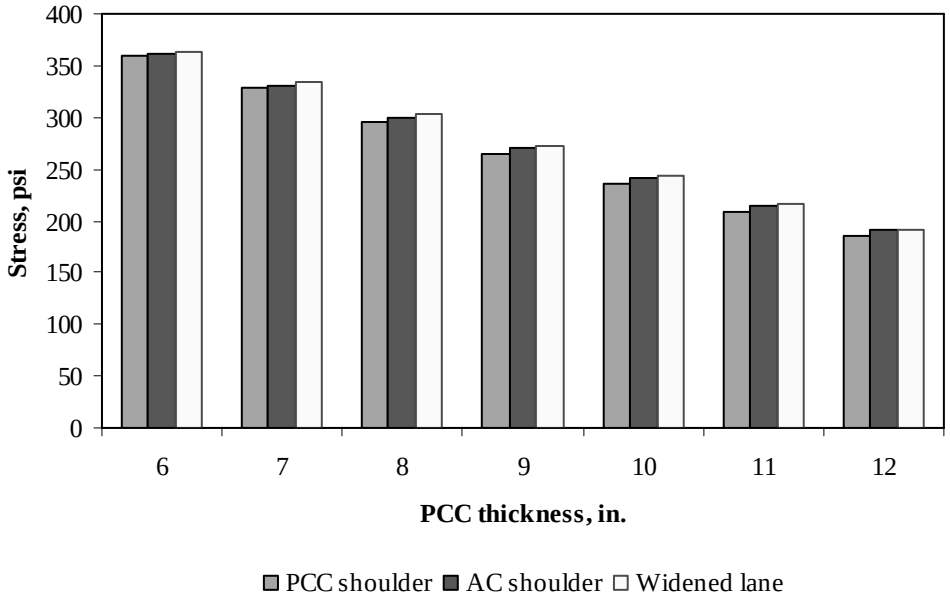


Figure F-8-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

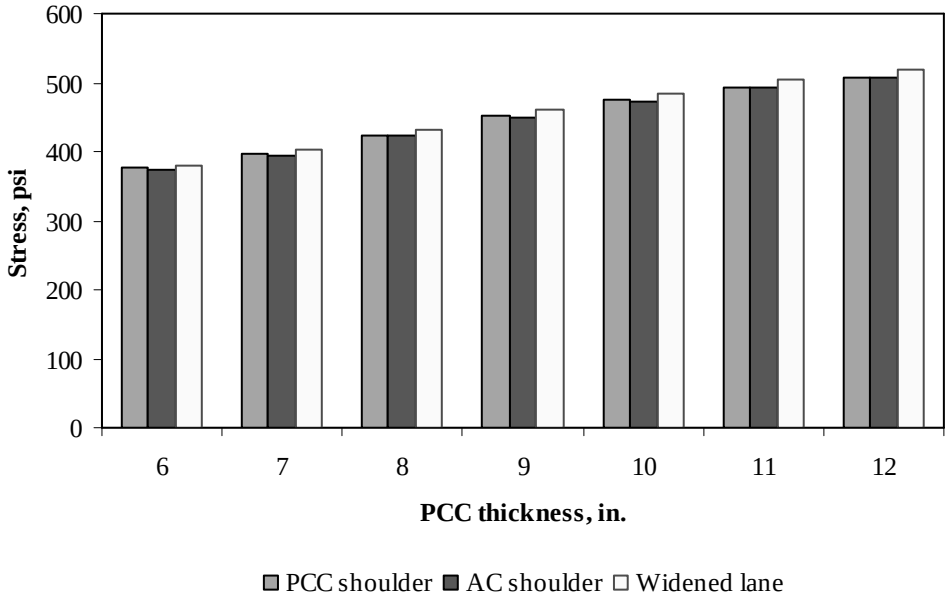


Figure F-8-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

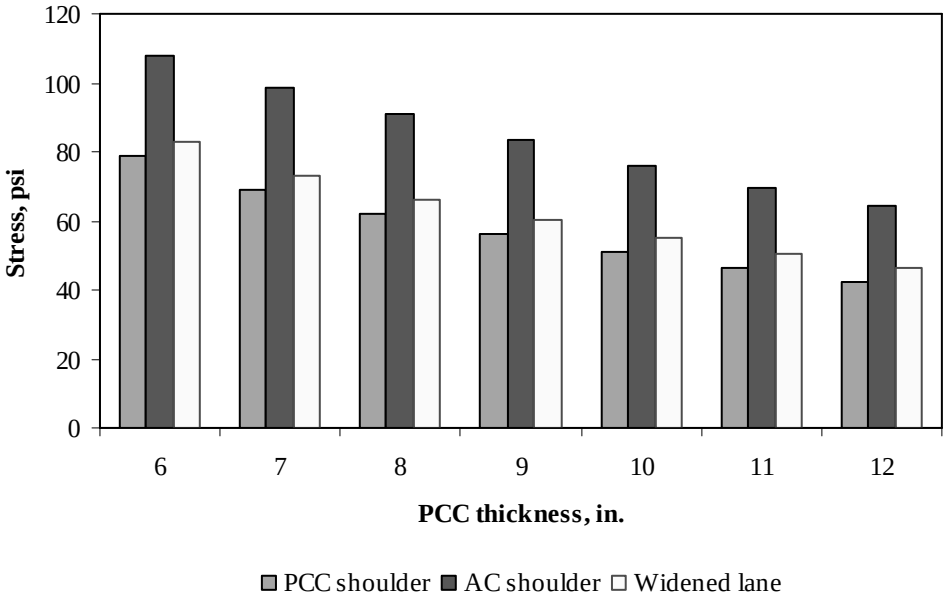


Figure F-8-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

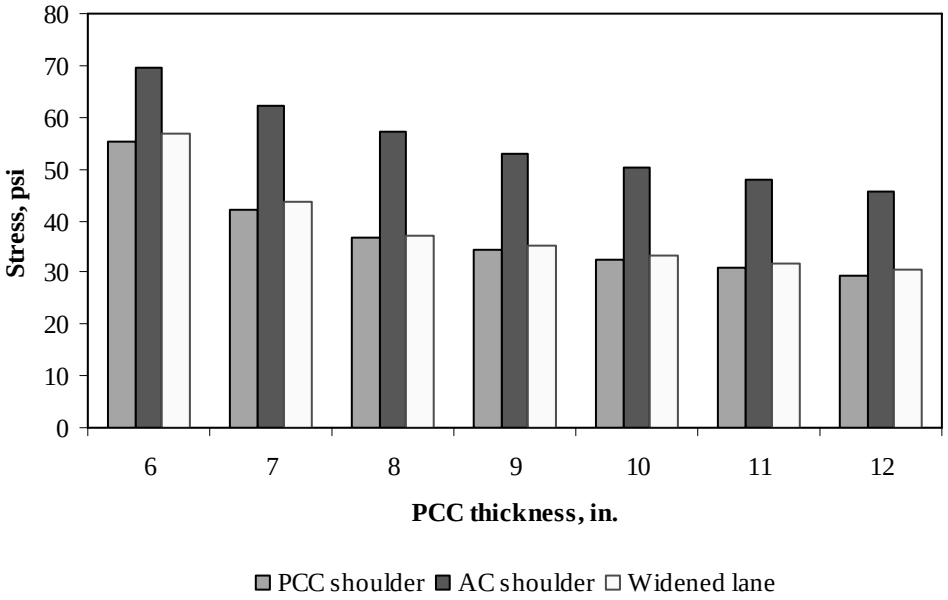


Figure F-8-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

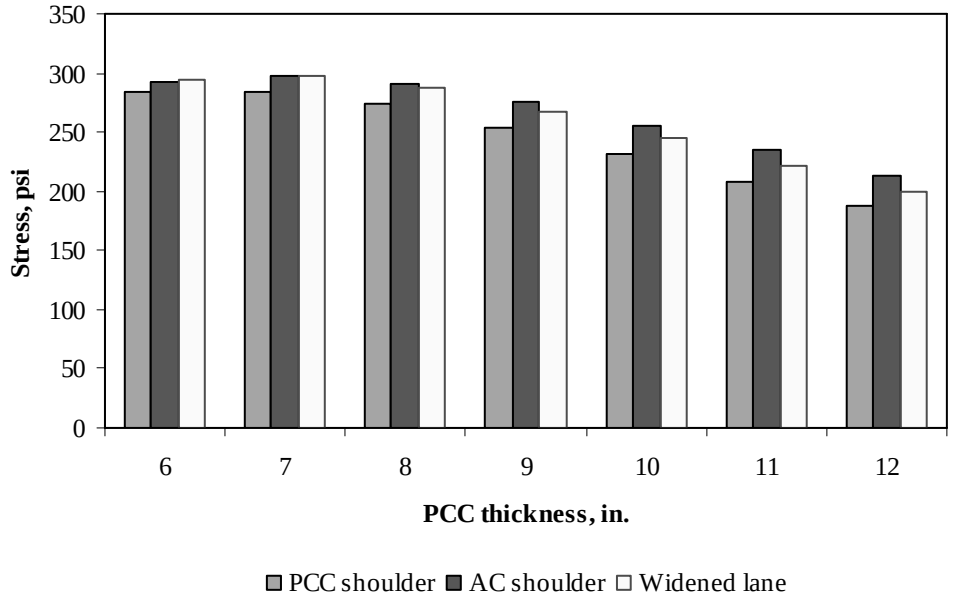


Figure F-8-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

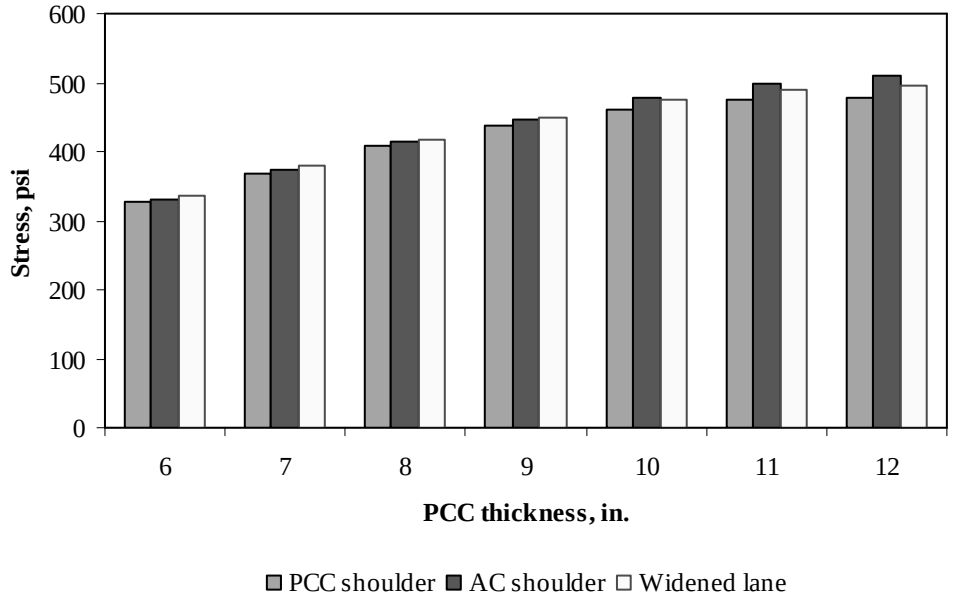


Figure F-8-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

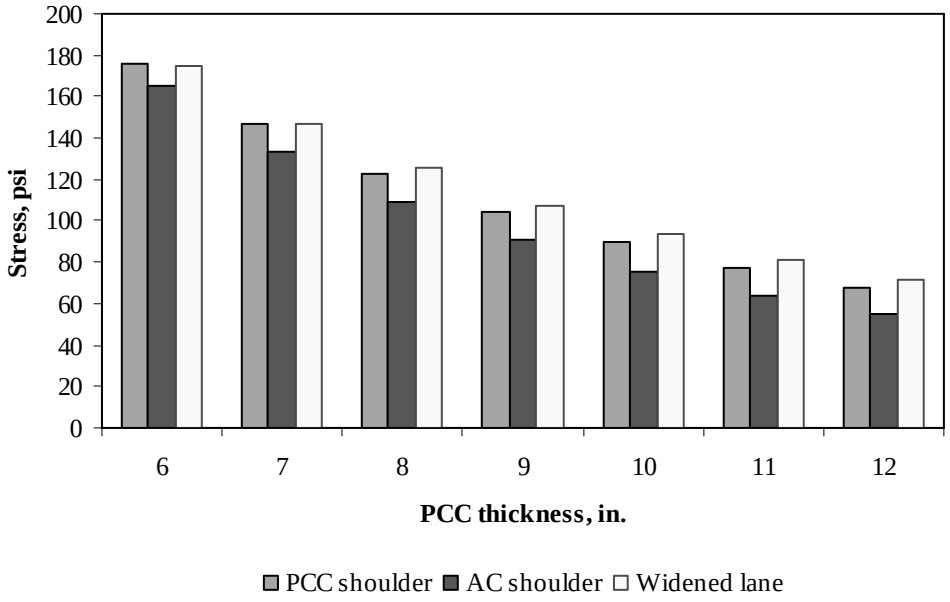


Figure F-8-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

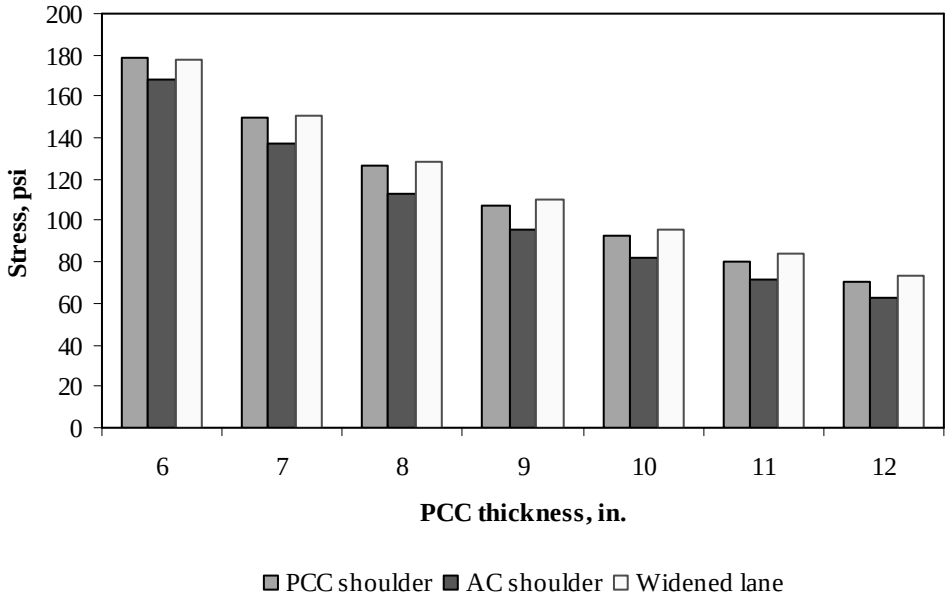


Figure F-8-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

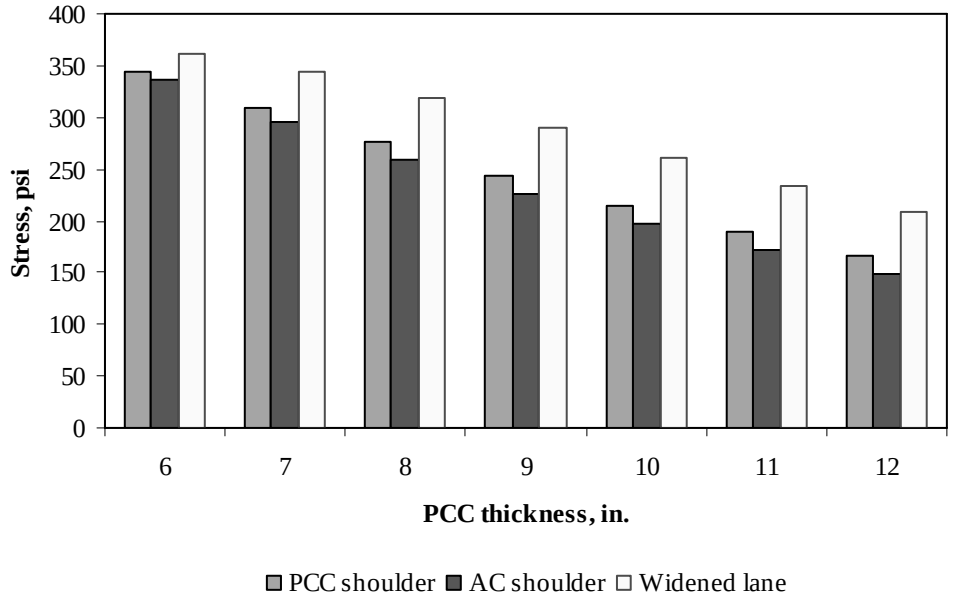


Figure F-8-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

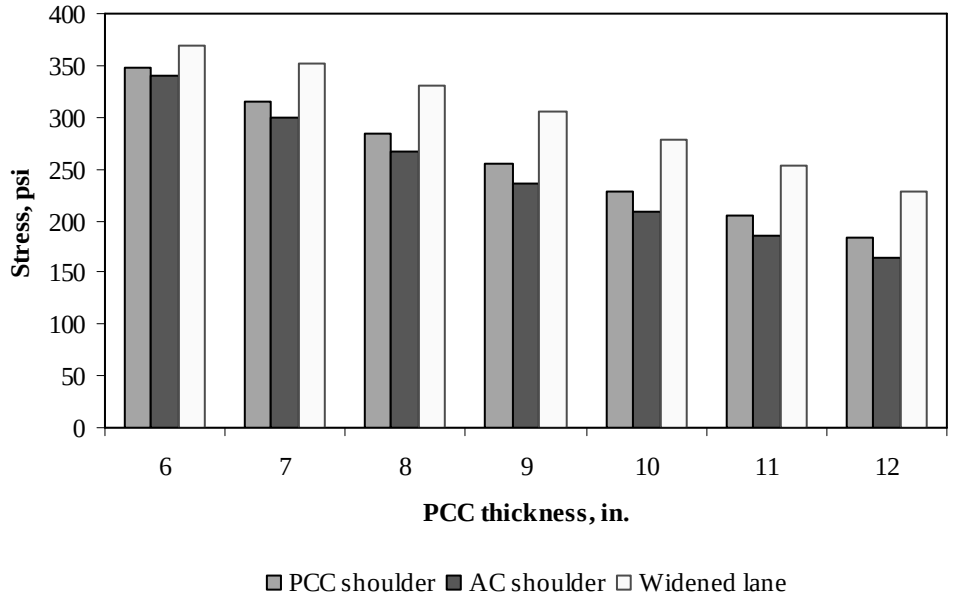


Figure F-8-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-8-37 through F-8-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

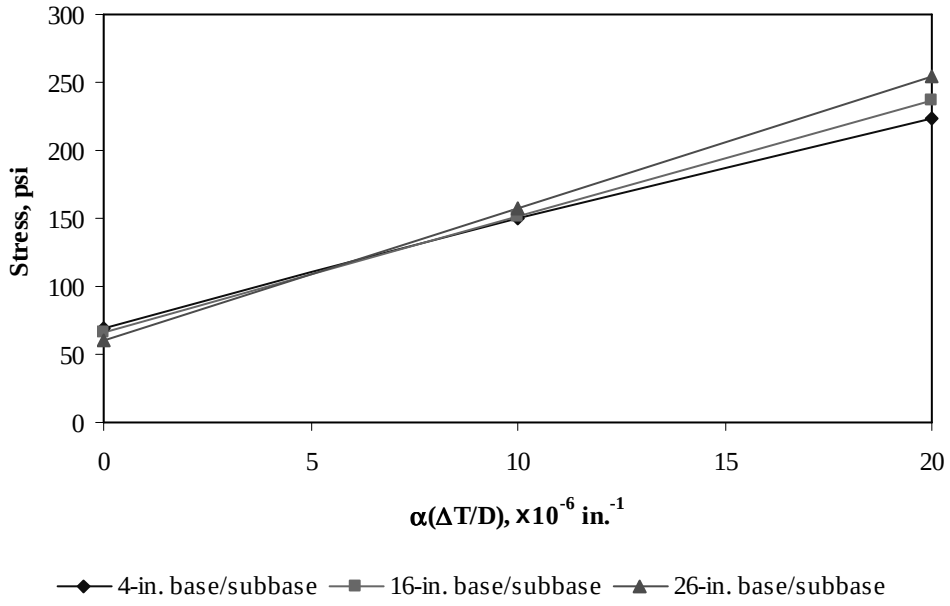


Figure F-8-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

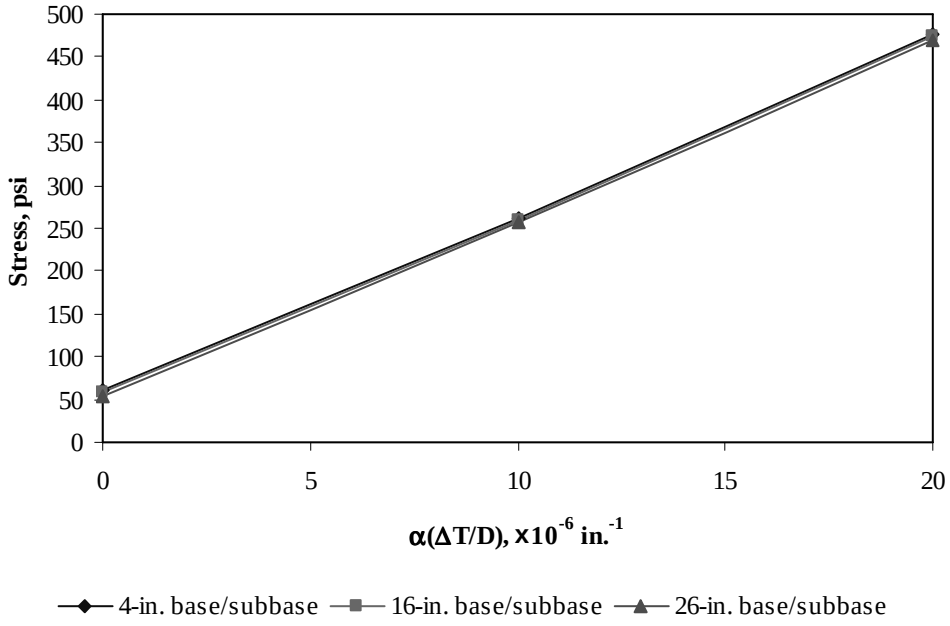


Figure F-8-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

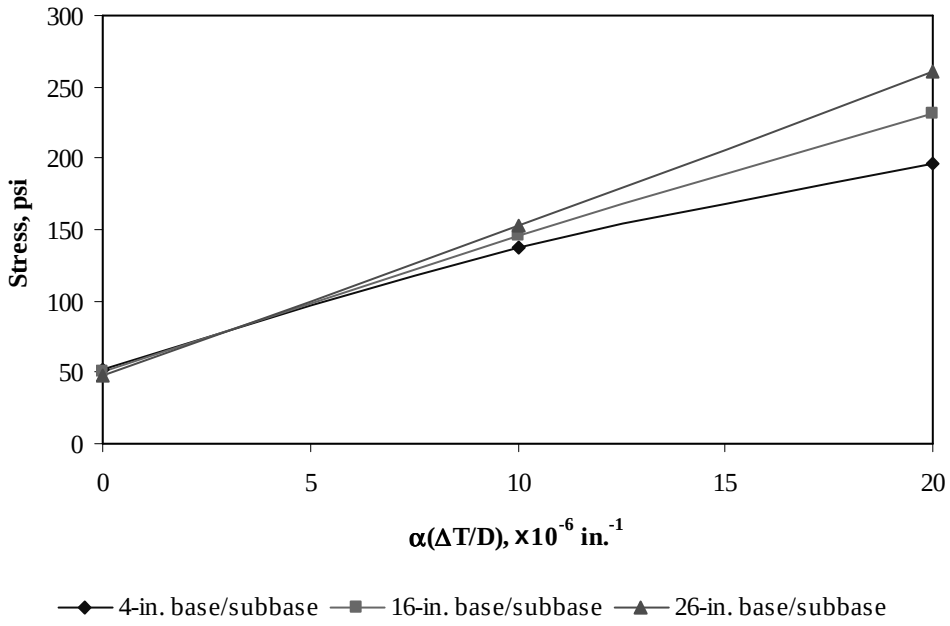


Figure F-8-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

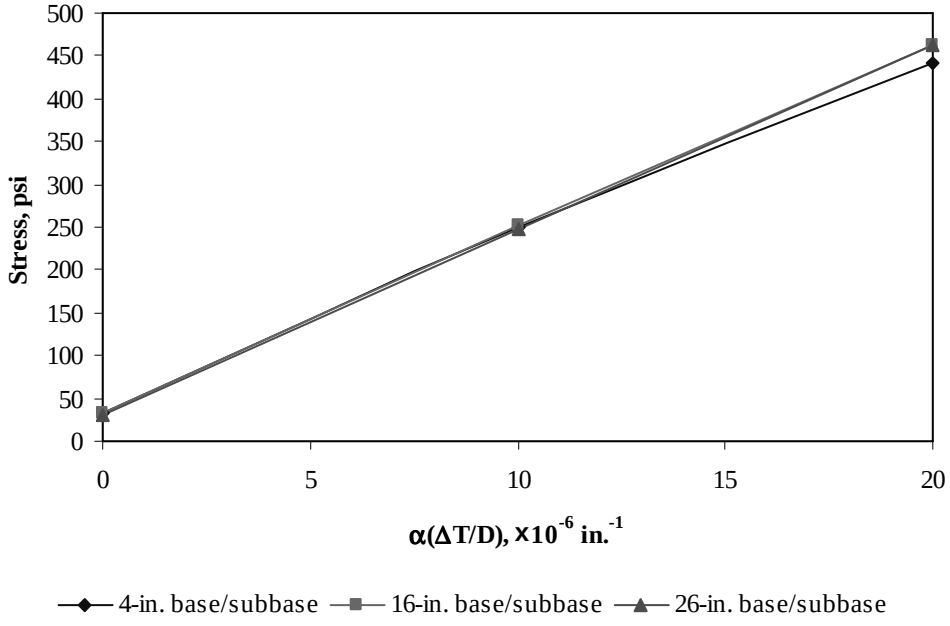


Figure F-8-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

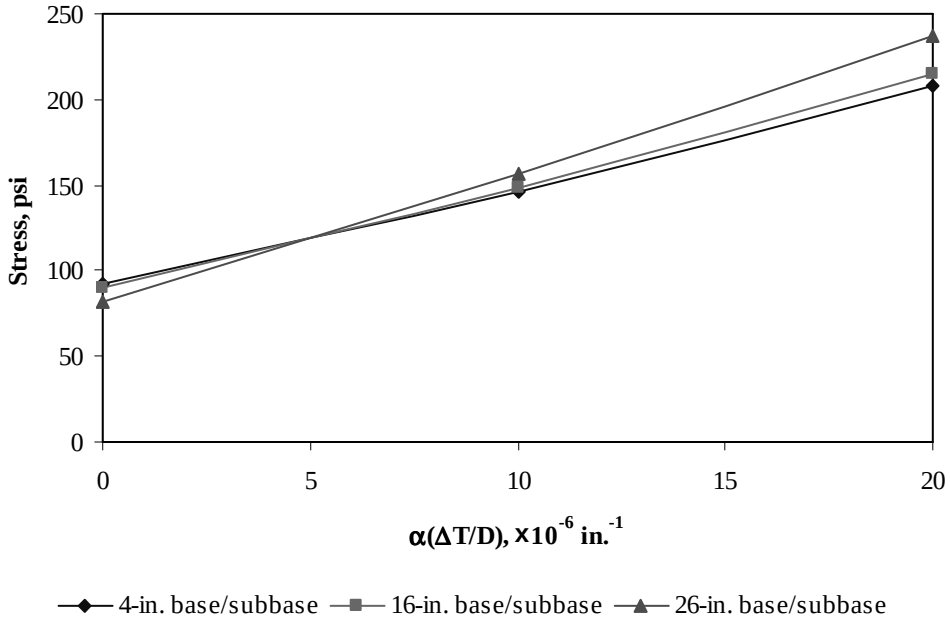


Figure F-8-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

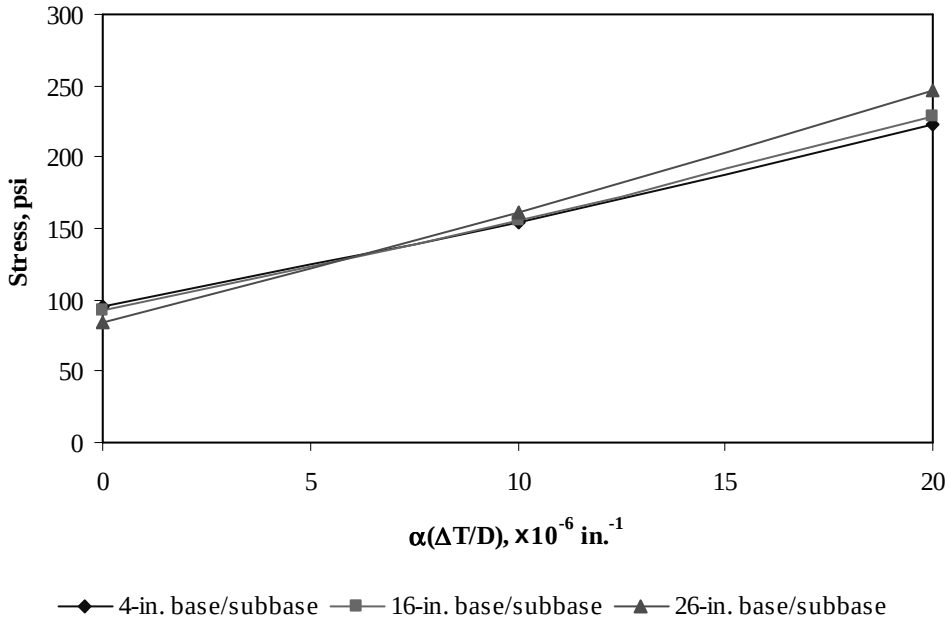


Figure F-8-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-8-43 through F-8-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

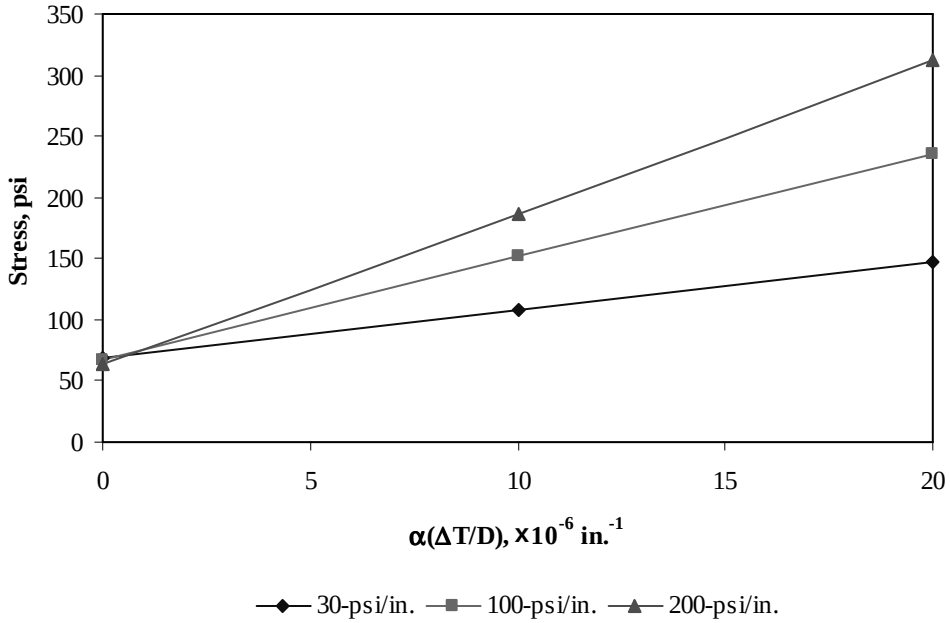


Figure F-8-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

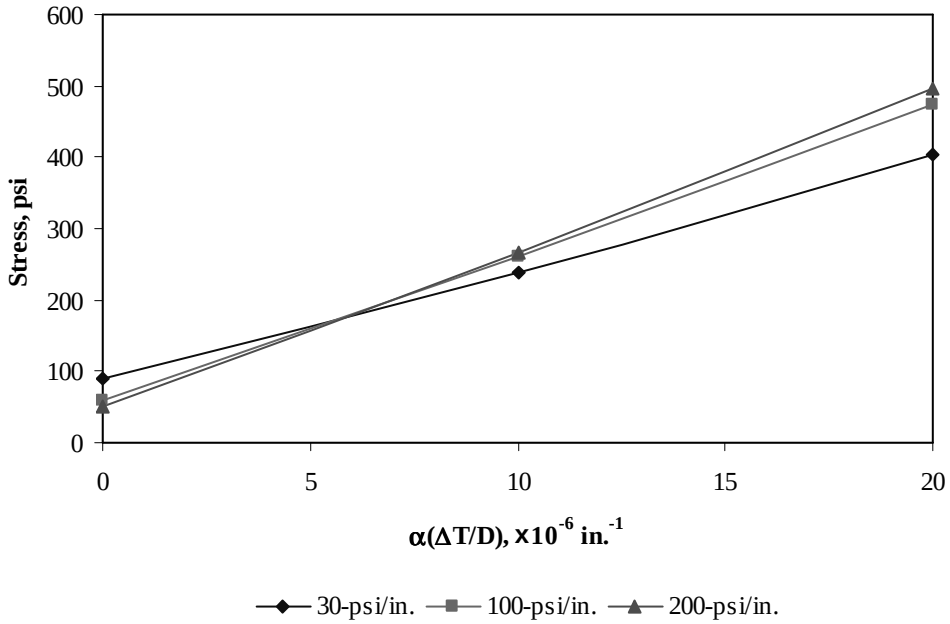


Figure F-8-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

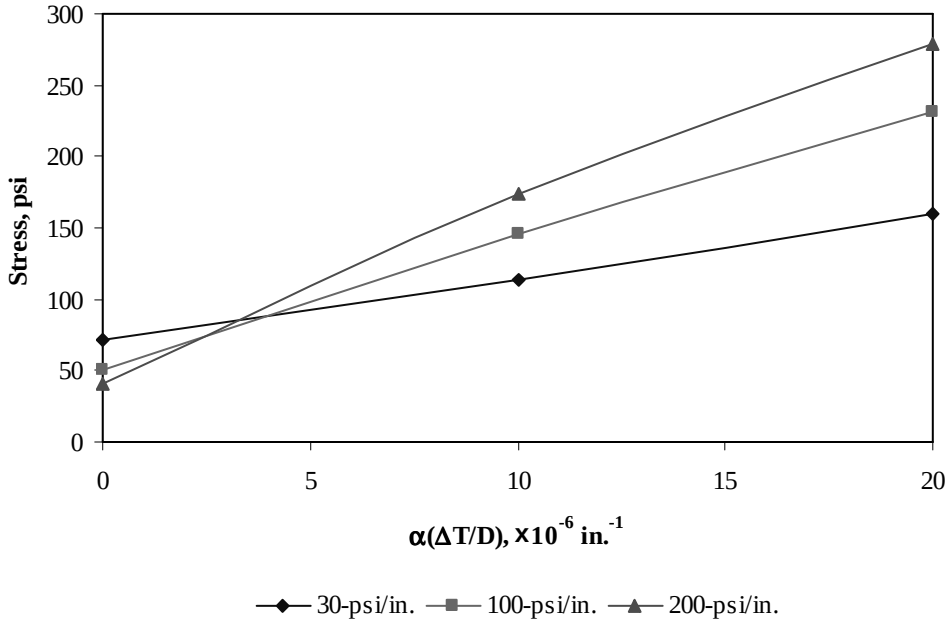


Figure F-8-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

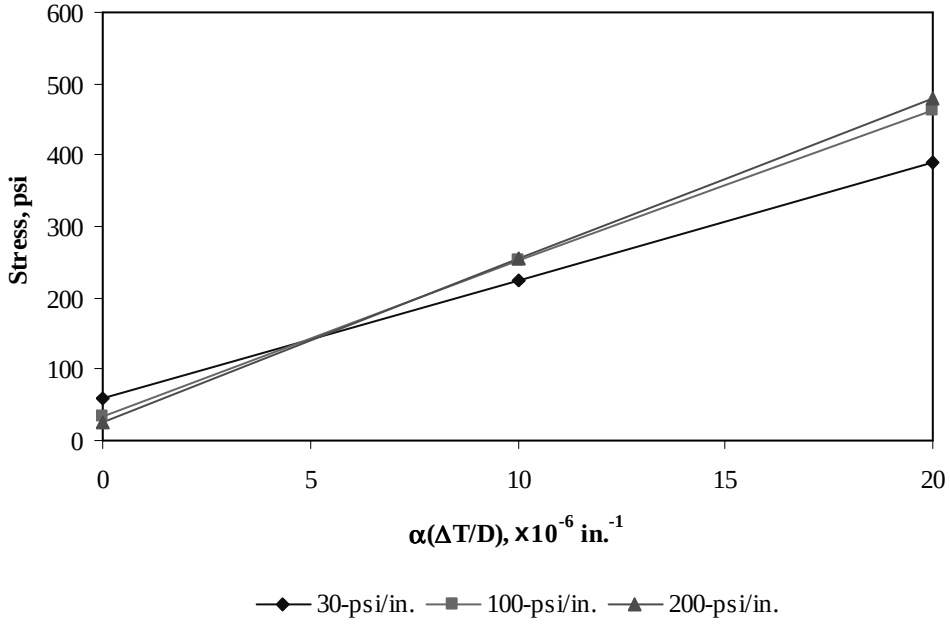


Figure F-8-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

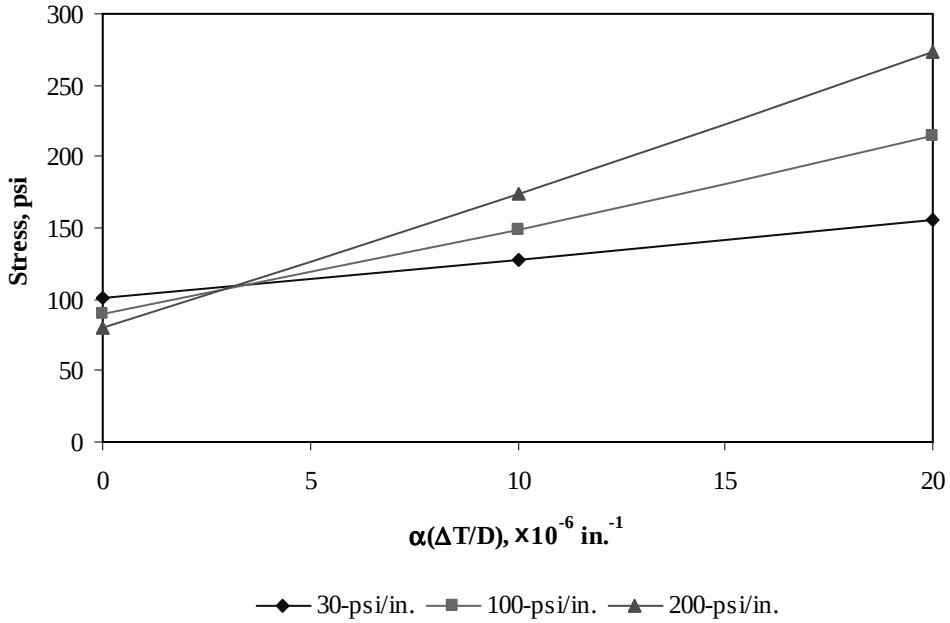


Figure F-8-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

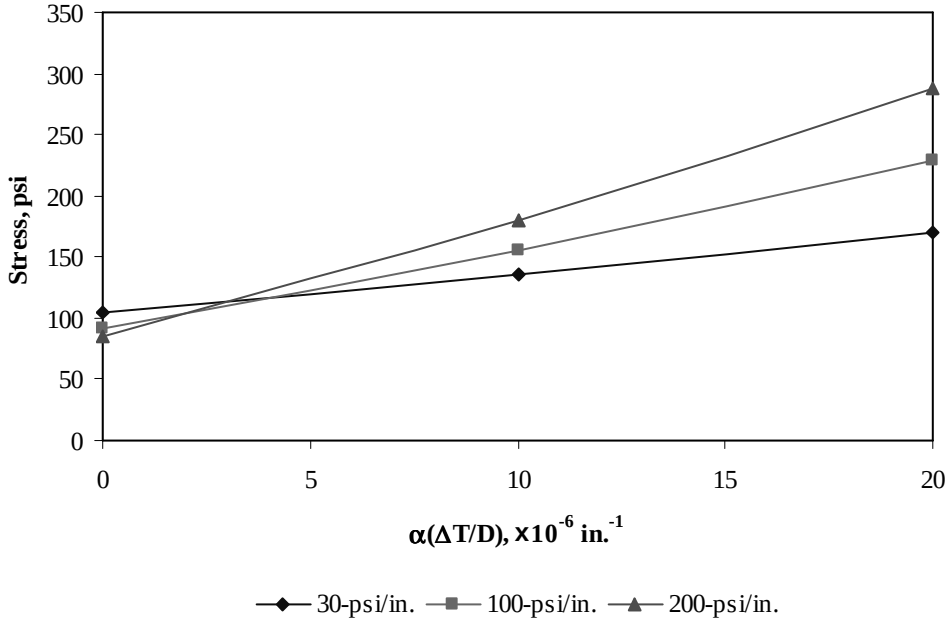


Figure F-8-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-8-49 through F-8-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

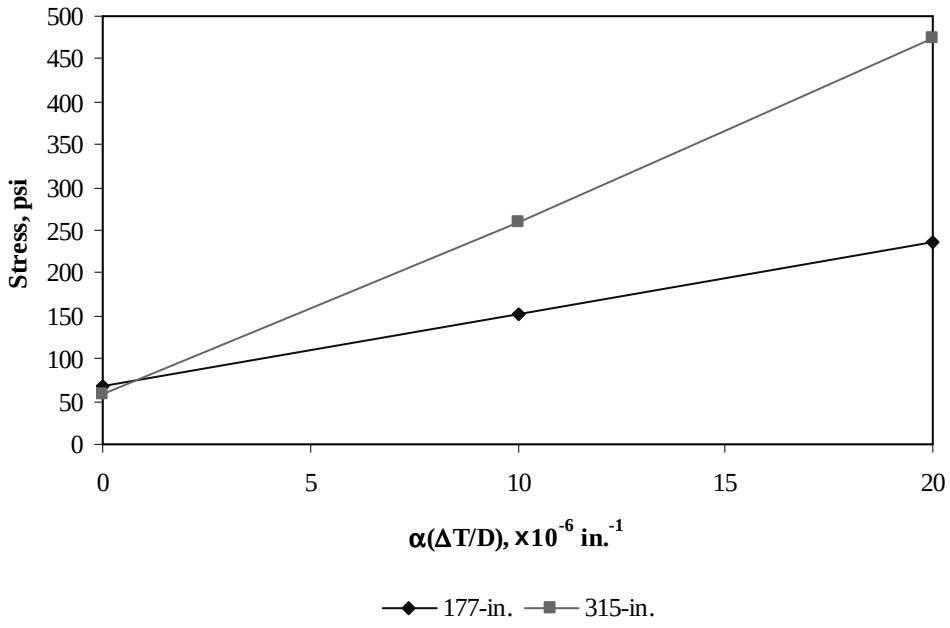


Figure F-8-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

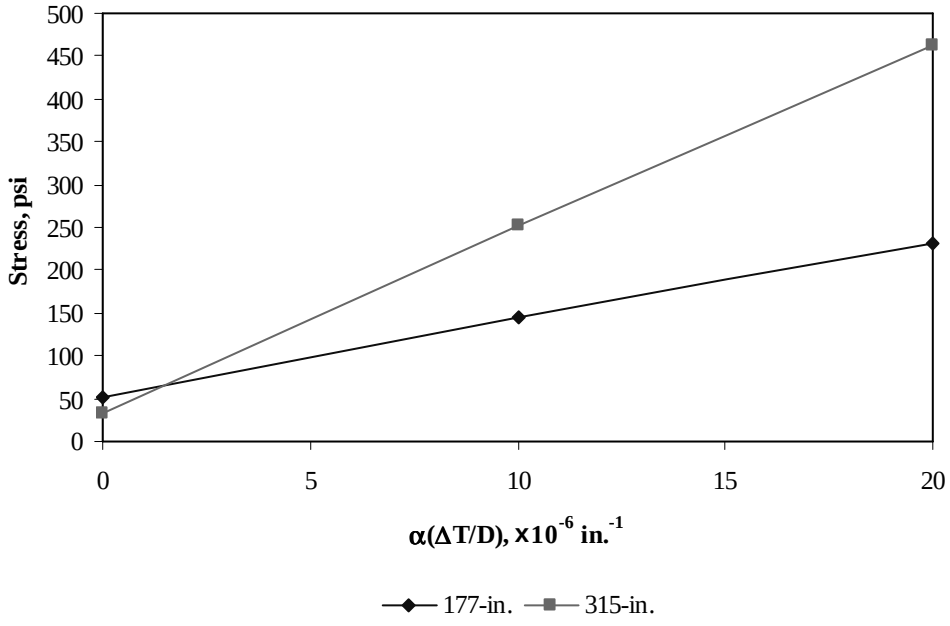


Figure F-8-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

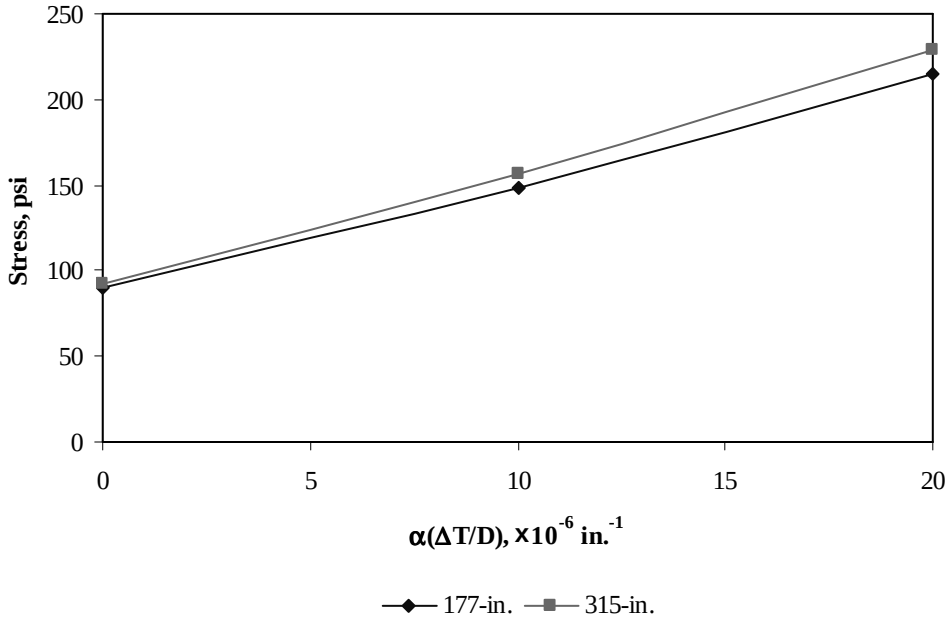
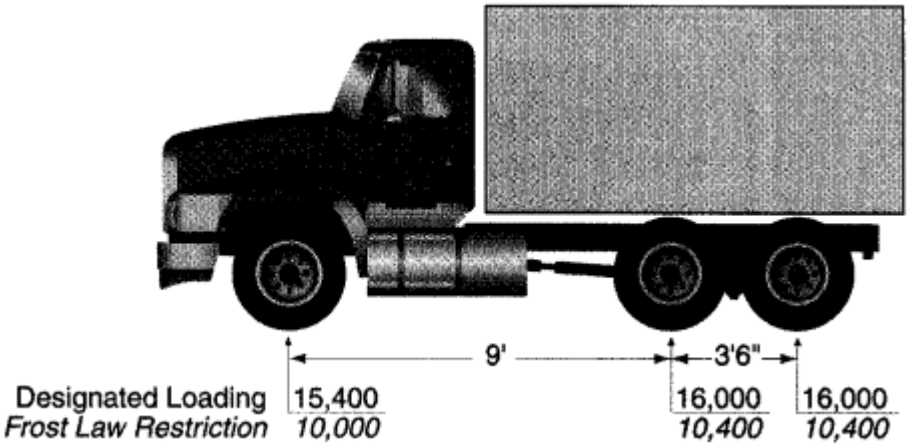


Figure F-8-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-9

Documentation of Pavement Responses for



MI-2

Figures F-9-1 through F-9-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

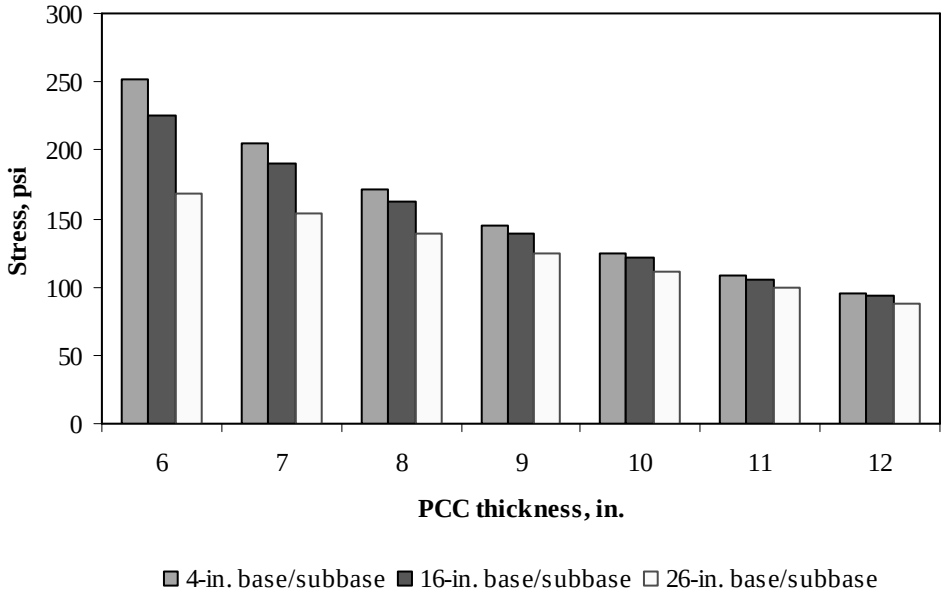


Figure F-9-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

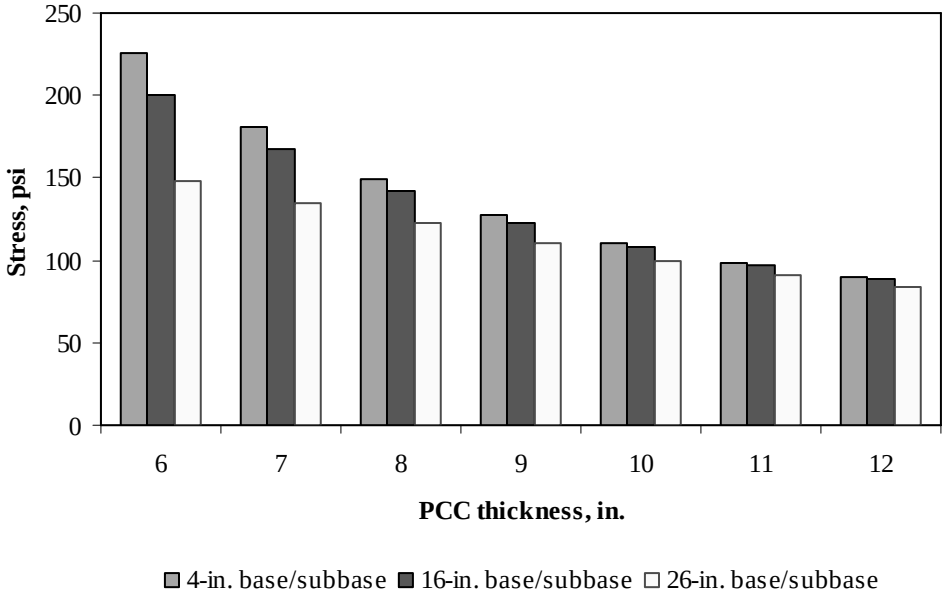


Figure F-9-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

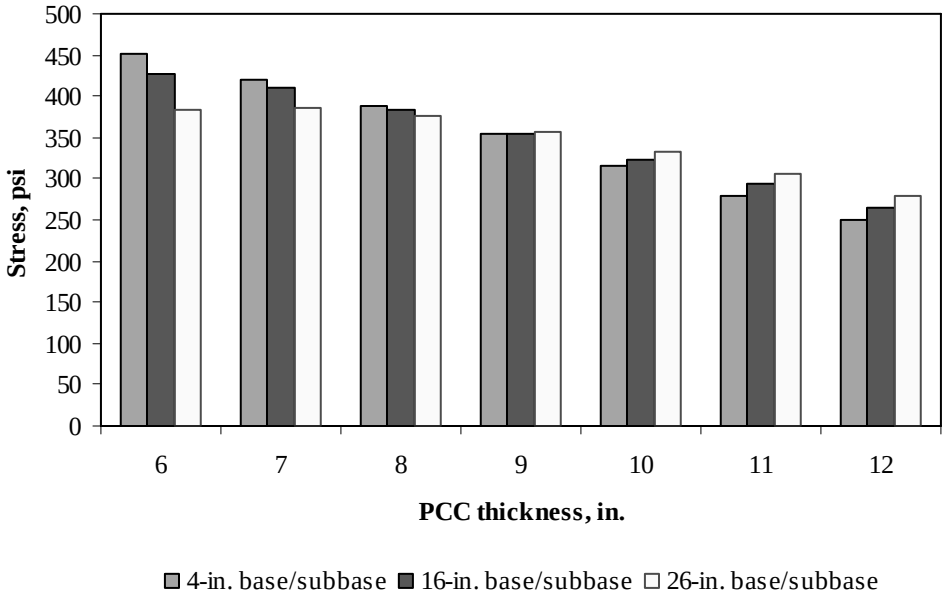


Figure F-9-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

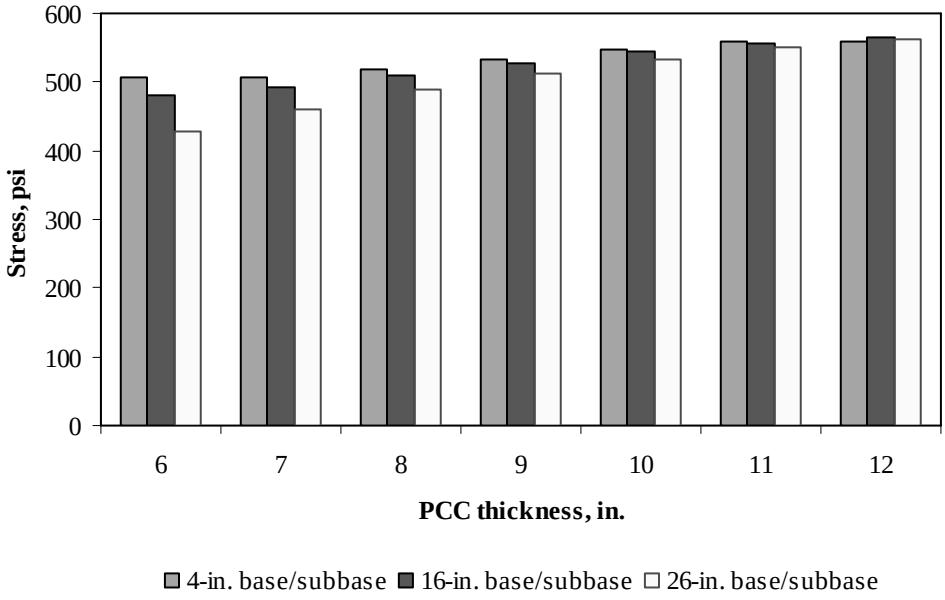


Figure F-9-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

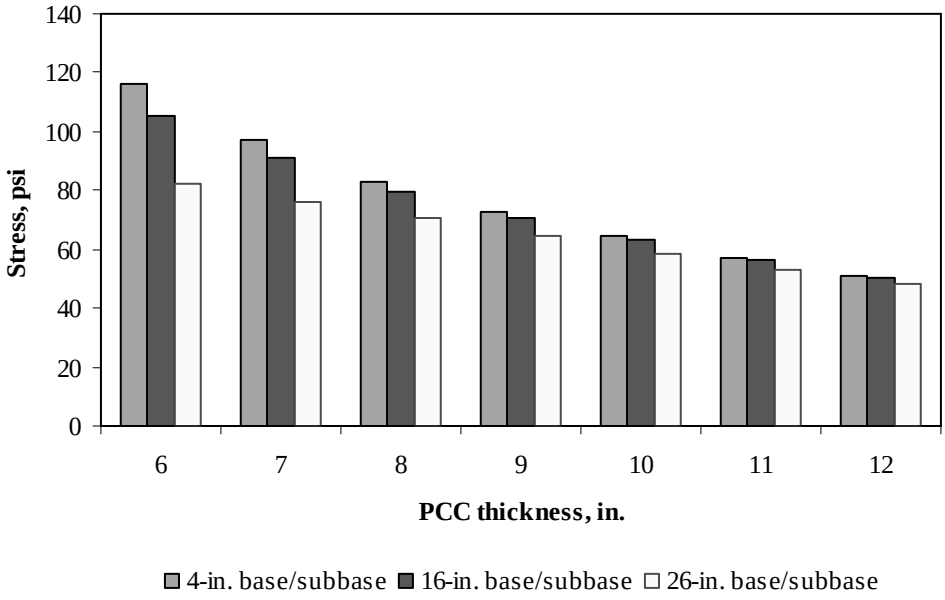


Figure F-9-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

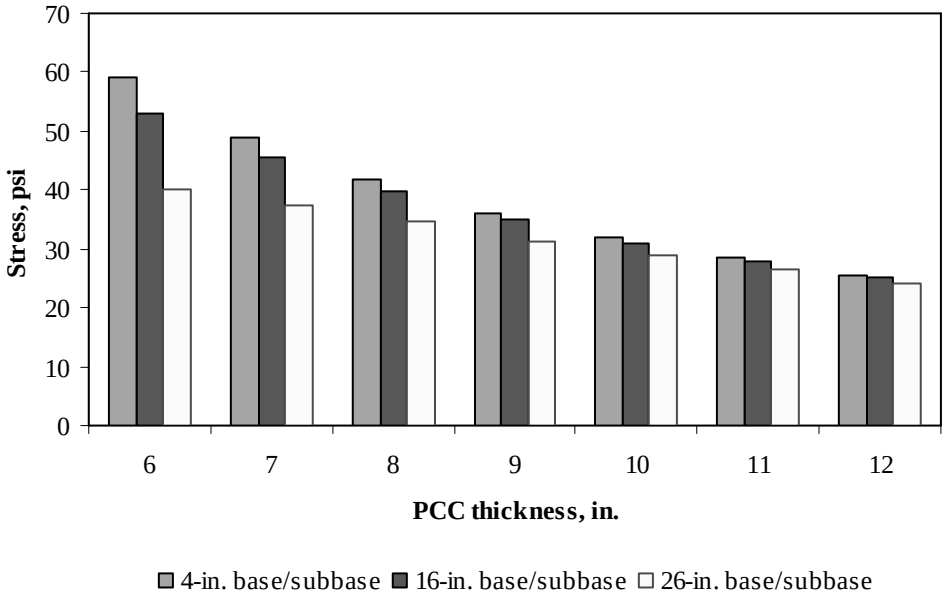


Figure F-9-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

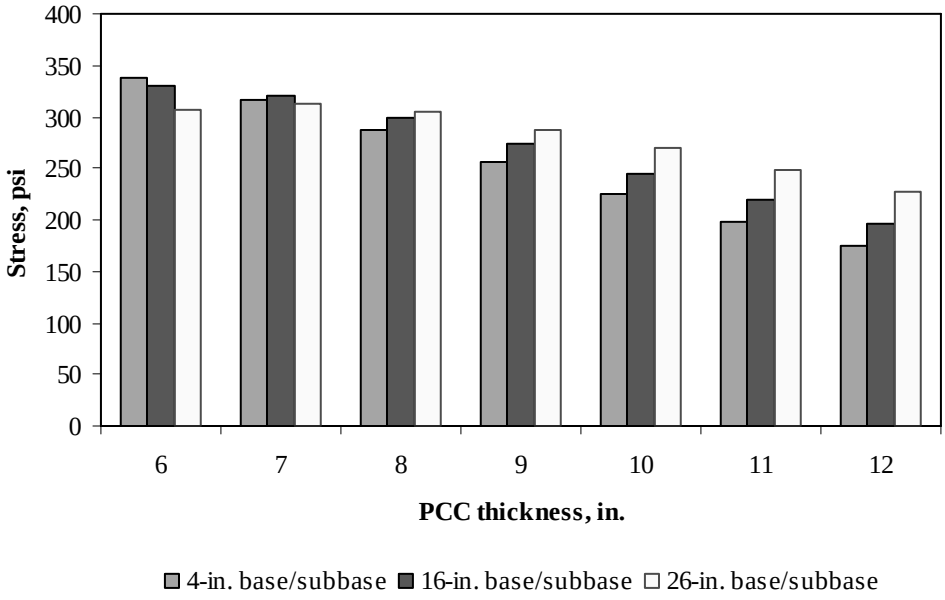


Figure F-9-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

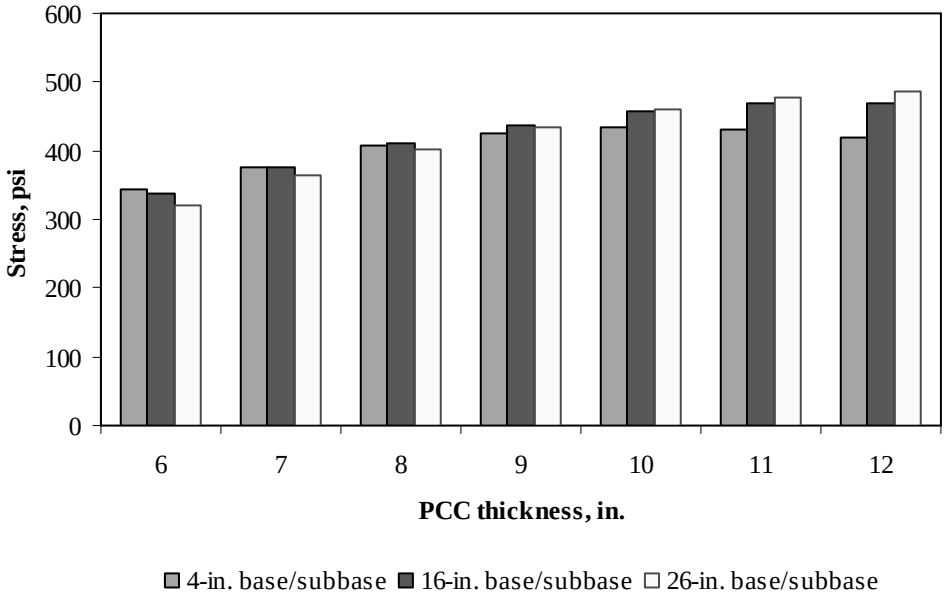


Figure F-9-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

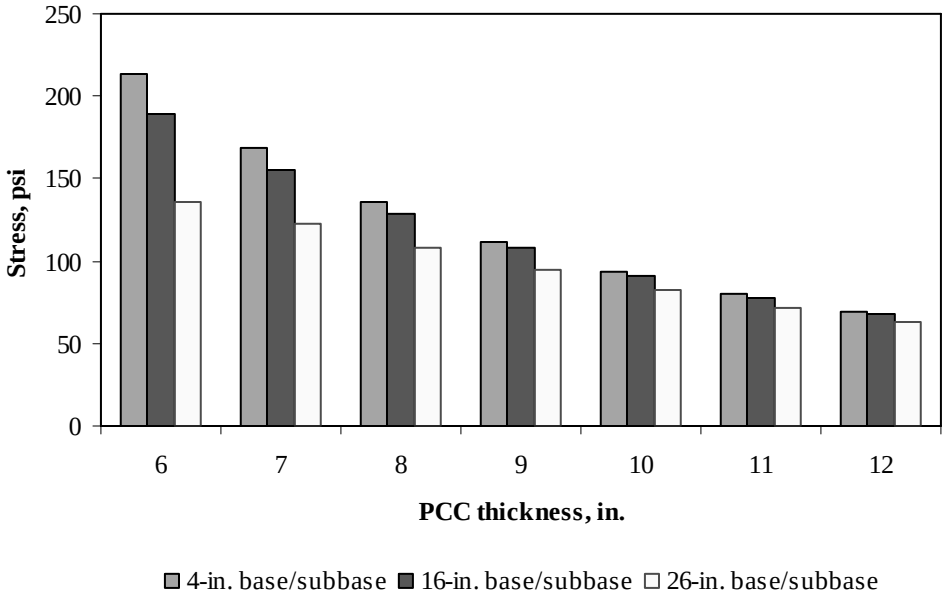


Figure F-9-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

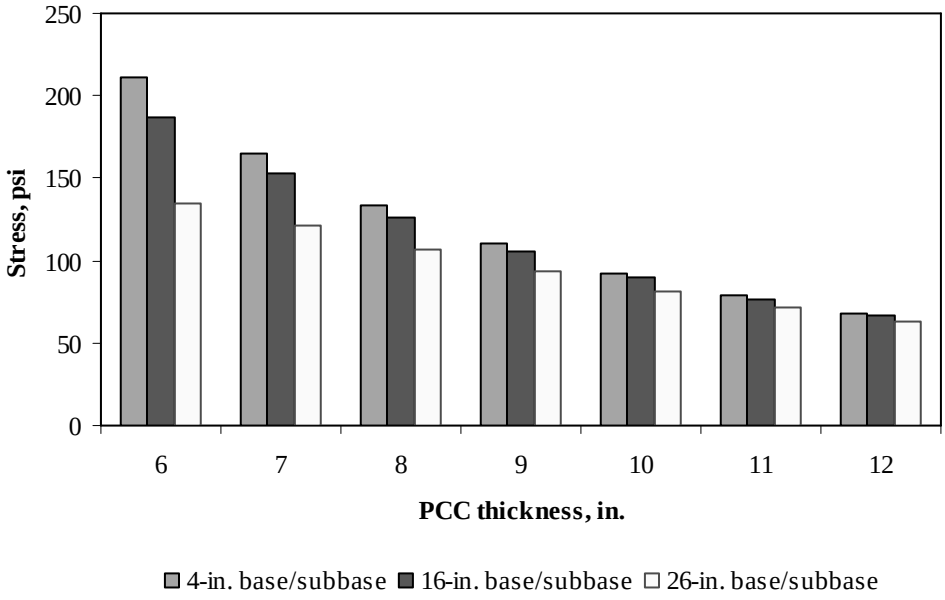


Figure F-9-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

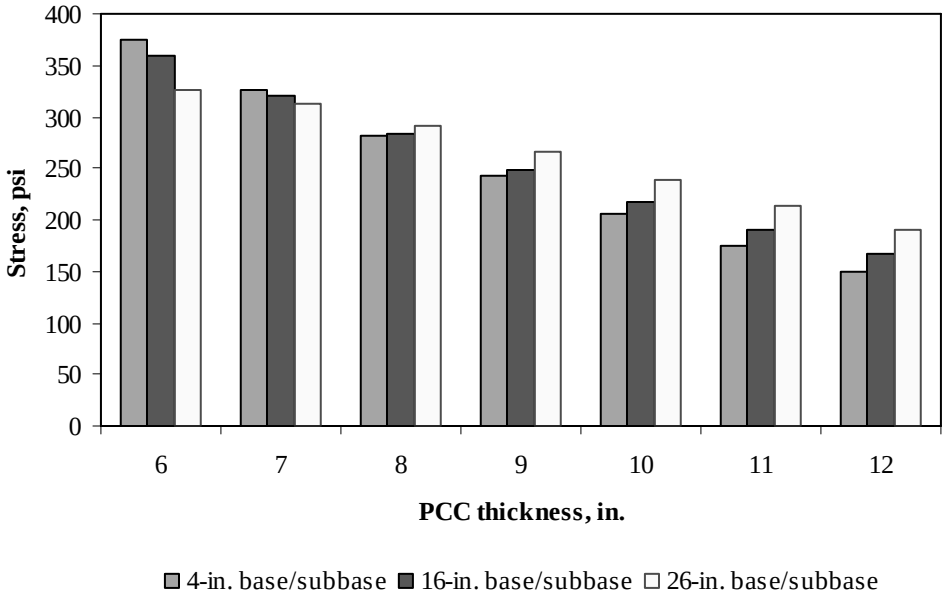


Figure F-9-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

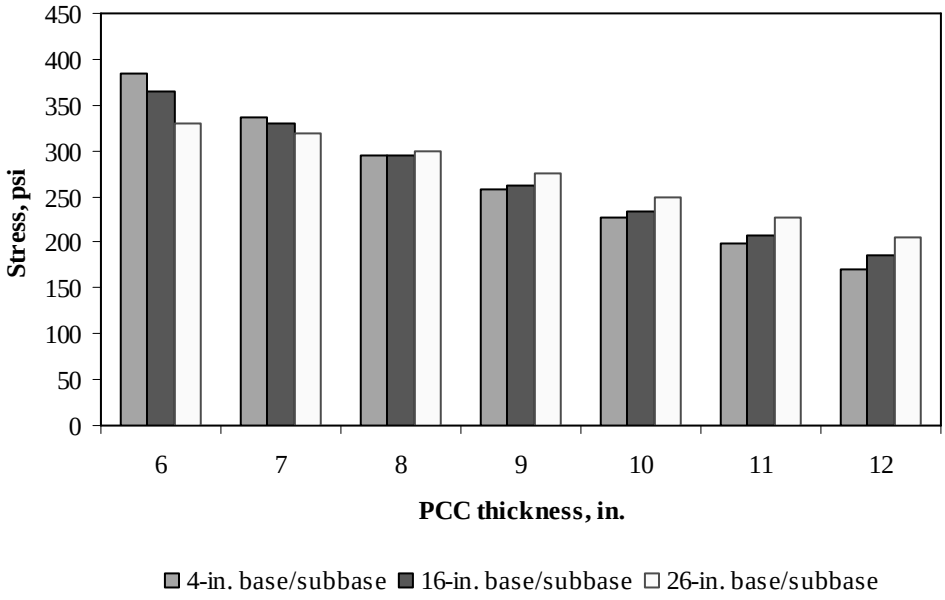


Figure F-9-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-9-13 through F-9-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

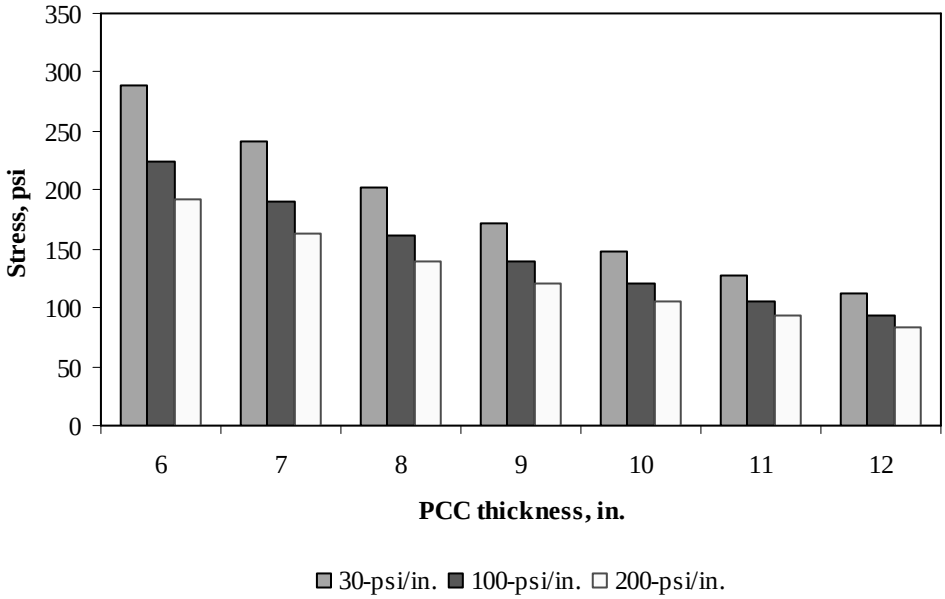


Figure F-9-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

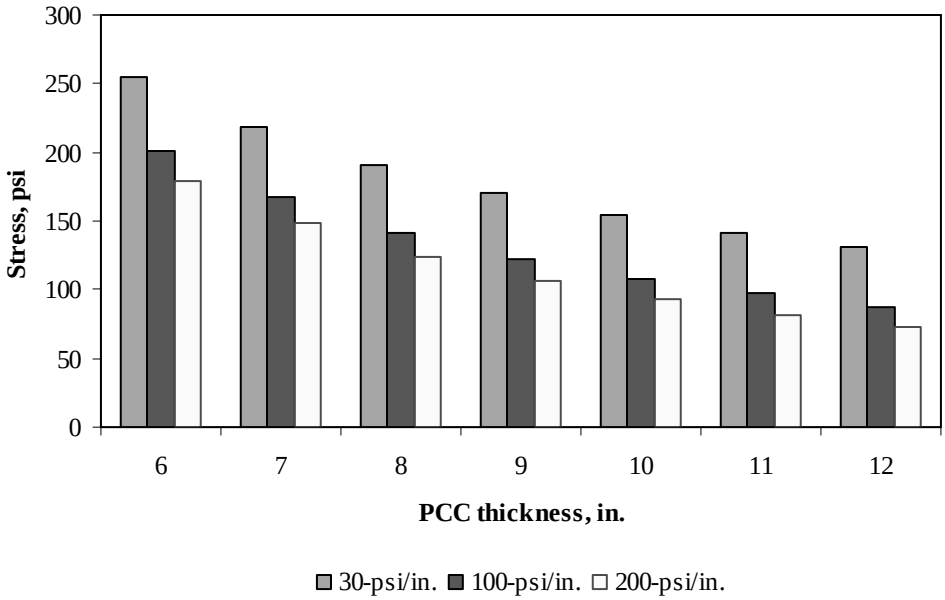


Figure F-9-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

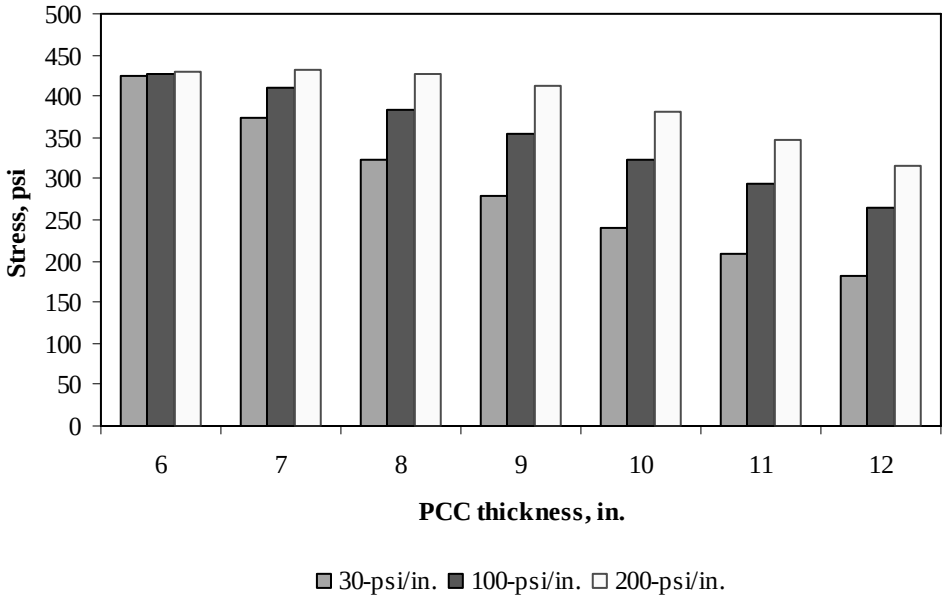


Figure F-9-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

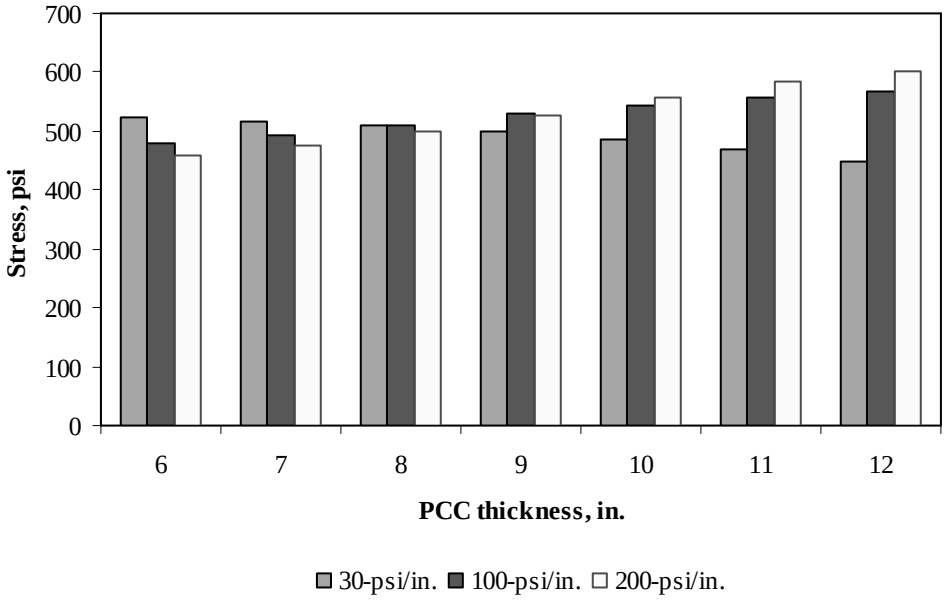


Figure F-9-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

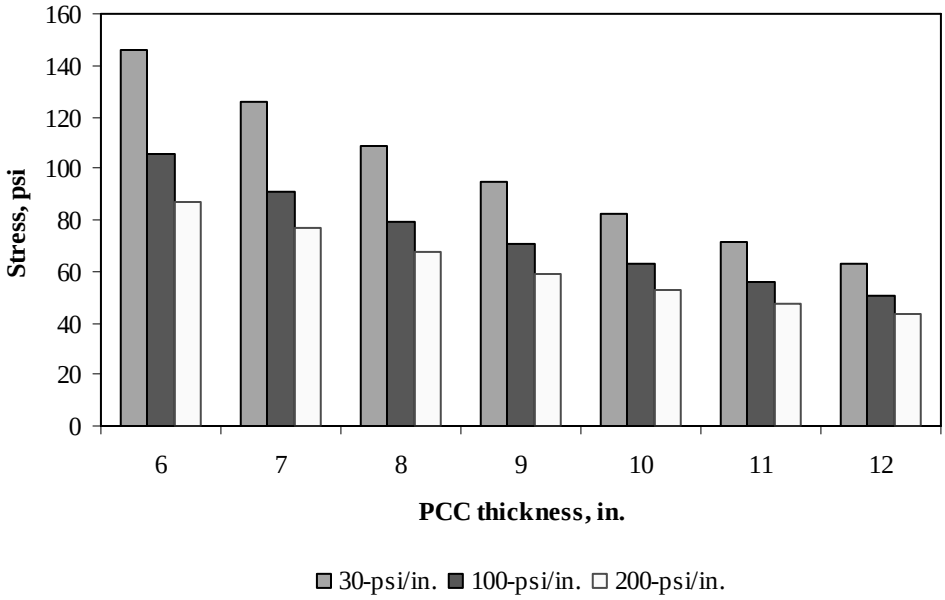


Figure F-9-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

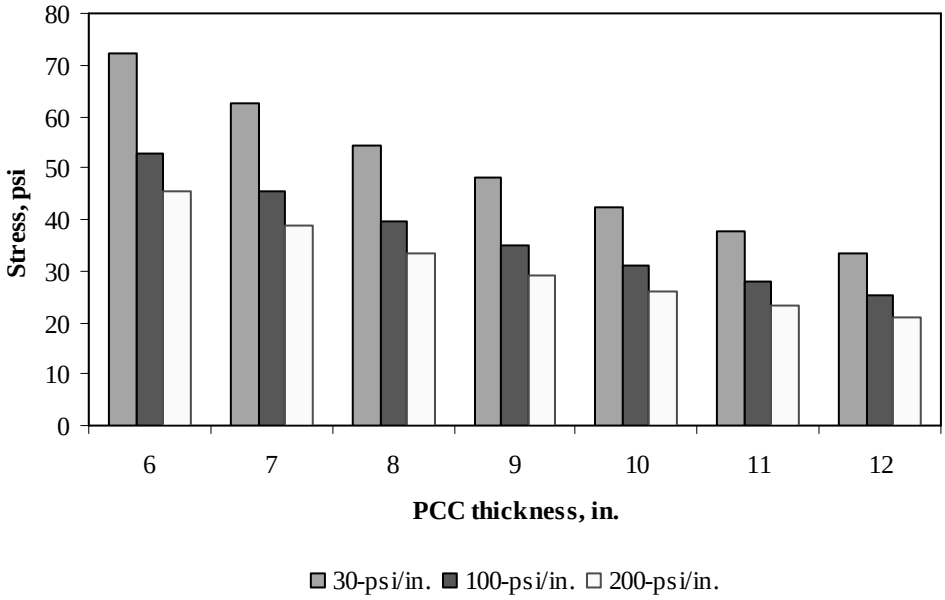


Figure F-9-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

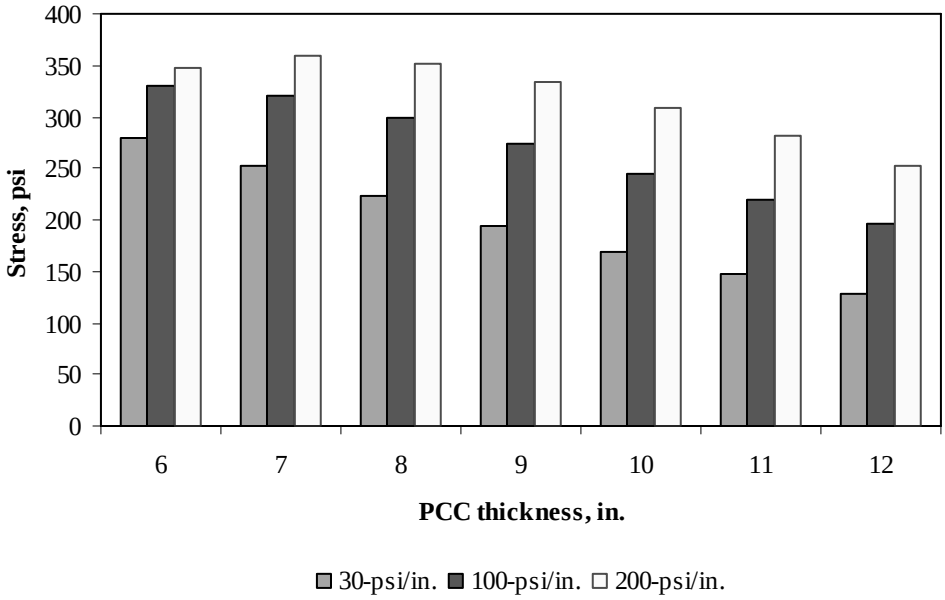


Figure F-9-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

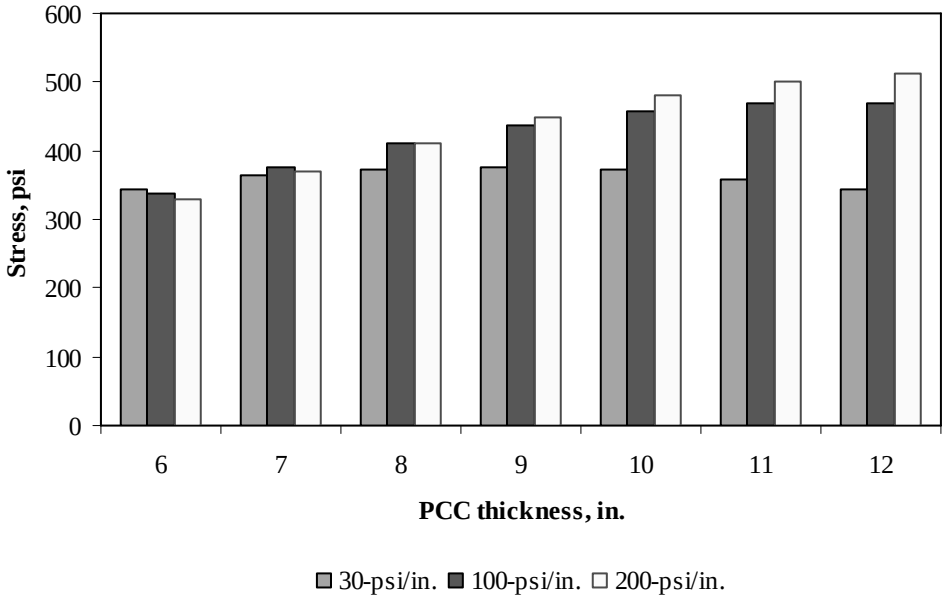


Figure F-9-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

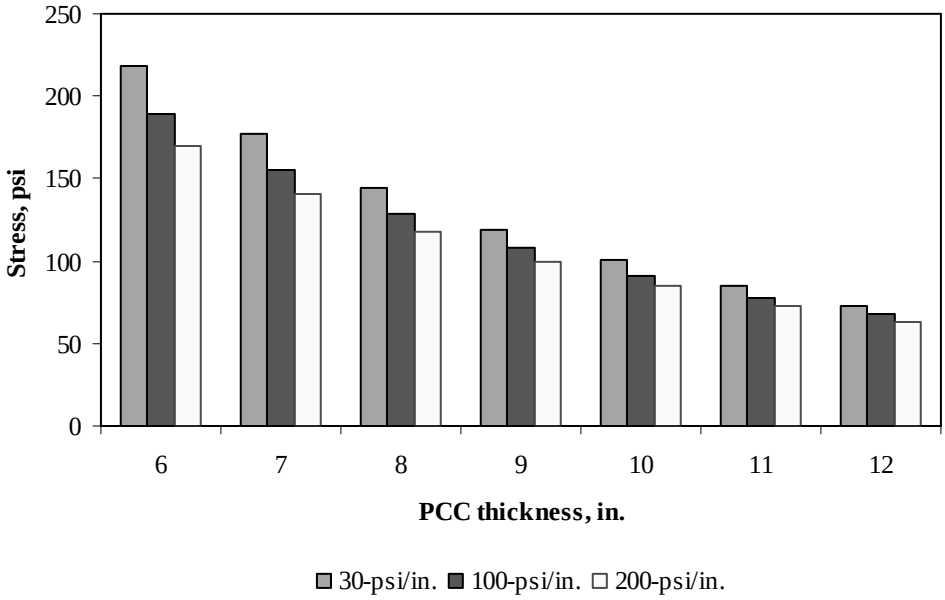


Figure F-9-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

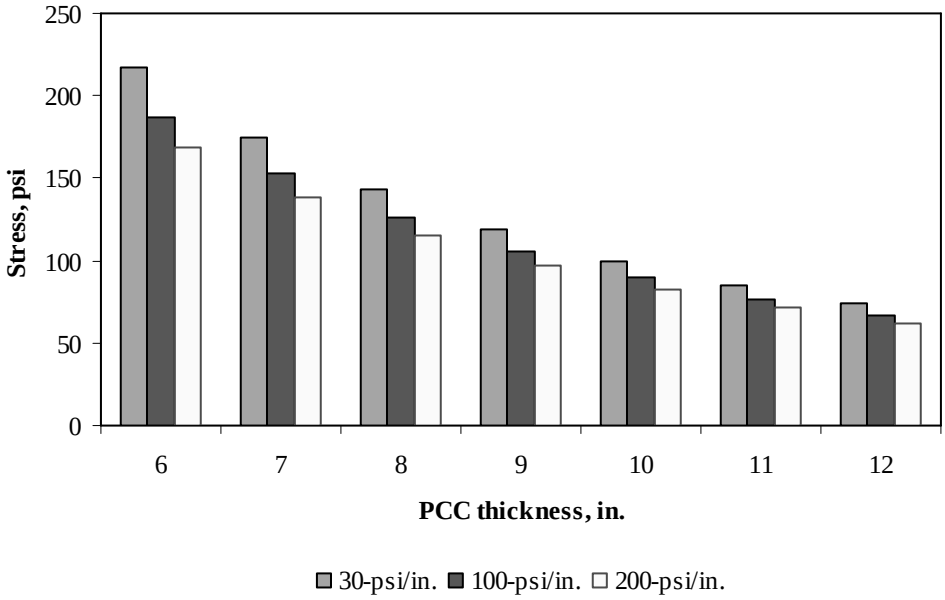


Figure F-9-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

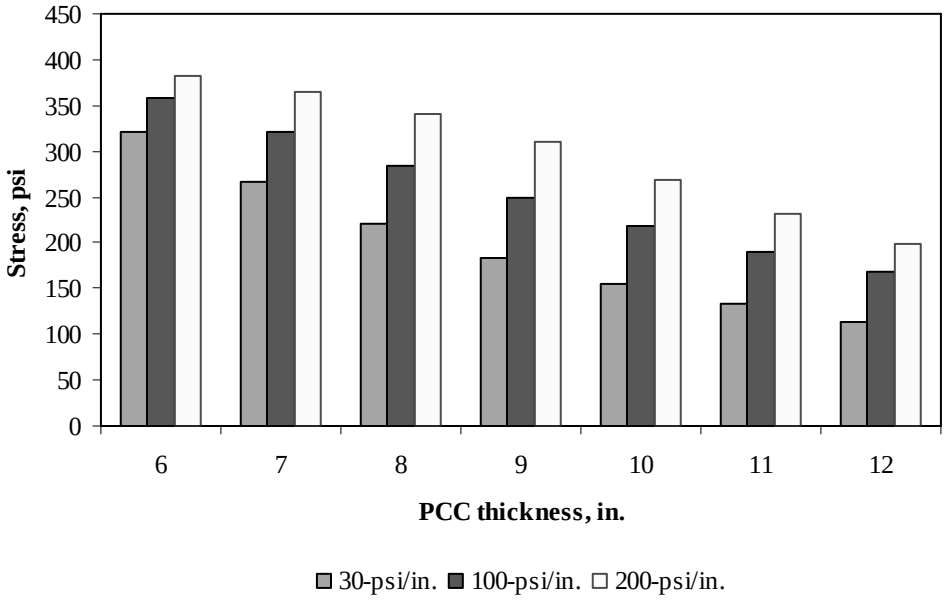


Figure F-9-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

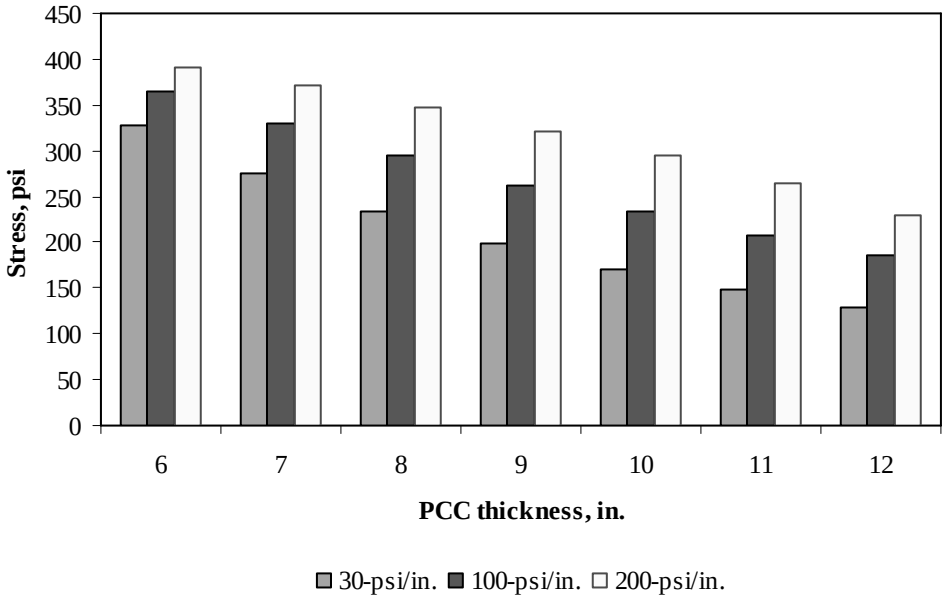


Figure F-9-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-9-25 through F-9-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

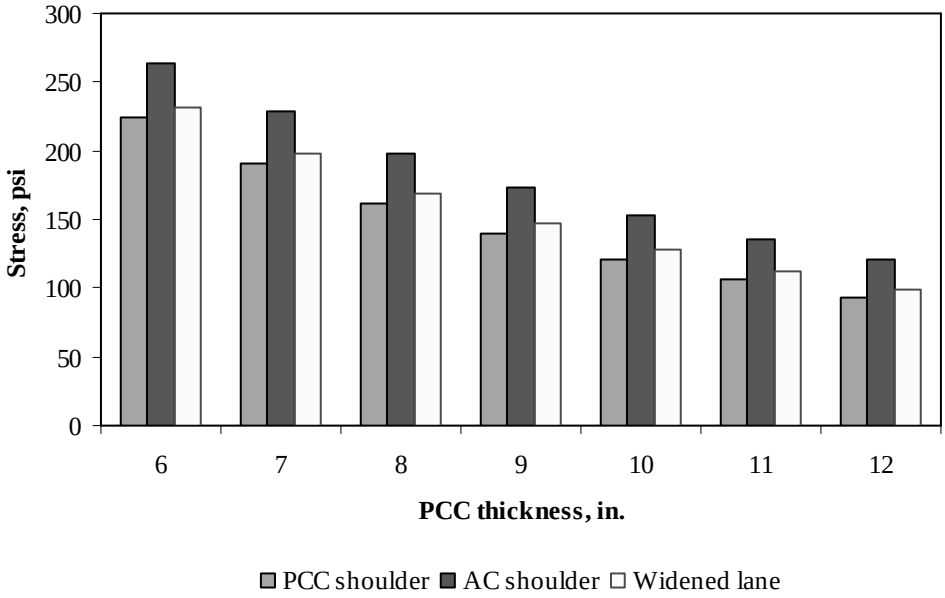


Figure F-9-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

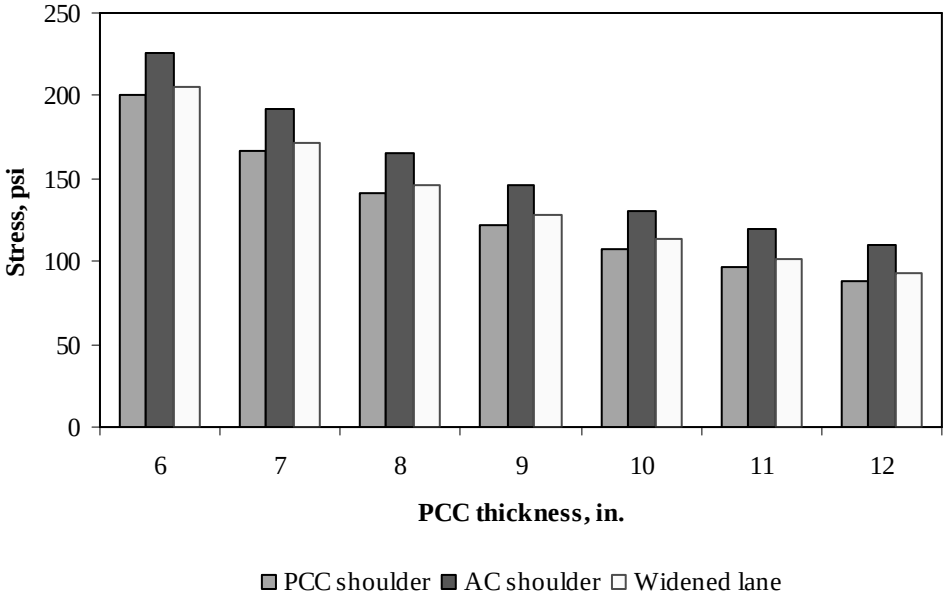


Figure F-9-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

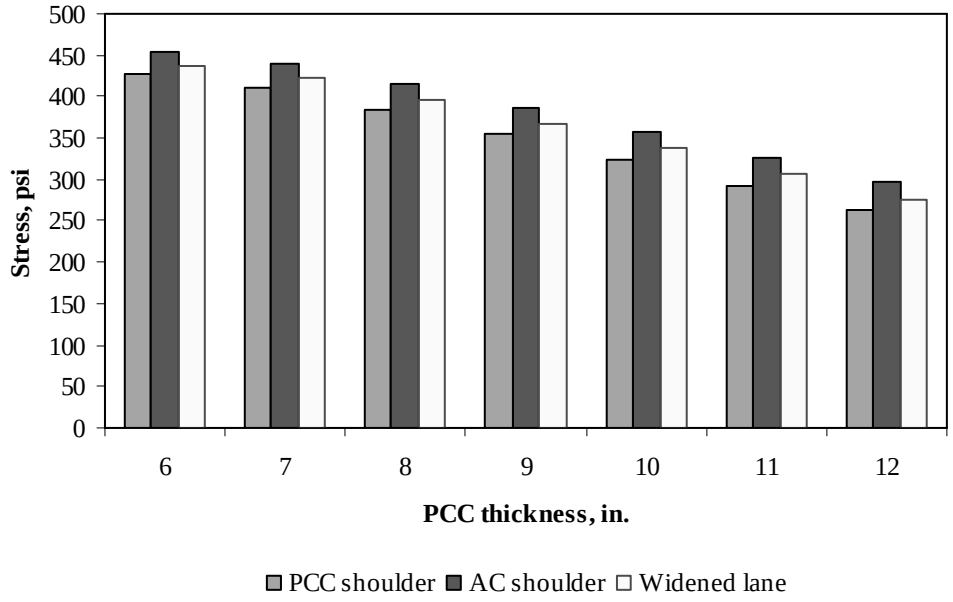


Figure F-9-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

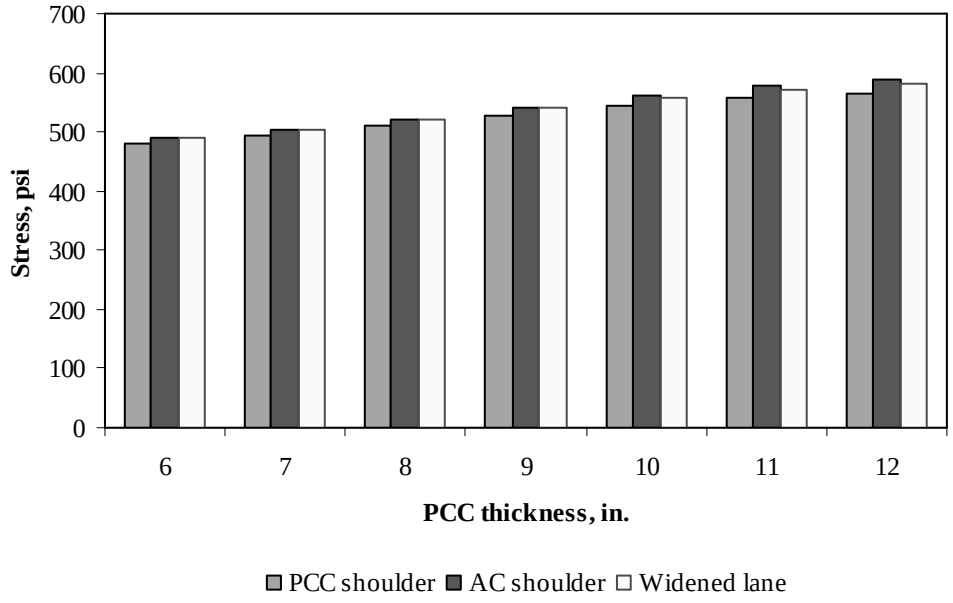


Figure F-9-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

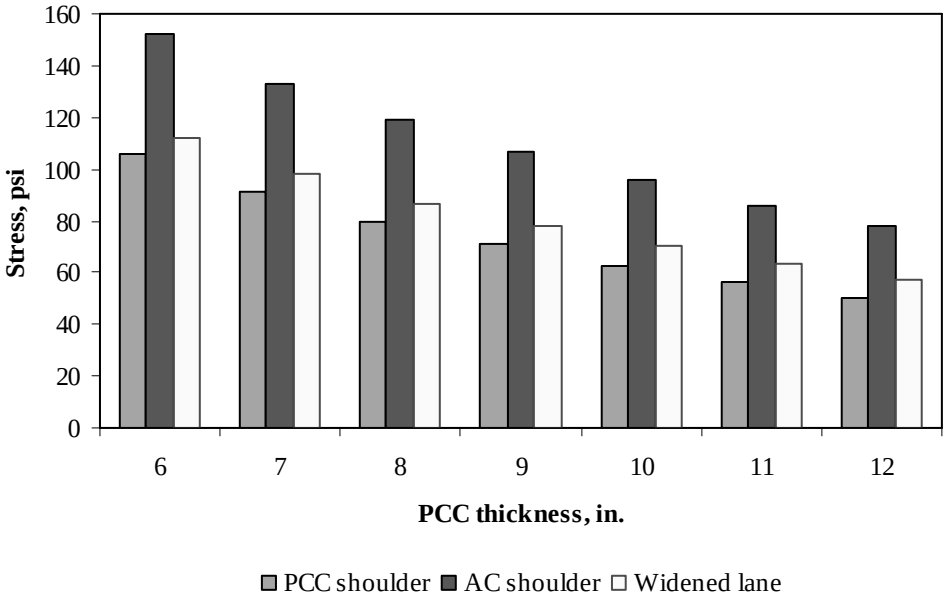


Figure F-9-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

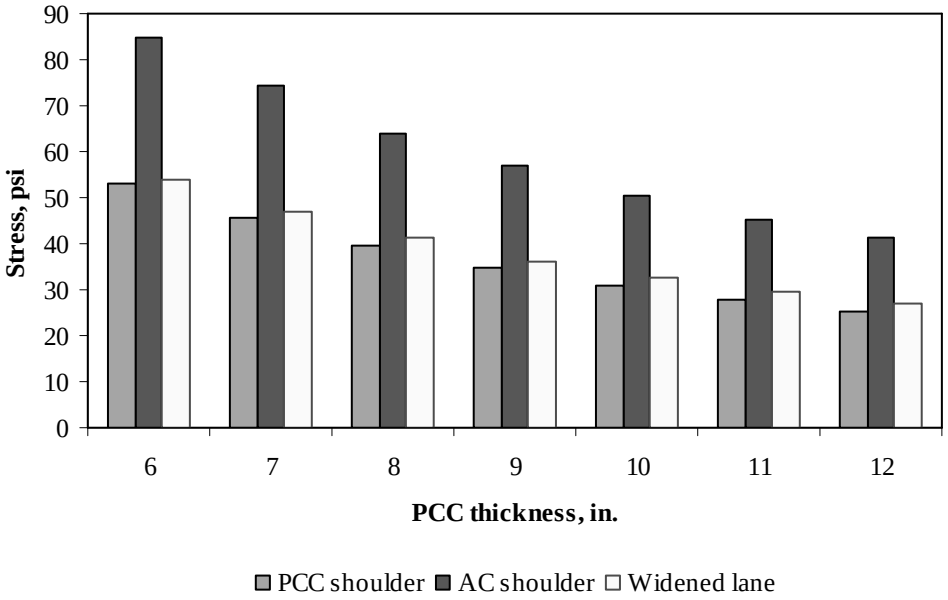


Figure F-9-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

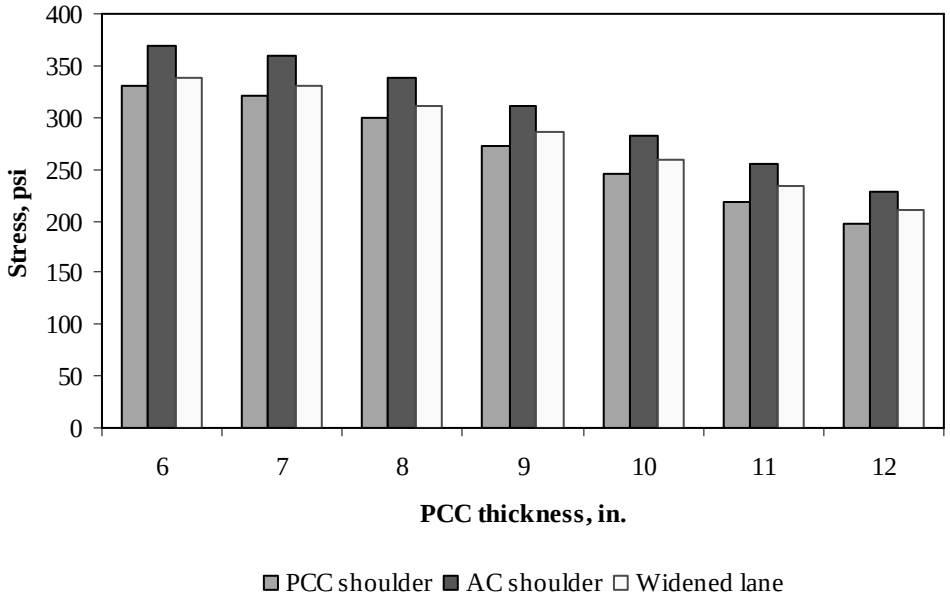


Figure F-9-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

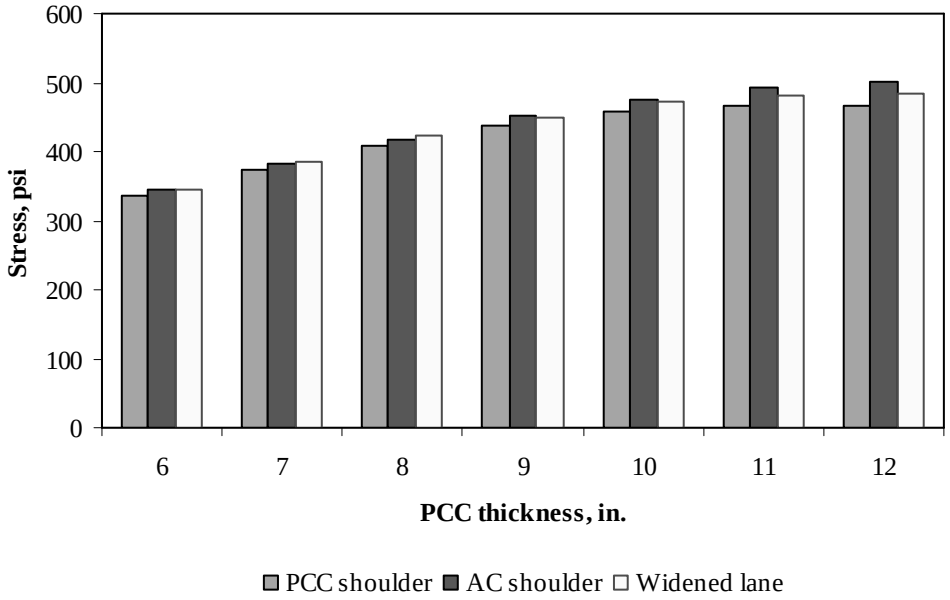


Figure F-9-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

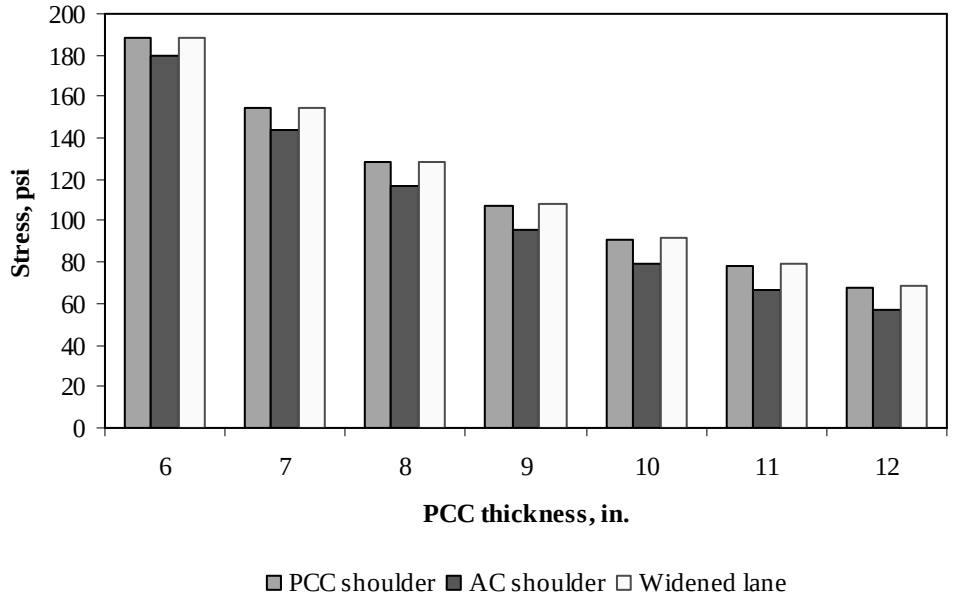


Figure F-9-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

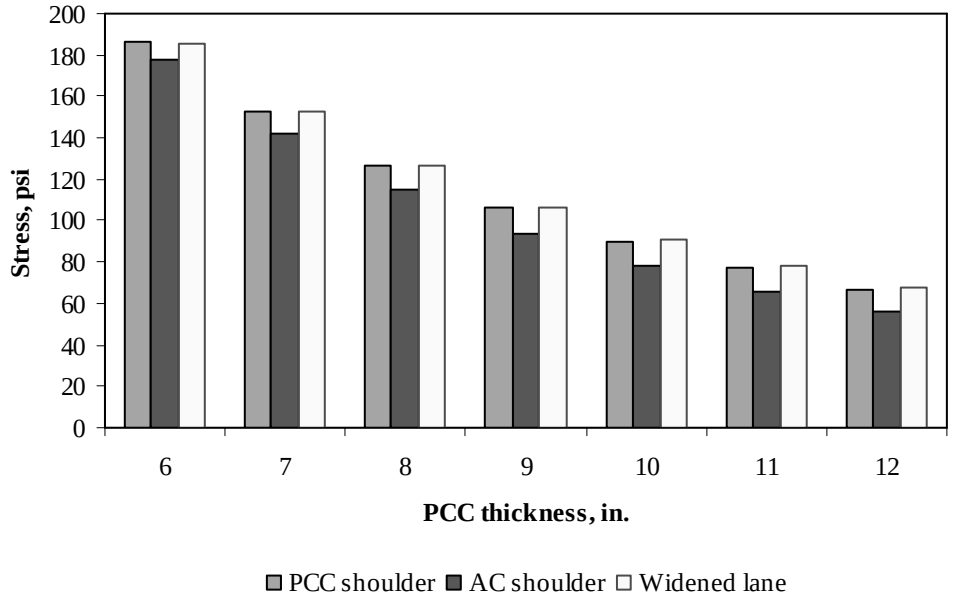


Figure F-9-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

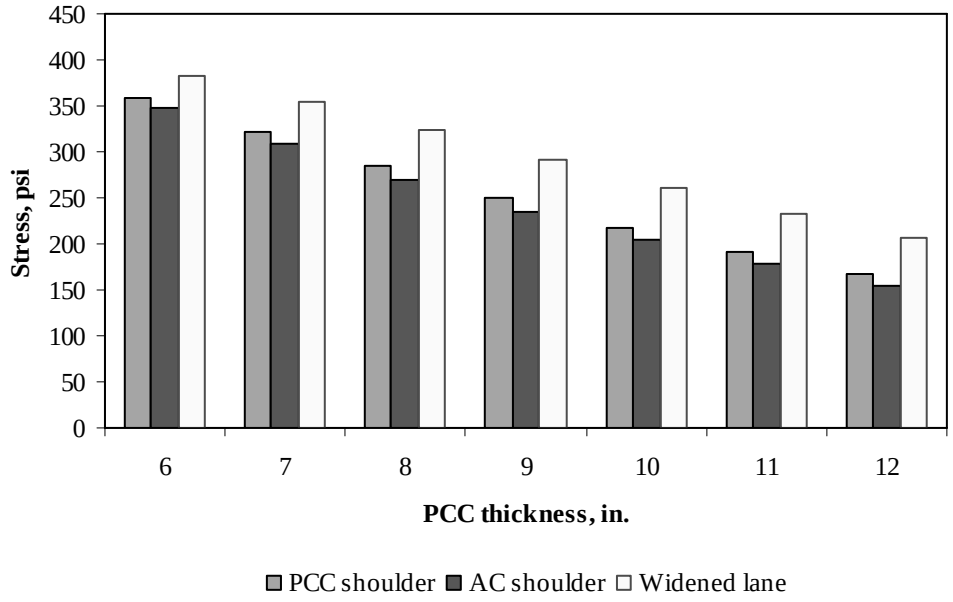


Figure F-9-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

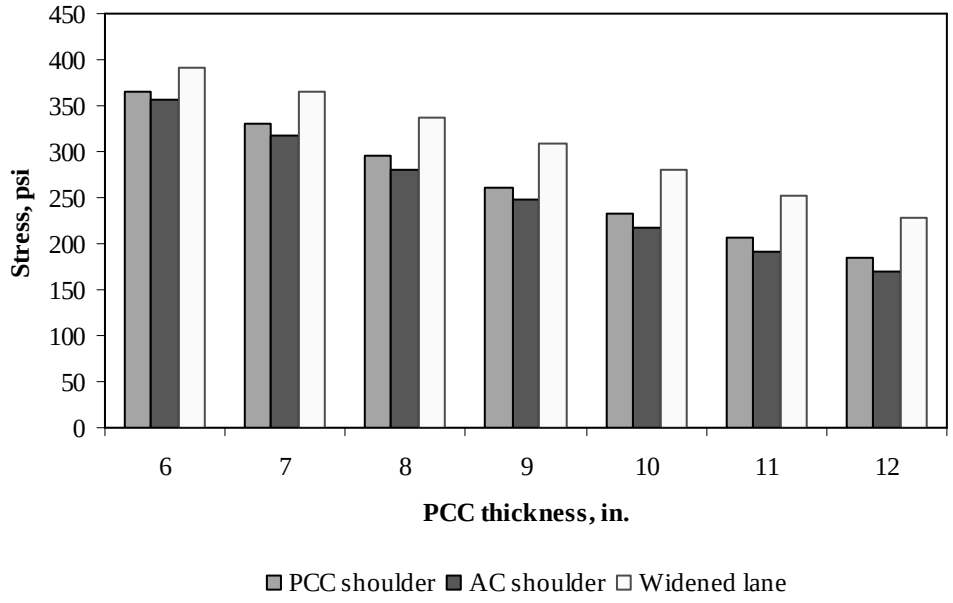


Figure F-9-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-9-37 through F-9-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

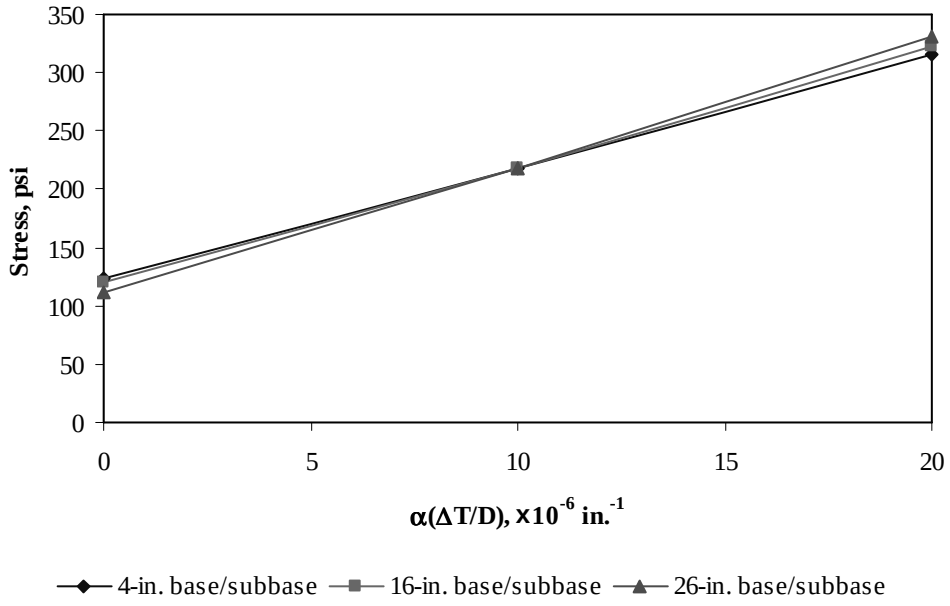


Figure F-9-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

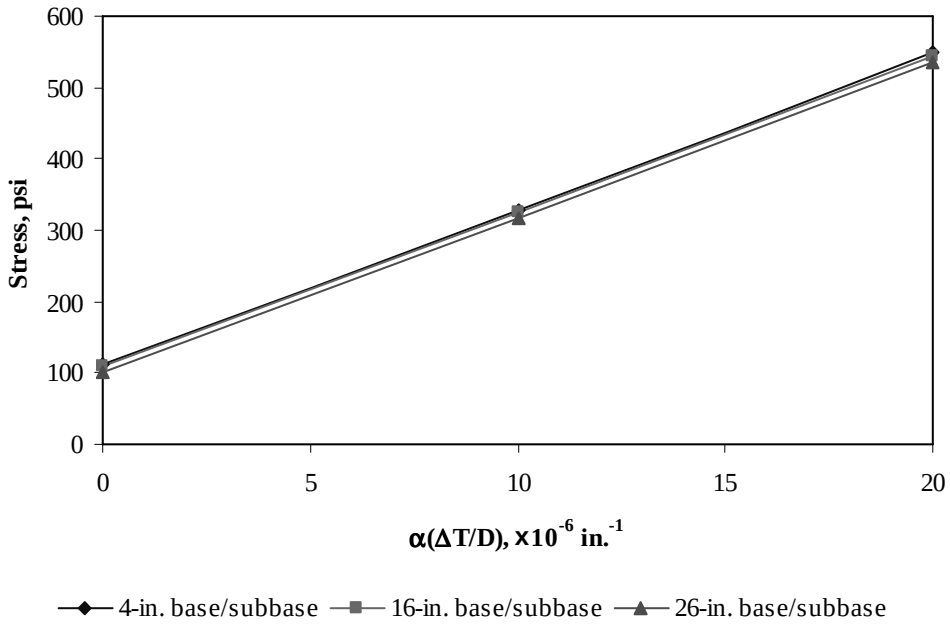


Figure F-9-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

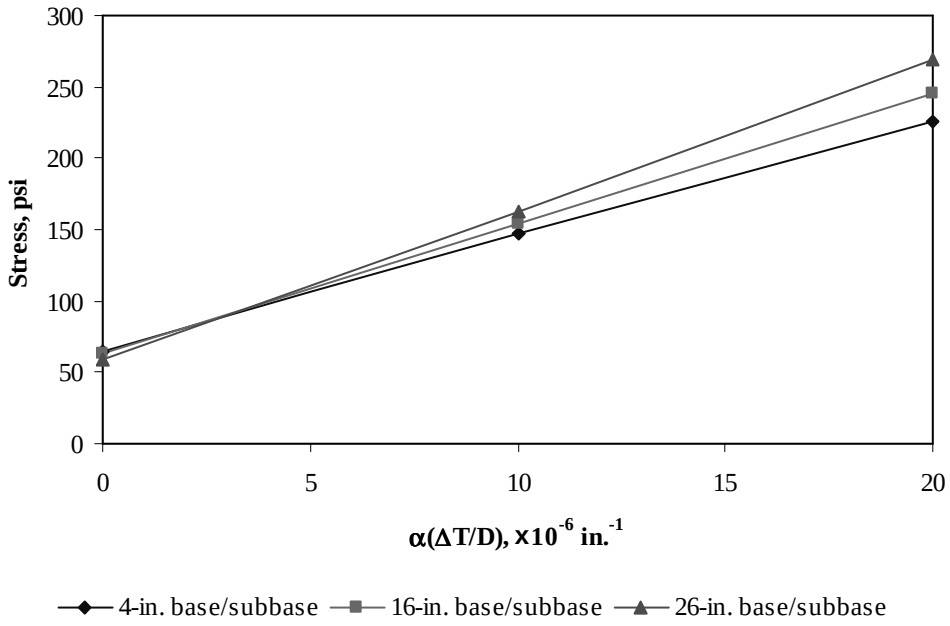


Figure F-9-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

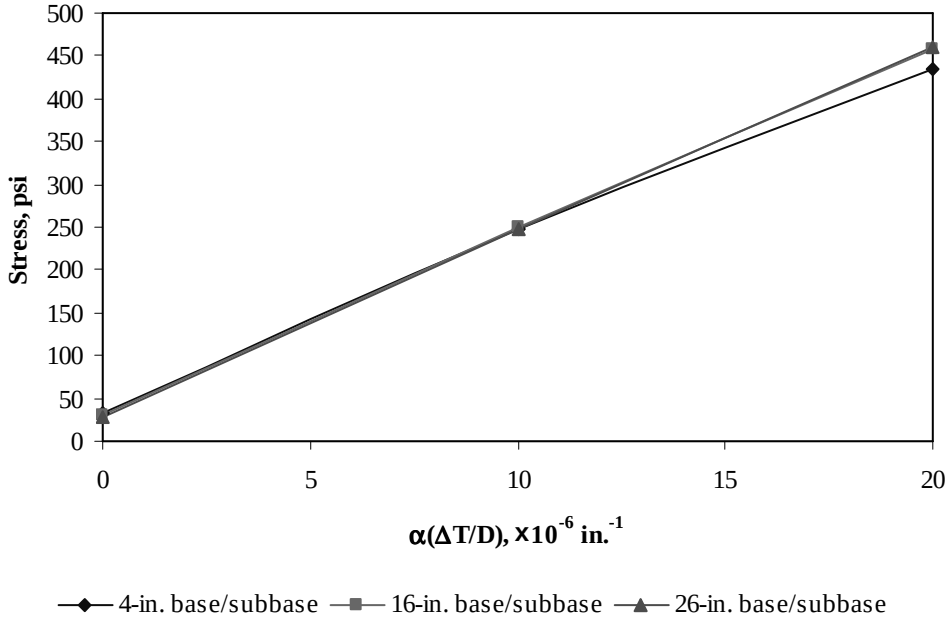


Figure F-9-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

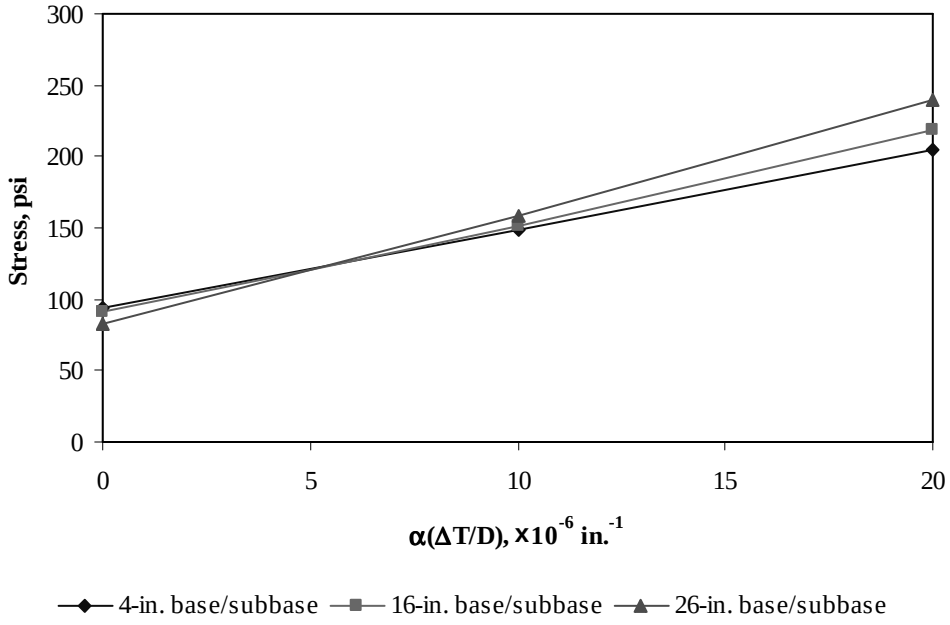


Figure F-9-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

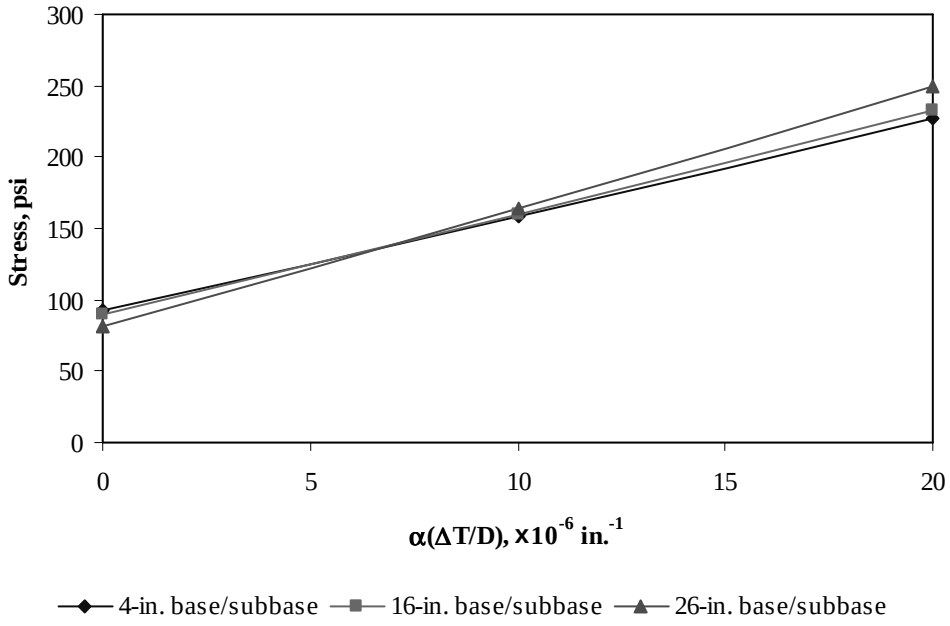


Figure F-9-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-9-43 through F-9-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

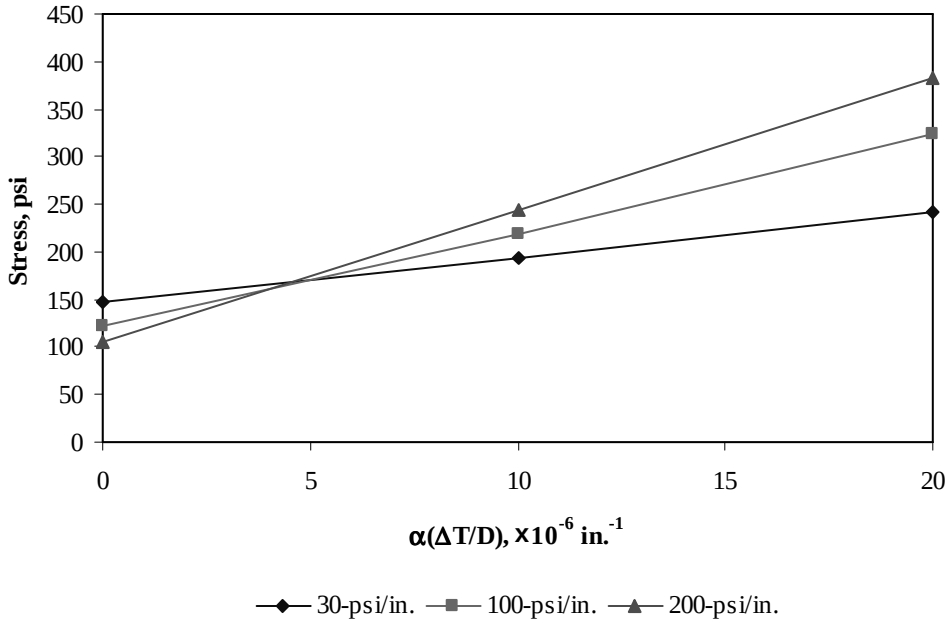


Figure F-9-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

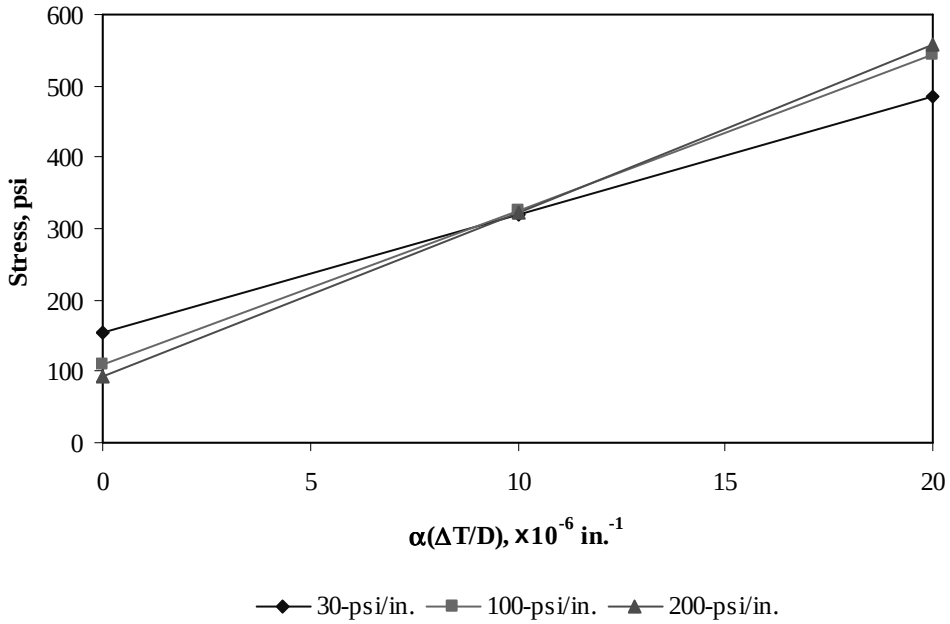


Figure F-9-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

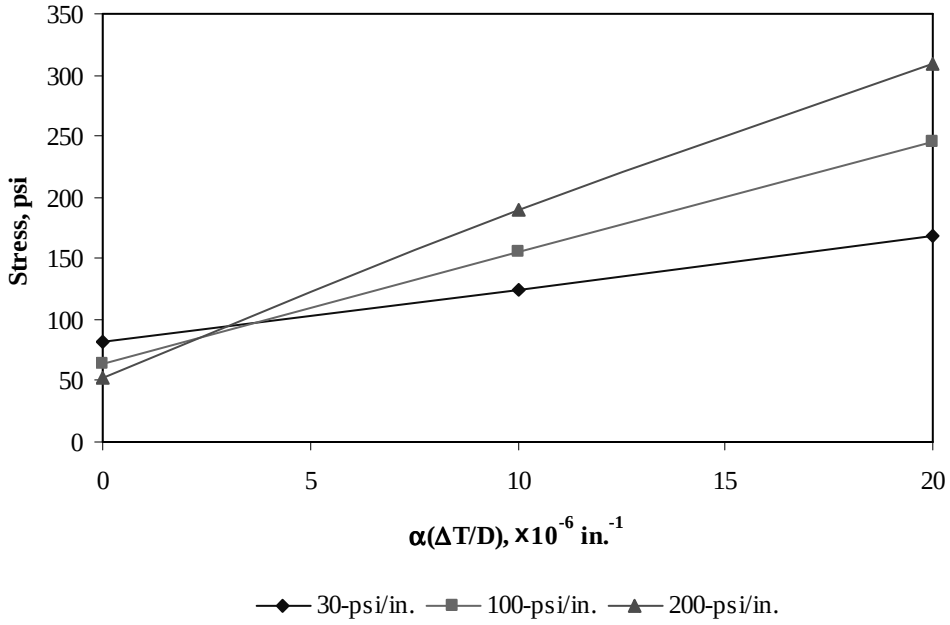


Figure F-9-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

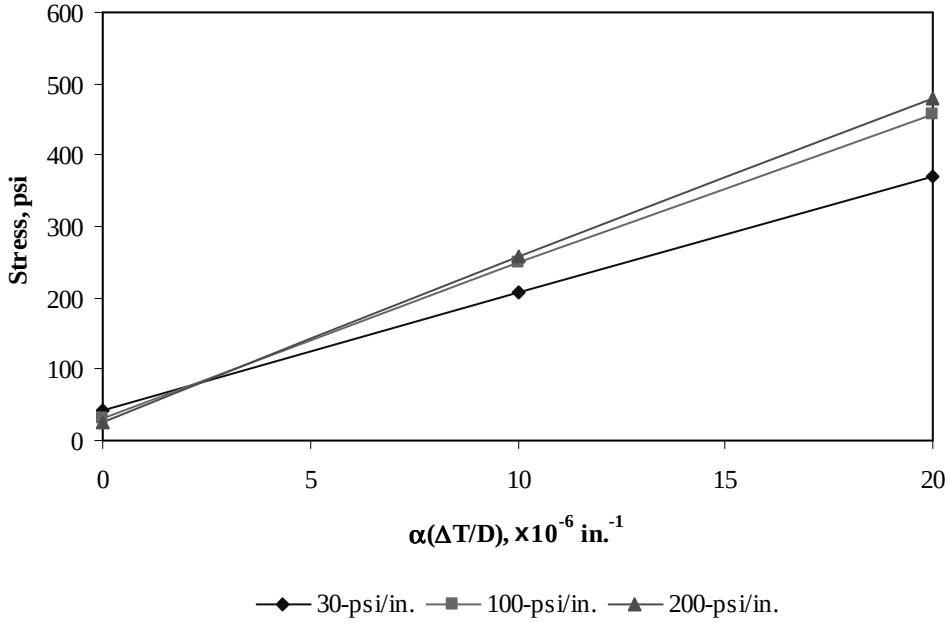


Figure F-9-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

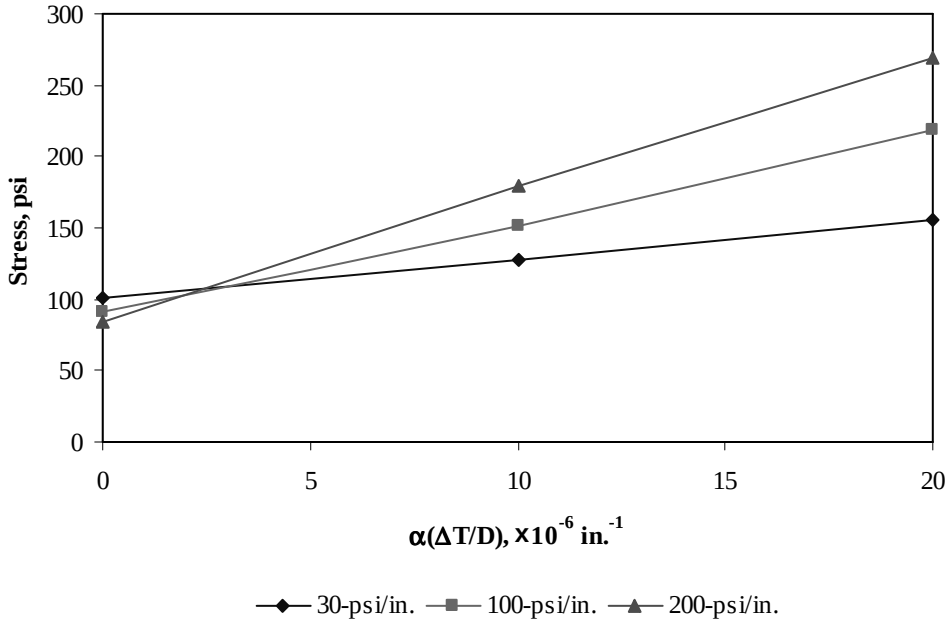


Figure F-9-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

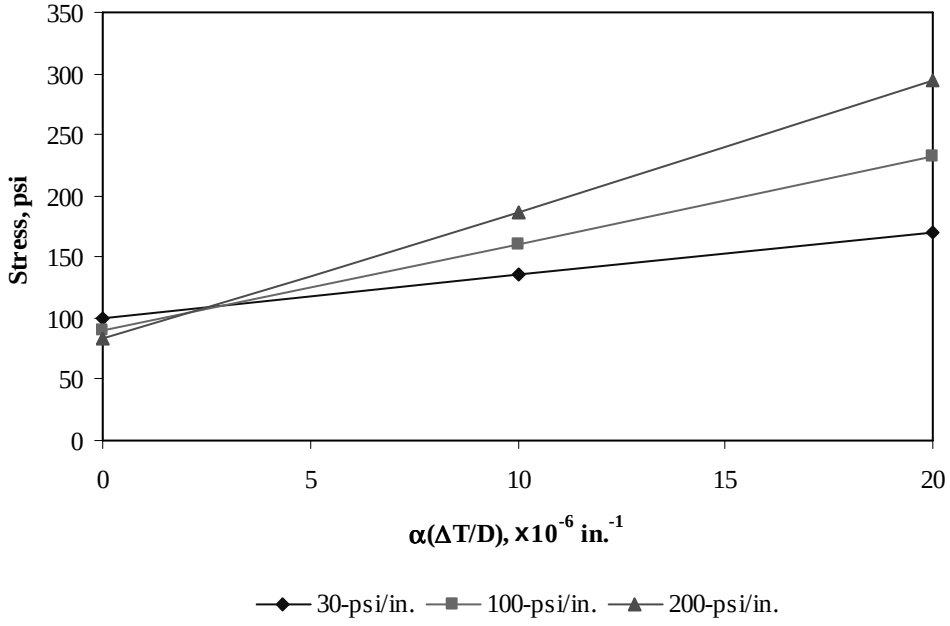


Figure F-9-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-9-49 through F-9-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

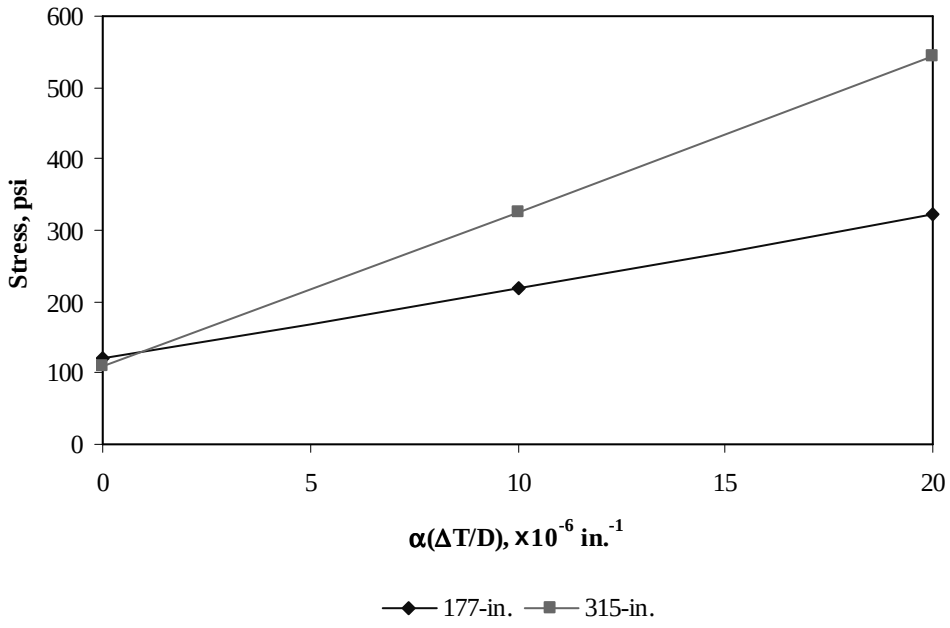


Figure F-9-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

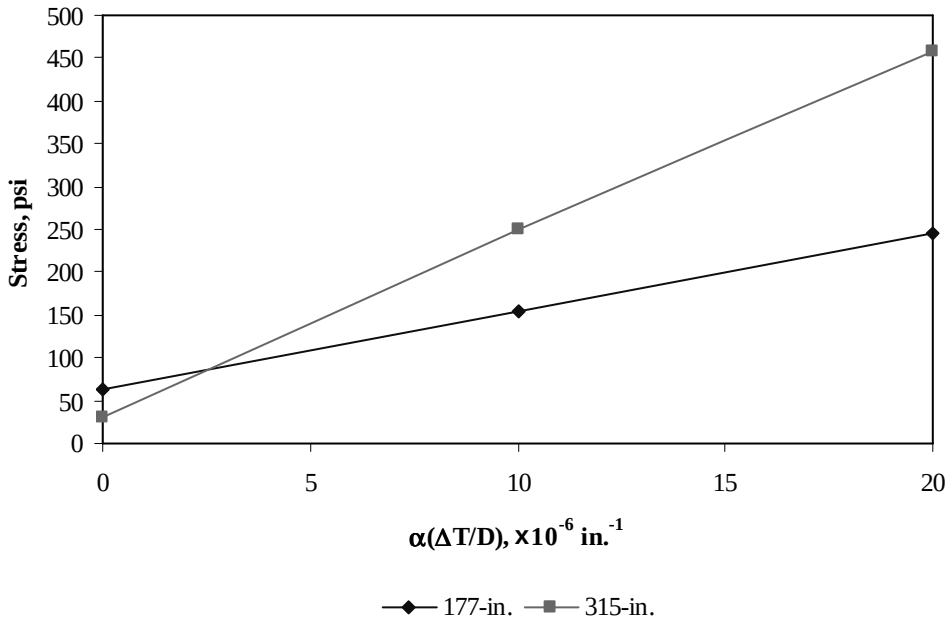


Figure F-9-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

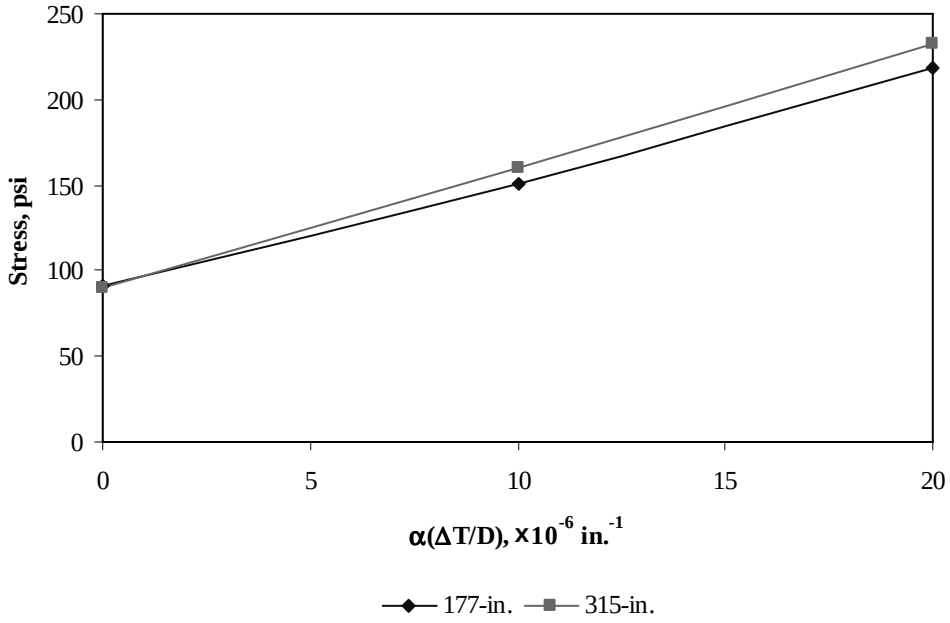
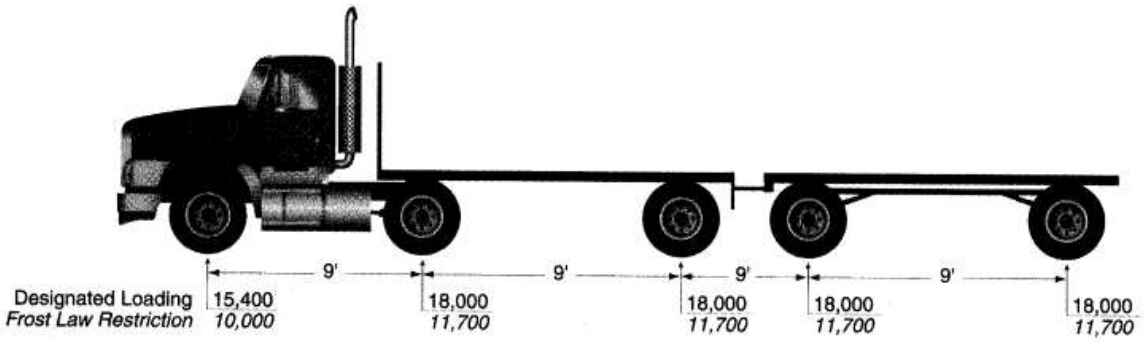


Figure F-9-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-10

Documentation of Pavement Responses for



MI-7

Figures F-10-1 through F-10-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

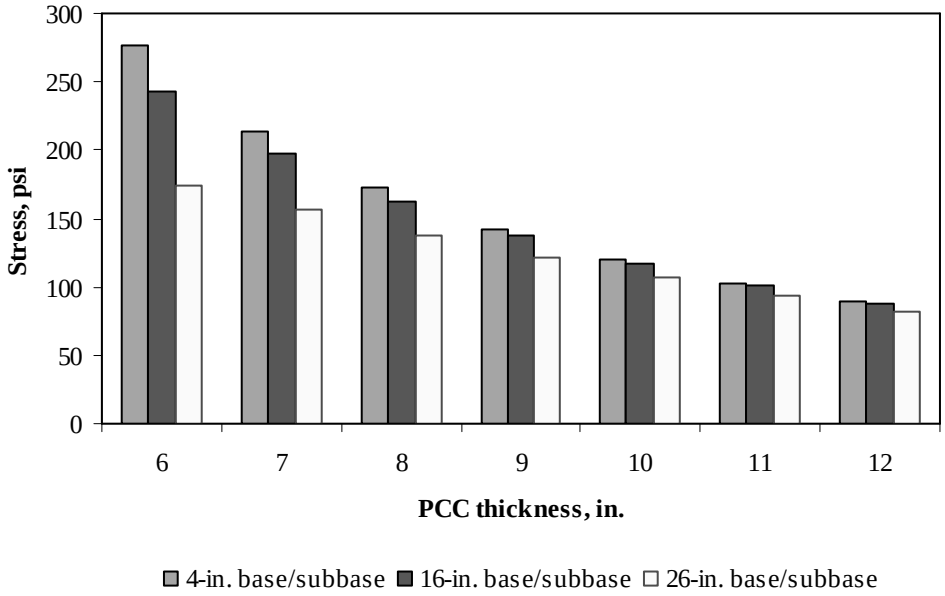


Figure F-10-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

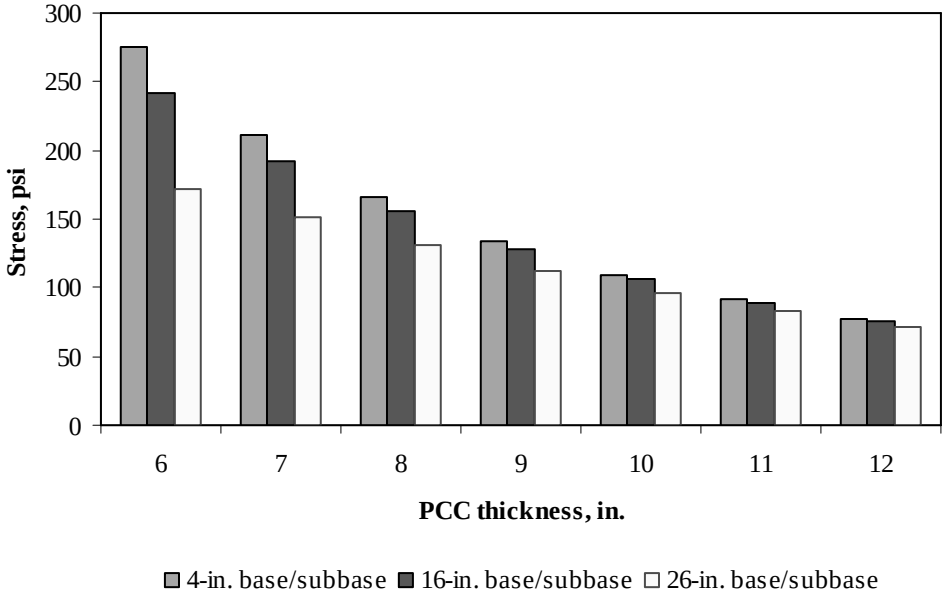


Figure F-10-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

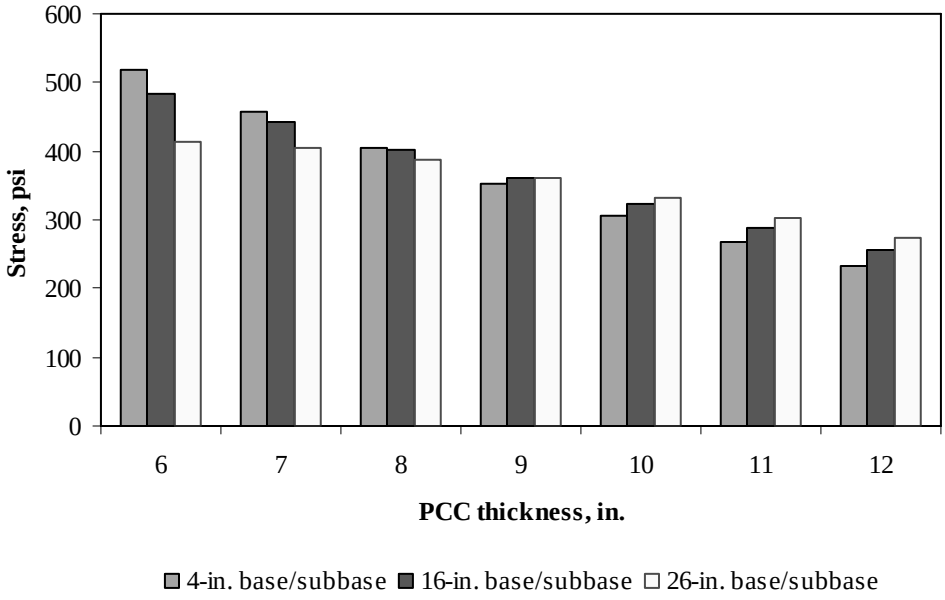


Figure F-10-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

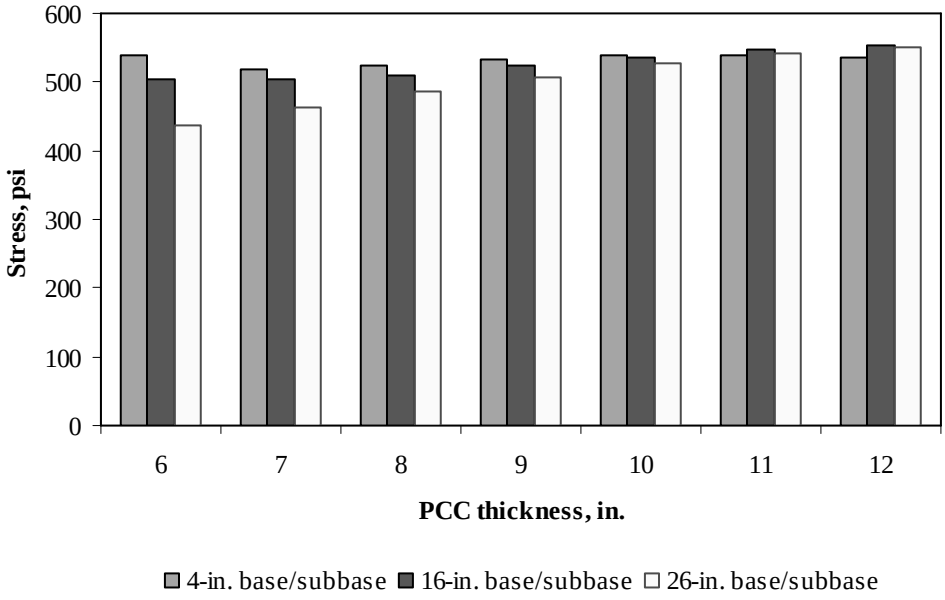


Figure F-10-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

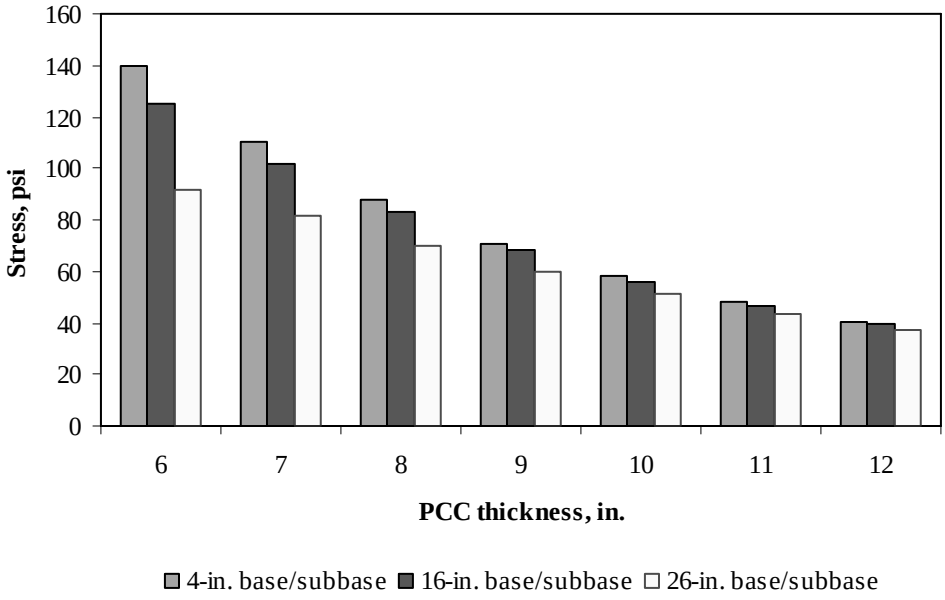


Figure F-10-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

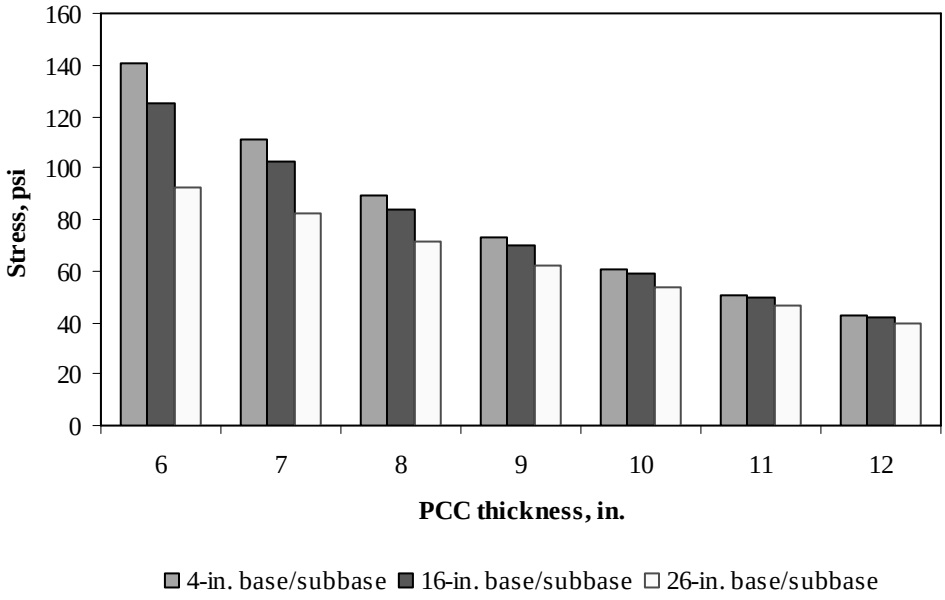


Figure F-10-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

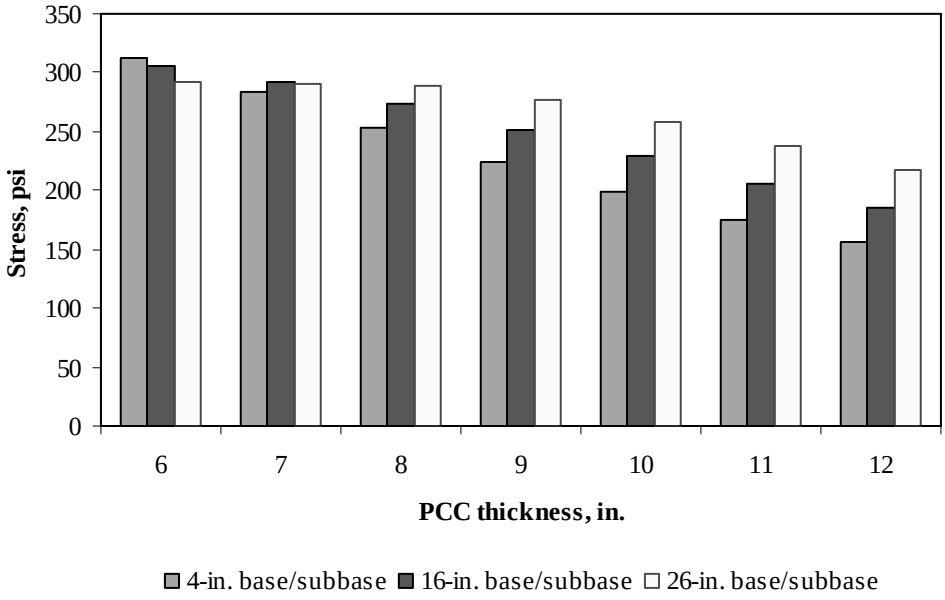


Figure F-10-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

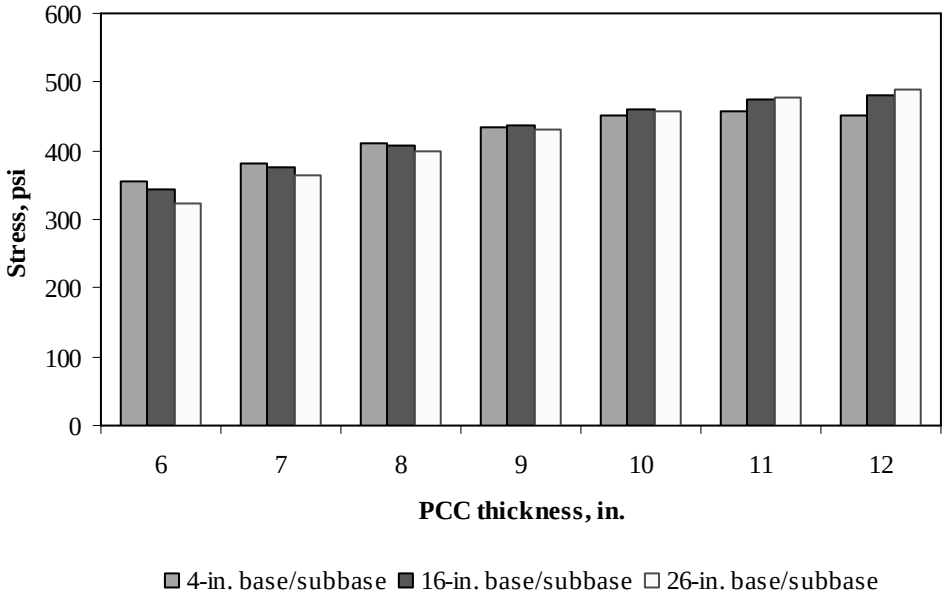


Figure F-10-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

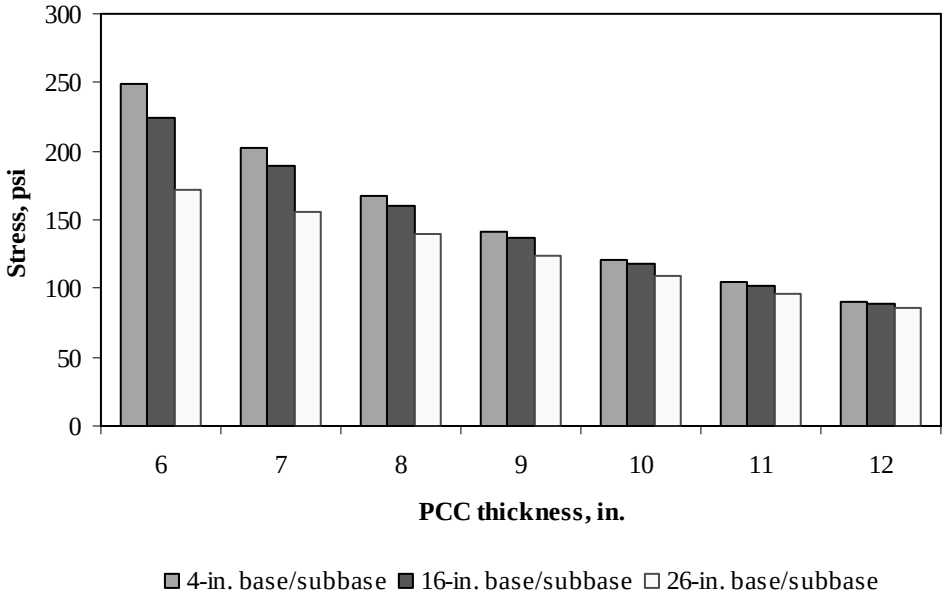


Figure F-10-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

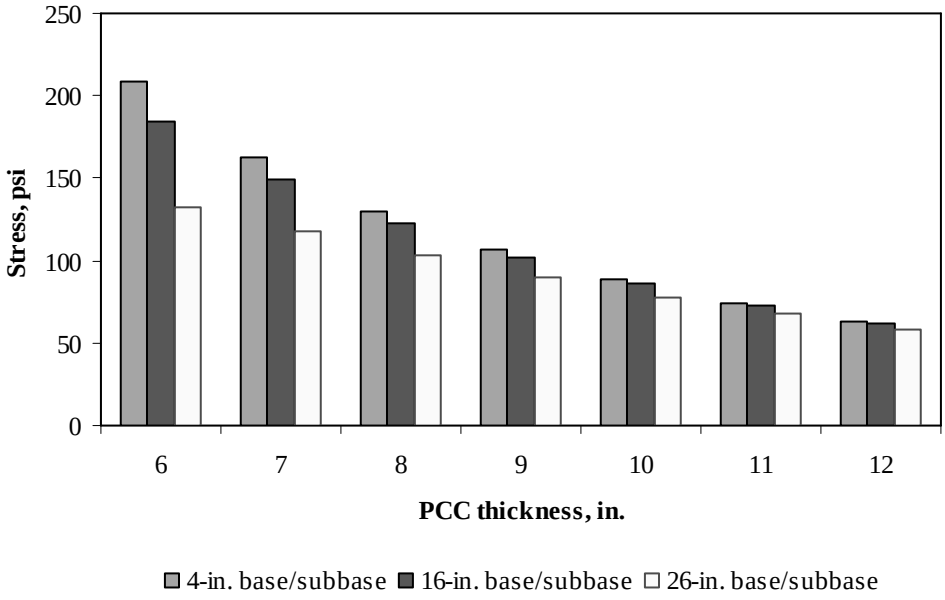


Figure F-10-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

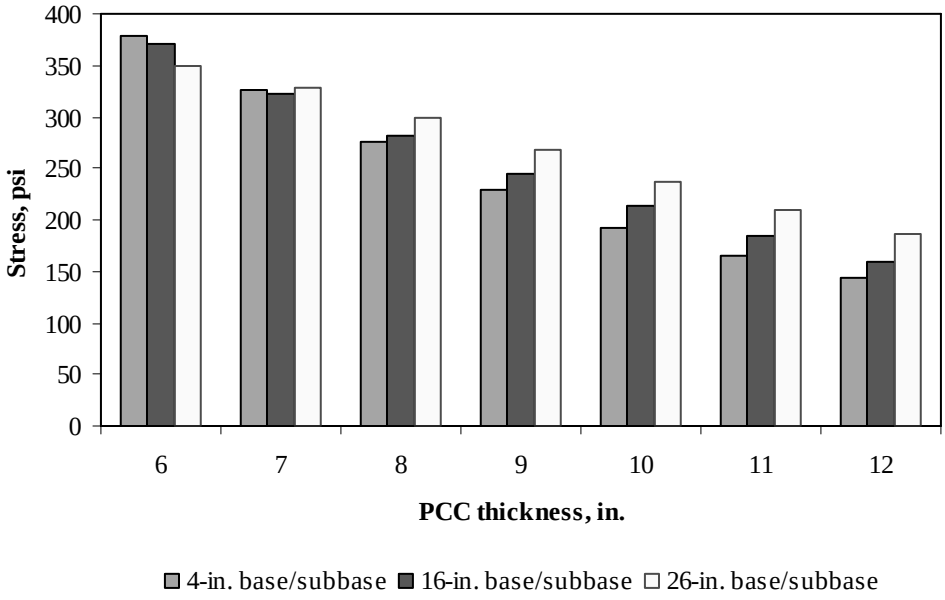


Figure F-10-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

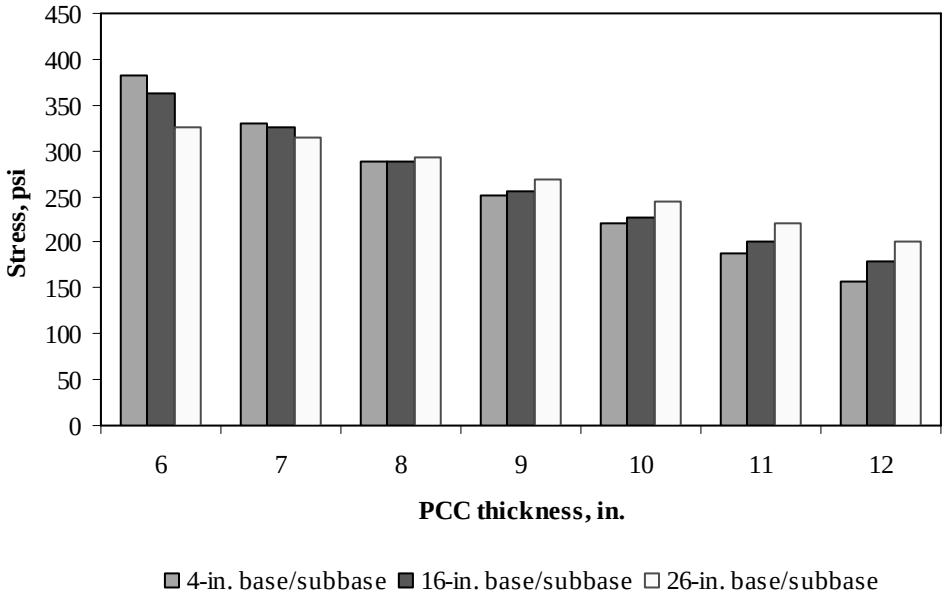


Figure F-10-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-10-13 through F-10-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

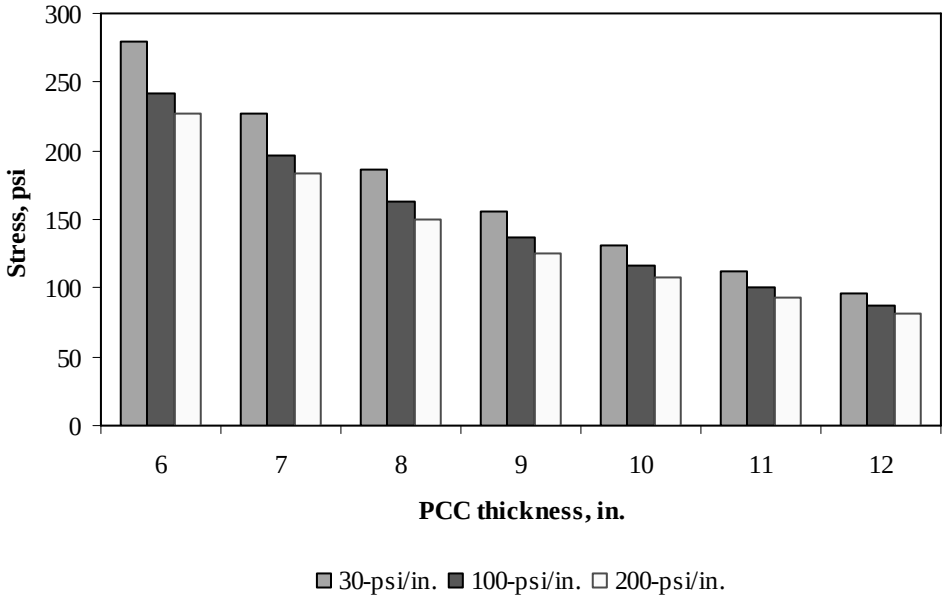


Figure F-10-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

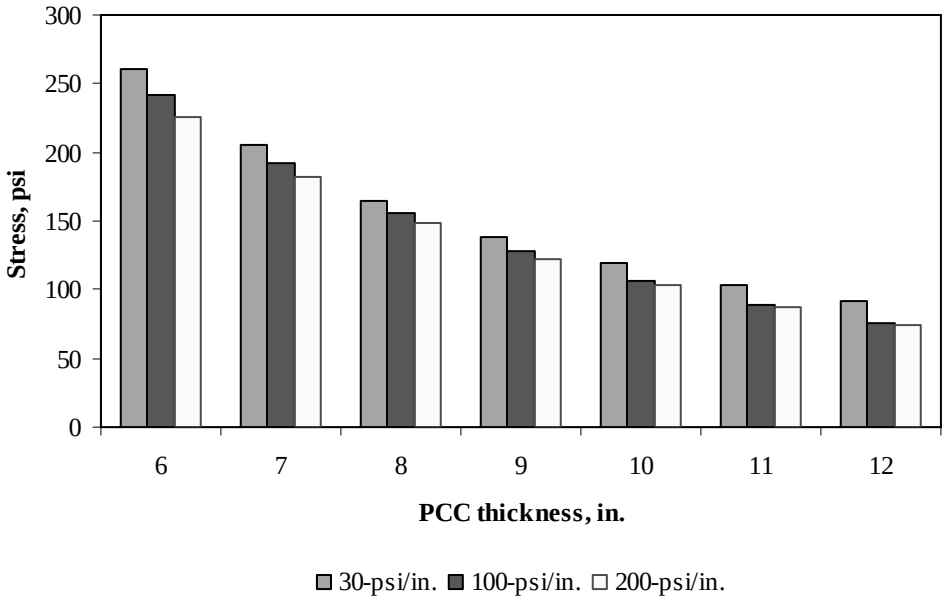


Figure F-10-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

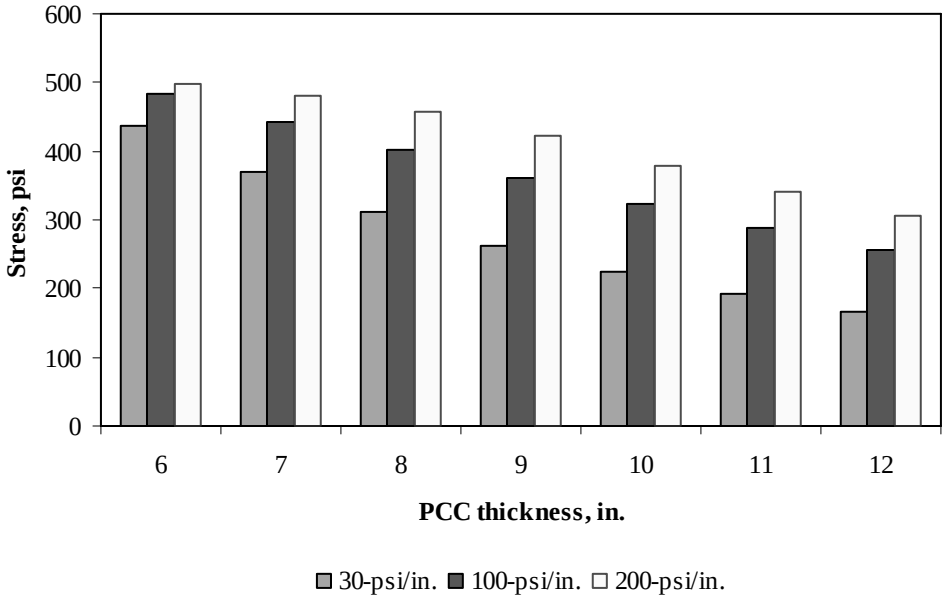


Figure F-10-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

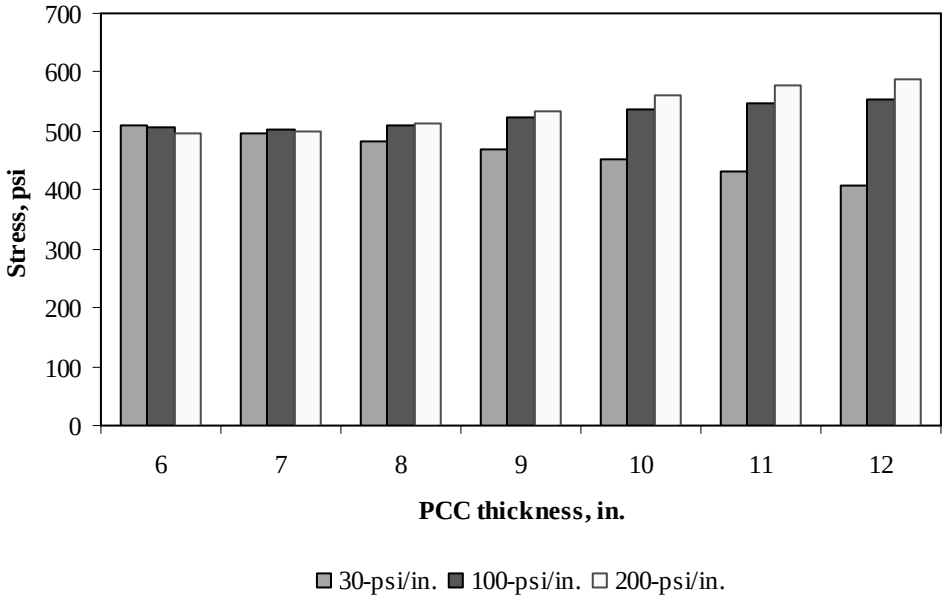


Figure F-10-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

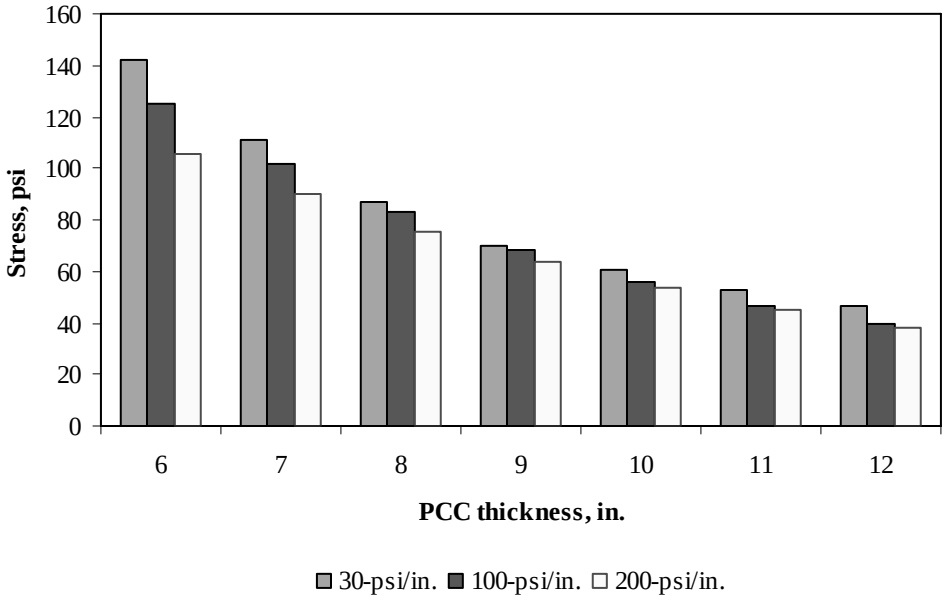


Figure F-10-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

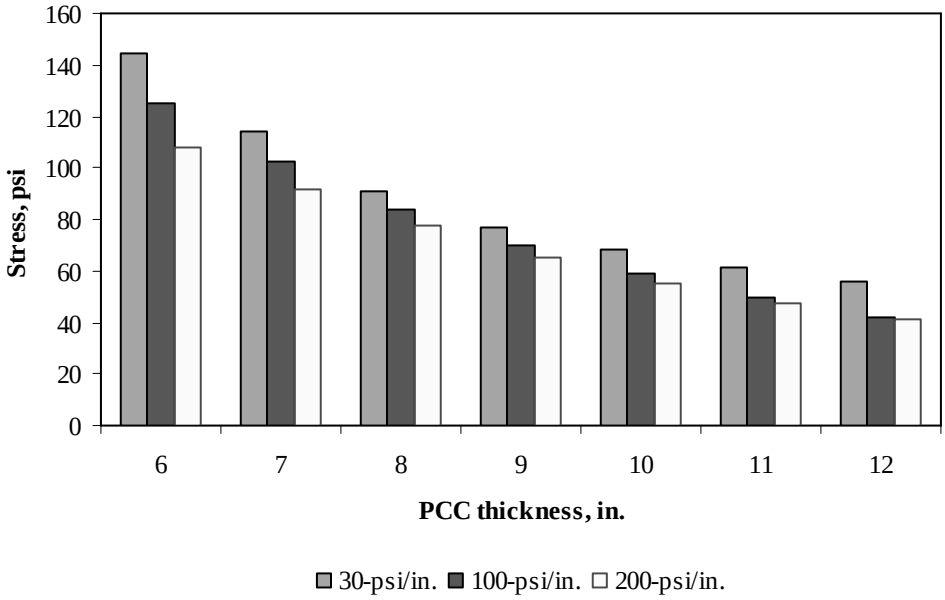


Figure F-10-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

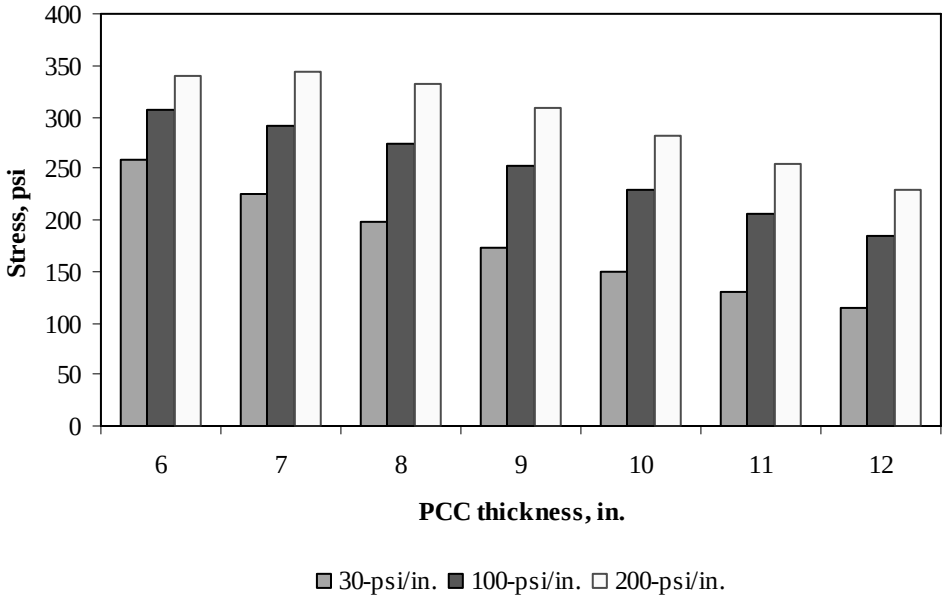


Figure F-10-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

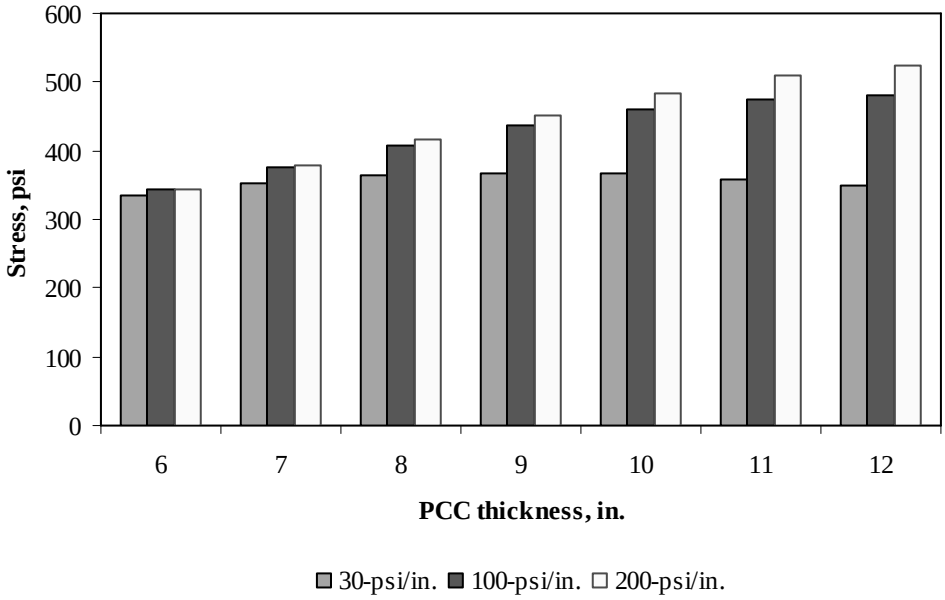


Figure F-10-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

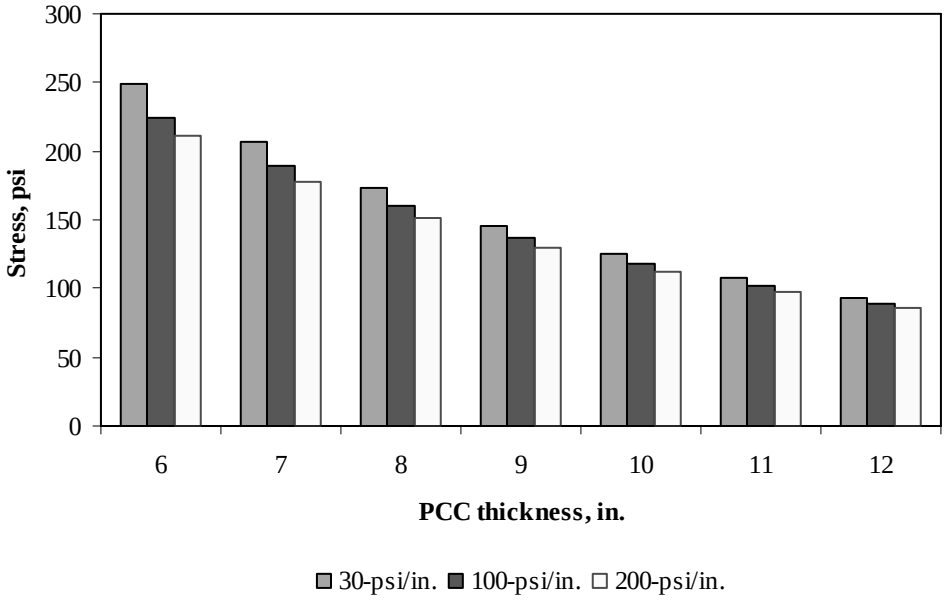


Figure F-10-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

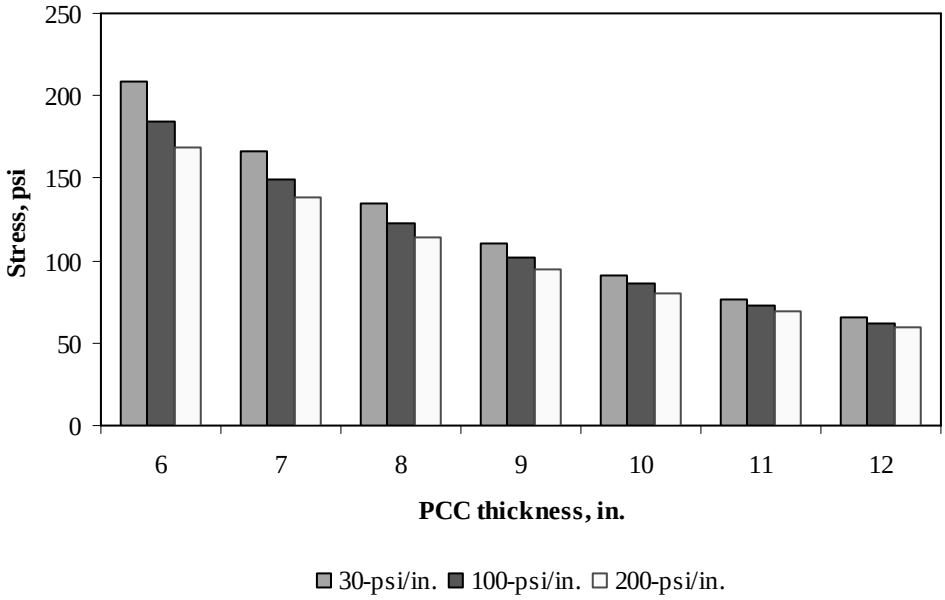


Figure F-10-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

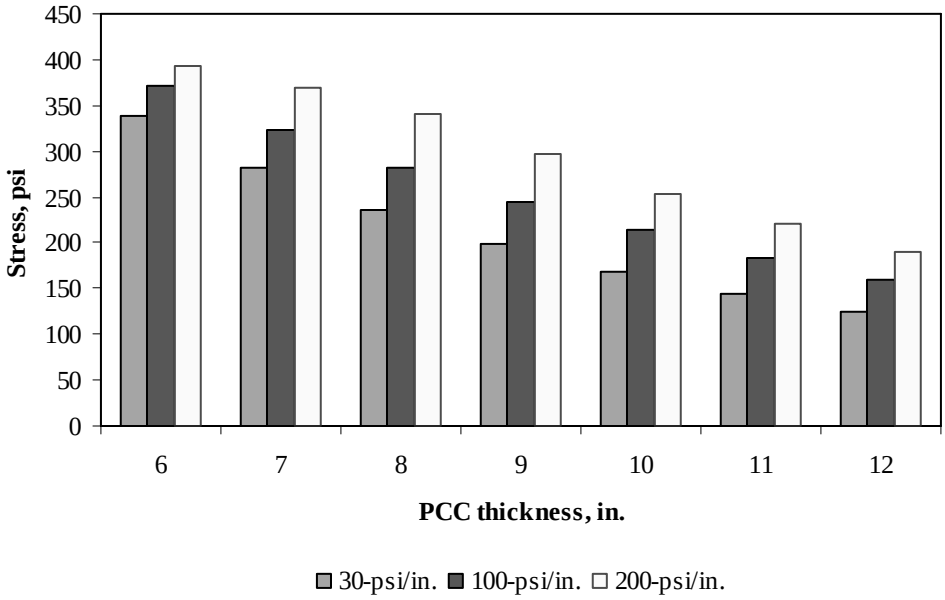


Figure F-10-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

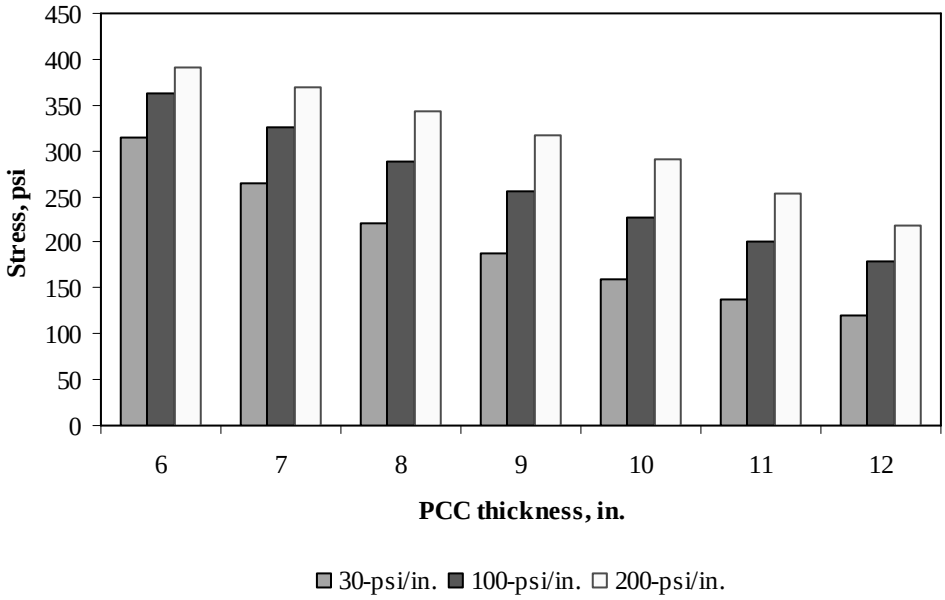


Figure F-10-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-10-25 through F-10-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

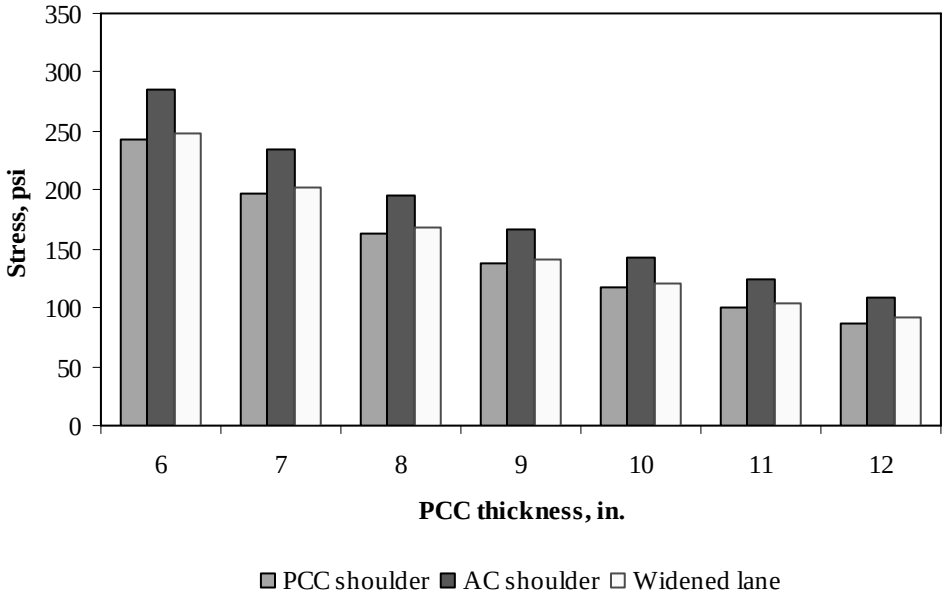


Figure F-10-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

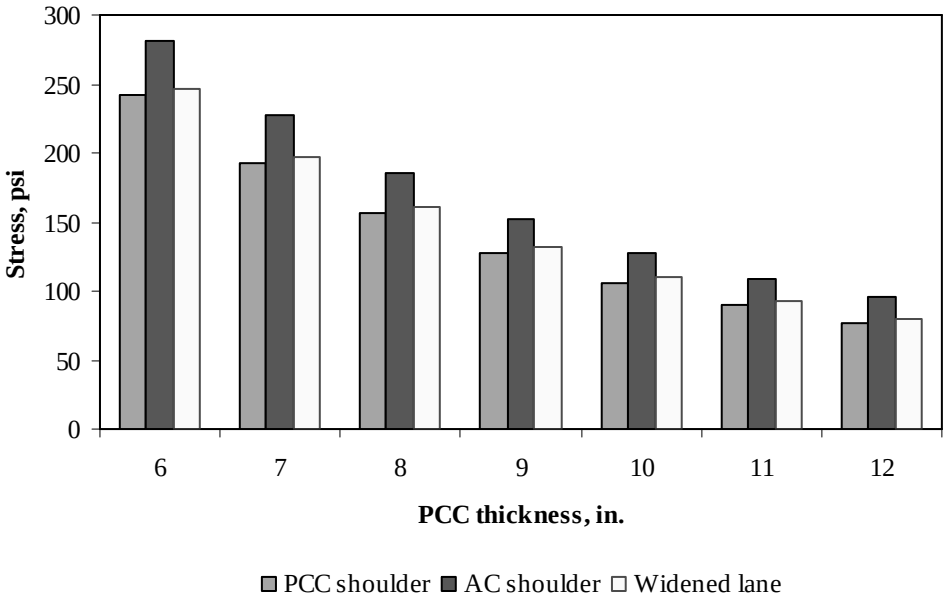


Figure F-10-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

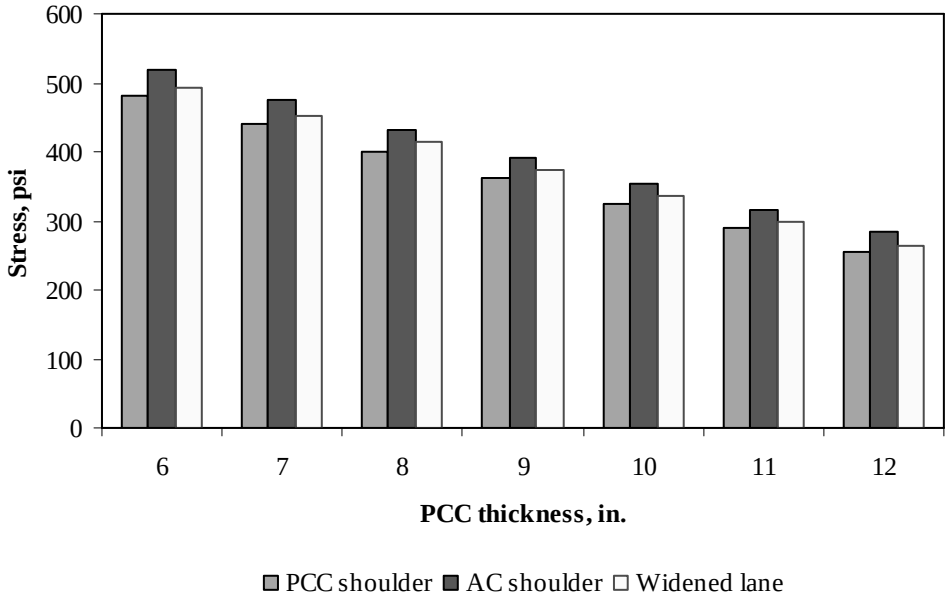


Figure F-10-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

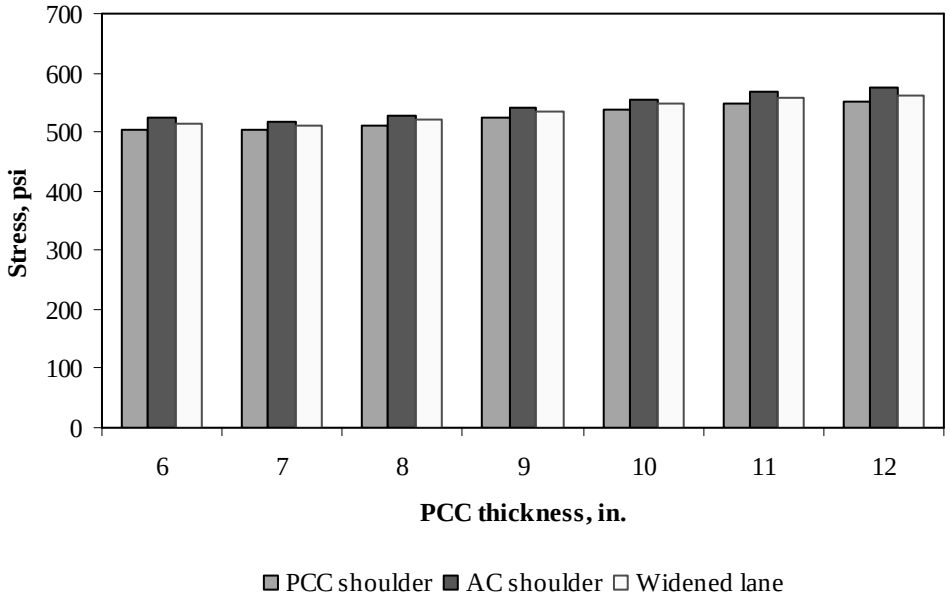


Figure F-10-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

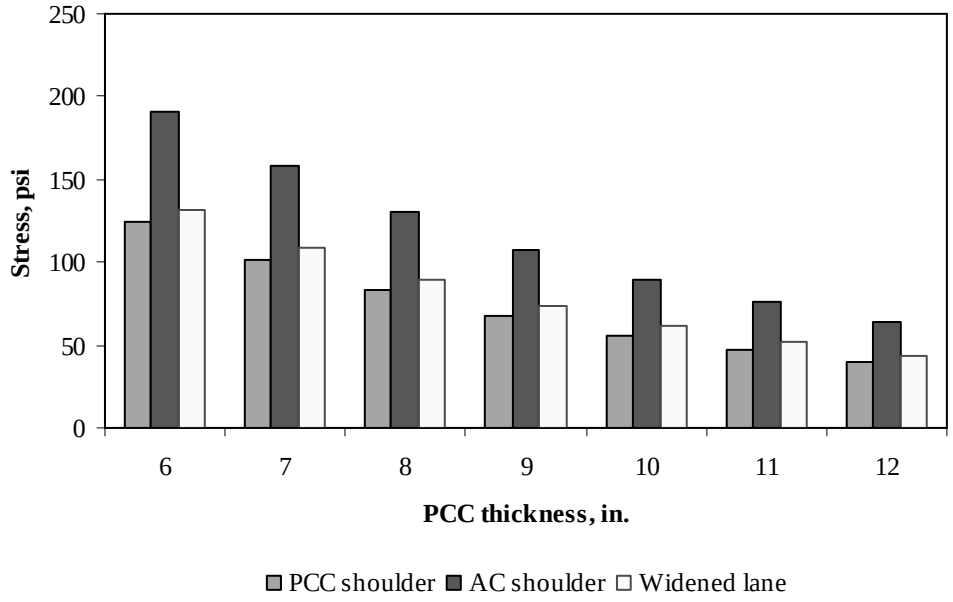


Figure F-10-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

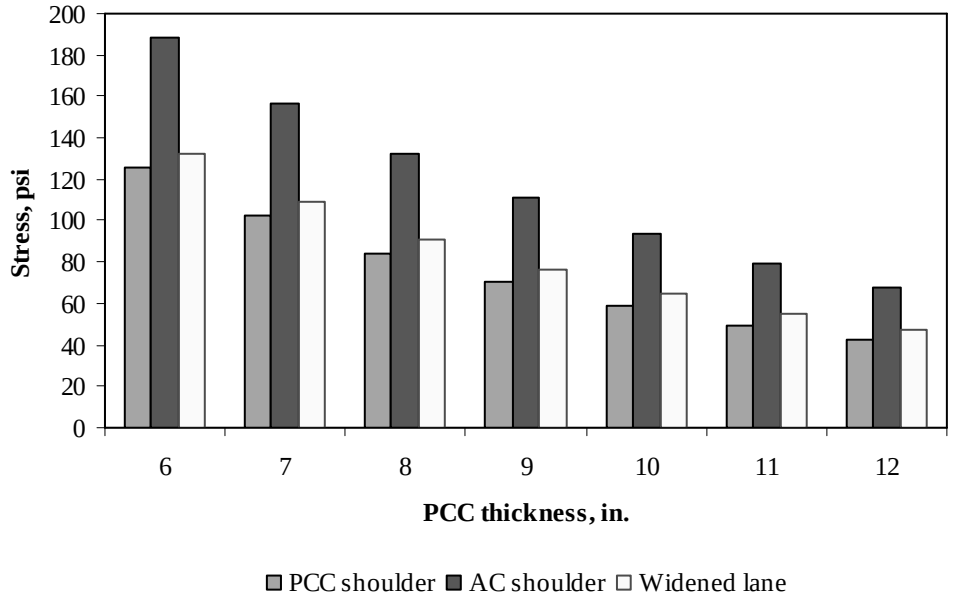


Figure F-10-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

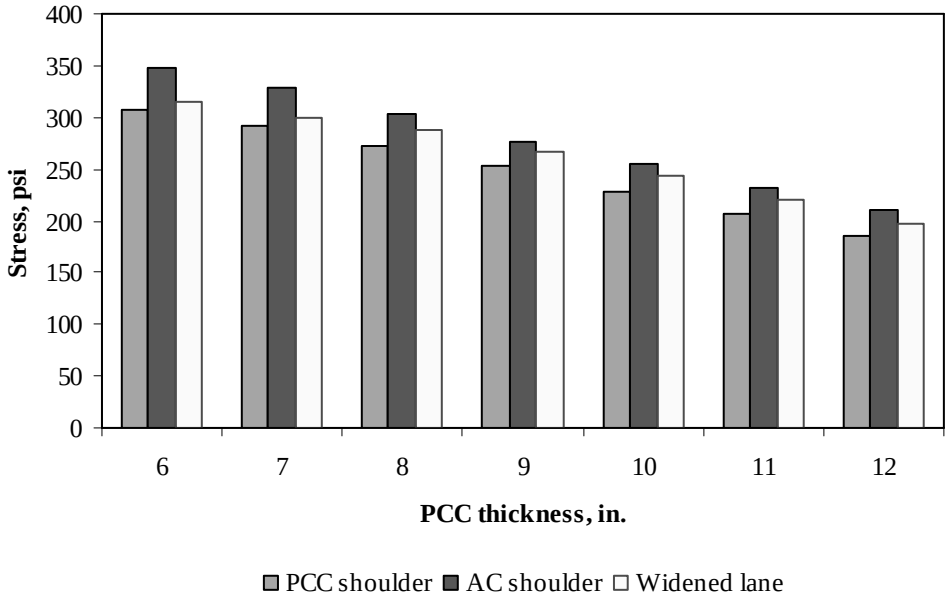


Figure F-10-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

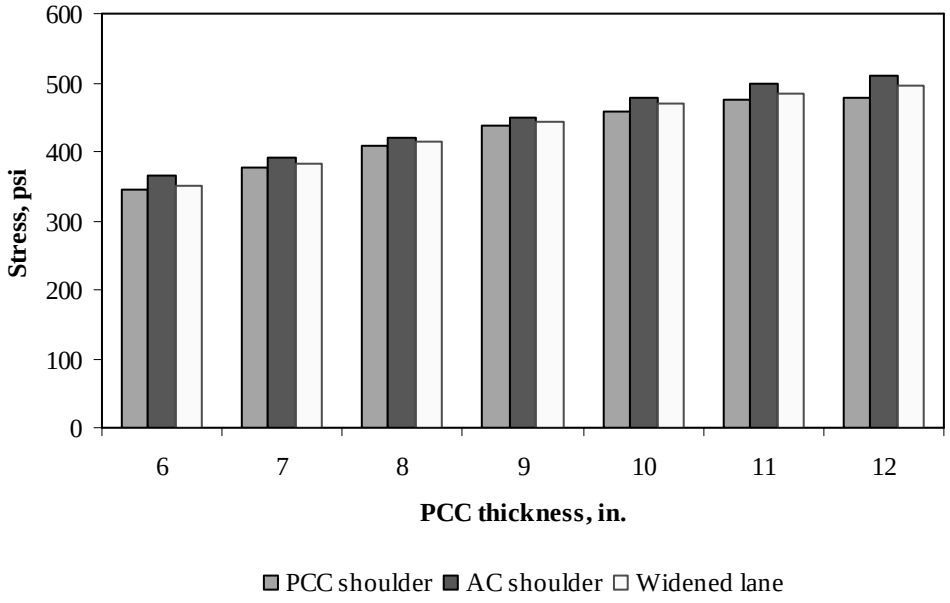


Figure F-10-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

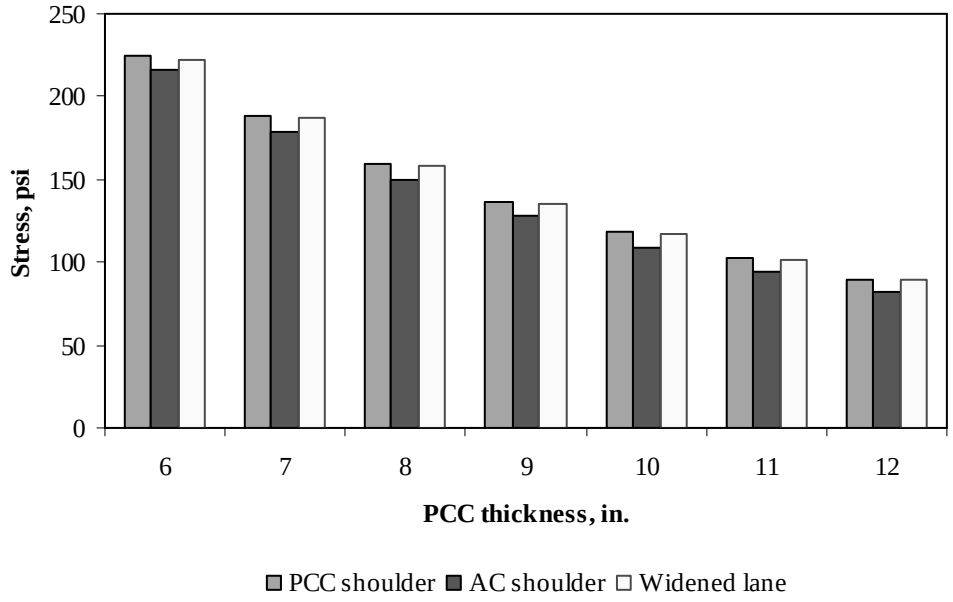


Figure F-10-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

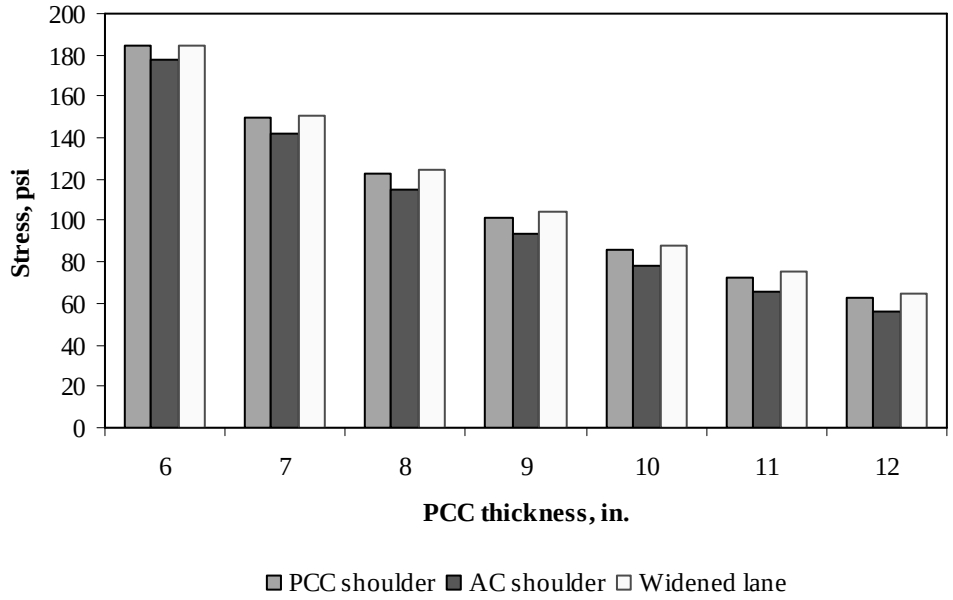


Figure F-10-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

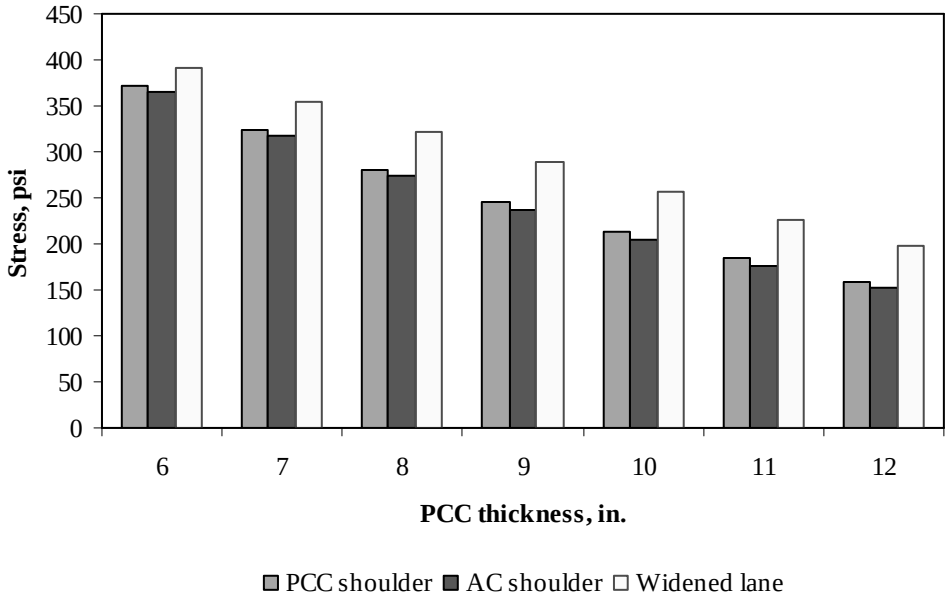


Figure F-10-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

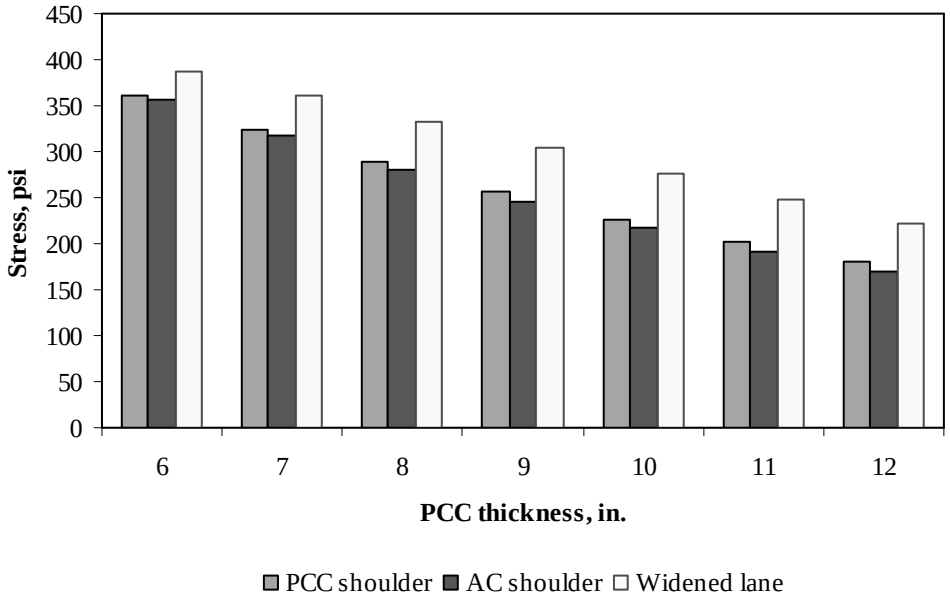


Figure F-10-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-10-37 through F-10-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

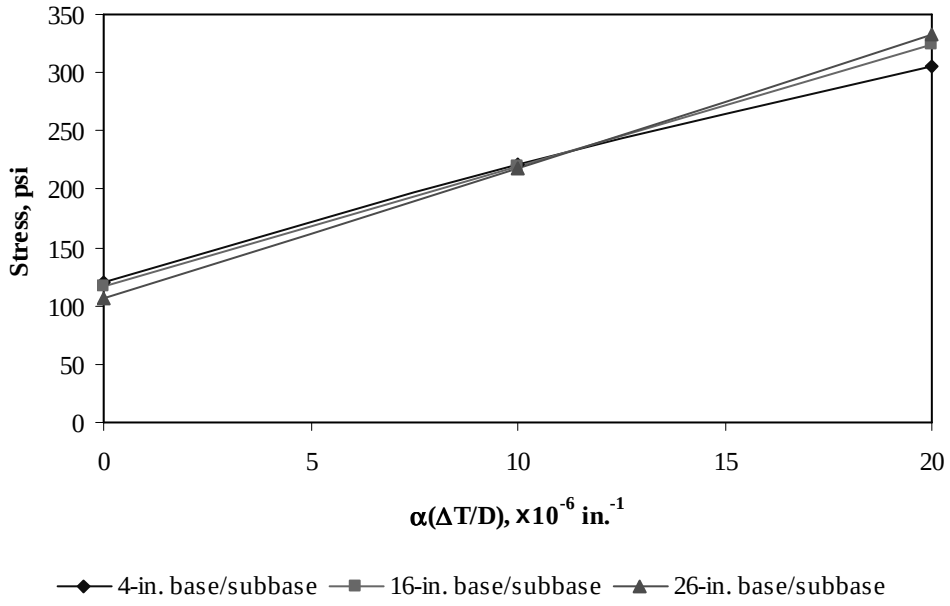


Figure F-10-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

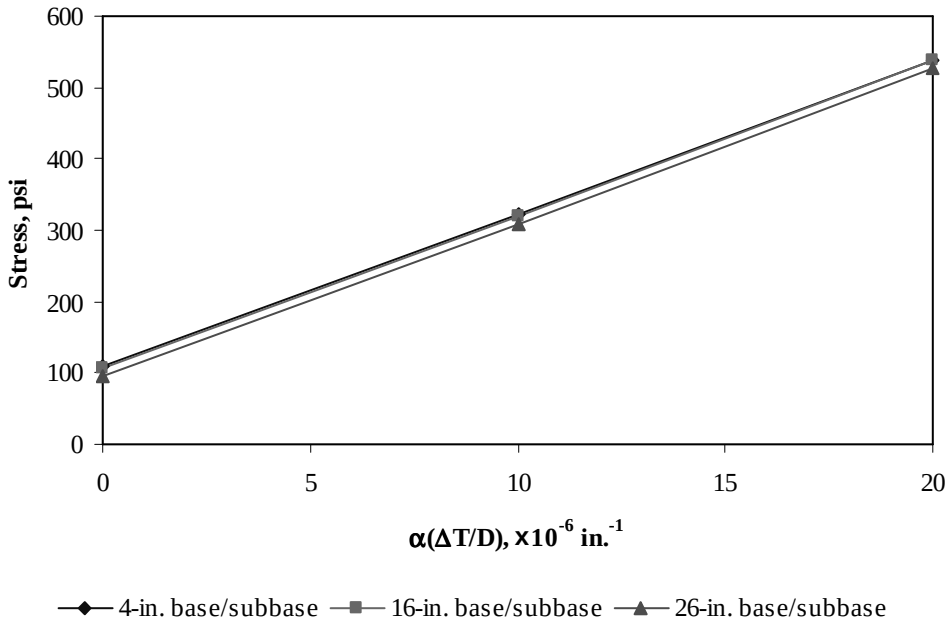


Figure F-10-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

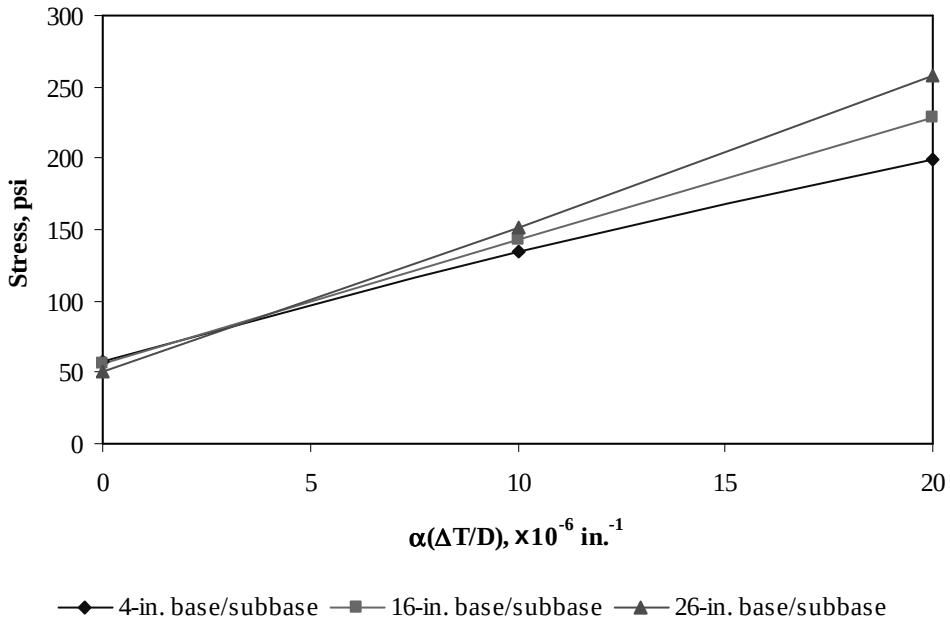


Figure F-10-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

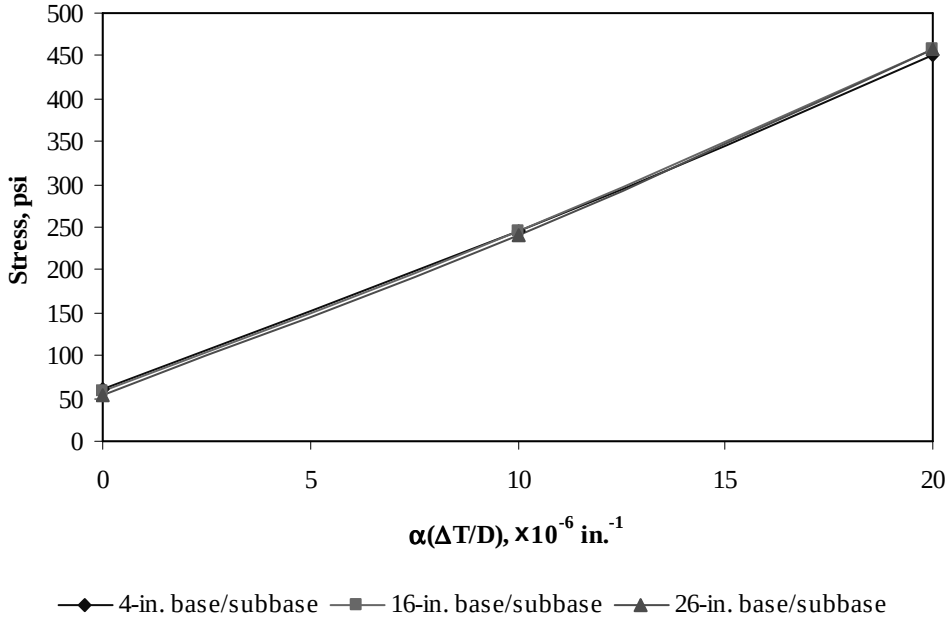


Figure F-10-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

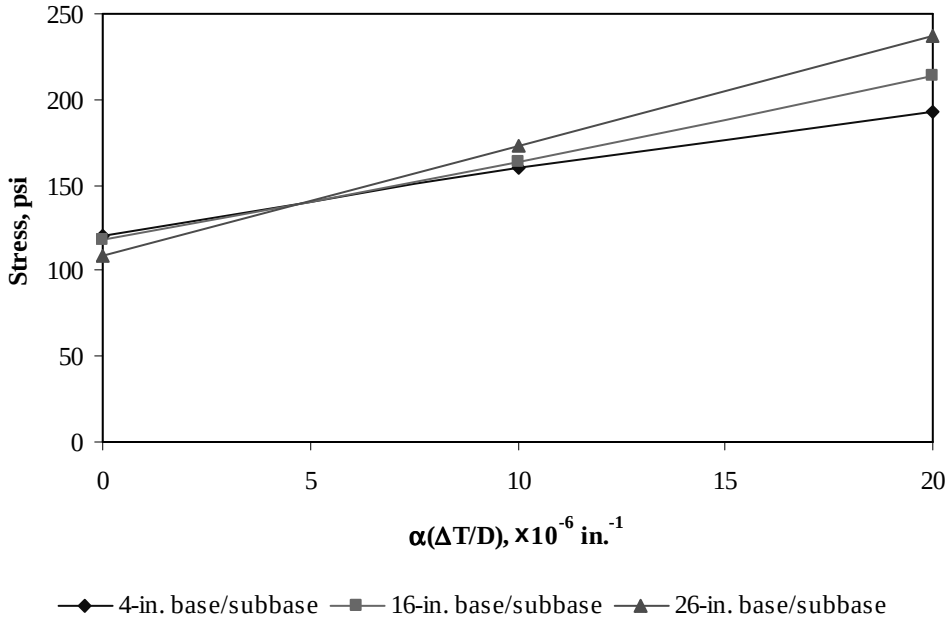


Figure F-10-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

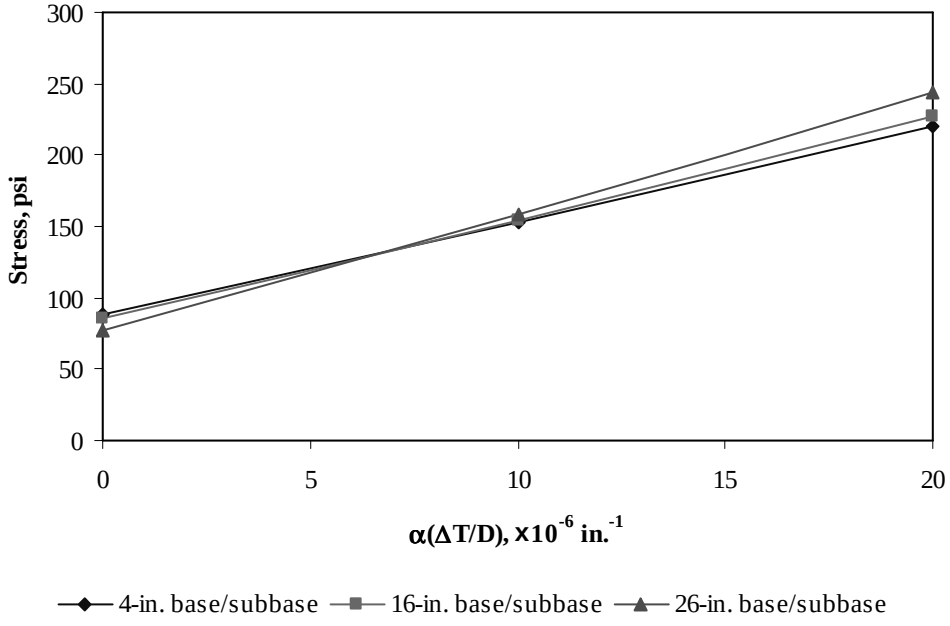


Figure F-10-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-10-43 through F-10-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

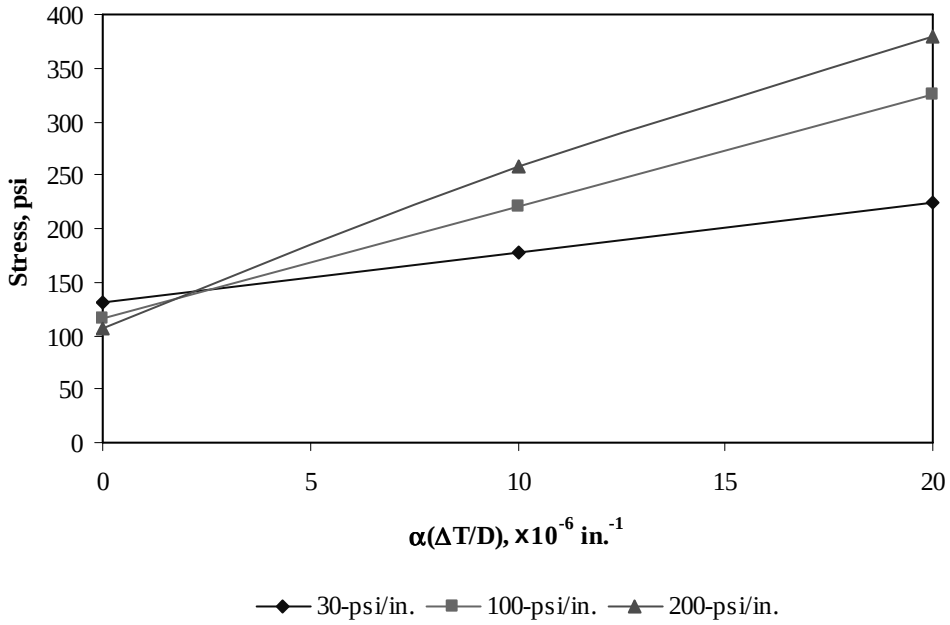


Figure F-10-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

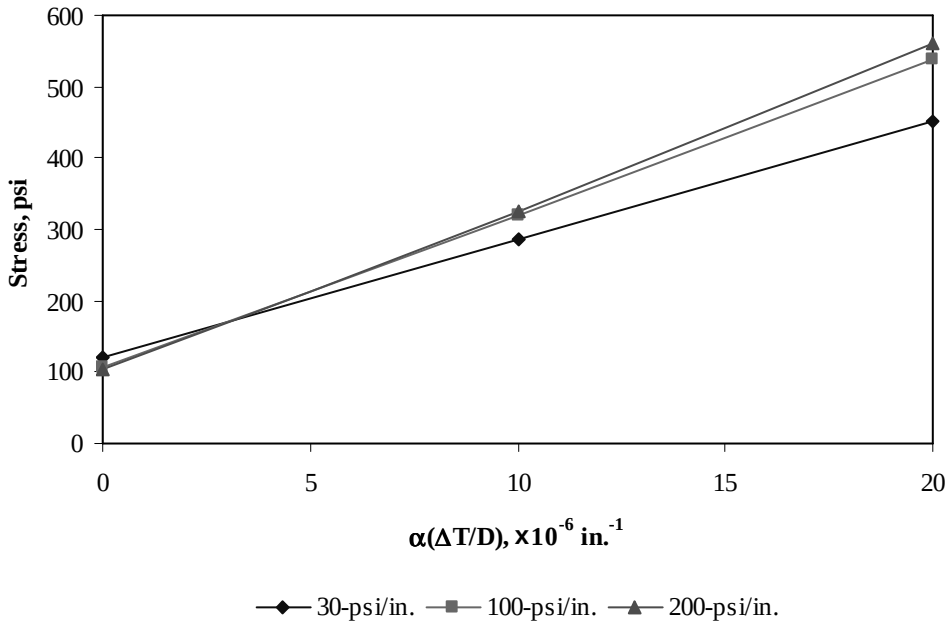


Figure F-10-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

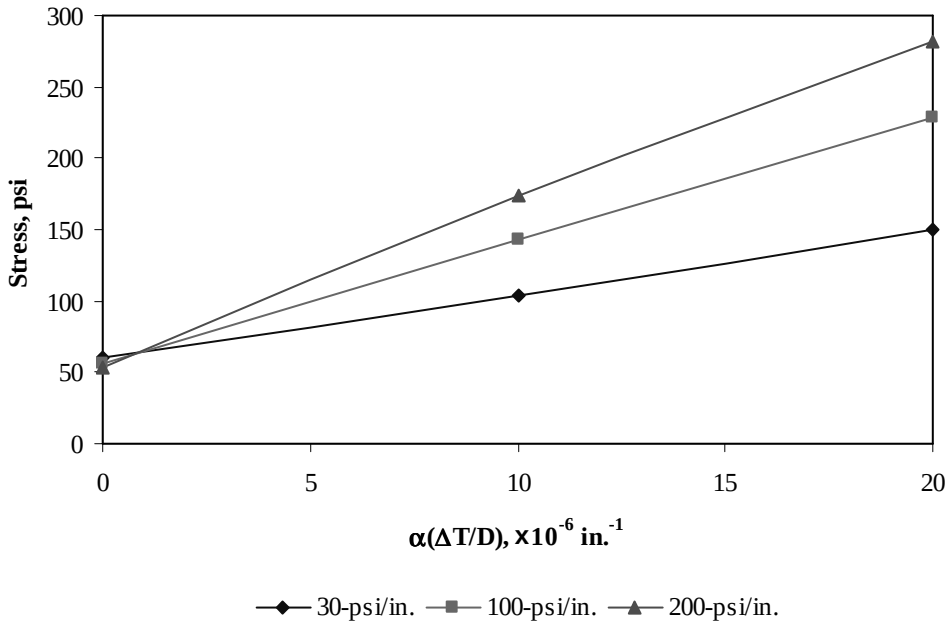


Figure F-10-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

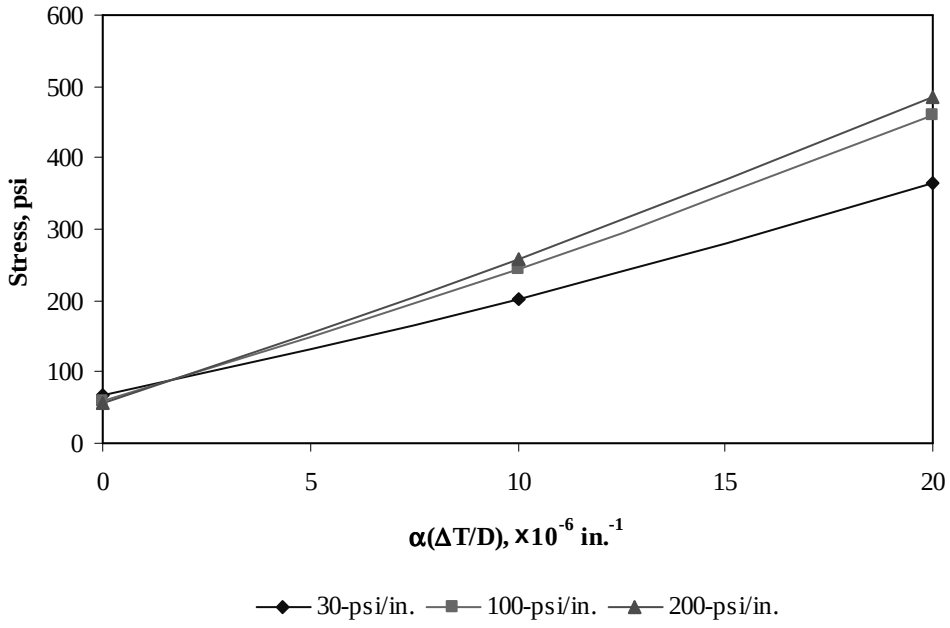


Figure F-10-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

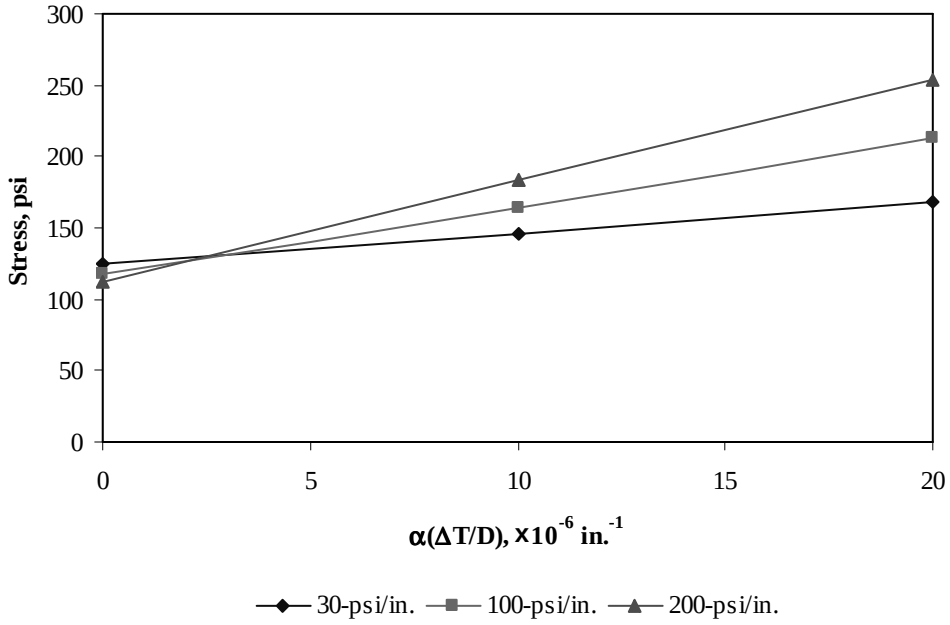


Figure F-10-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

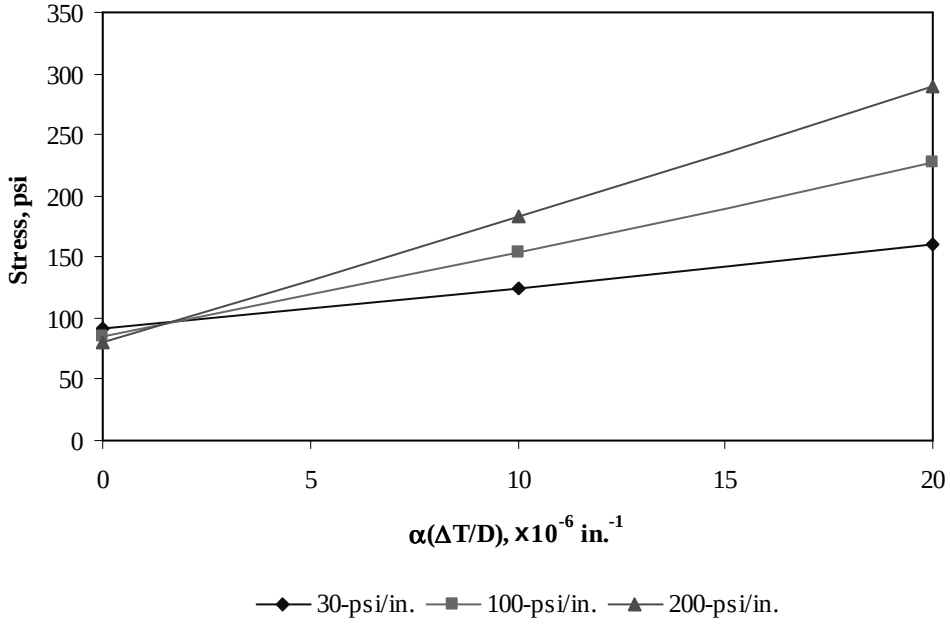


Figure F-10-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-10-49 through F-10-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

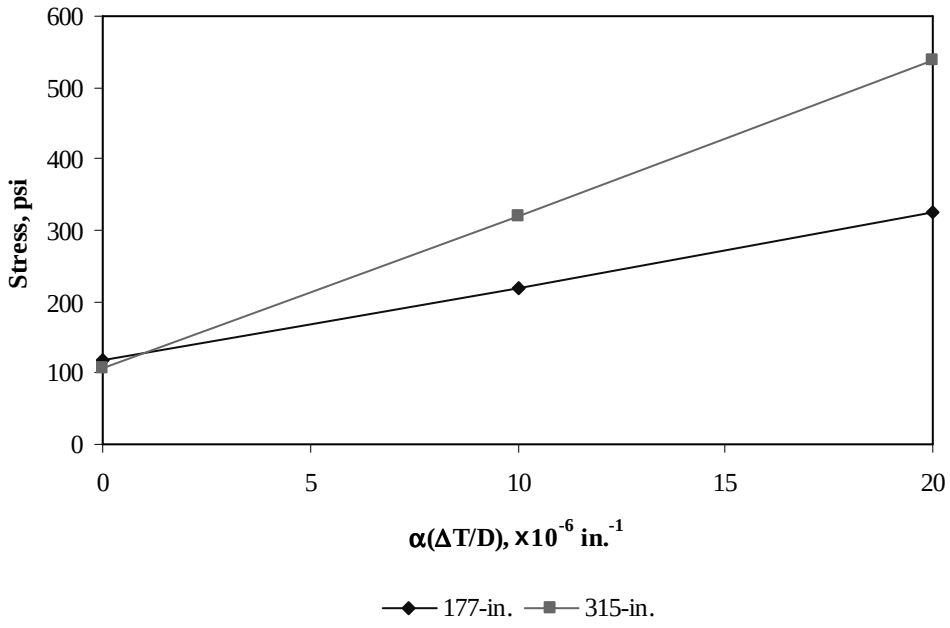


Figure F-10-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

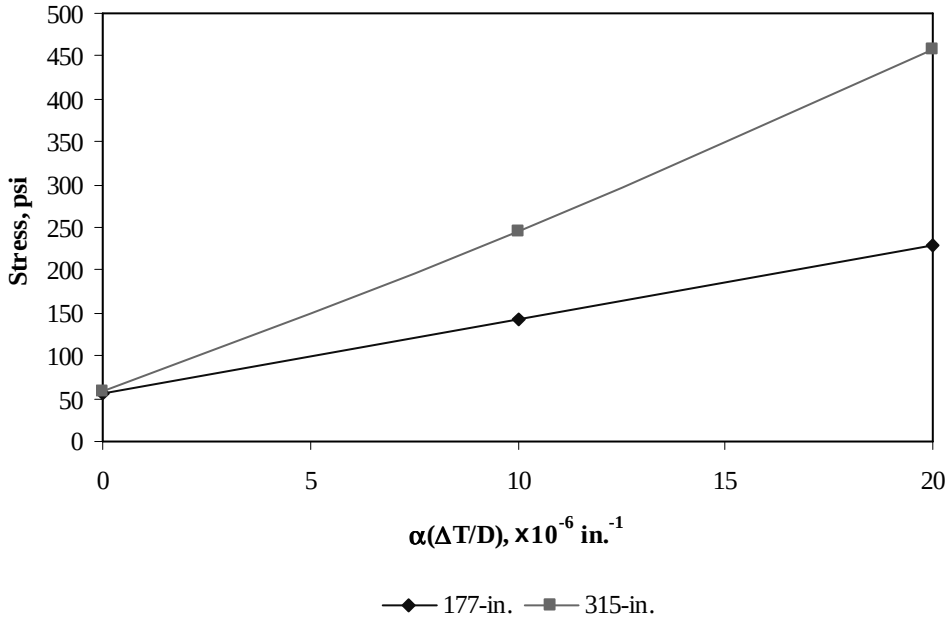


Figure F-10-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

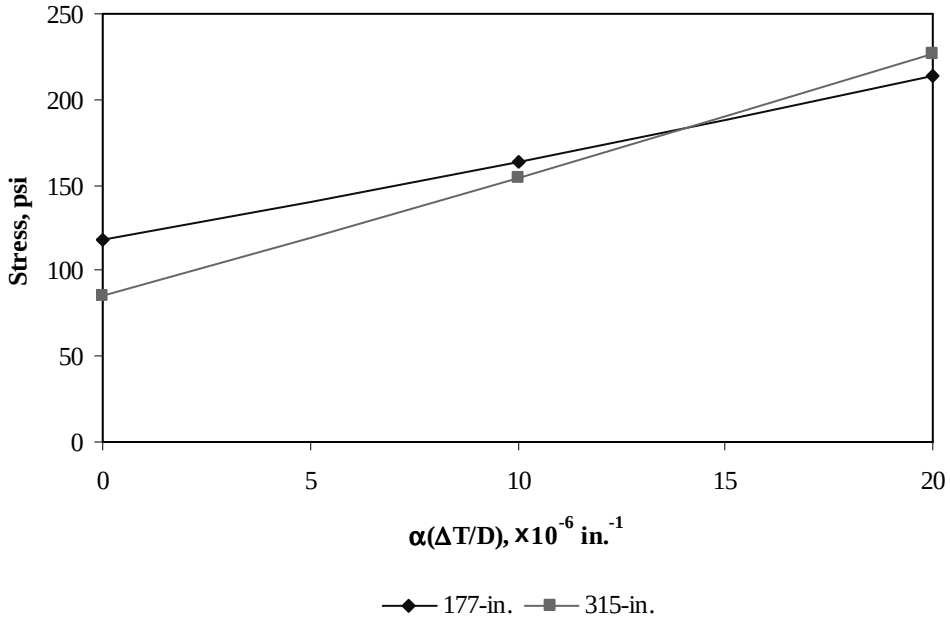
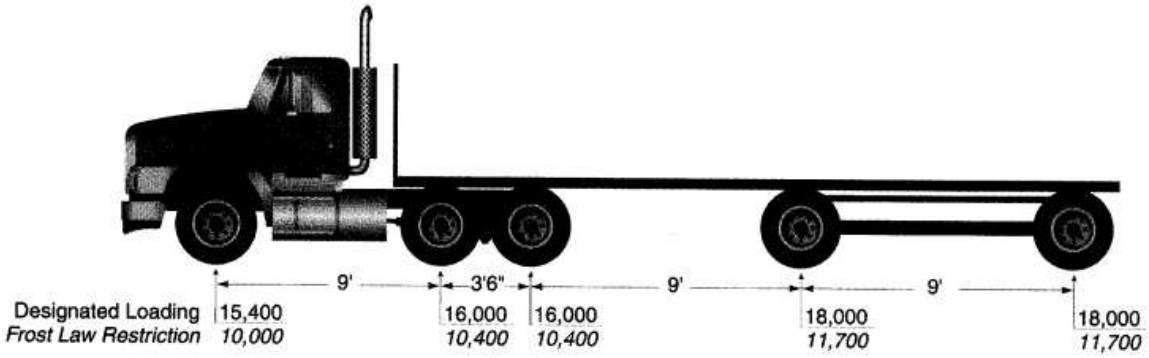


Figure F-10-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-11

Documentation of Pavement Responses for



MI-8

Figures F-11-1 through F-11-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

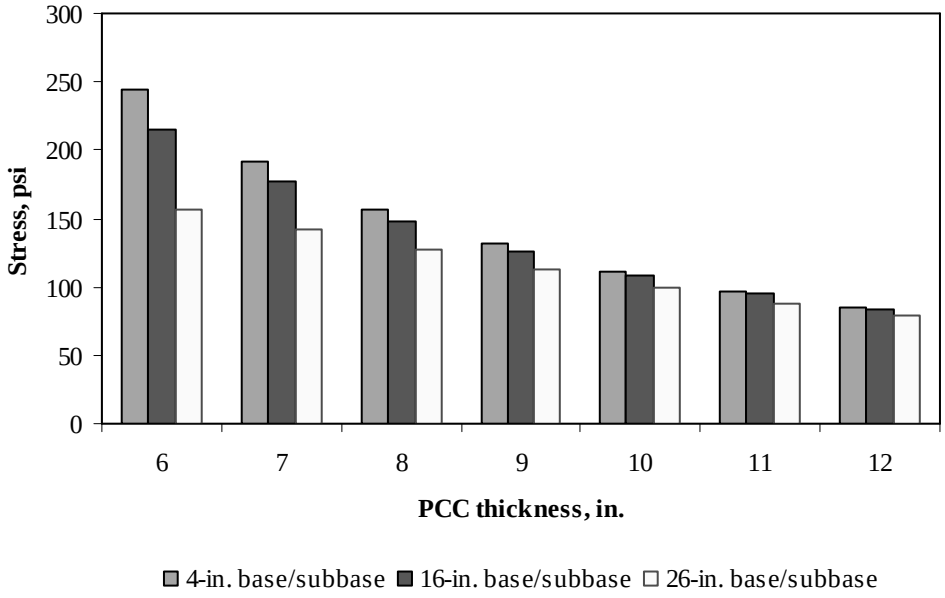


Figure F-11-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

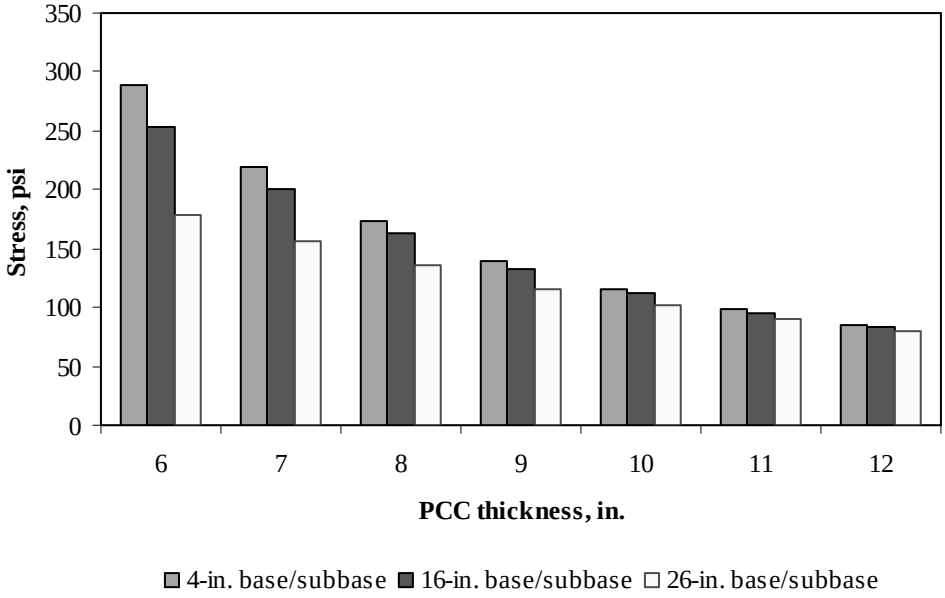


Figure F-11-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

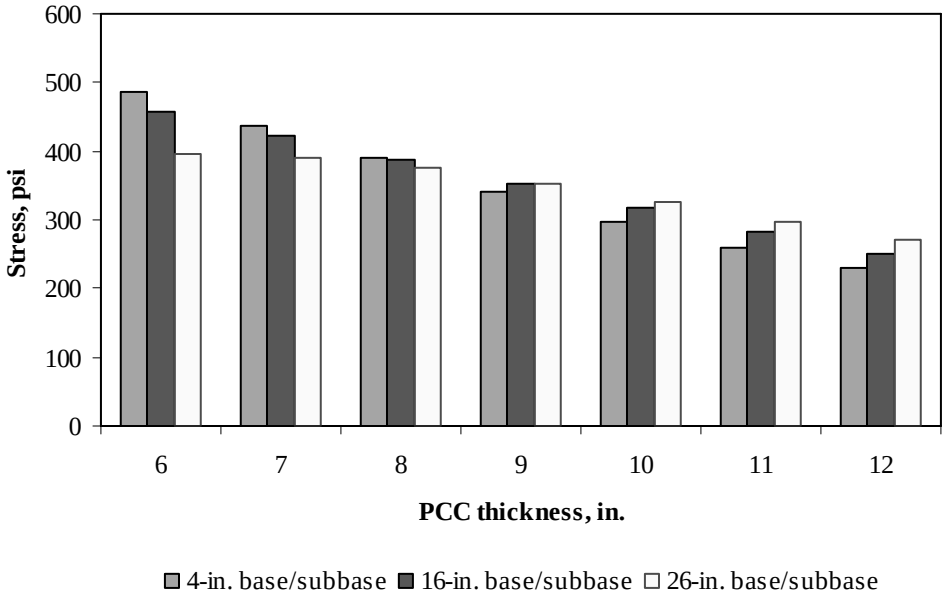


Figure F-11-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

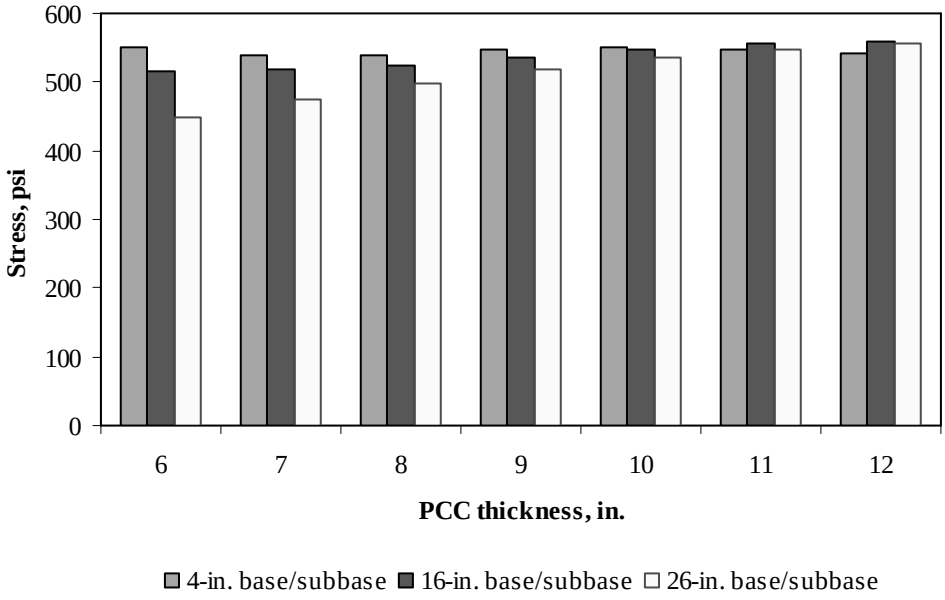


Figure F-11-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

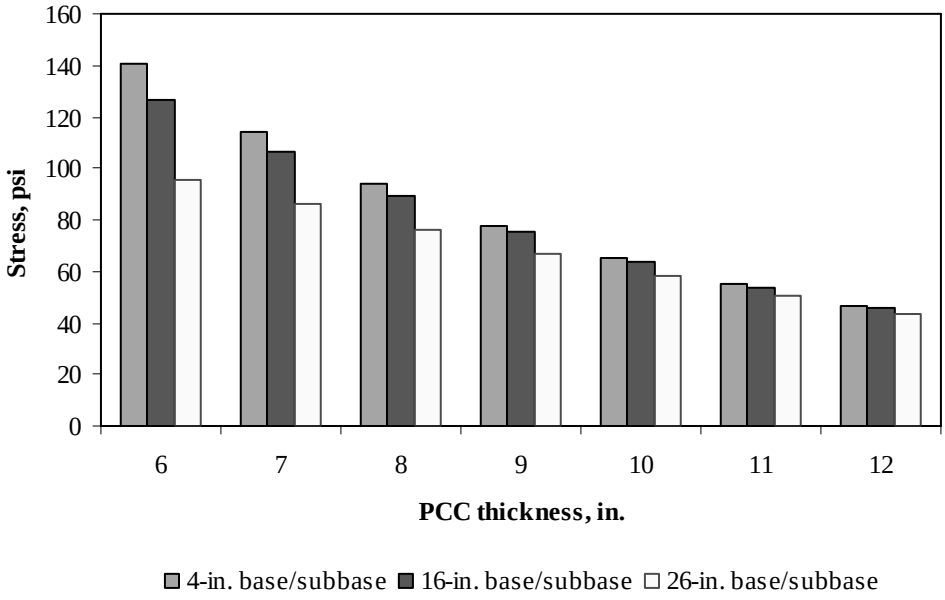


Figure F-11-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

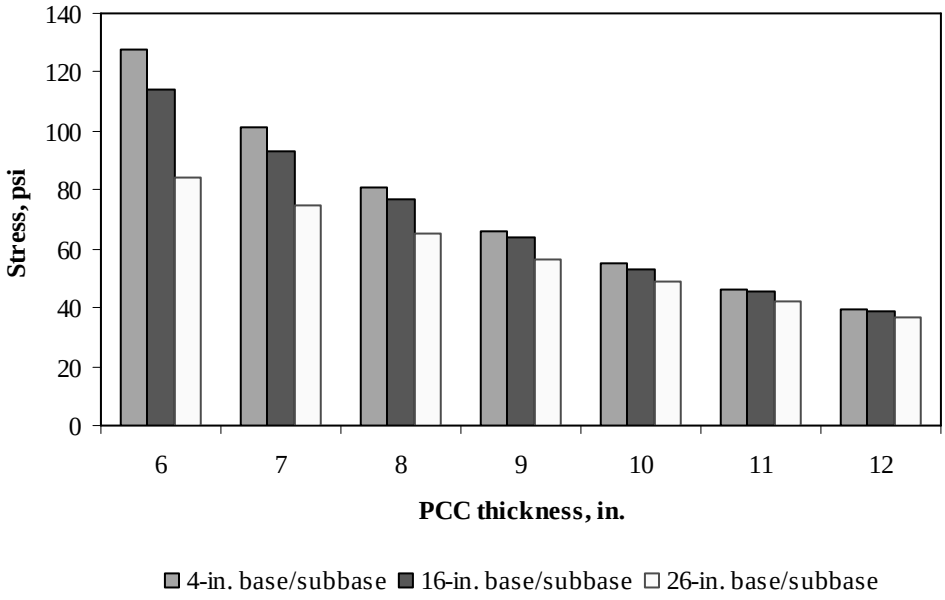


Figure F-11-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

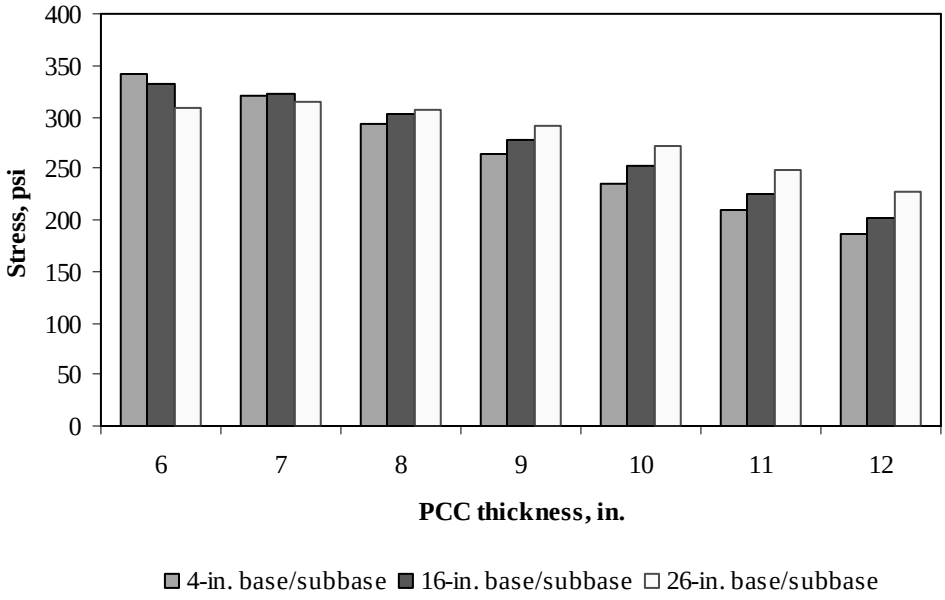


Figure F-11-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

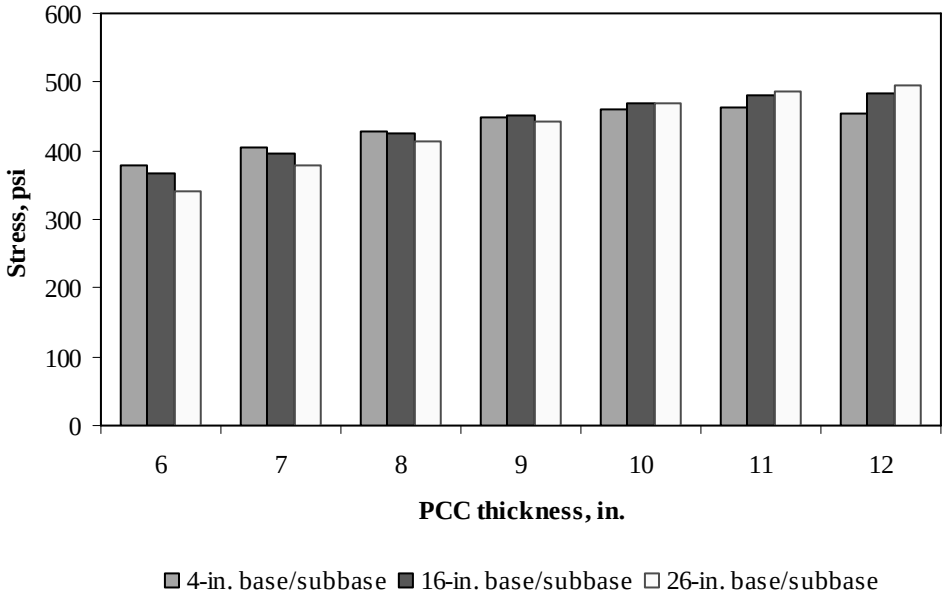


Figure F-11-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

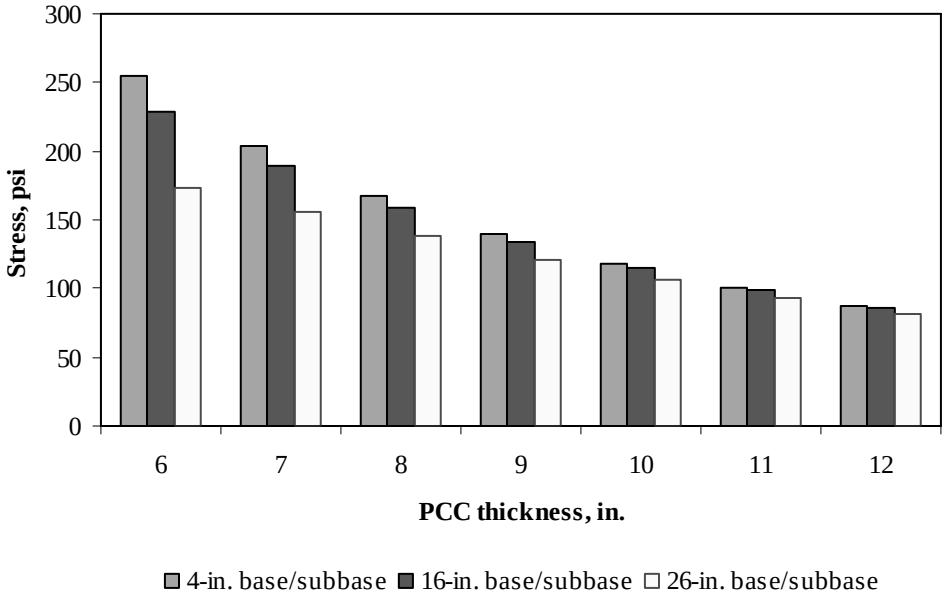


Figure F-11-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

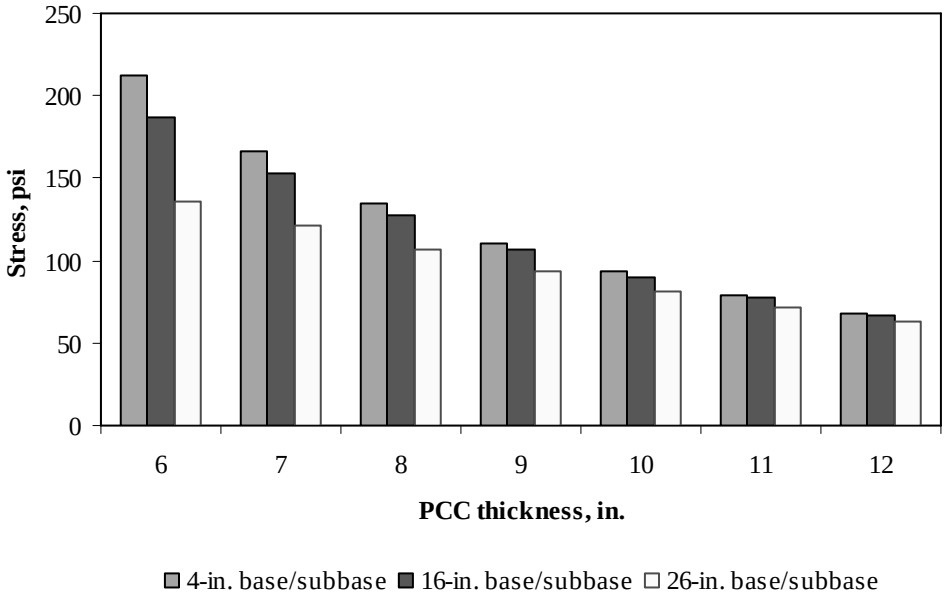


Figure F-11-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

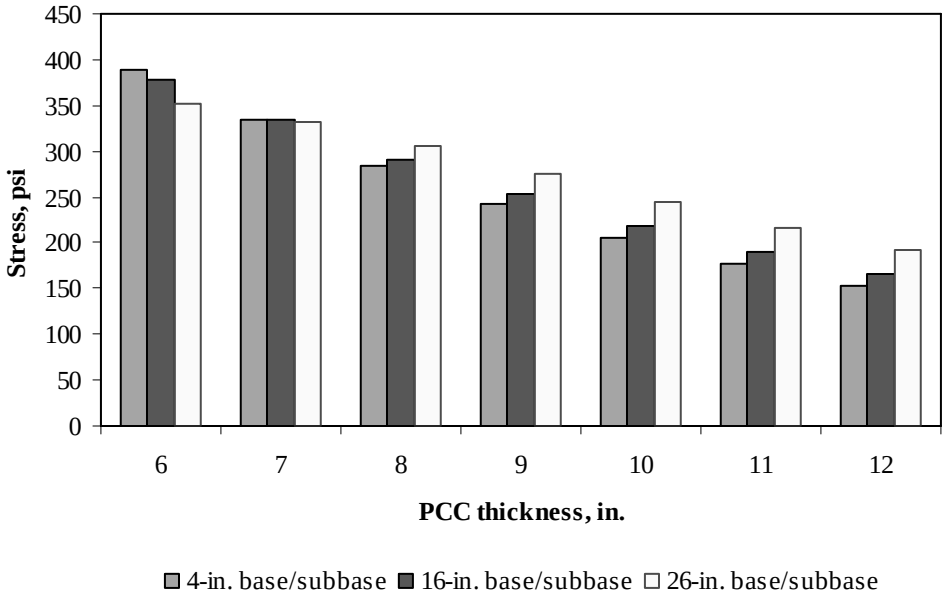


Figure F-11-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

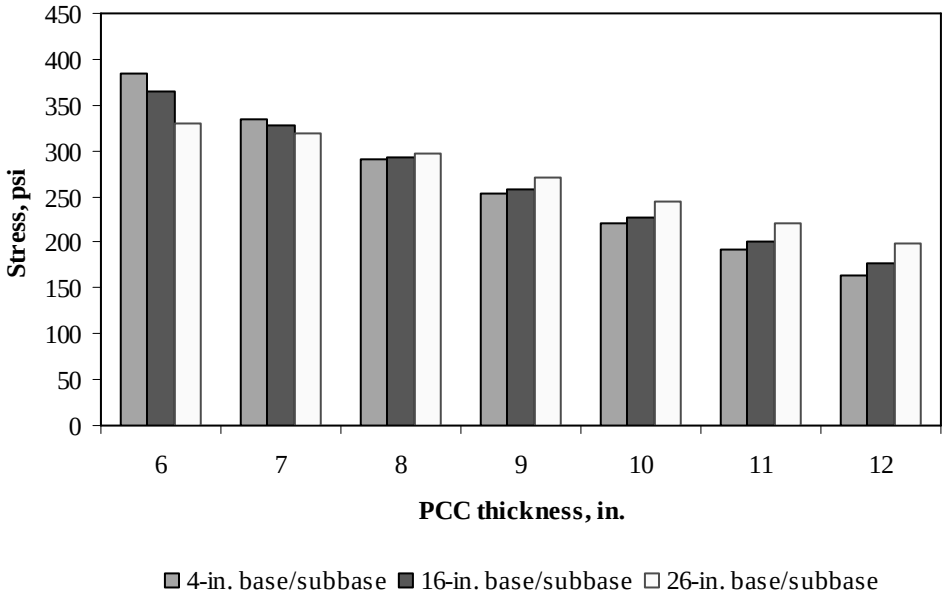


Figure F-11-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-11-13 through F-11-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

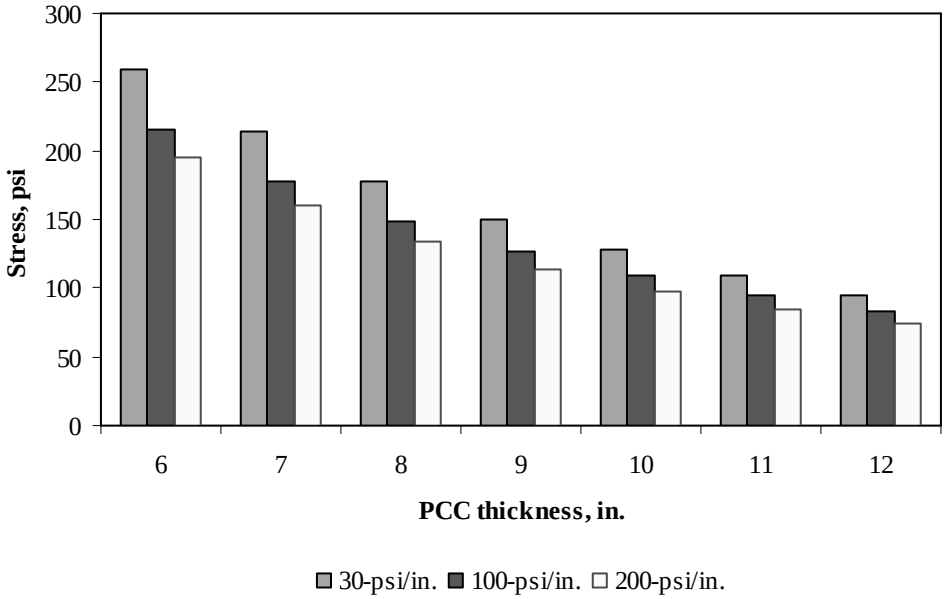


Figure F-11-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

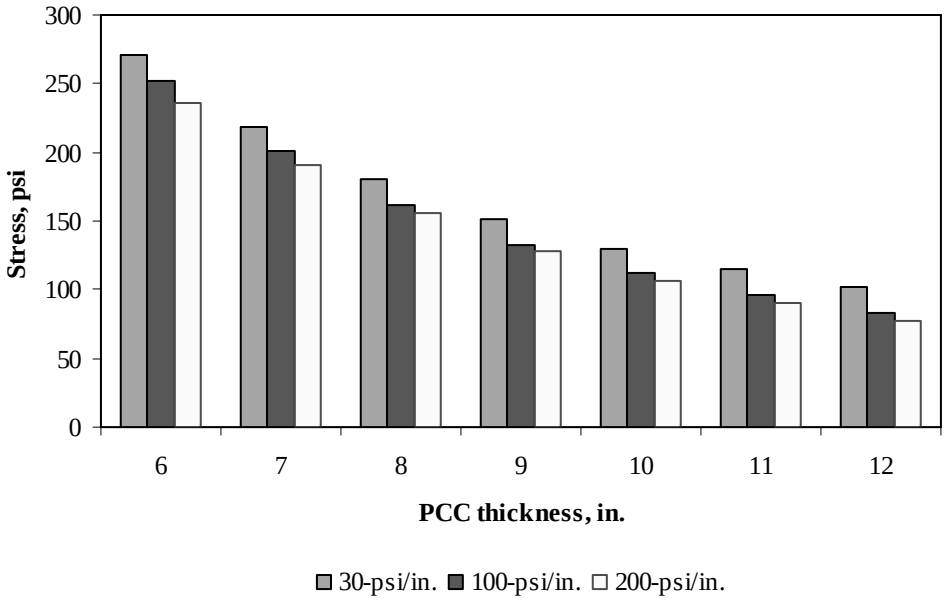


Figure F-11-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

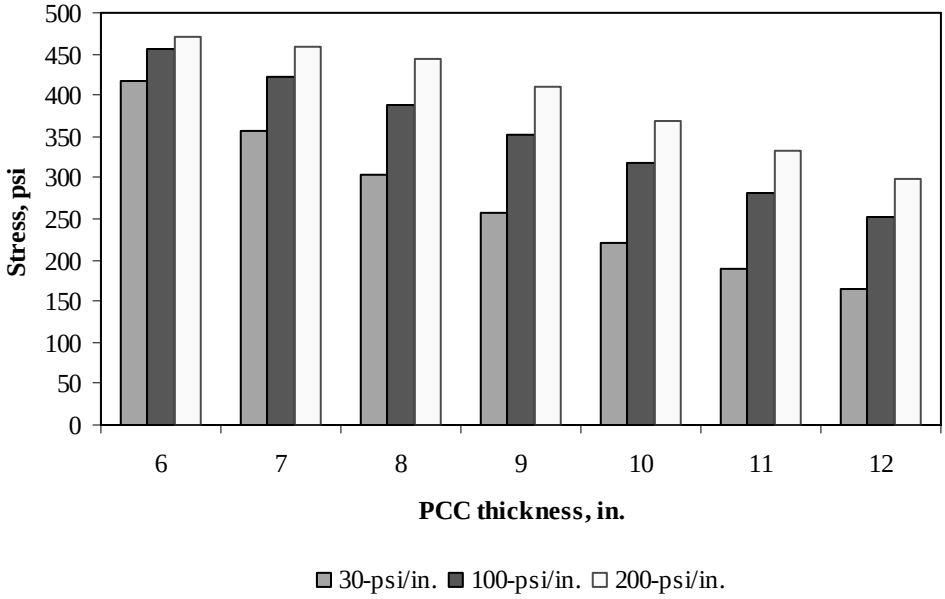


Figure F-11-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

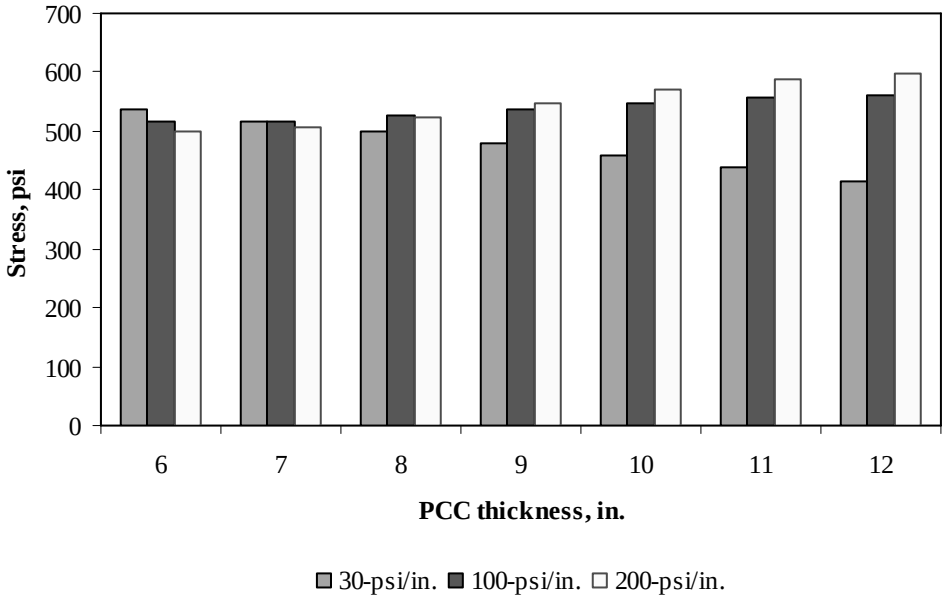


Figure F-11-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

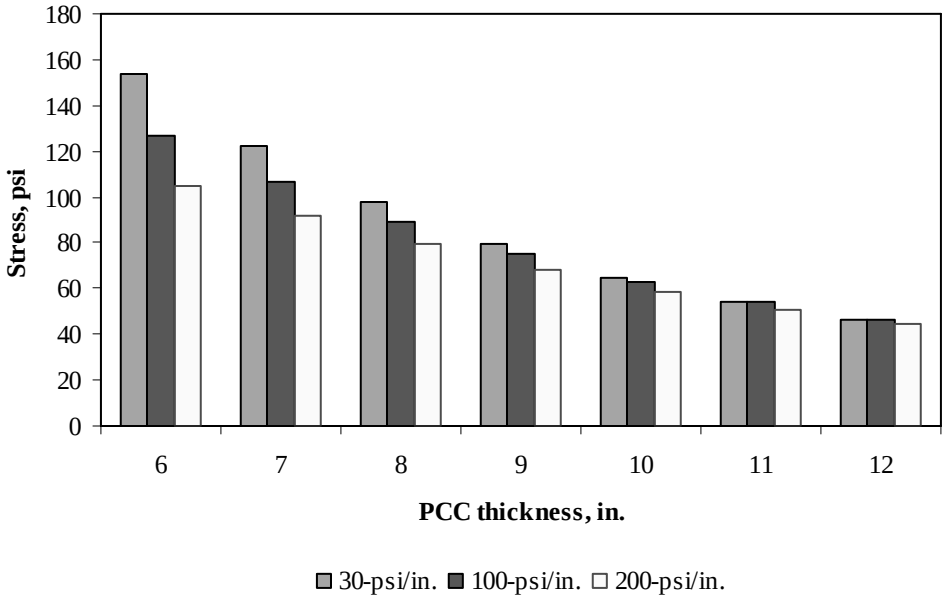


Figure F-11-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

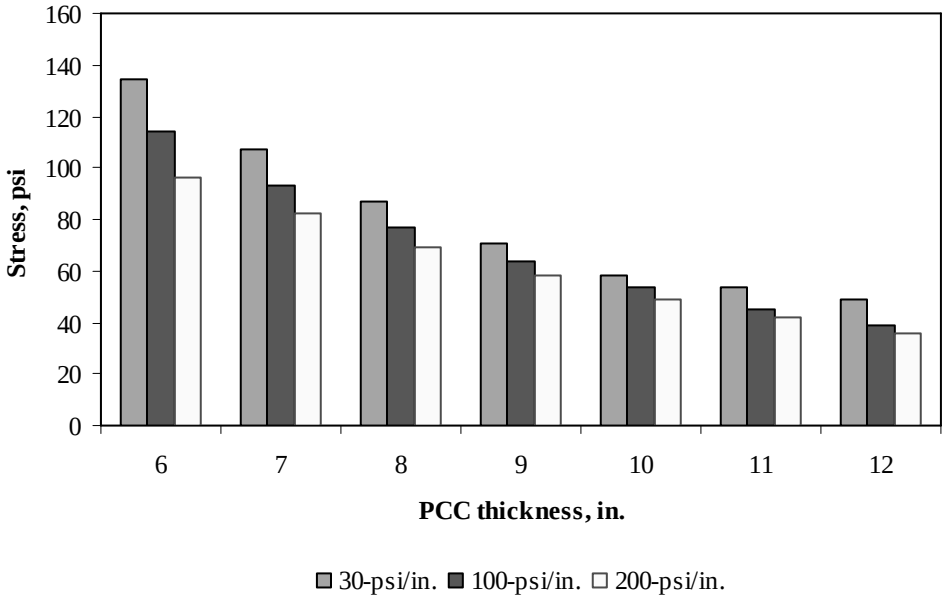


Figure F-11-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

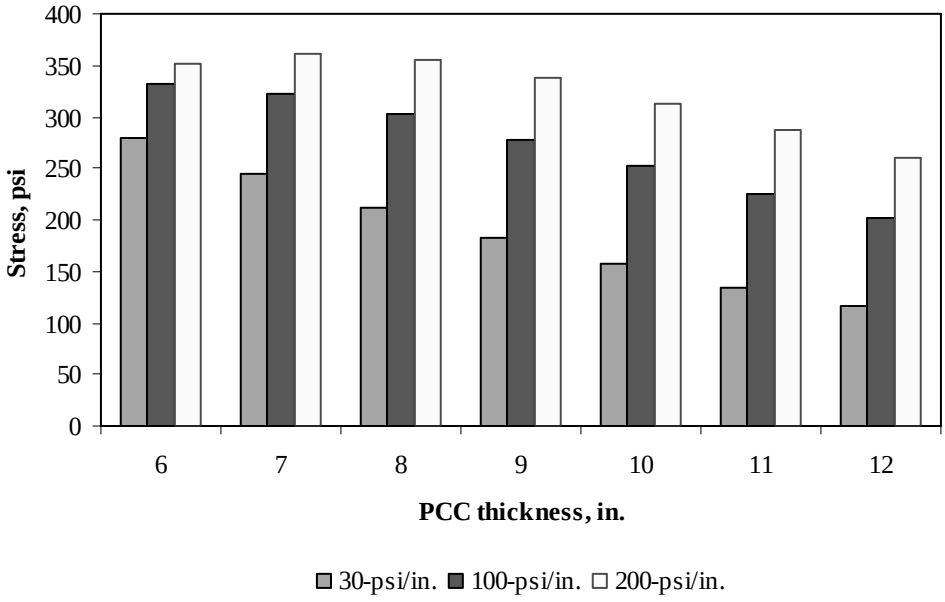


Figure F-11-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

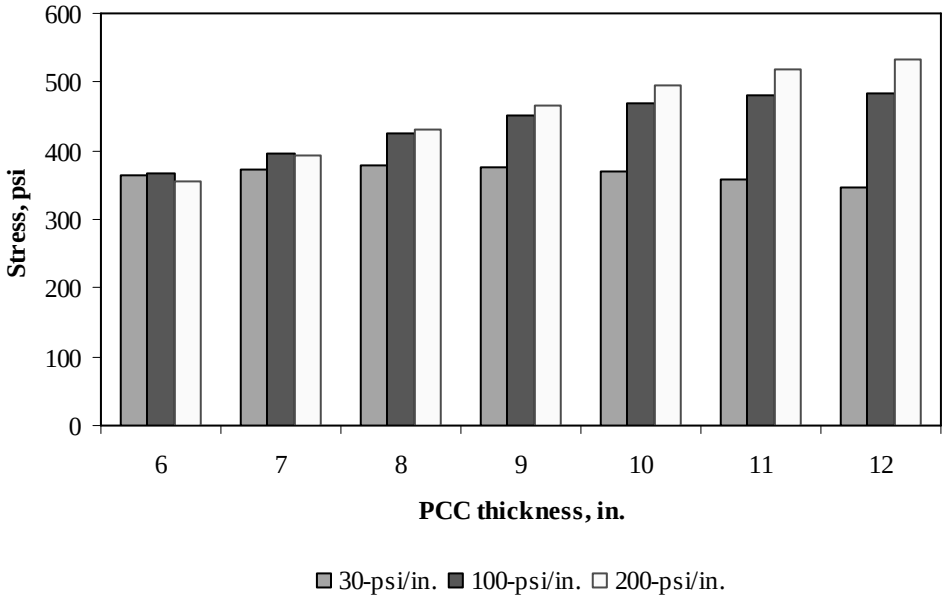


Figure F-11-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

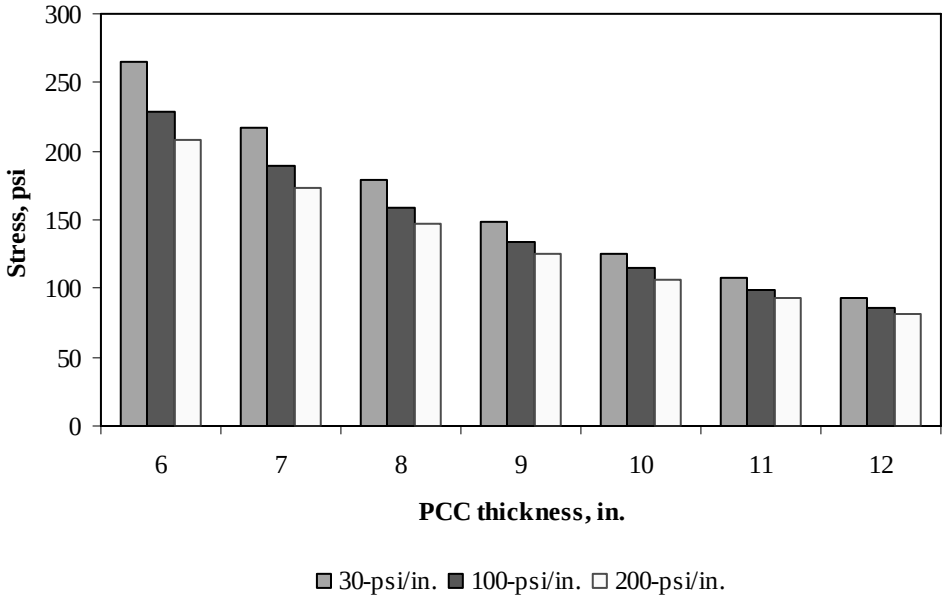


Figure F-11-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

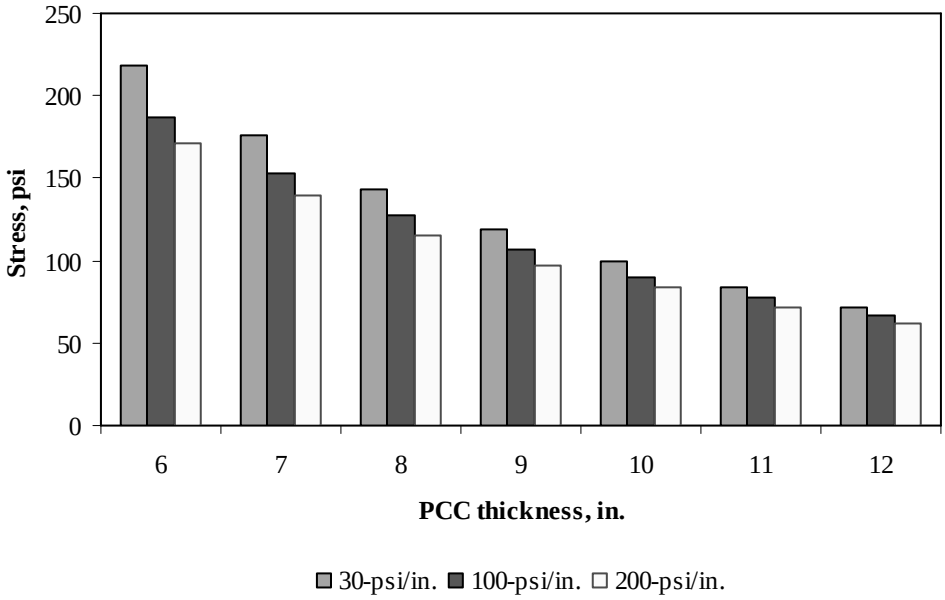


Figure F-11-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

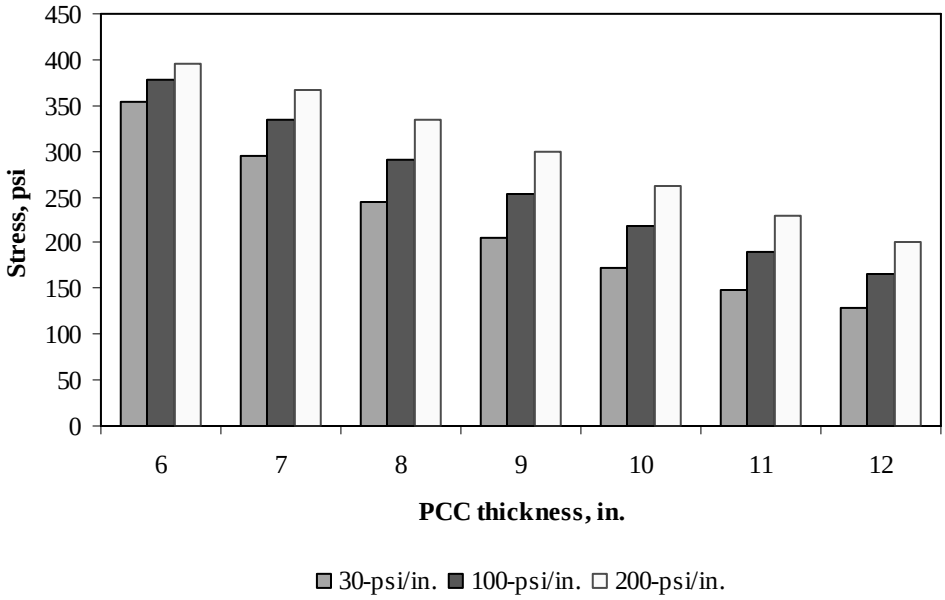


Figure F-11-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

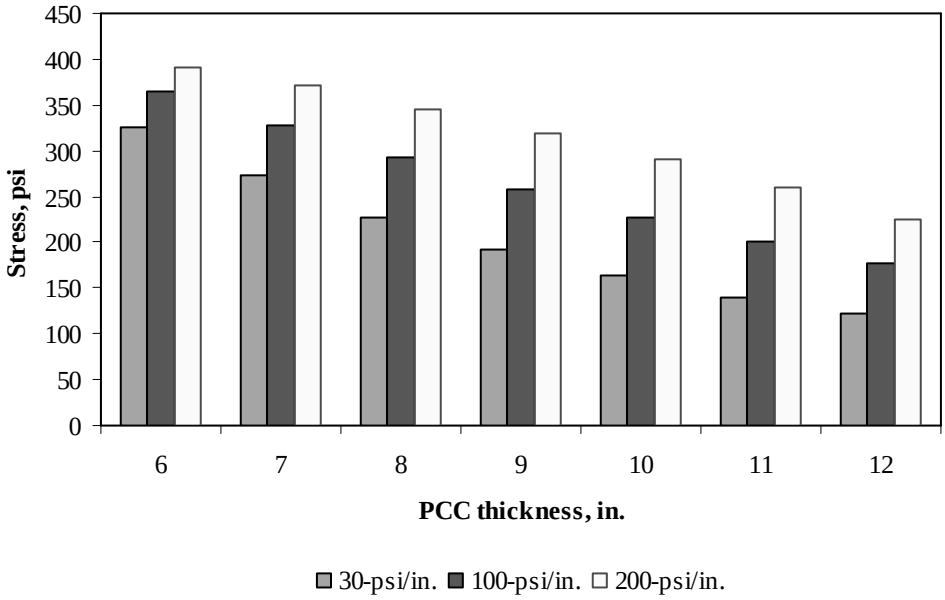


Figure F-11-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-11-25 through F-11-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

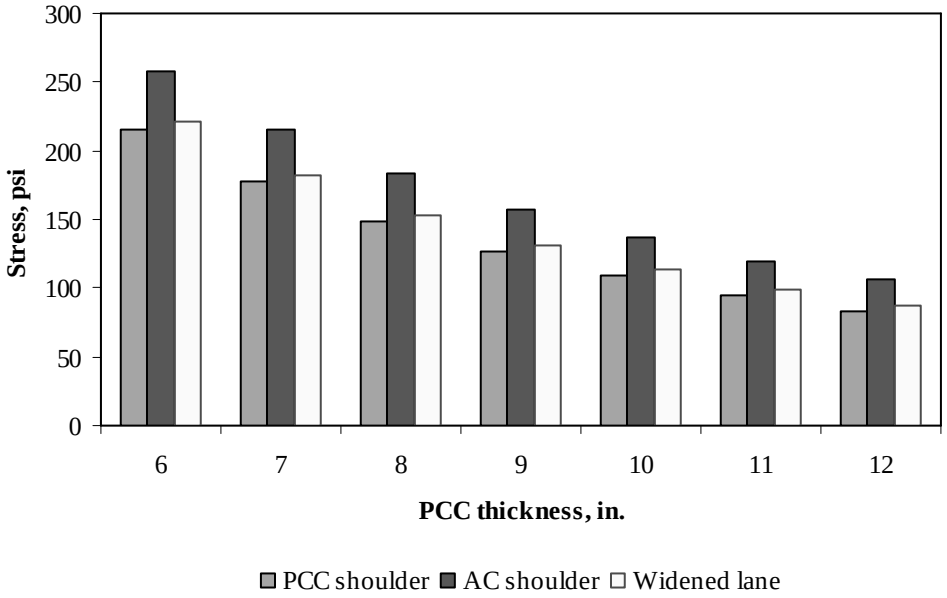


Figure F-11-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

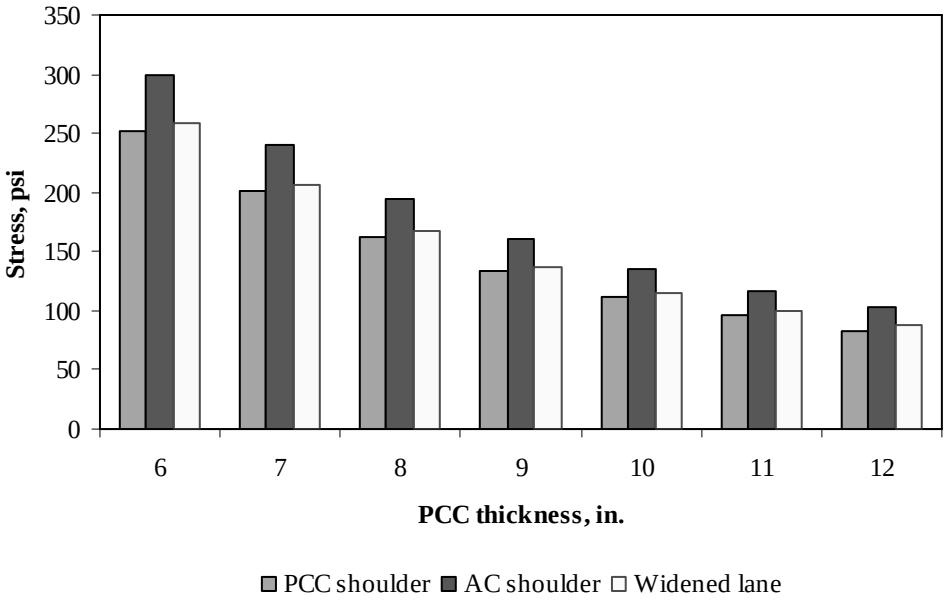


Figure F-11-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

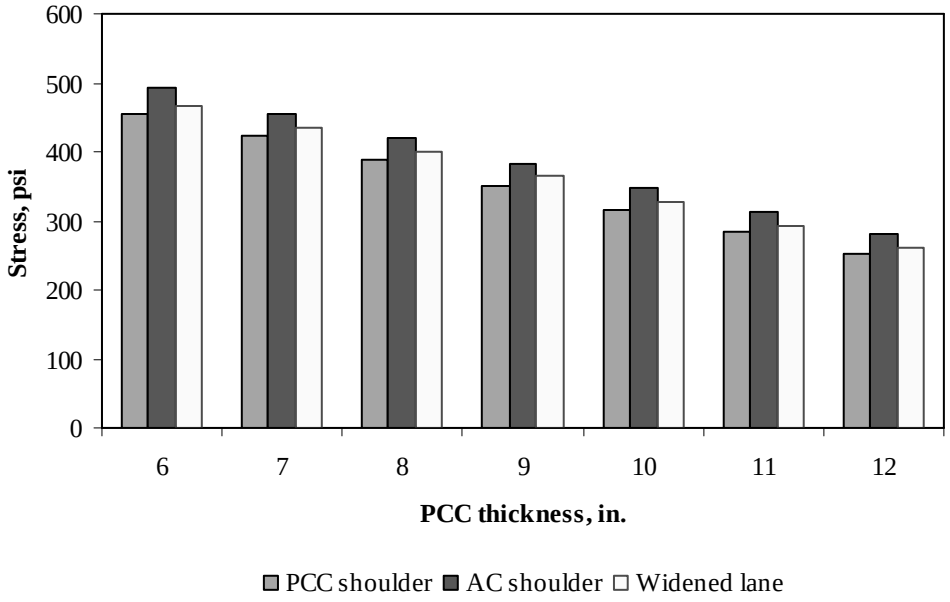


Figure F-11-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

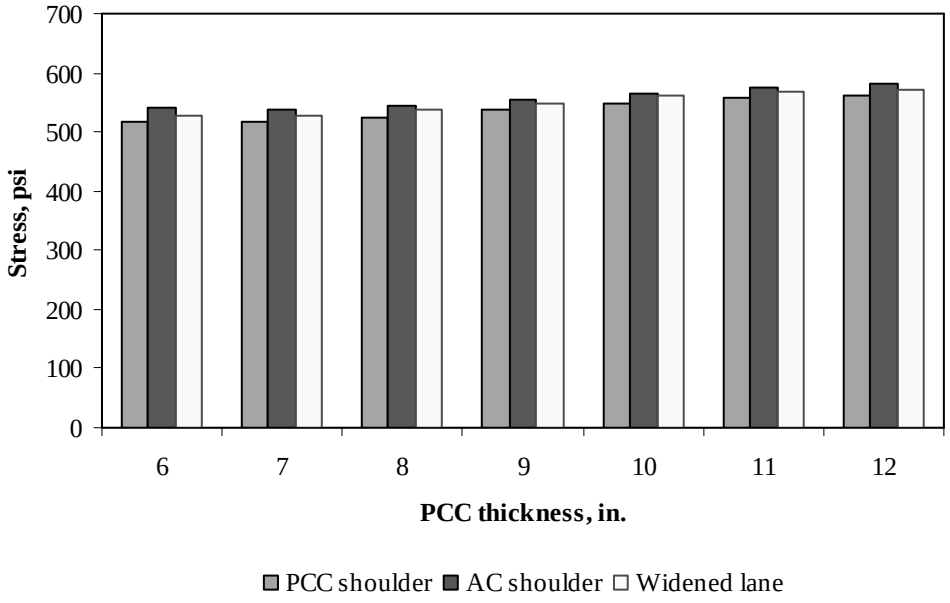


Figure F-11-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

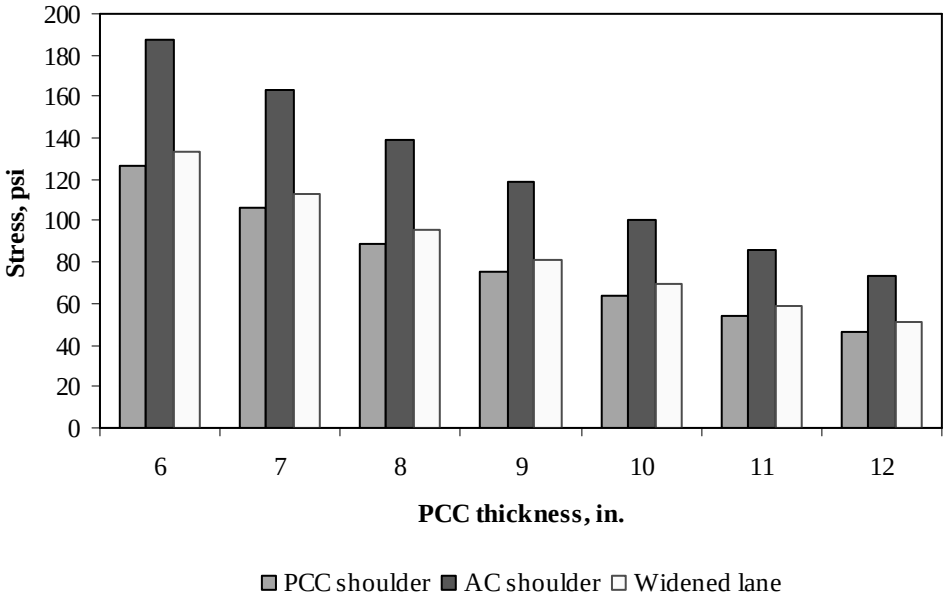


Figure F-11-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

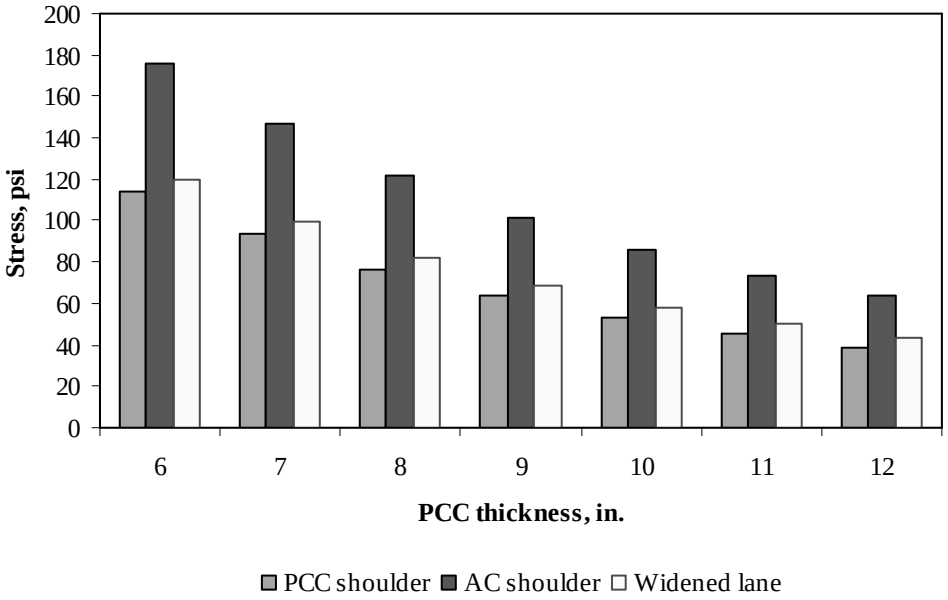


Figure F-11-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

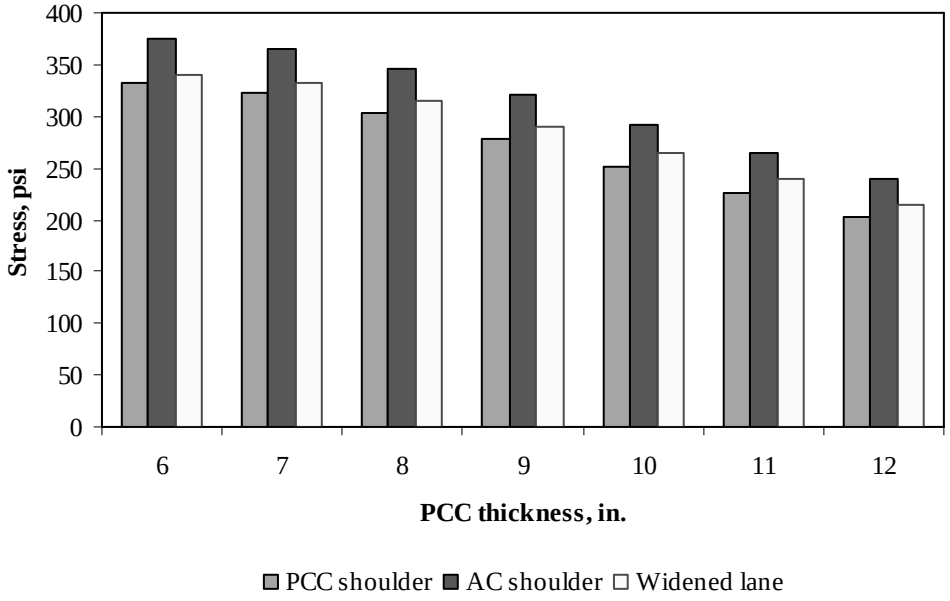


Figure F-11-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

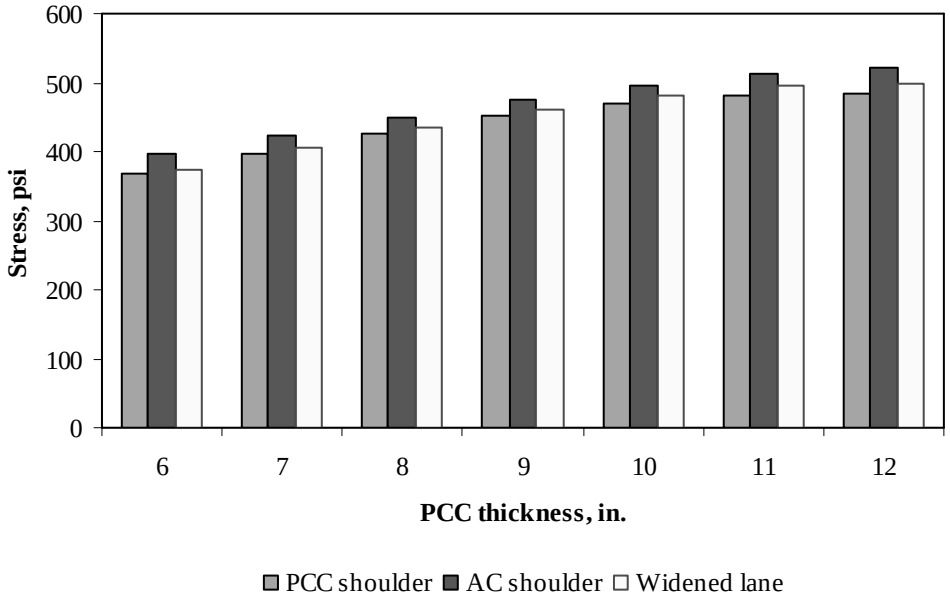


Figure F-11-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

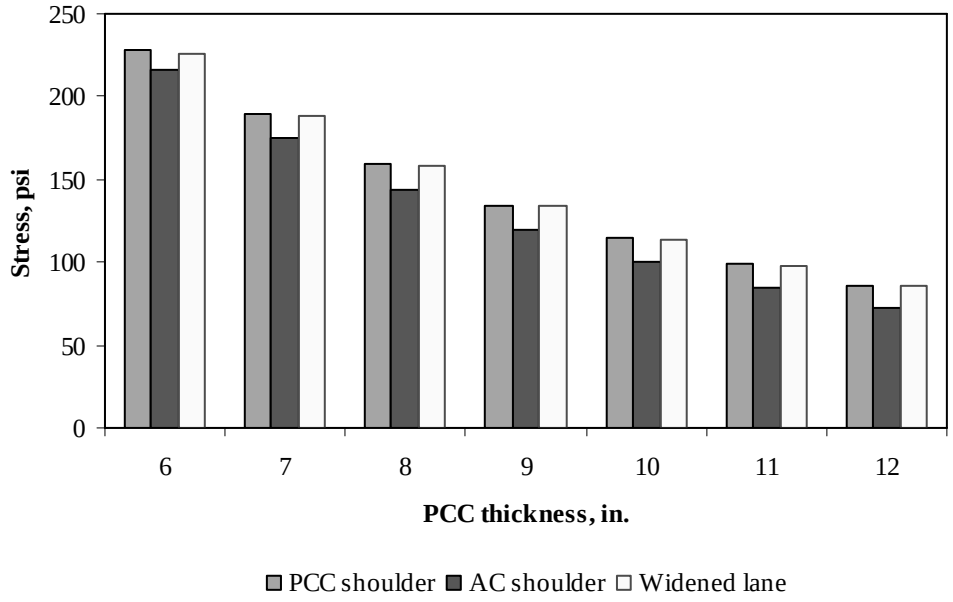


Figure F-11-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

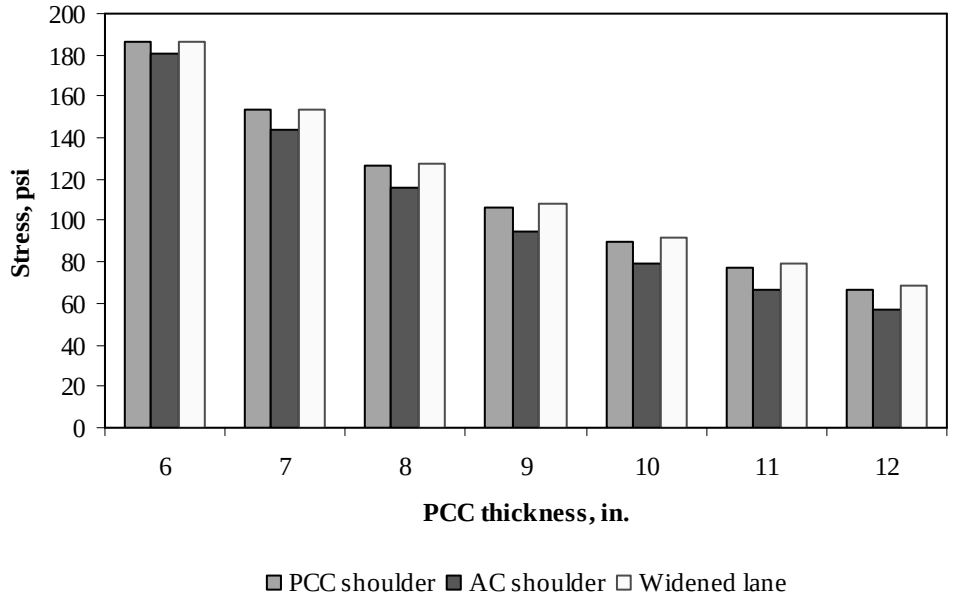


Figure F-11-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

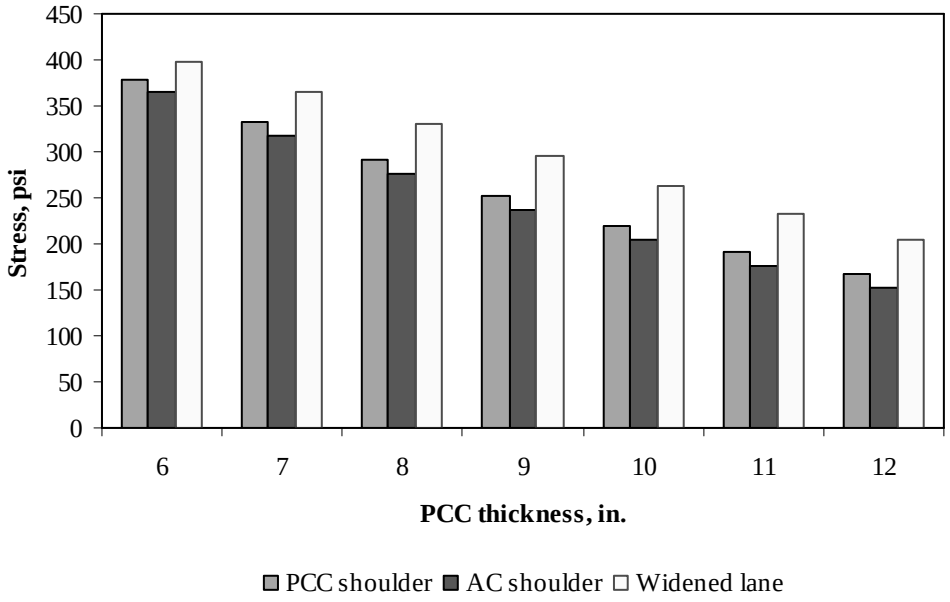


Figure F-11-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

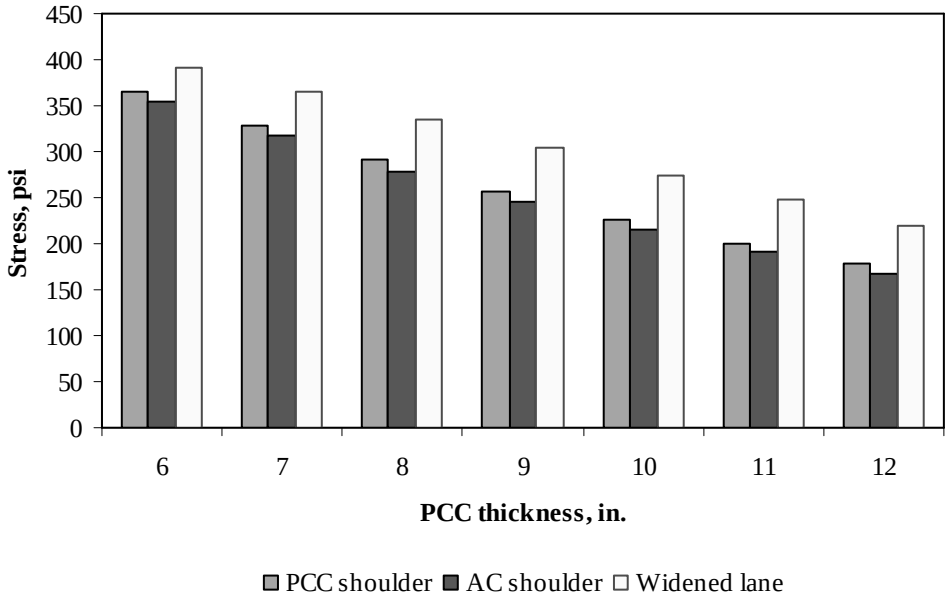


Figure F-11-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-11-37 through F-11-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

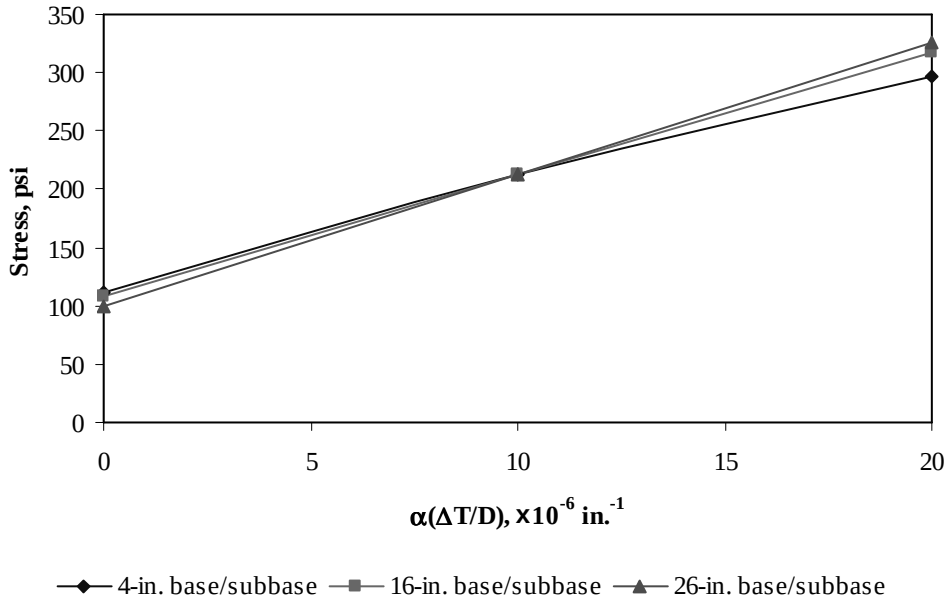


Figure F-11-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

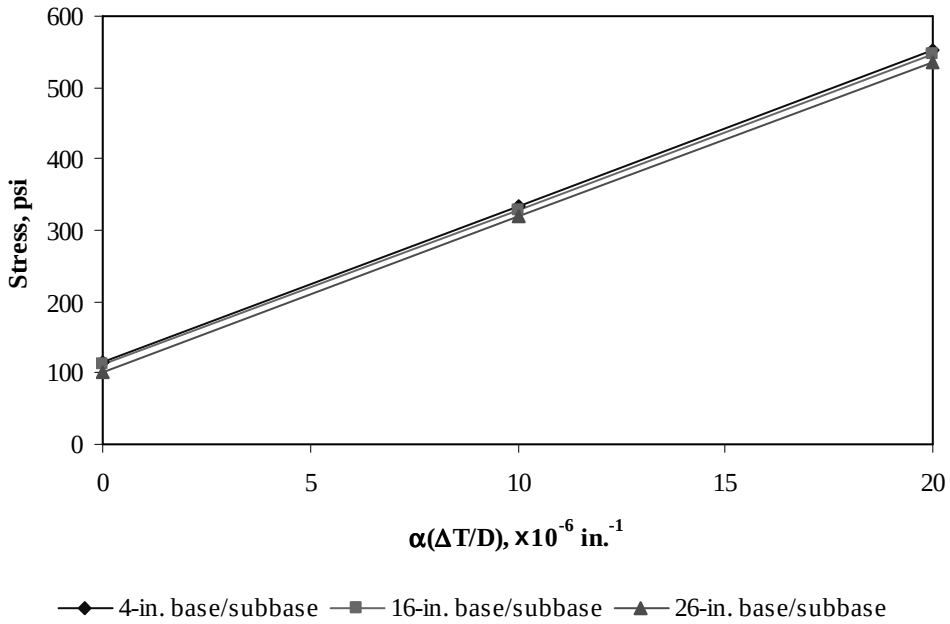


Figure F-11-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

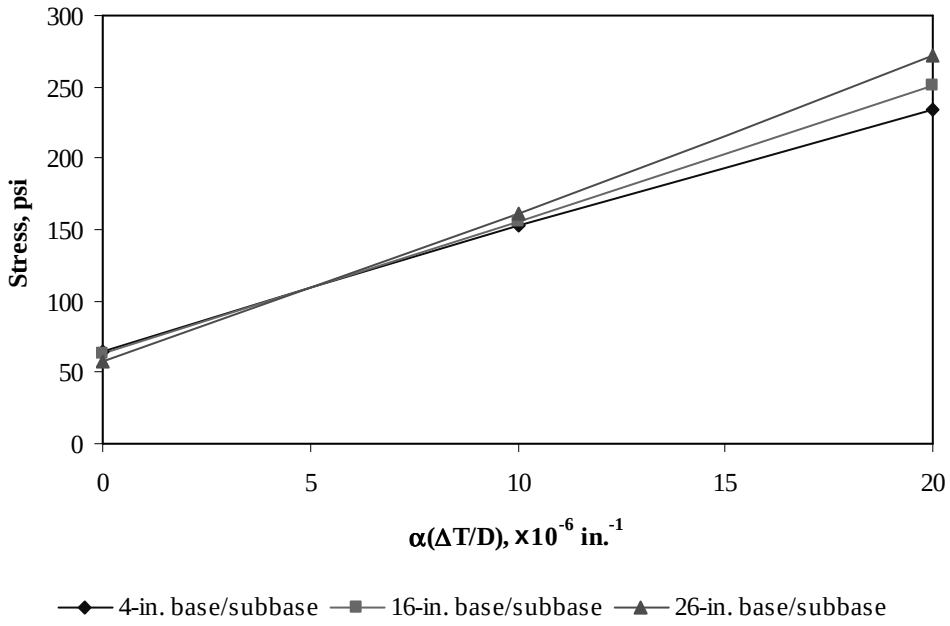


Figure F-11-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

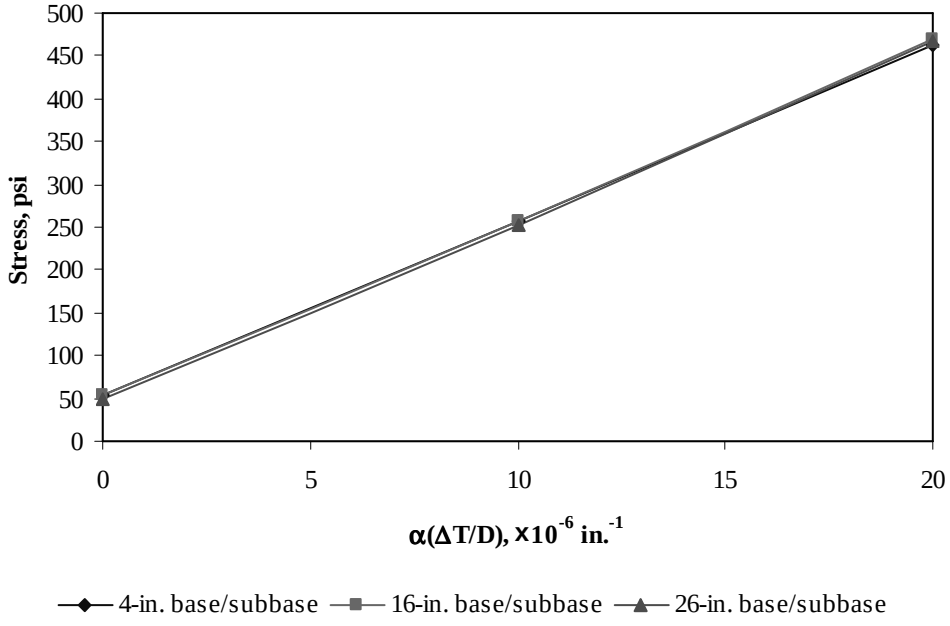


Figure F-11-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

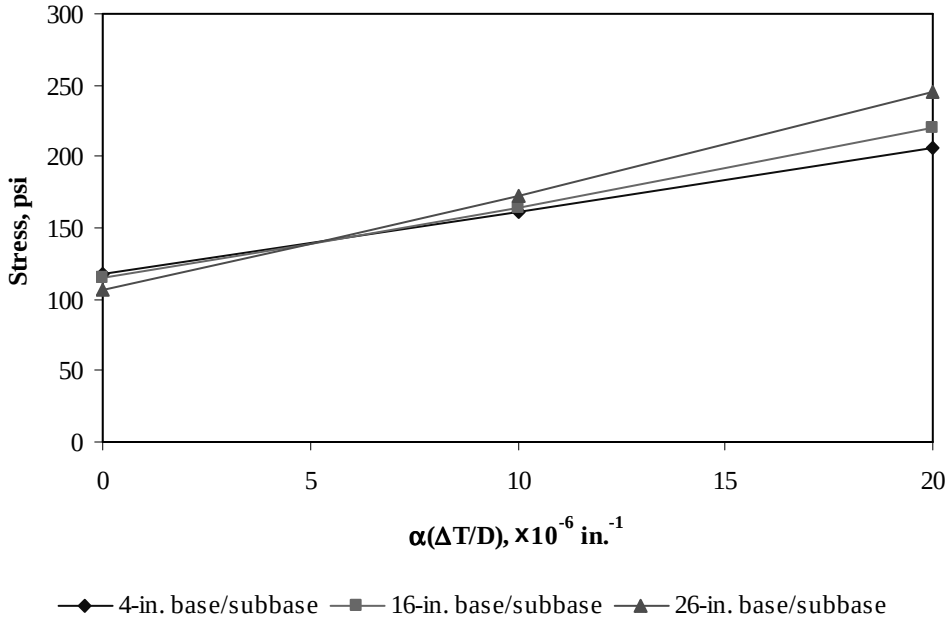


Figure F-11-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

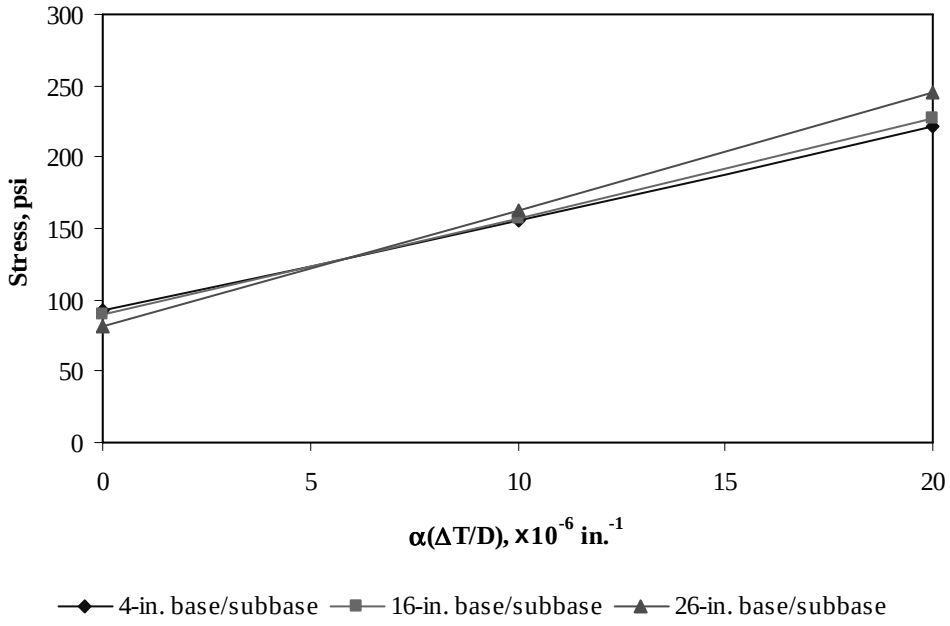


Figure F-11-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-11-43 through F-11-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

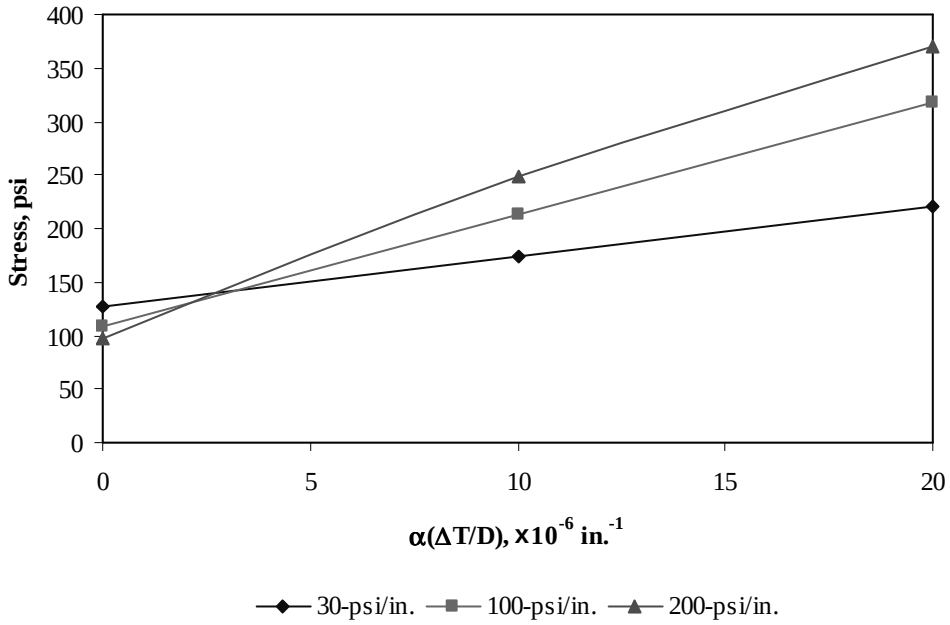


Figure F-11-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

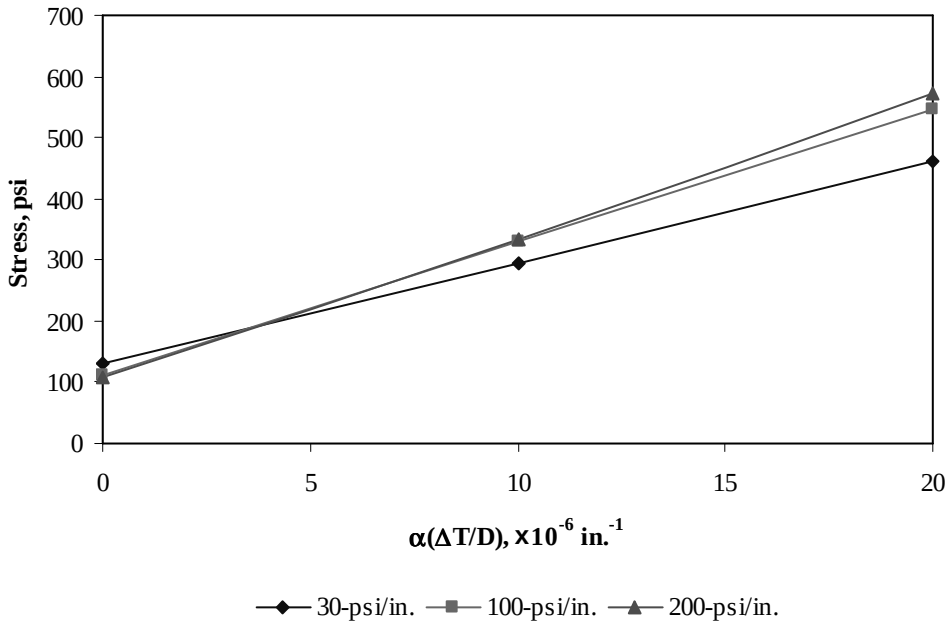


Figure F-11-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

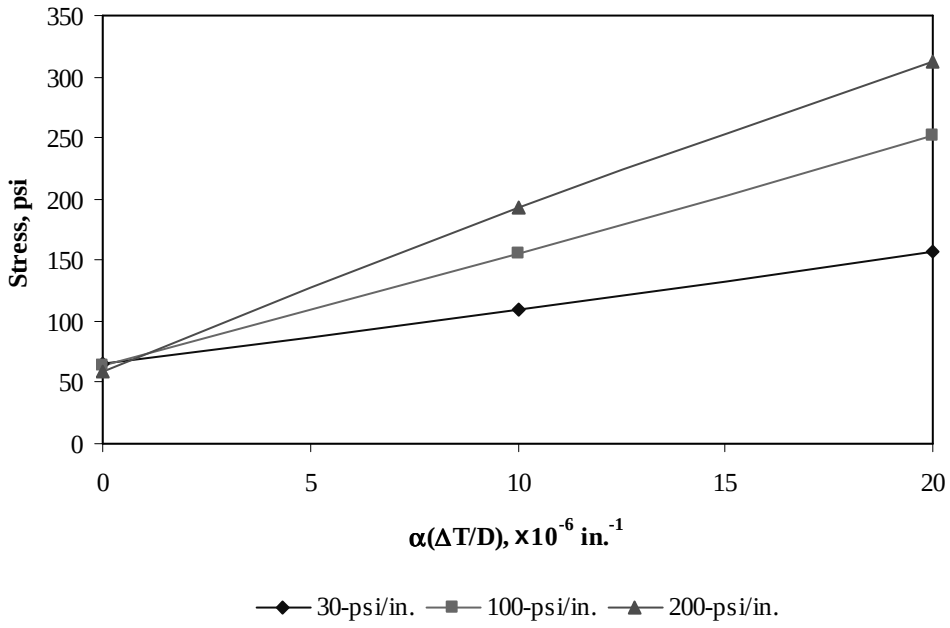


Figure F-11-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

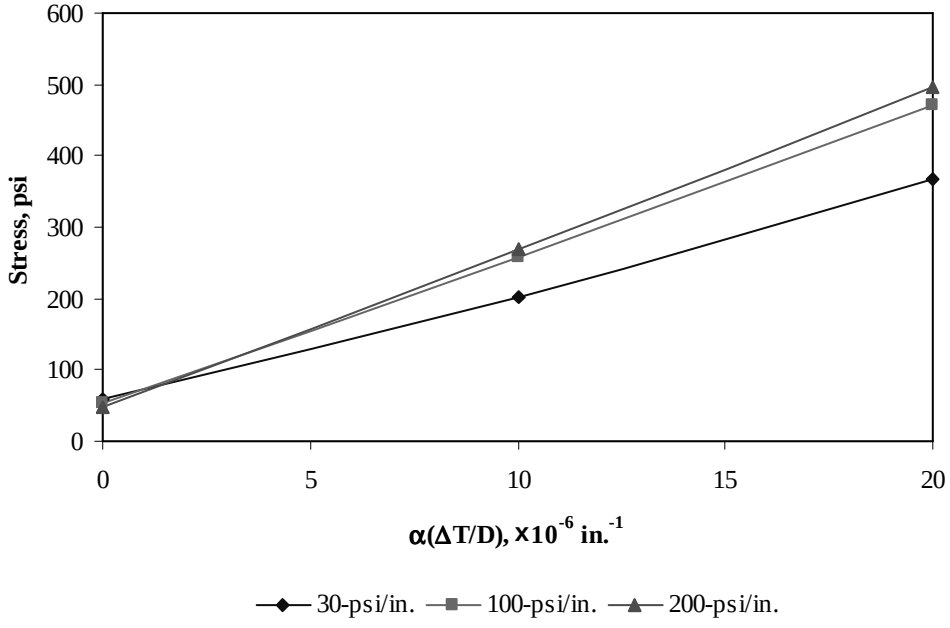


Figure F-11-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

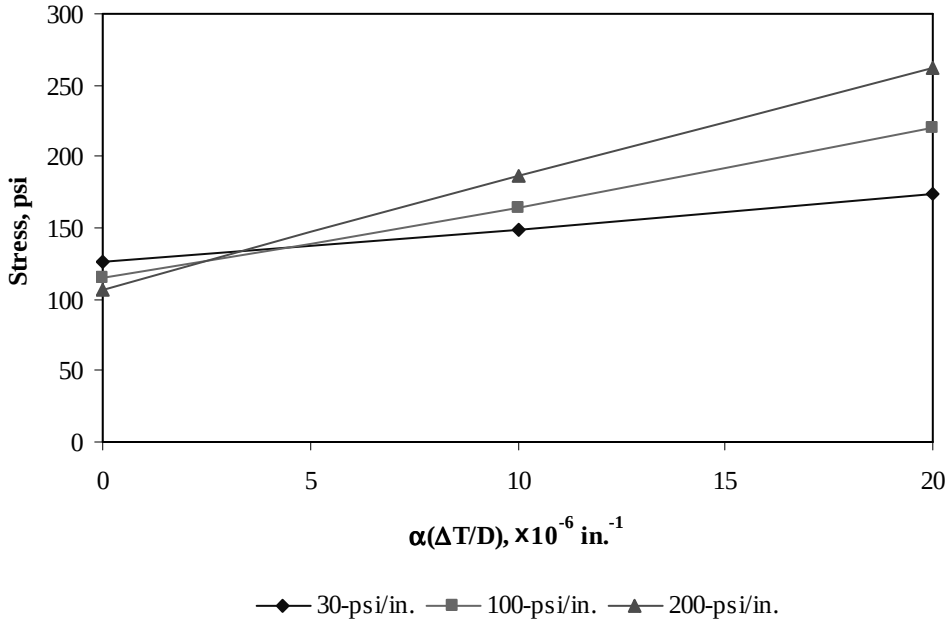


Figure F-11-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

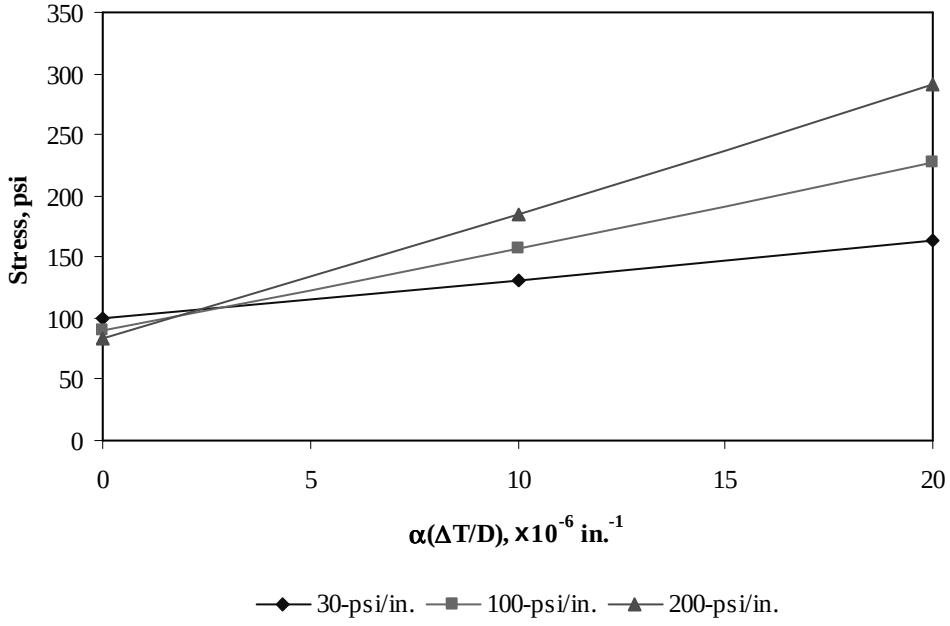


Figure F-11-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-11-49 through F-11-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

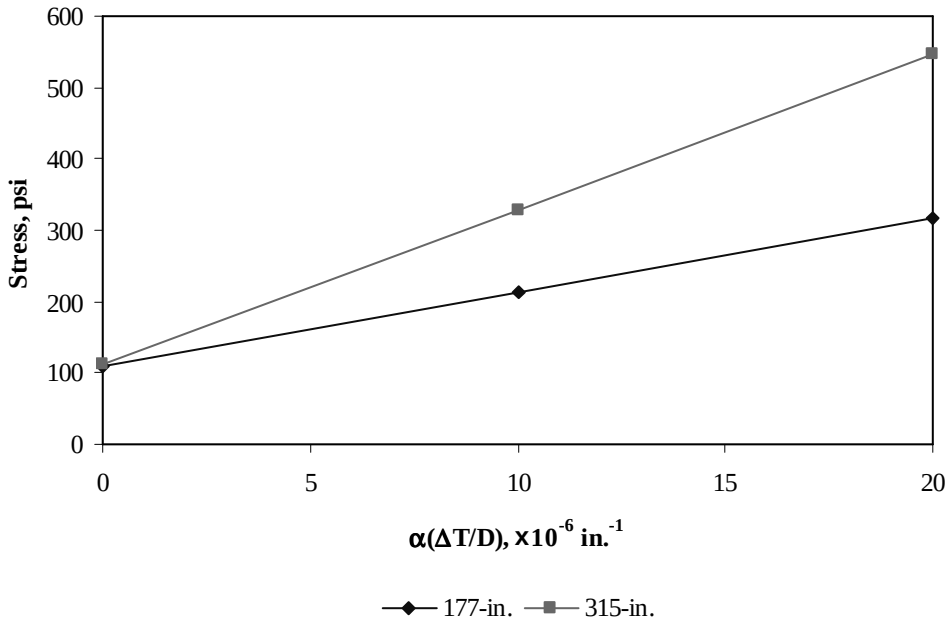


Figure F-11-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

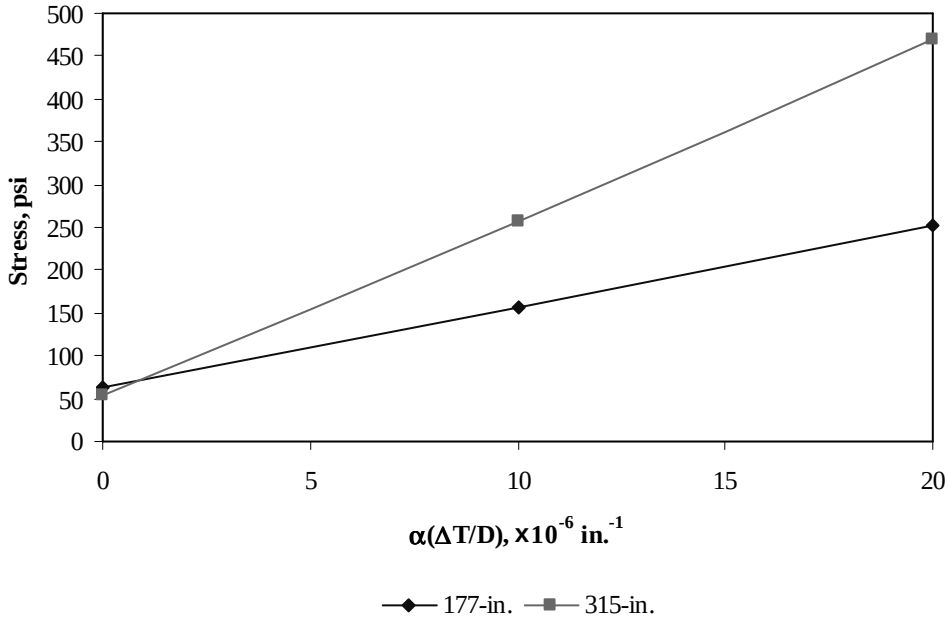


Figure F-11-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

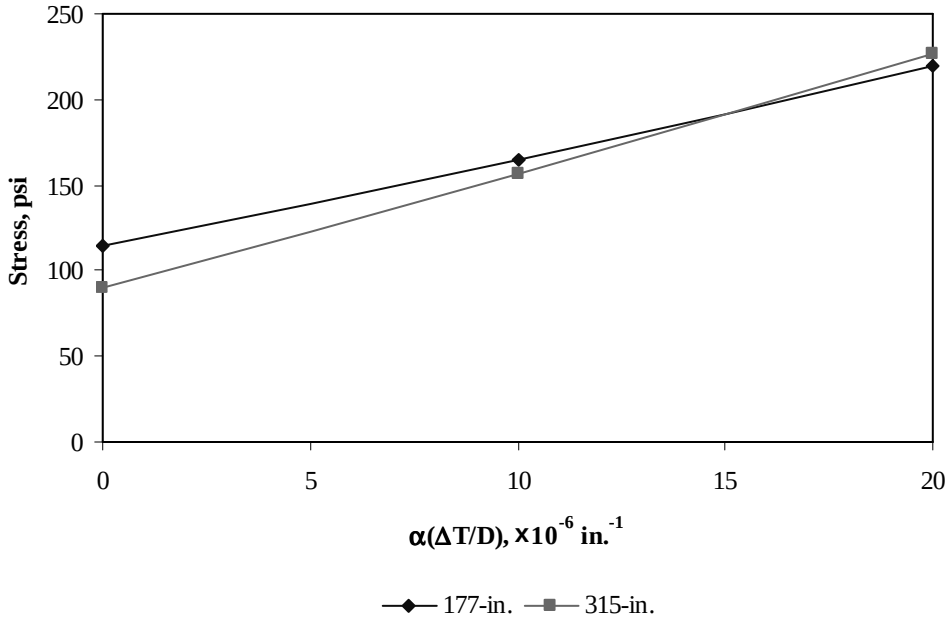
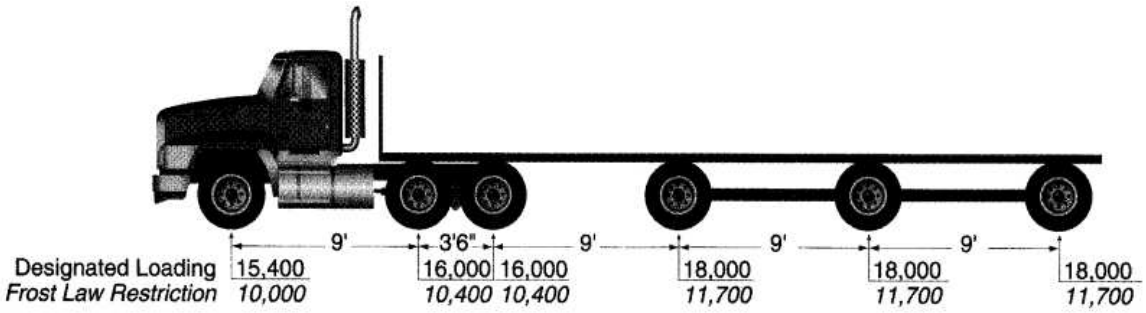


Figure F-11-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-12

Documentation of Pavement Responses for



MI-9

Figures F-12-1 through F-12-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

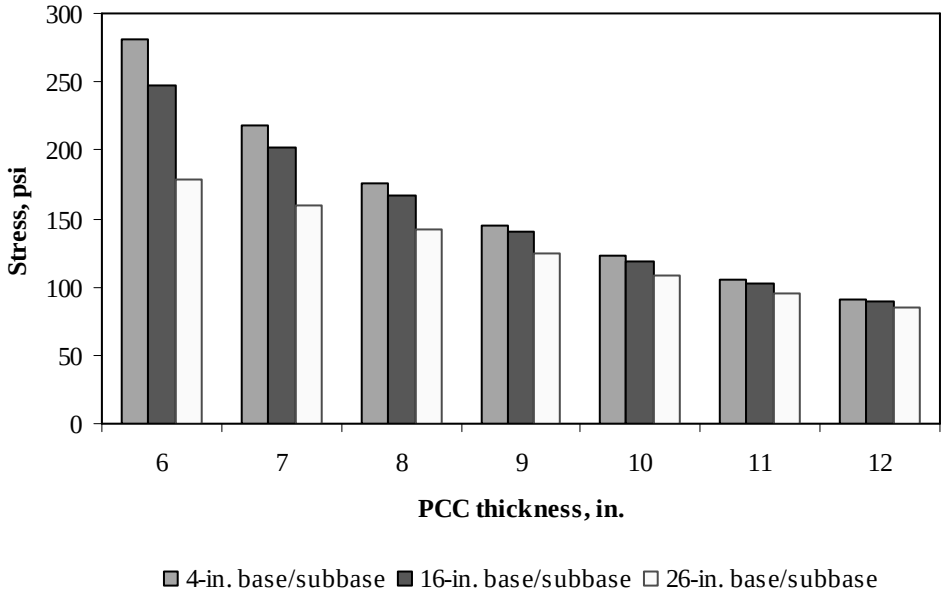


Figure F-12-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

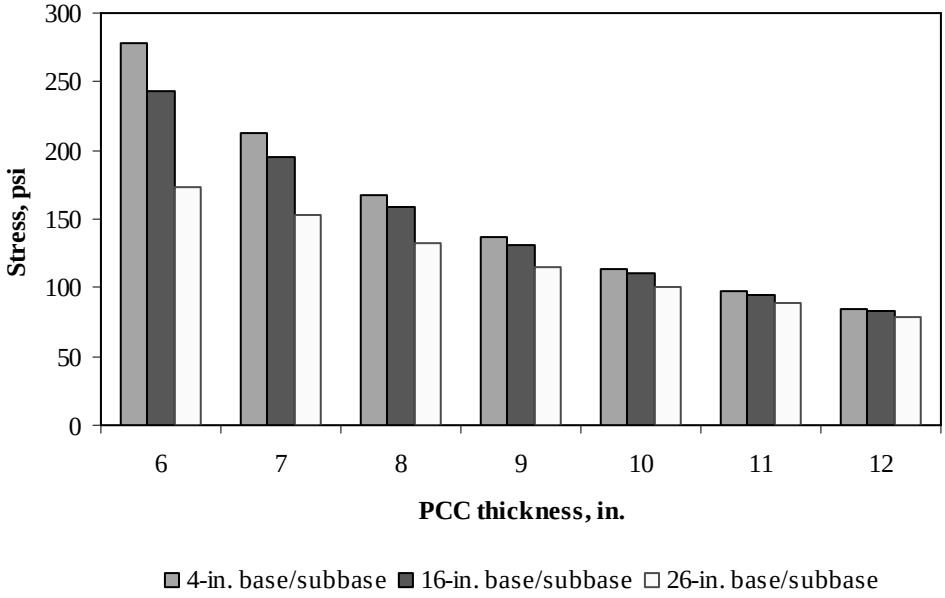


Figure F-12-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

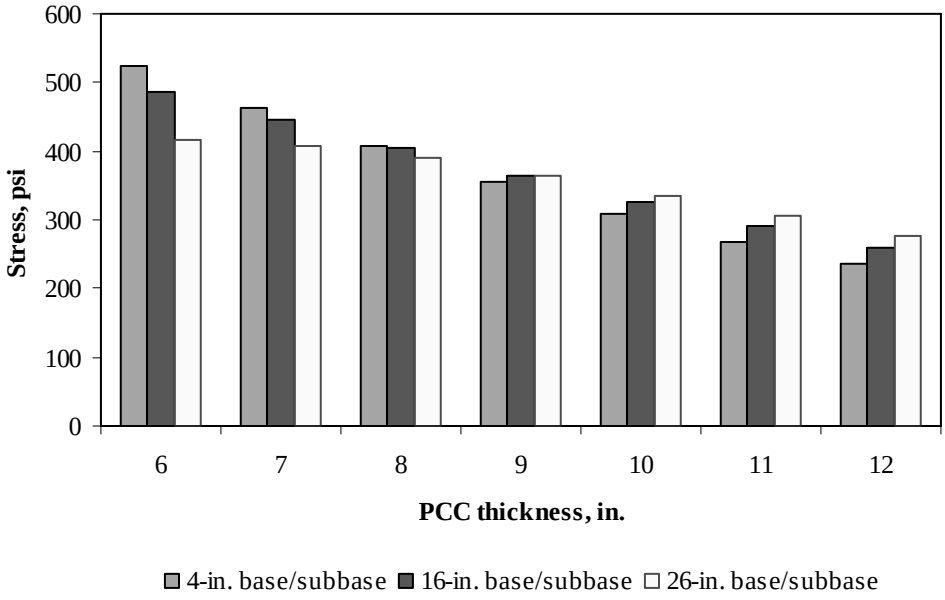


Figure F-12-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

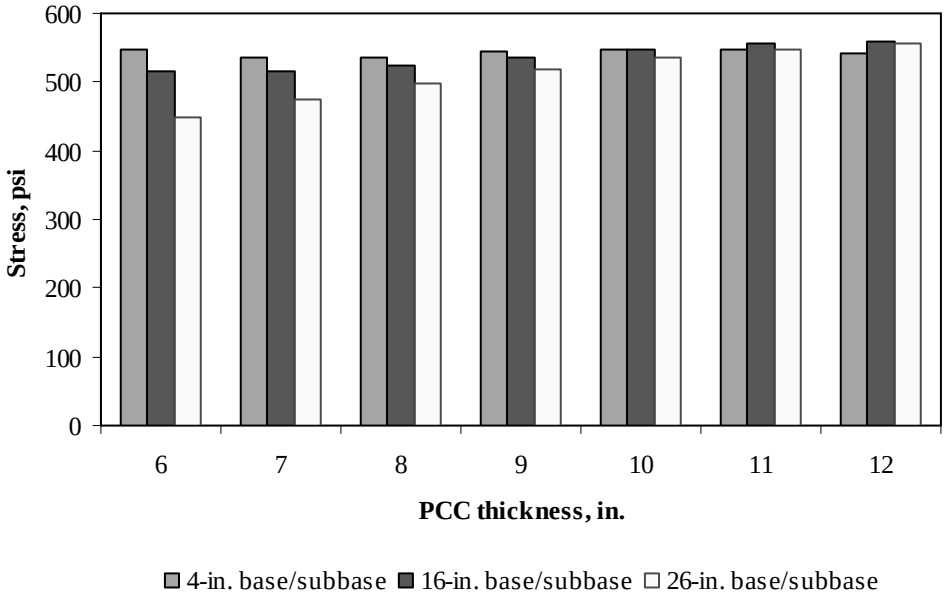


Figure F-12-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

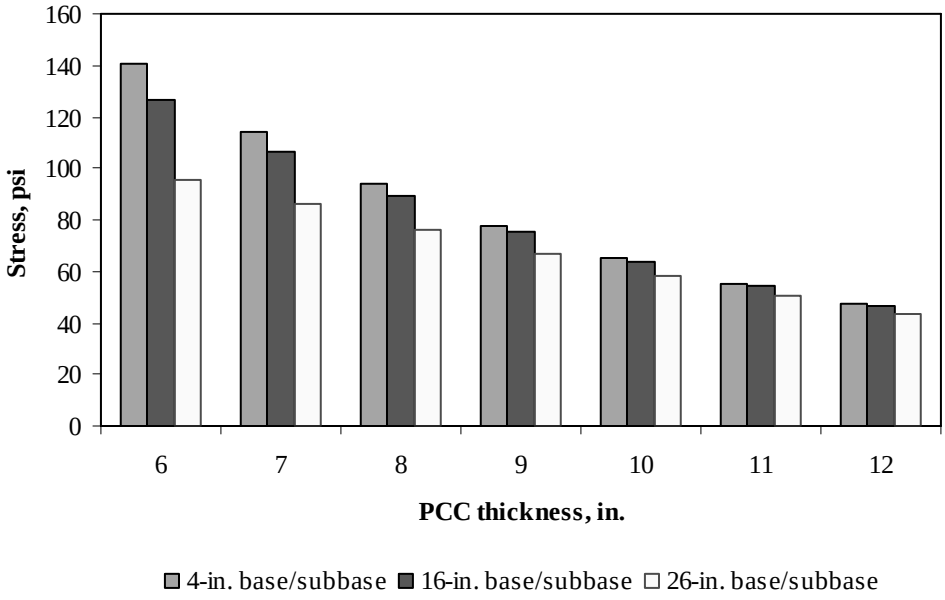


Figure F-12-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

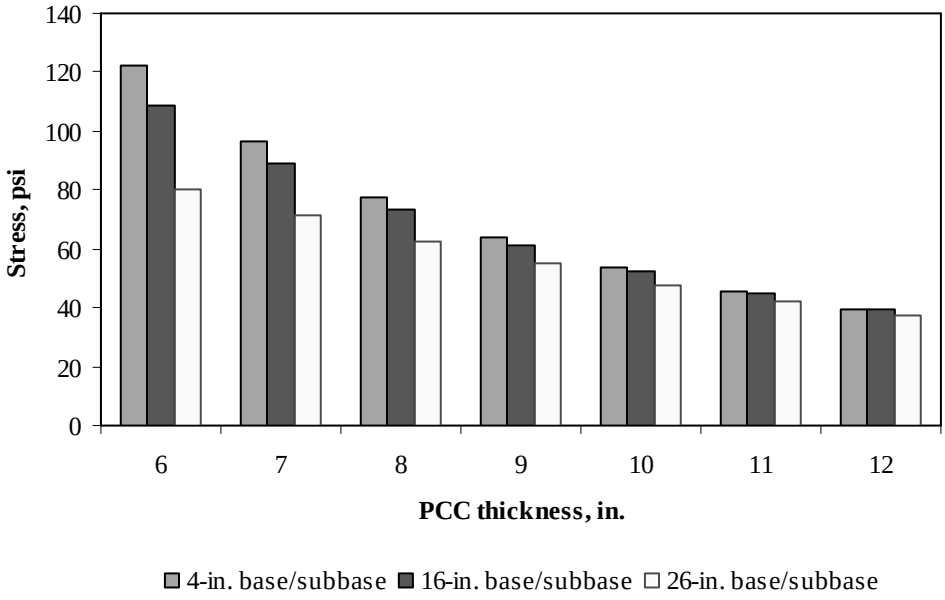


Figure F-12-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

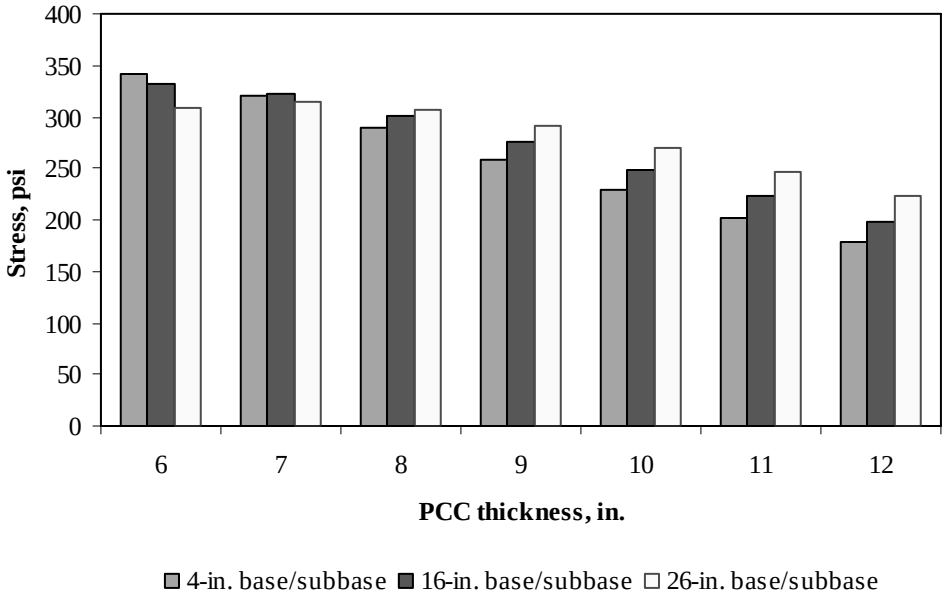


Figure F-12-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

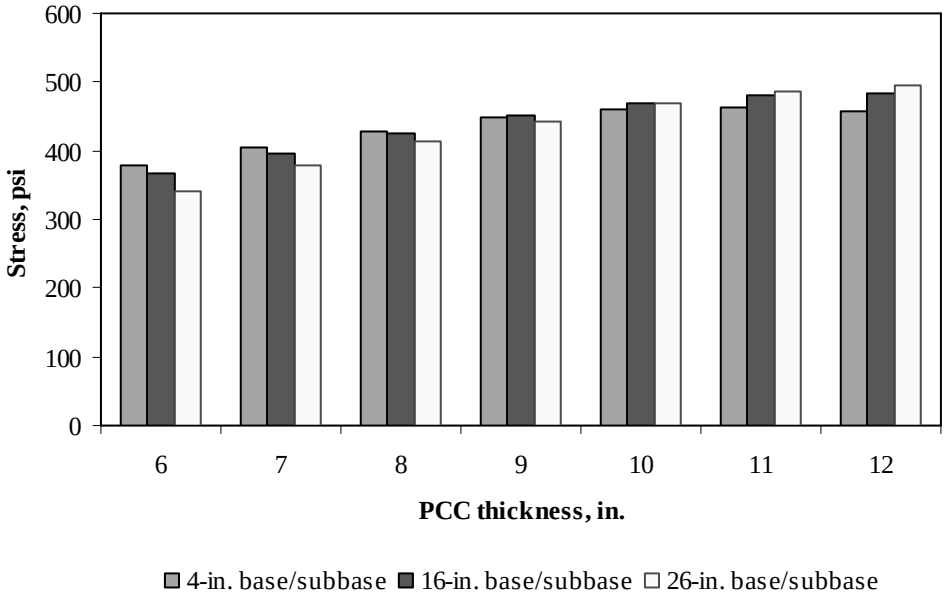


Figure F-12-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

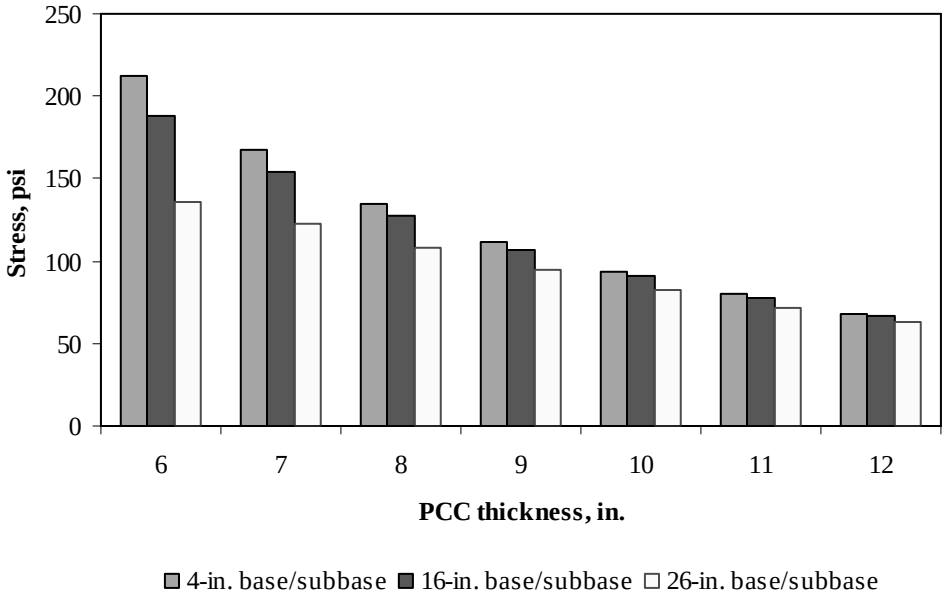


Figure F-12-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

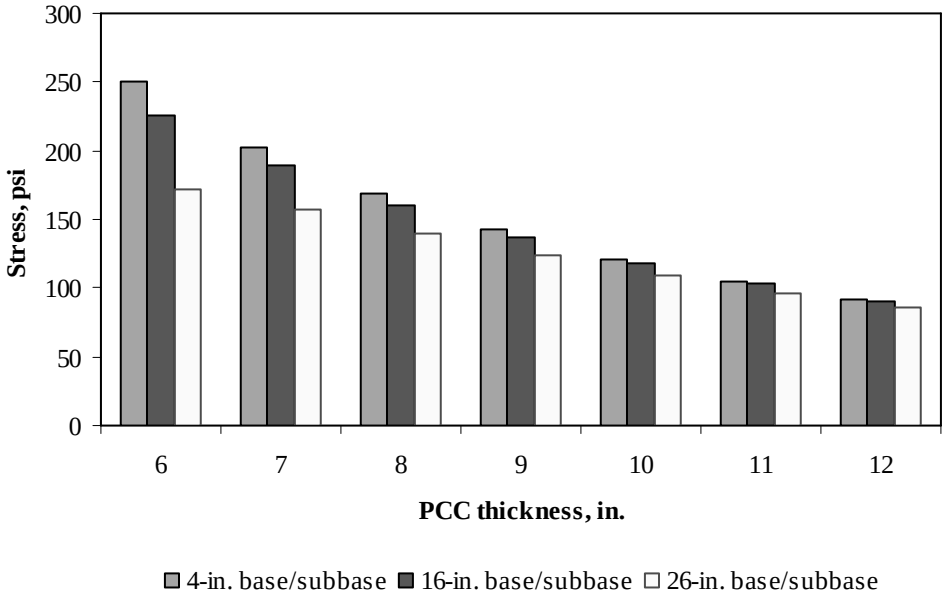


Figure F-12-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

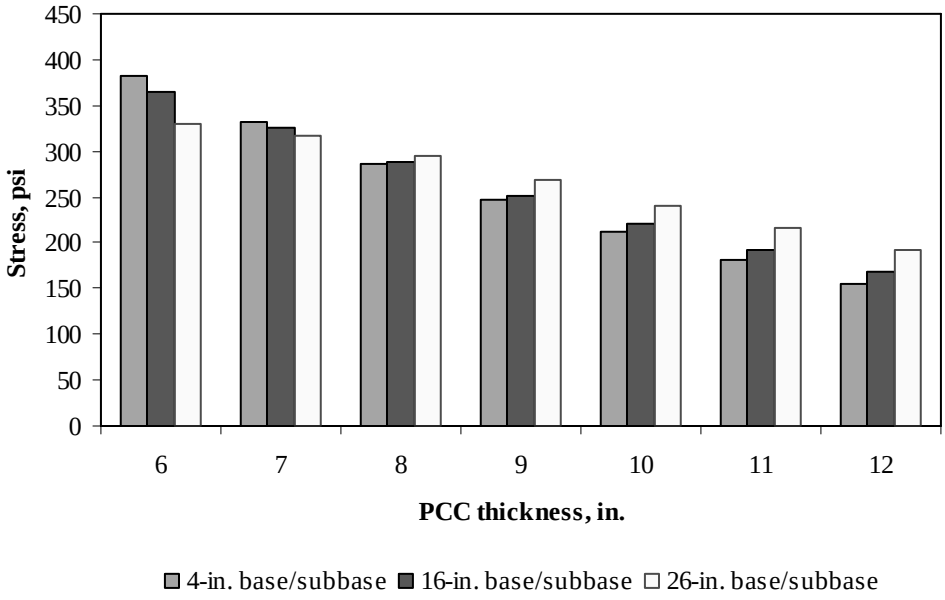


Figure F-12-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

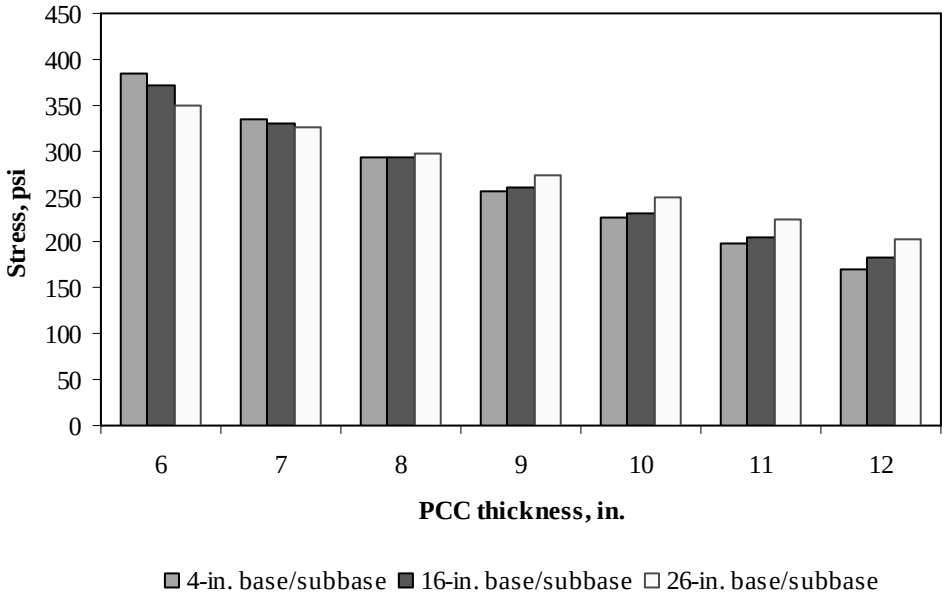


Figure F-12-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-12-13 through F-12-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

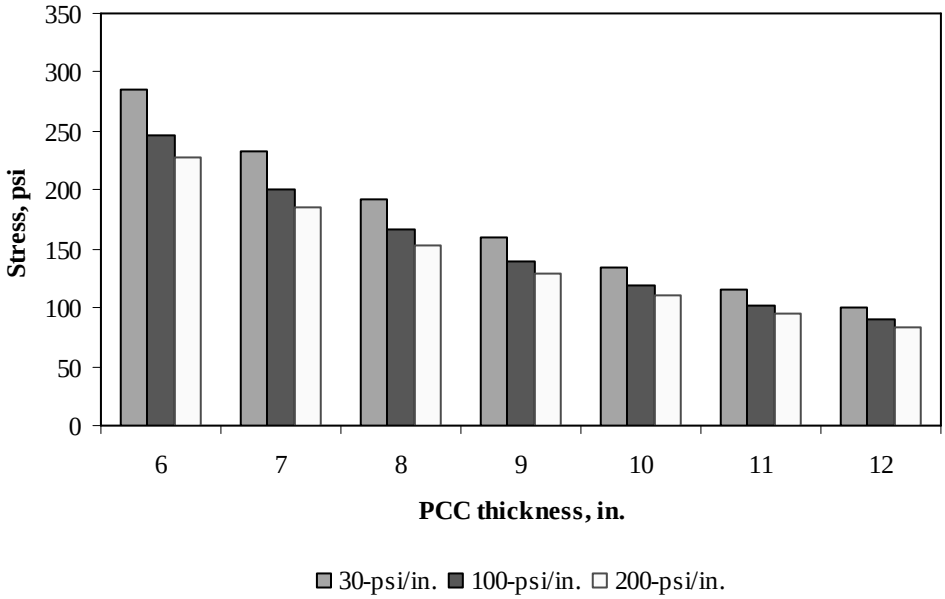


Figure F-12-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

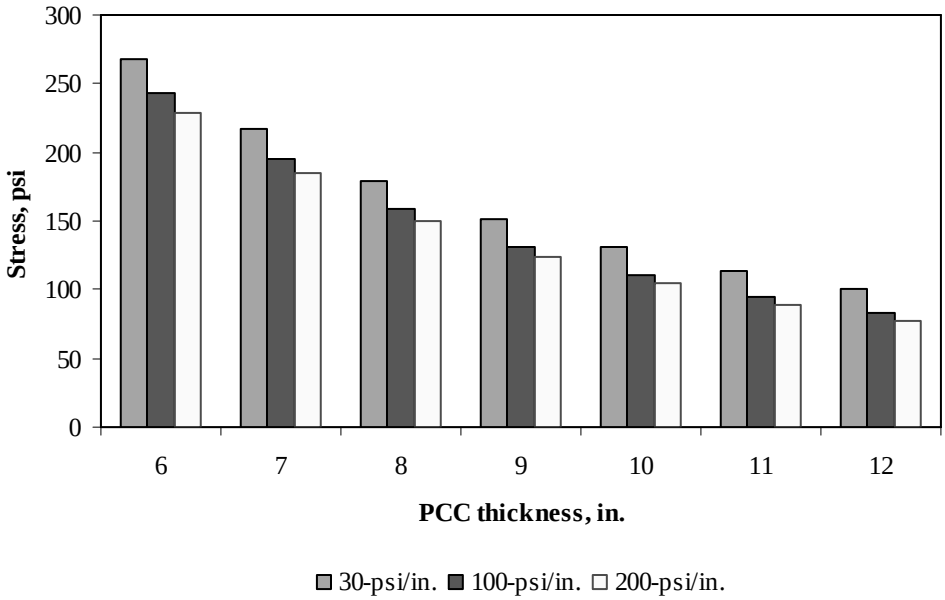


Figure F-12-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

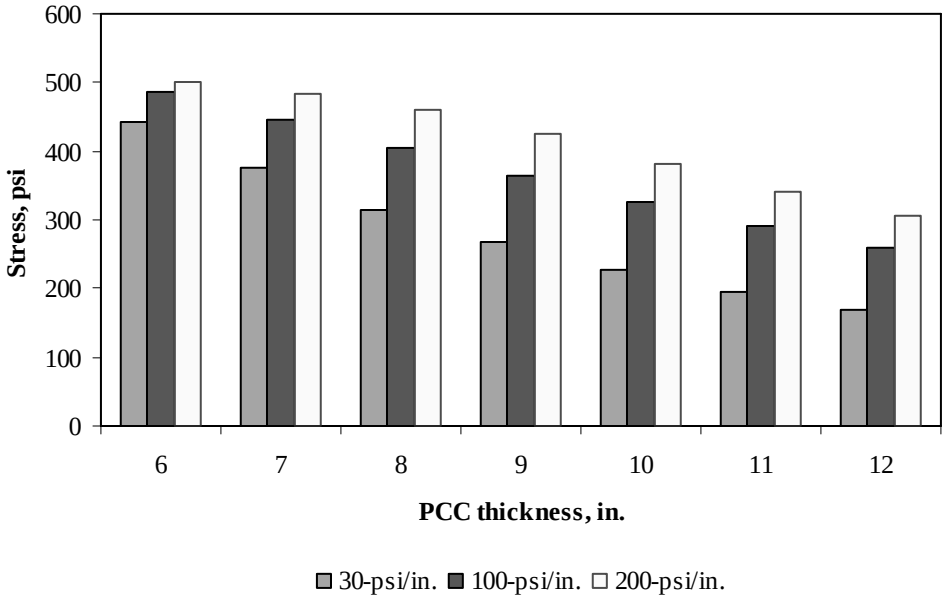


Figure F-12-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

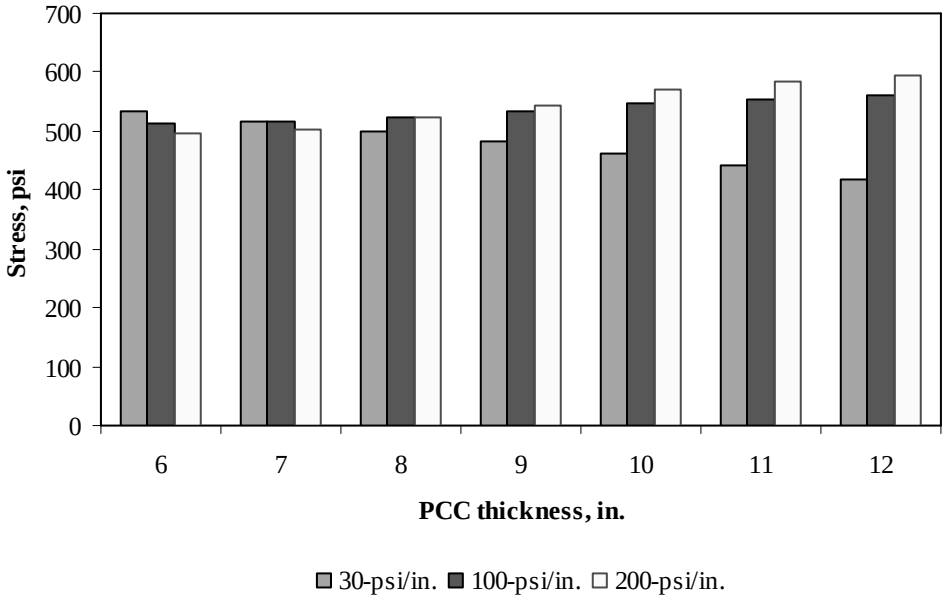


Figure F-12-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

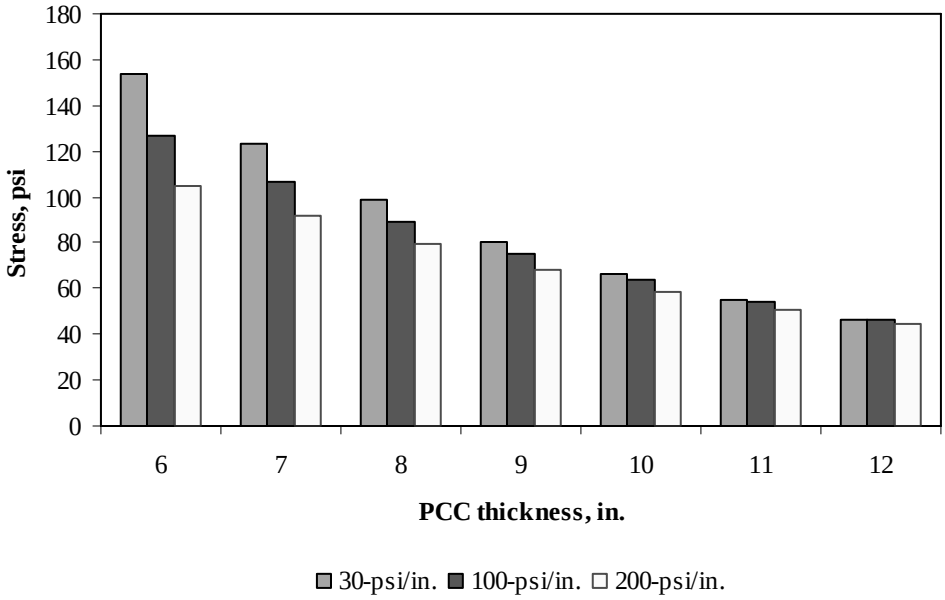


Figure F-12-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

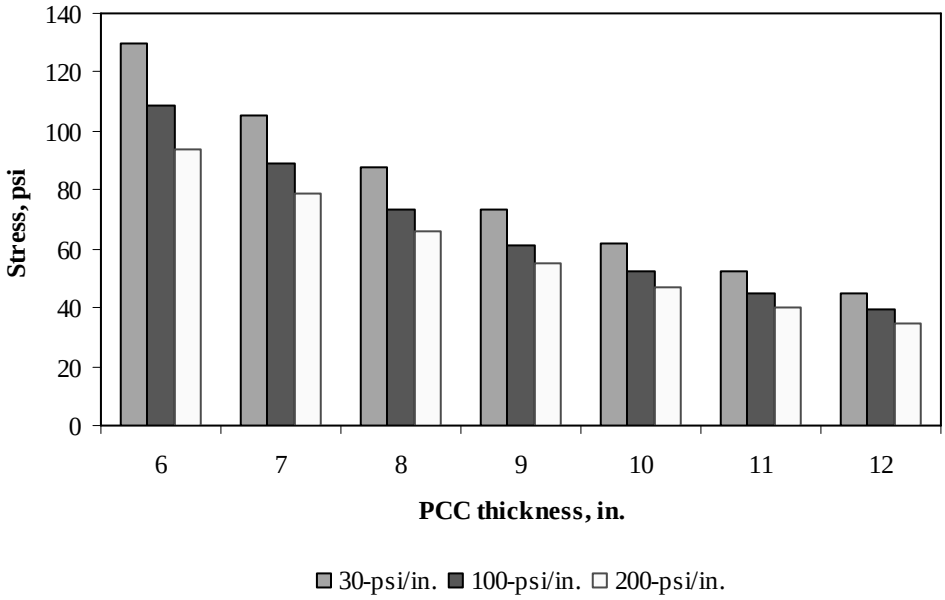


Figure F-12-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

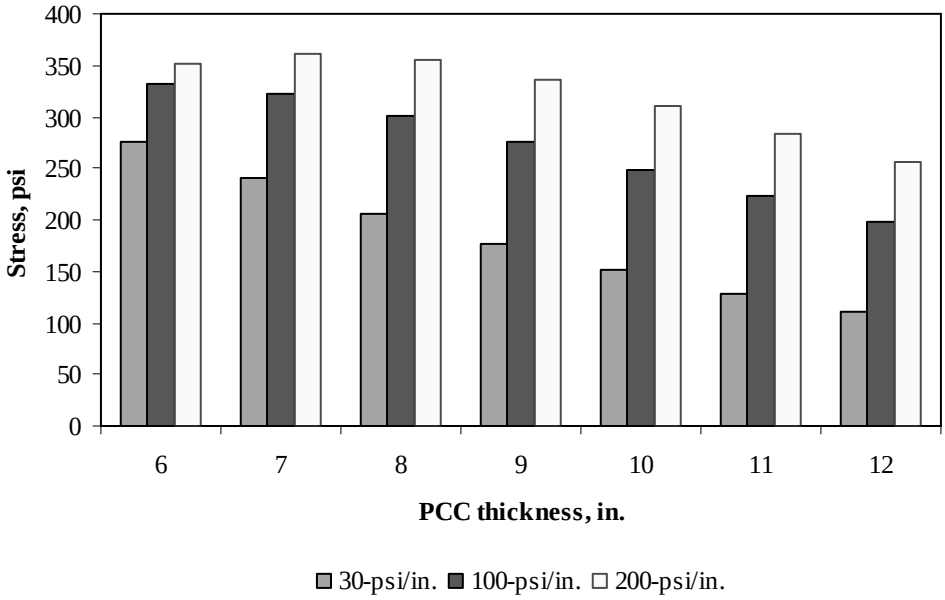


Figure F-12-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

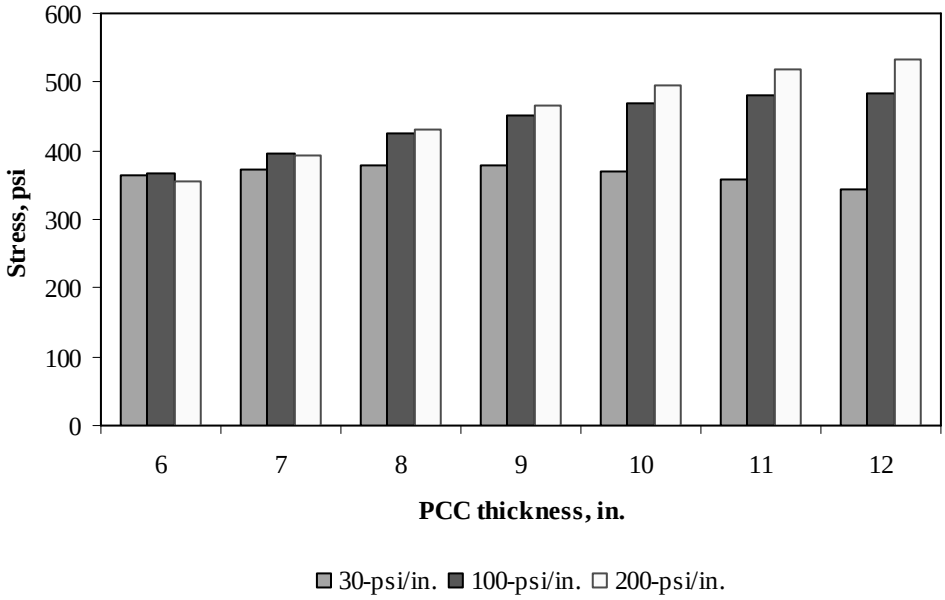


Figure F-12-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

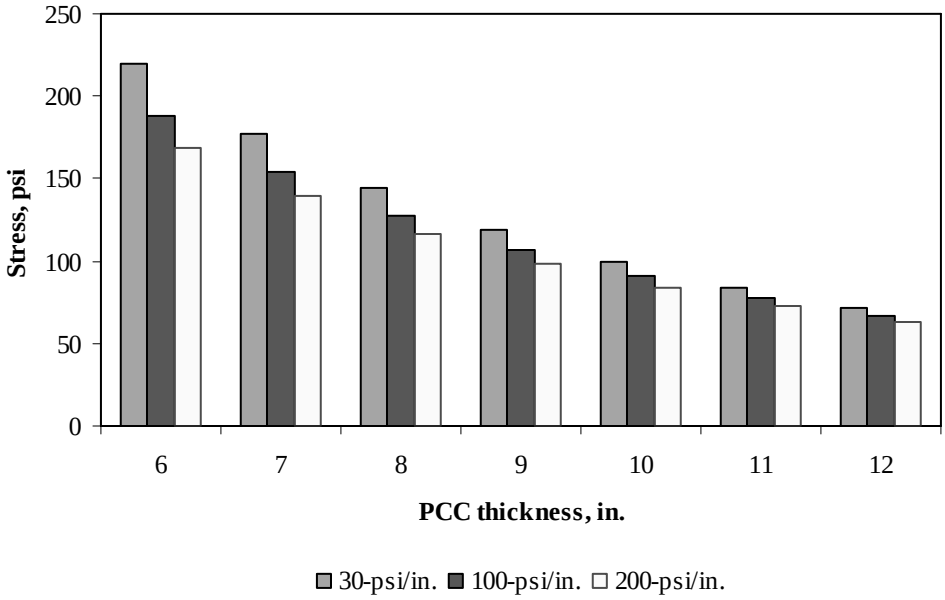


Figure F-12-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

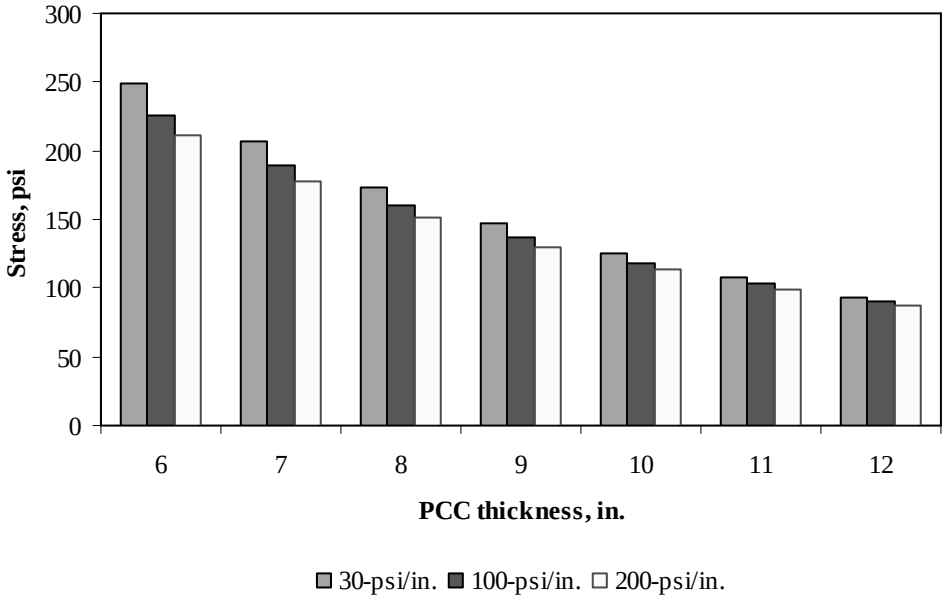


Figure F-12-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

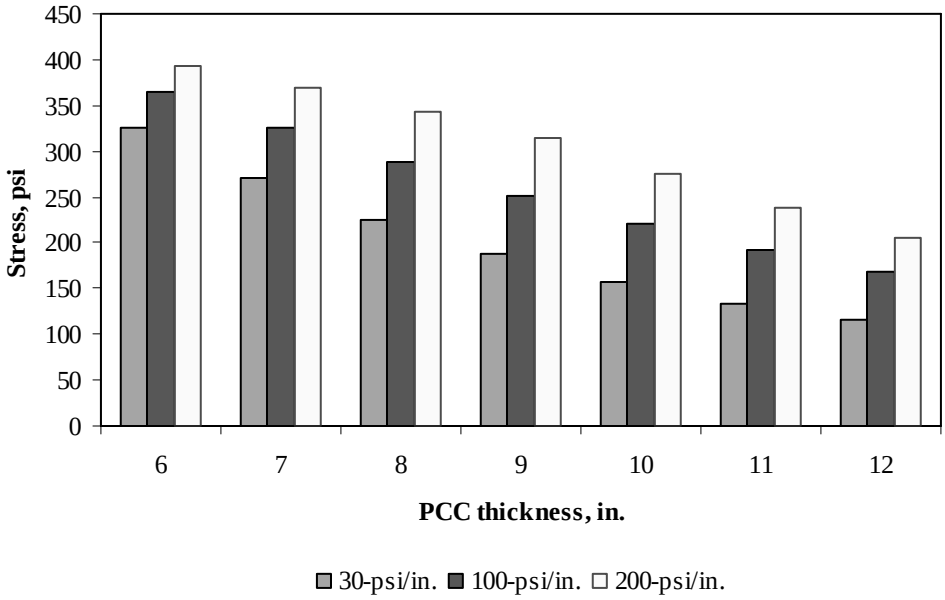


Figure F-12-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

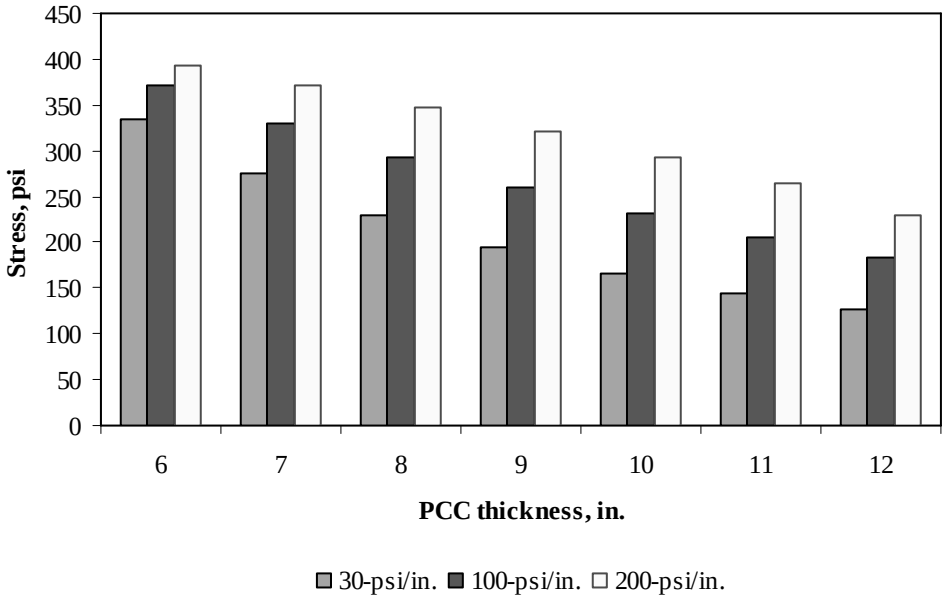


Figure F-12-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-12-25 through F-12-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

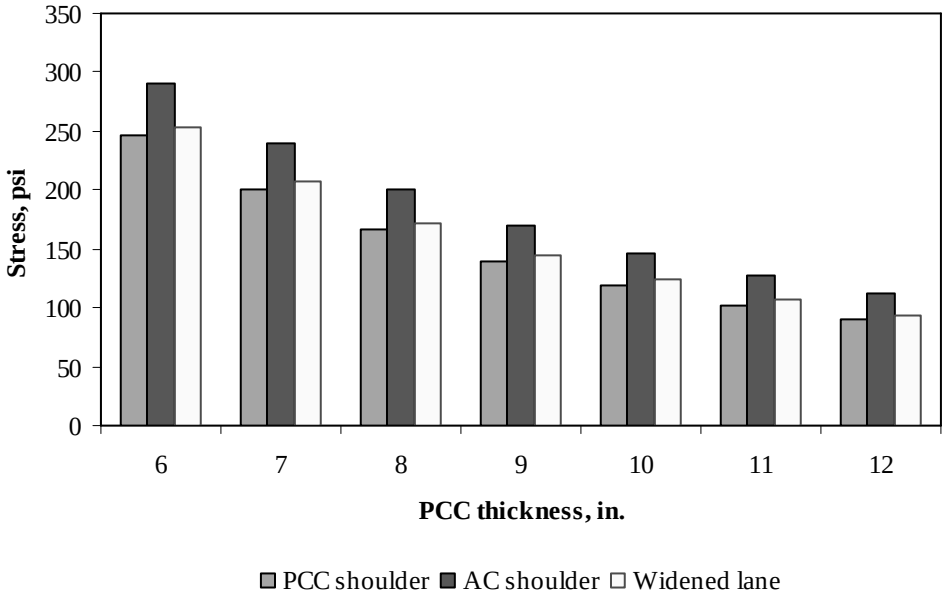


Figure F-12-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

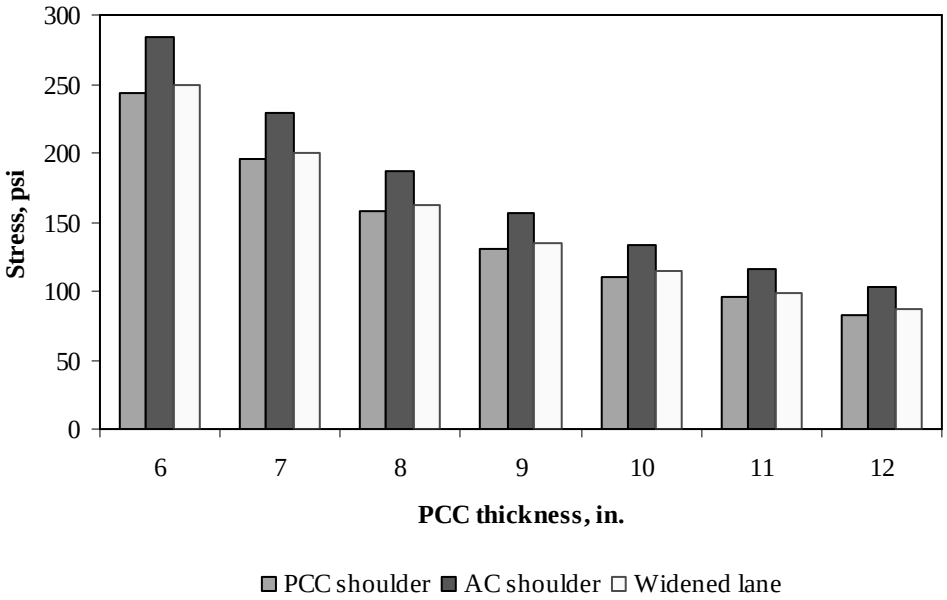


Figure F-12-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

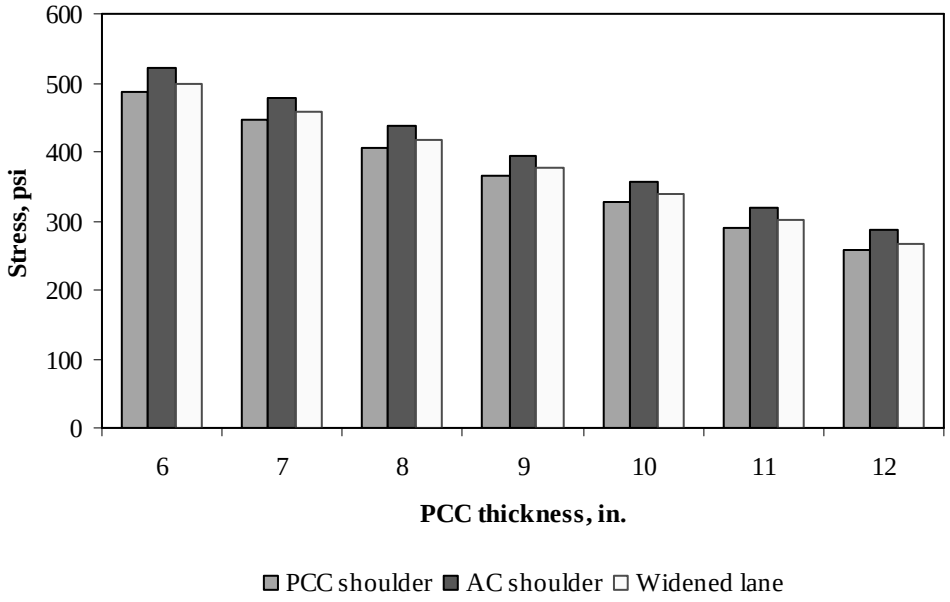


Figure F-12-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

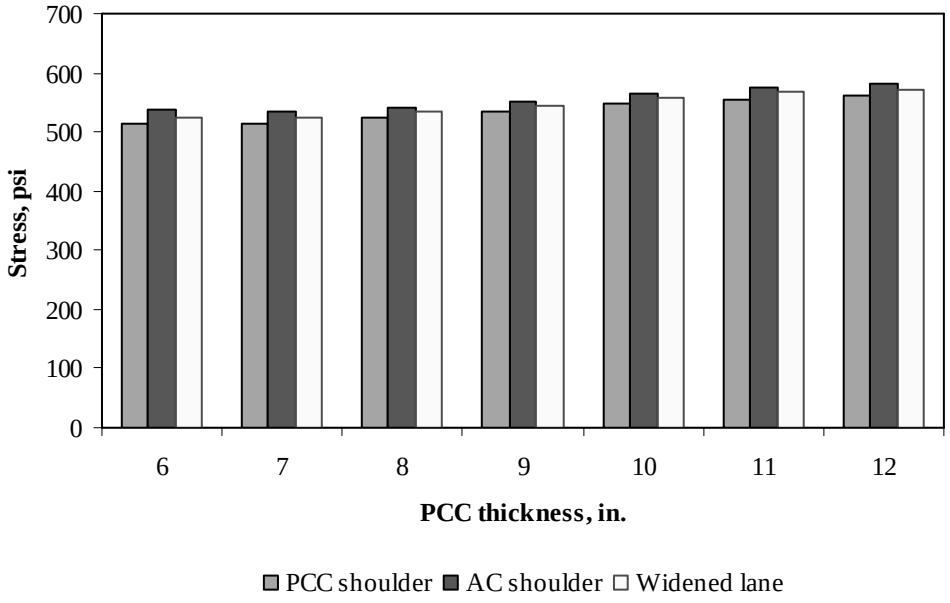


Figure F-12-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

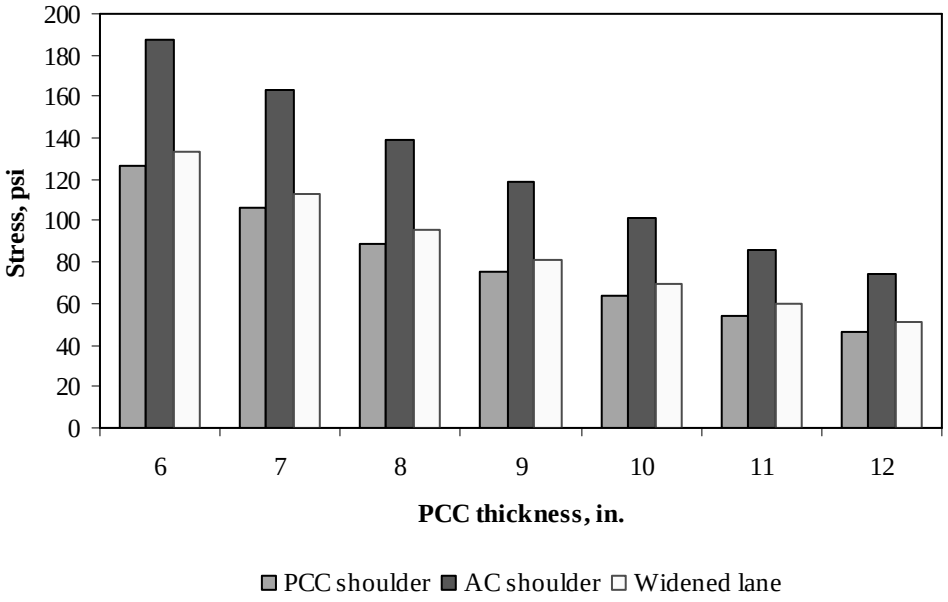


Figure F-12-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

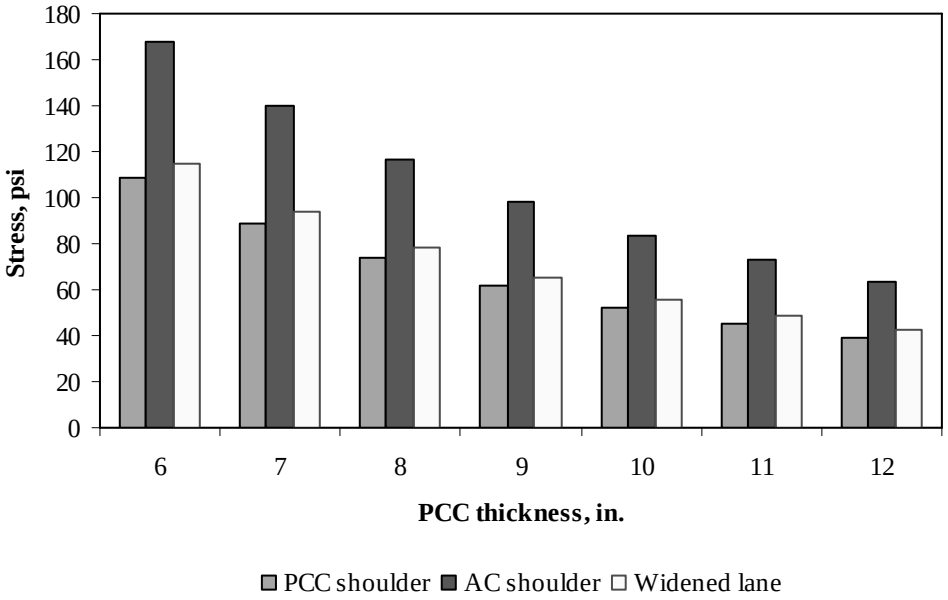


Figure F-12-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

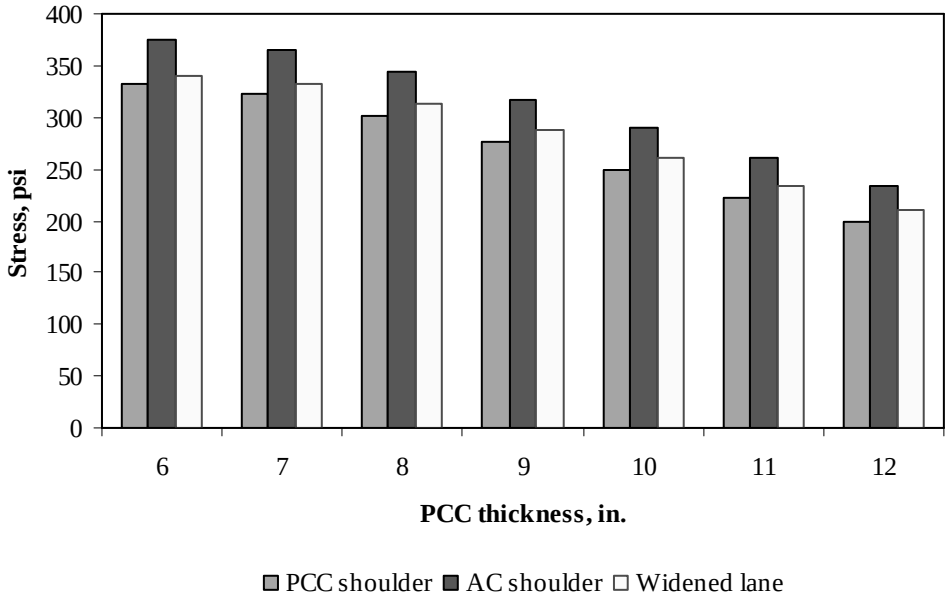


Figure F-12-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

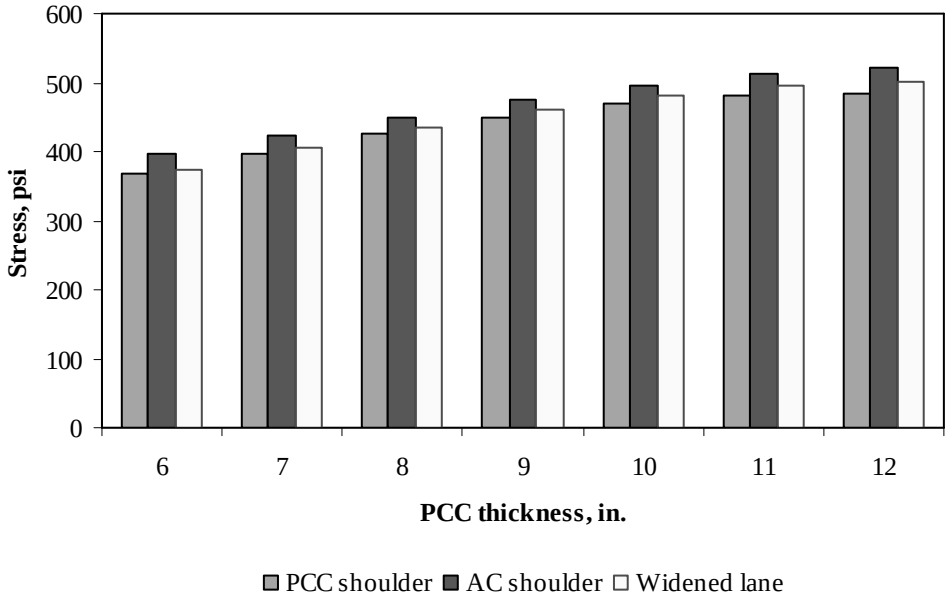


Figure F-12-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

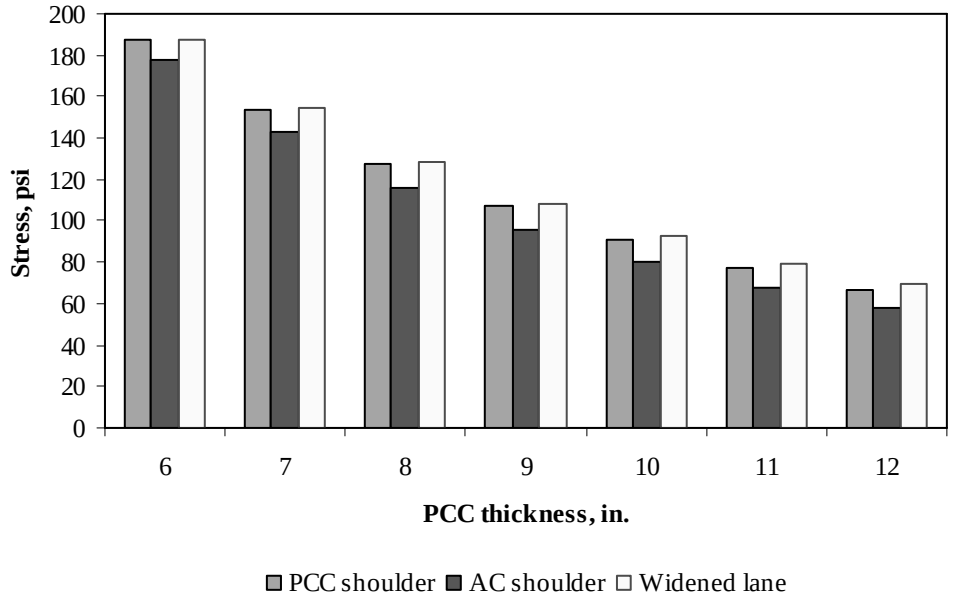


Figure F-12-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

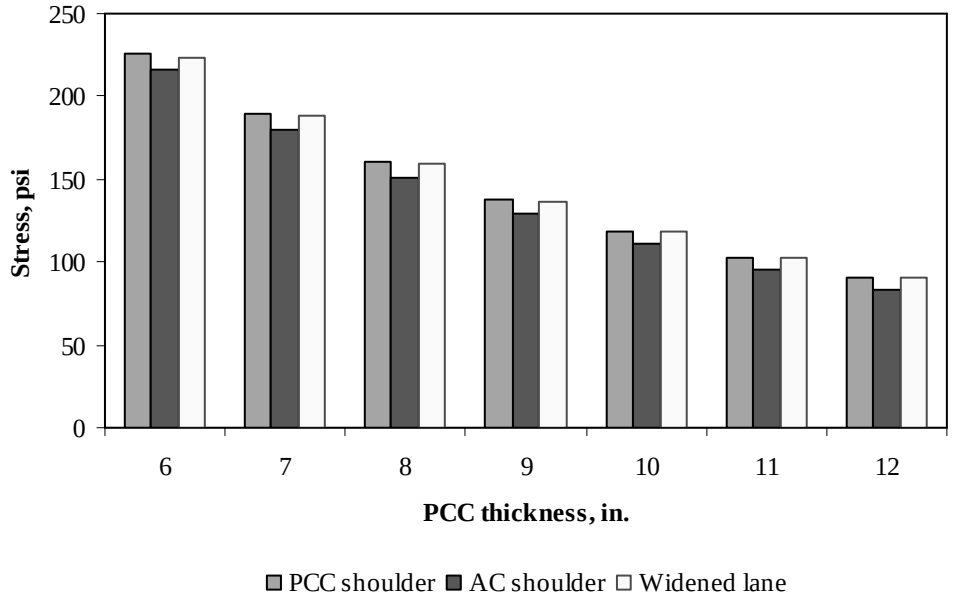


Figure F-12-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

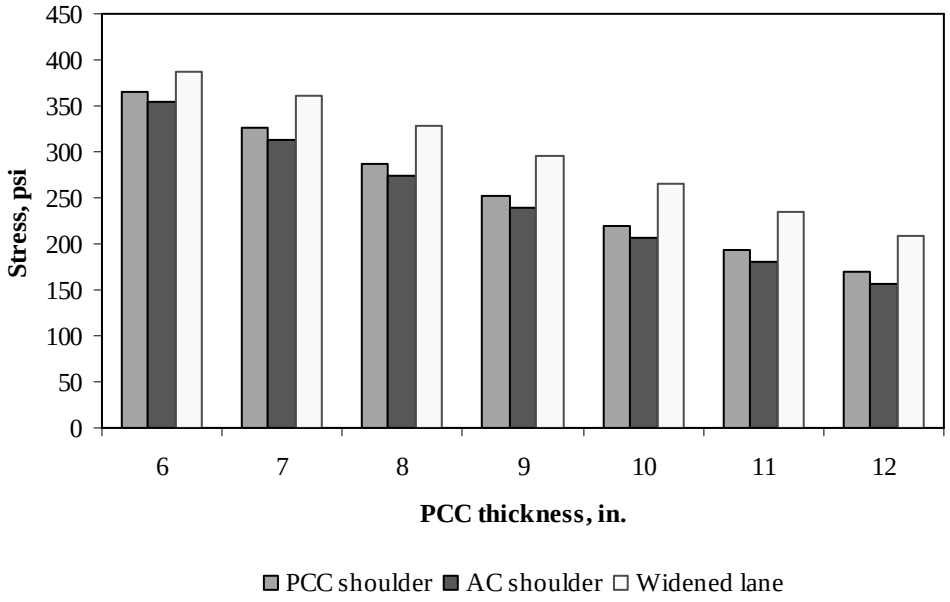


Figure F-12-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

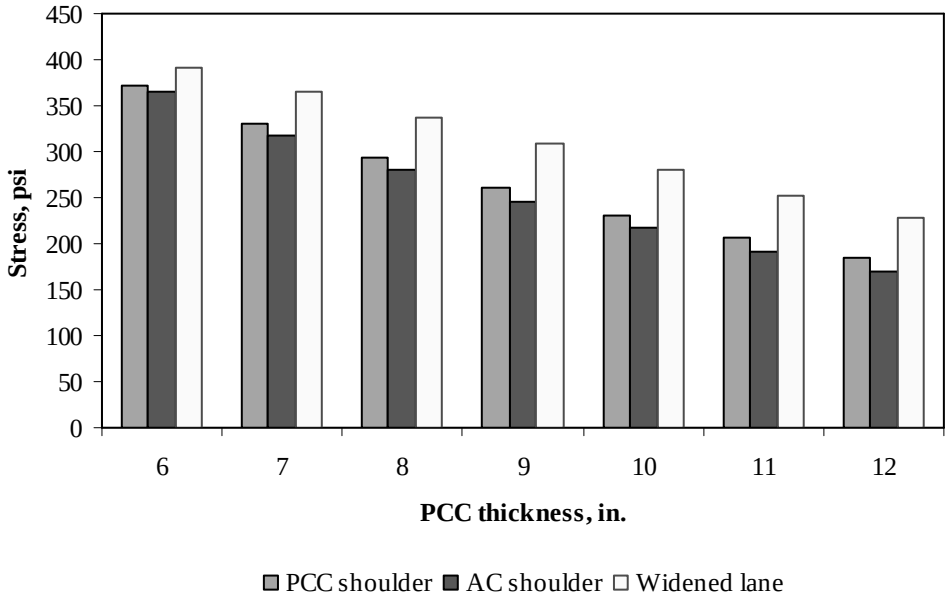


Figure F-12-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-12-37 through F-12-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

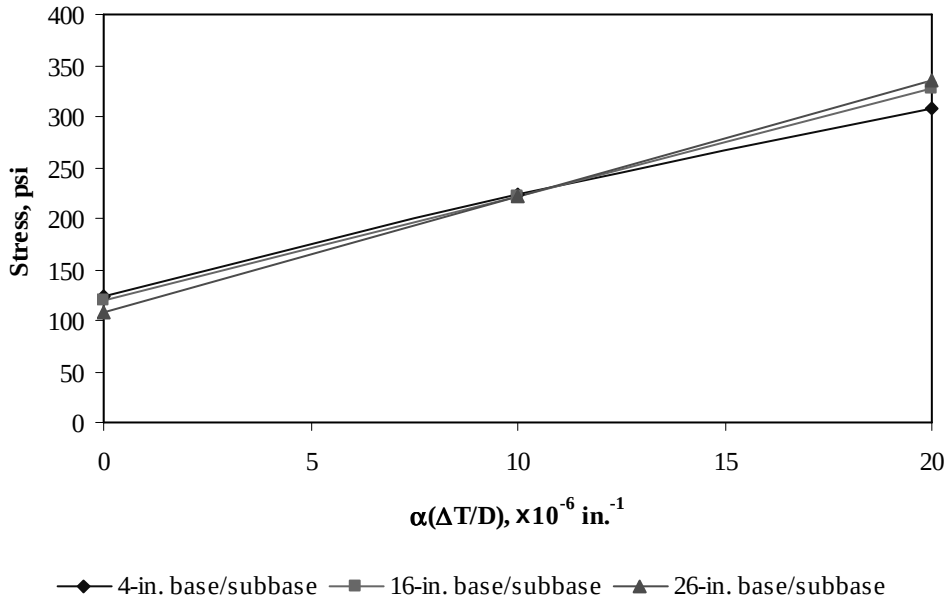


Figure F-12-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

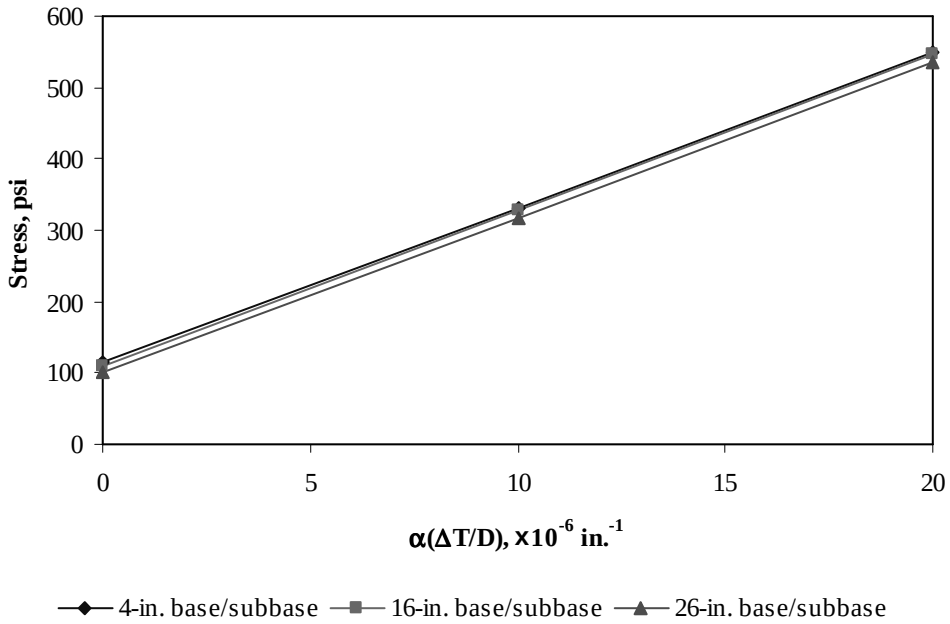


Figure F-12-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

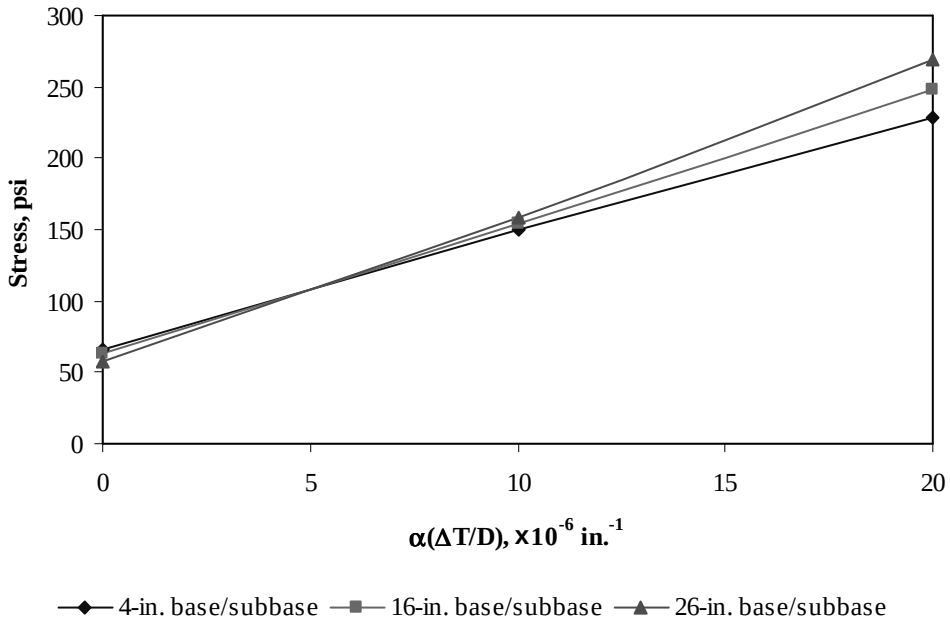


Figure F-12-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

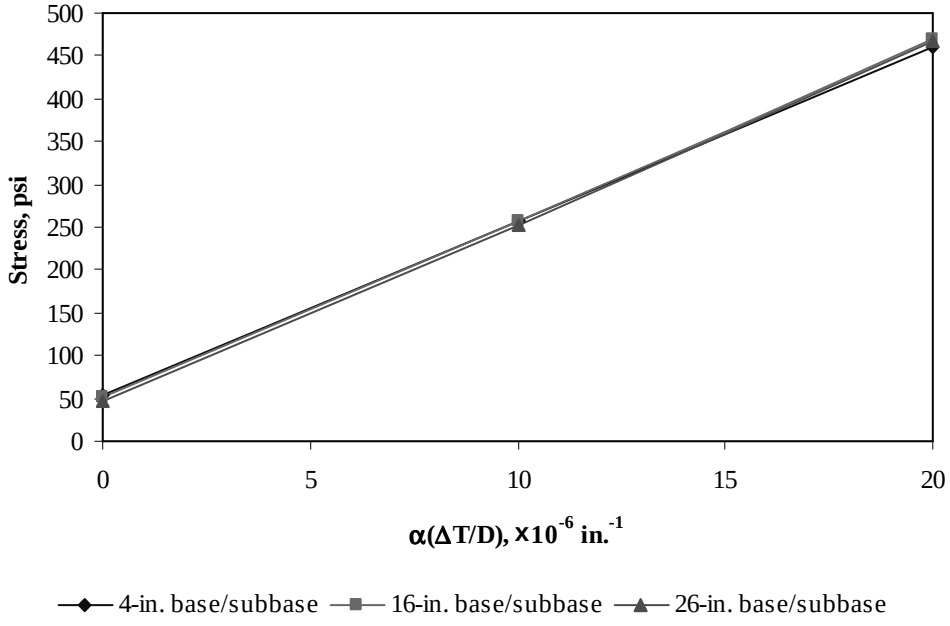


Figure F-12-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

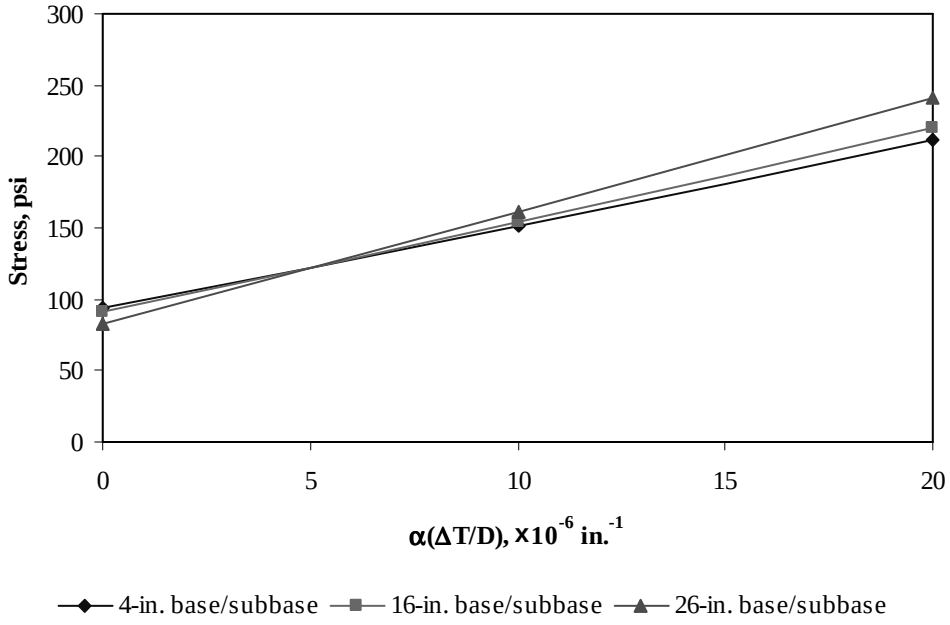


Figure F-12-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

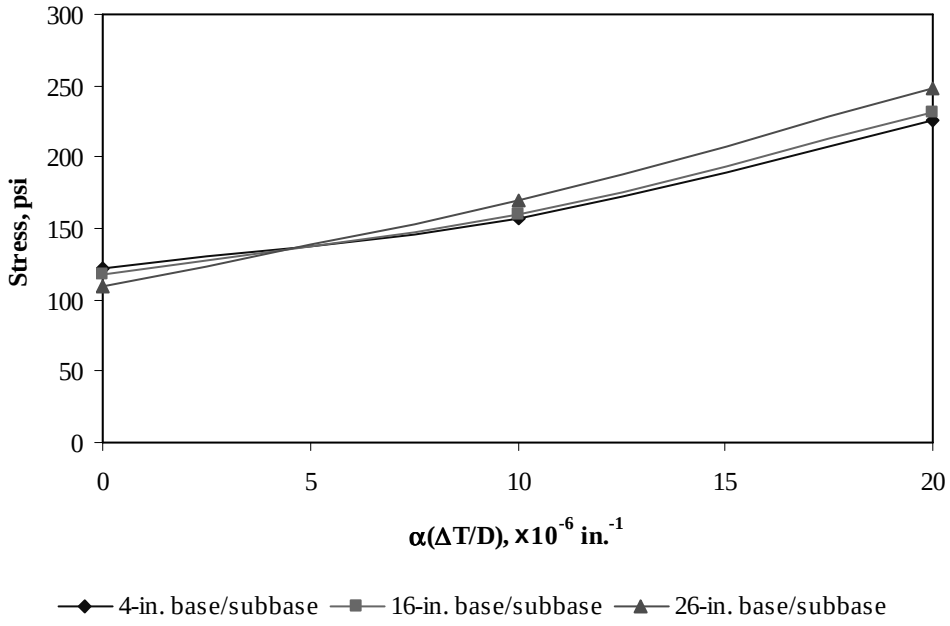


Figure F-12-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-12-43 through F-12-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

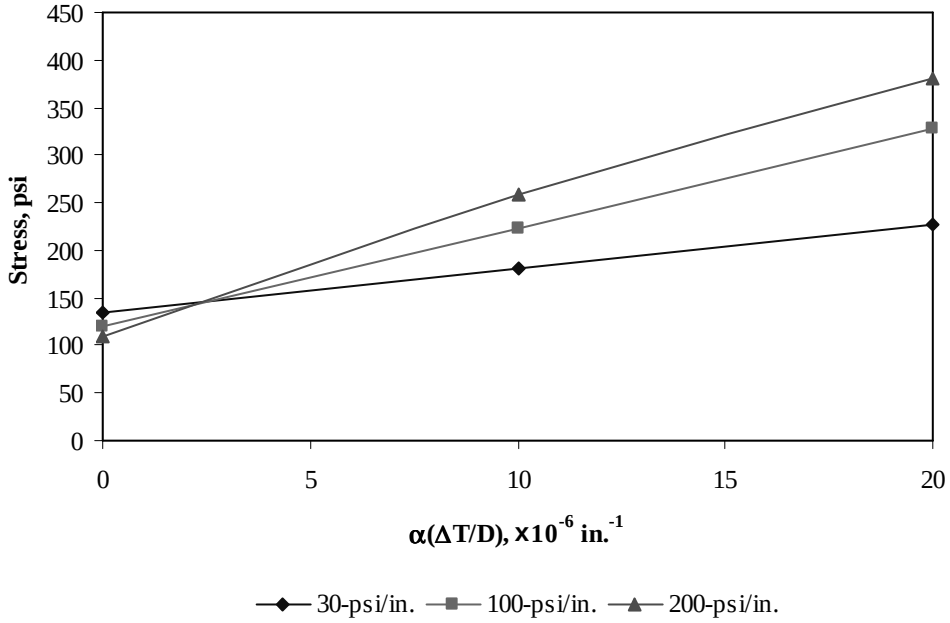


Figure F-12-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

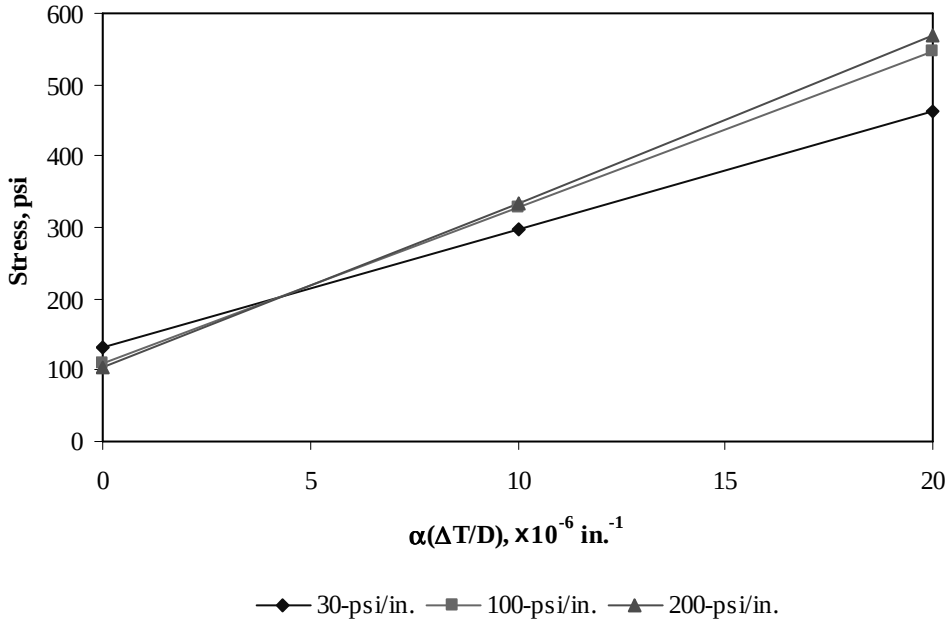


Figure F-12-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

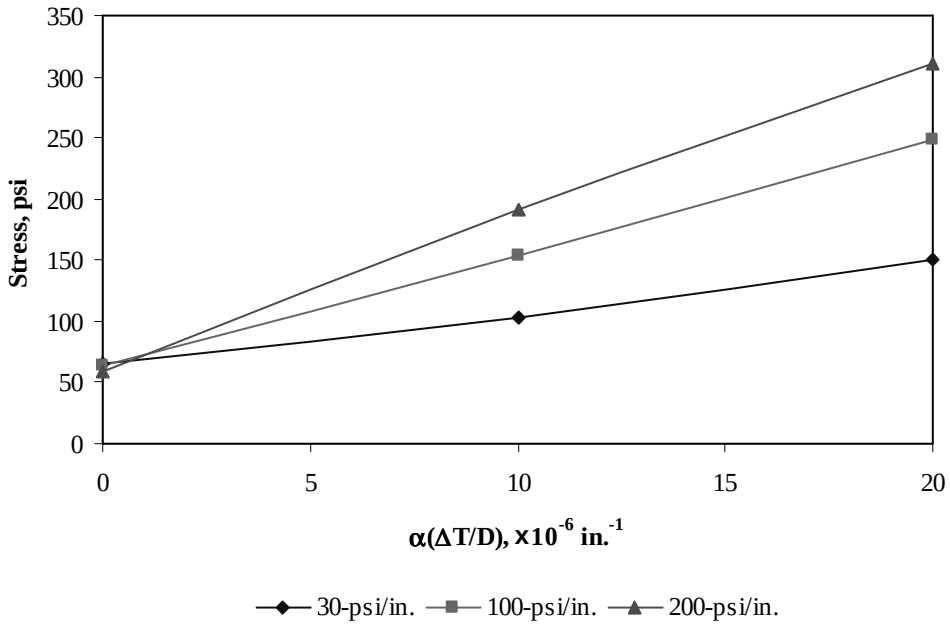


Figure F-12-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

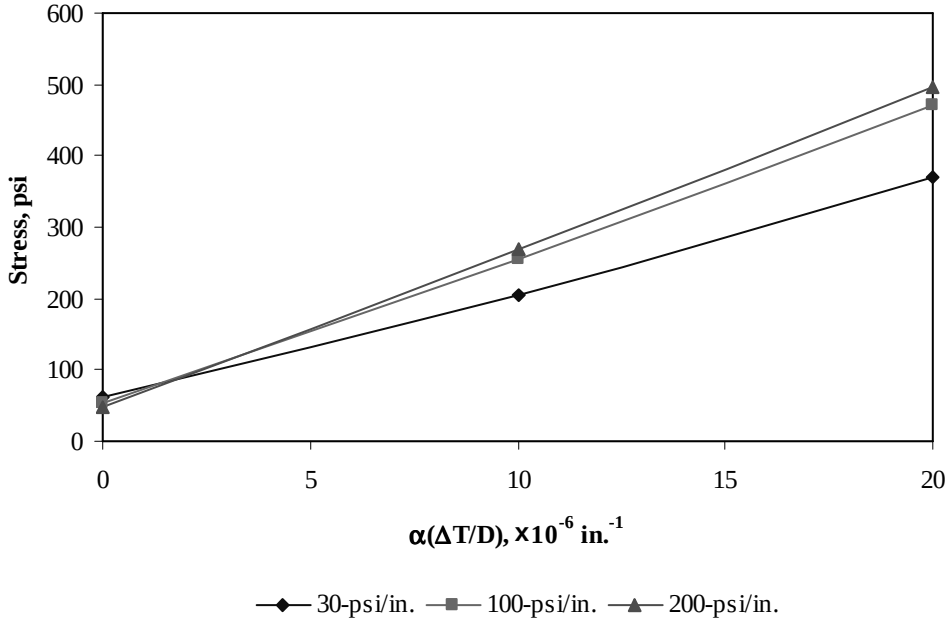


Figure F-12-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

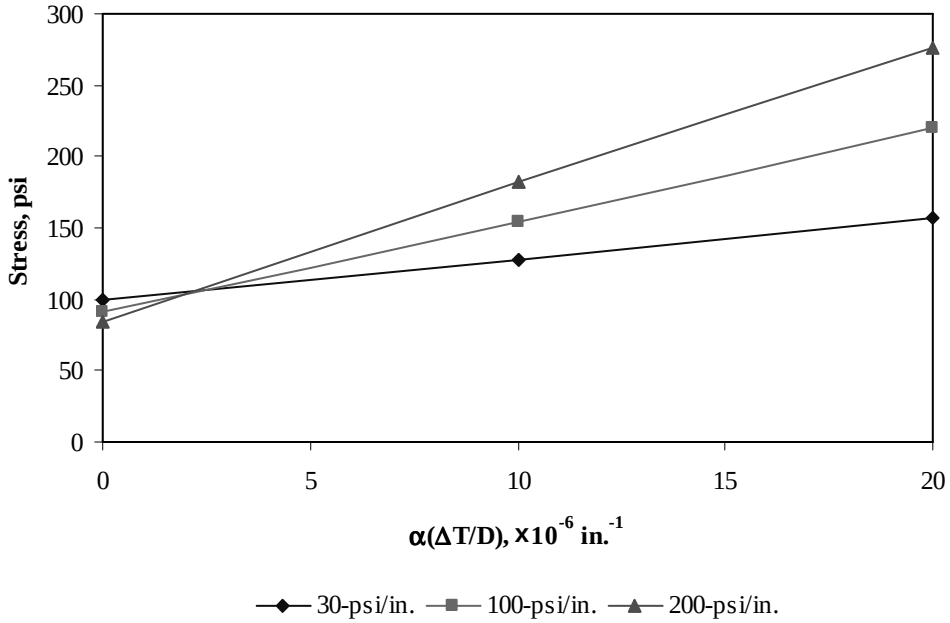


Figure F-12-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

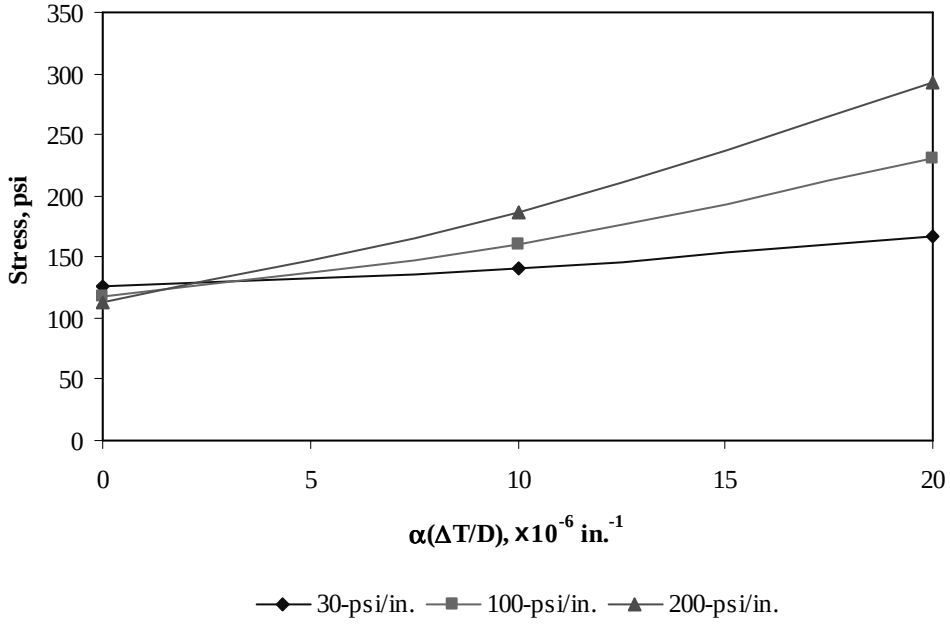


Figure F-12-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-12-49 through F-12-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

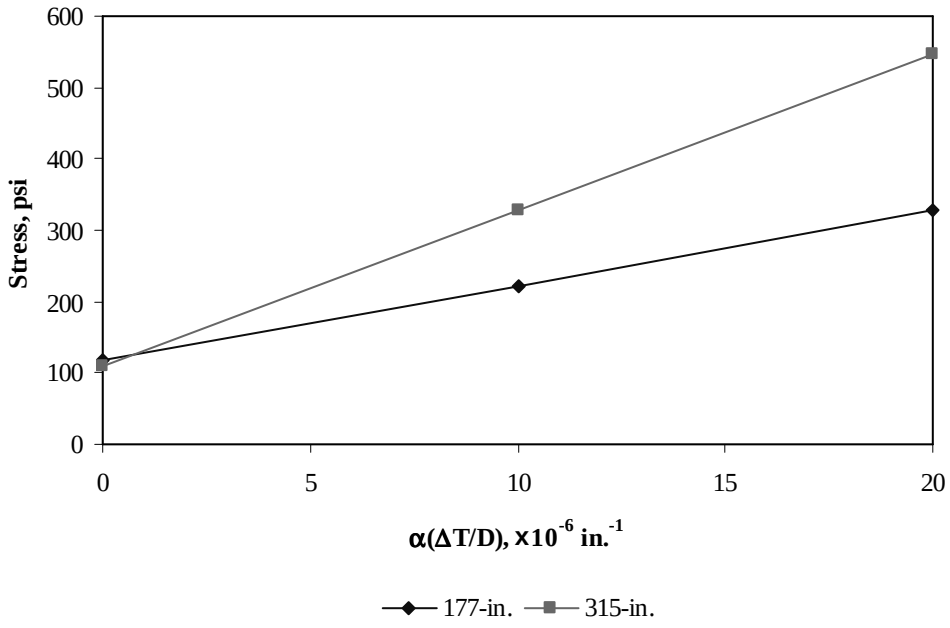


Figure F-12-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

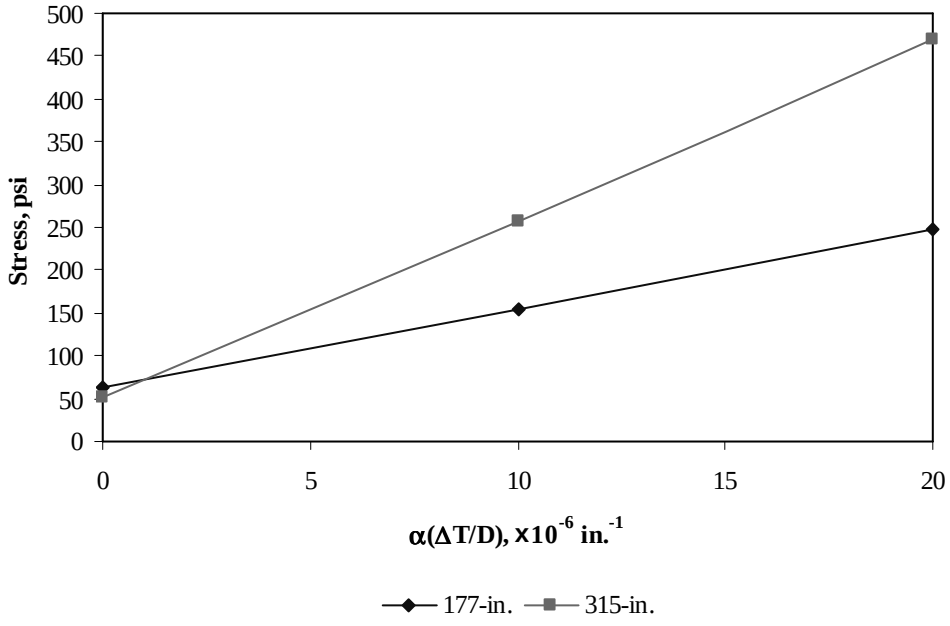


Figure F-12-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

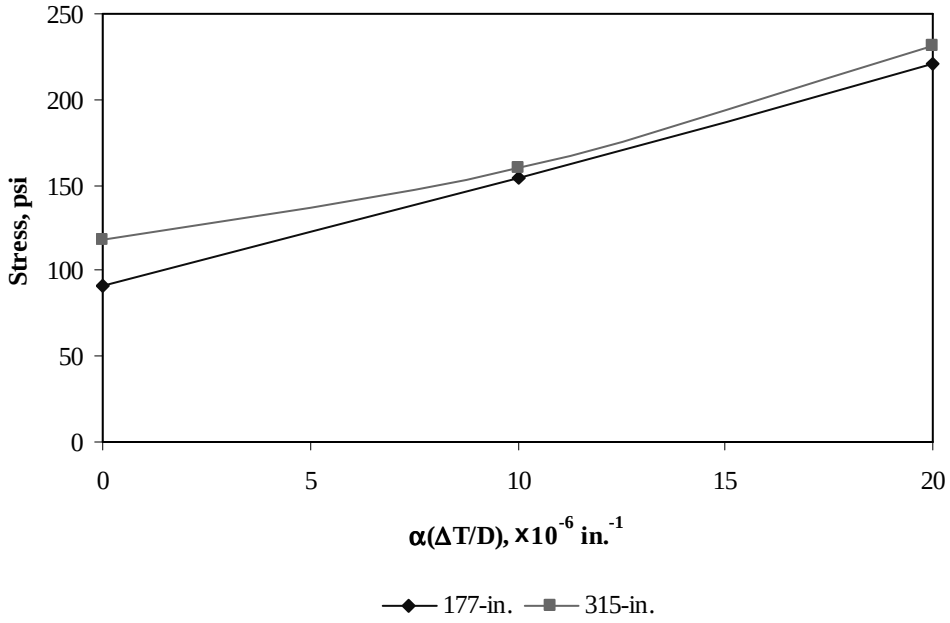
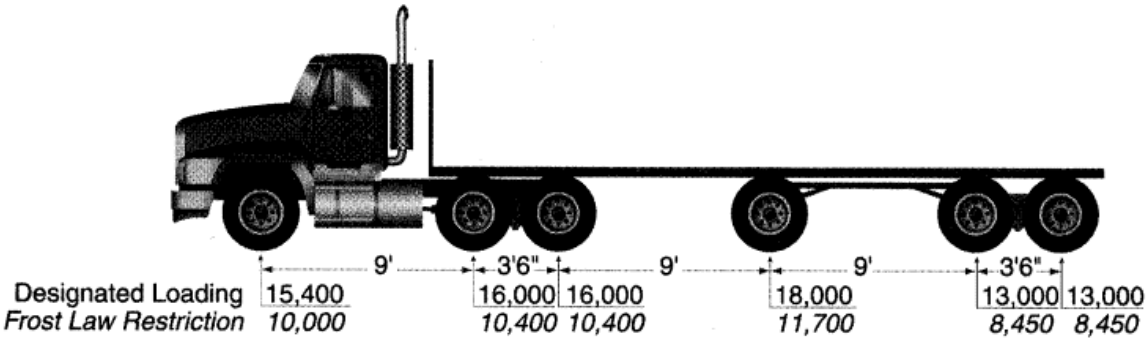


Figure F-12-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-13

Documentation of Pavement Responses for



MI-11

Figures F-13-1 through F-13-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

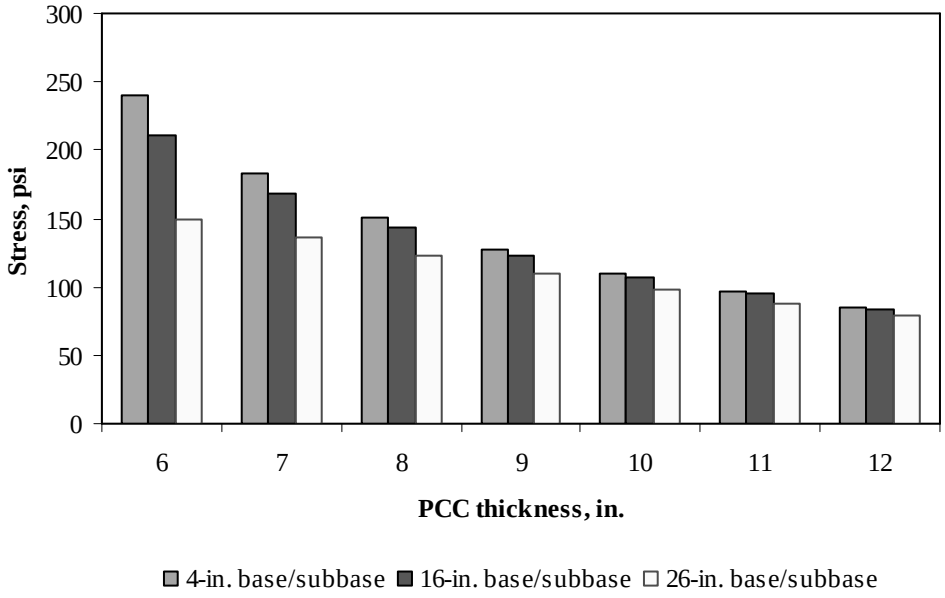


Figure F-13-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

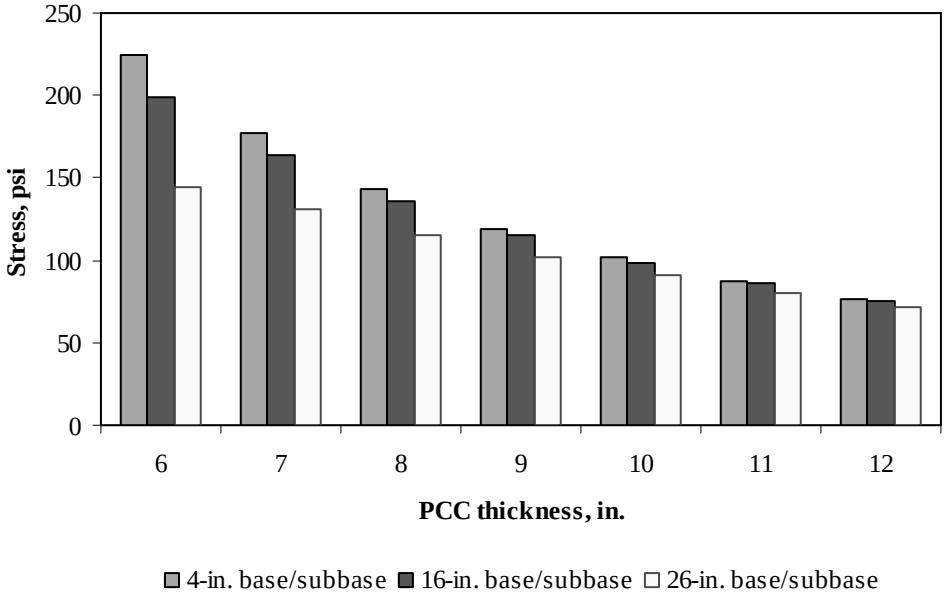


Figure F-13-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

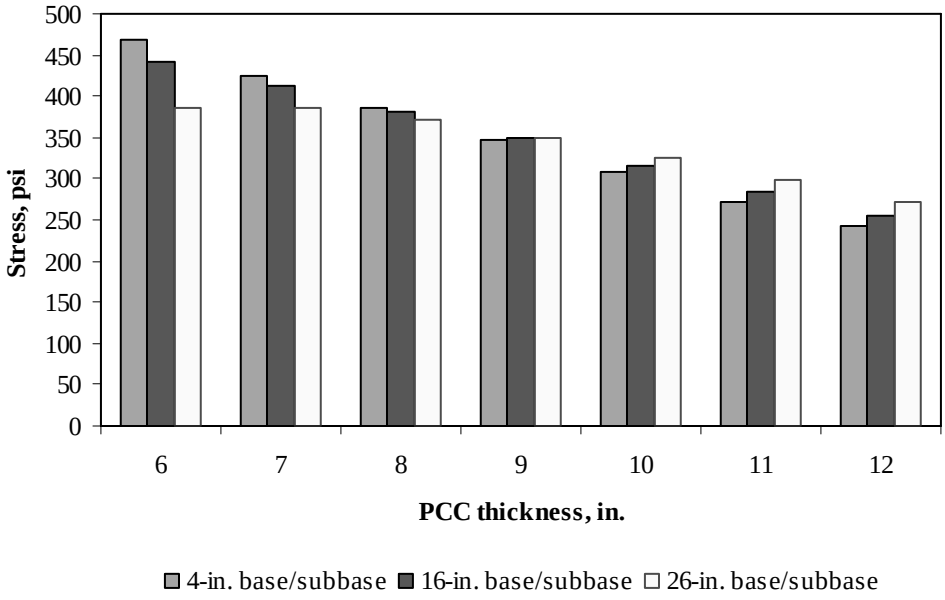


Figure F-13-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

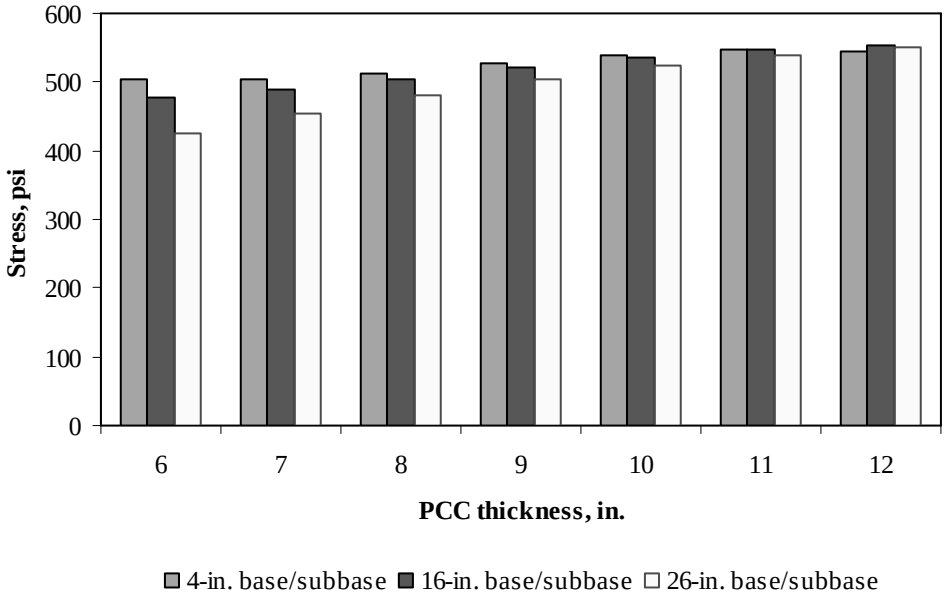


Figure F-13-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

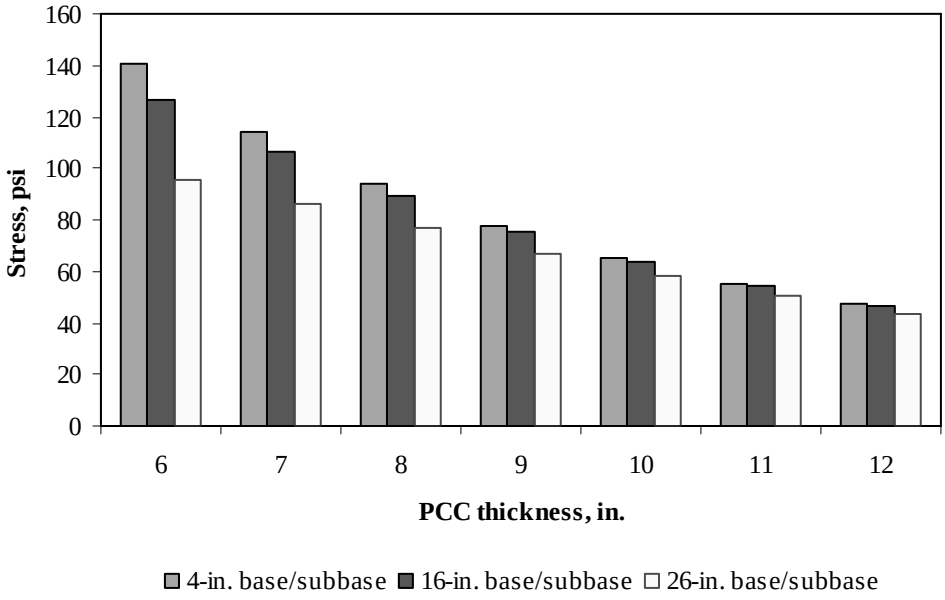


Figure F-13-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

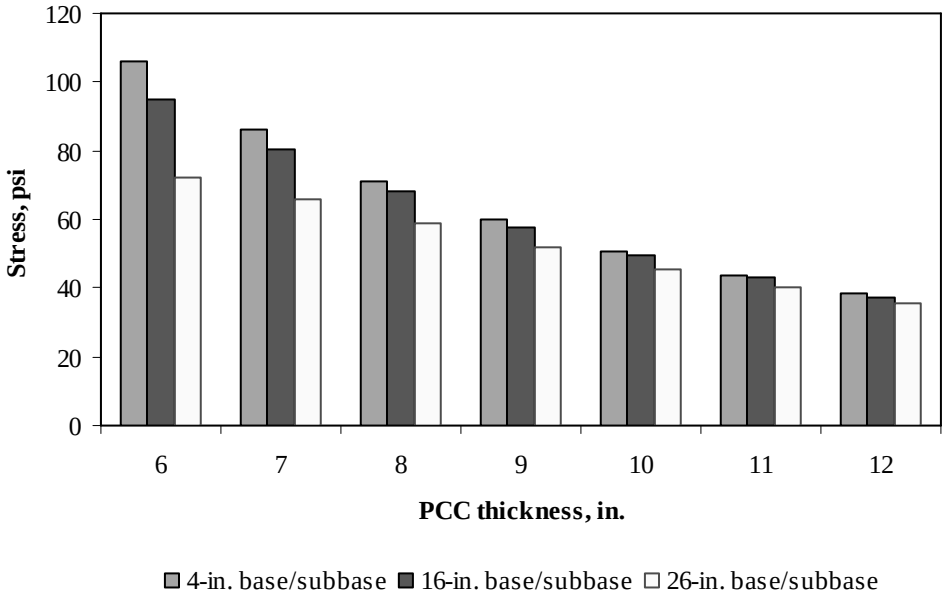


Figure F-13-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

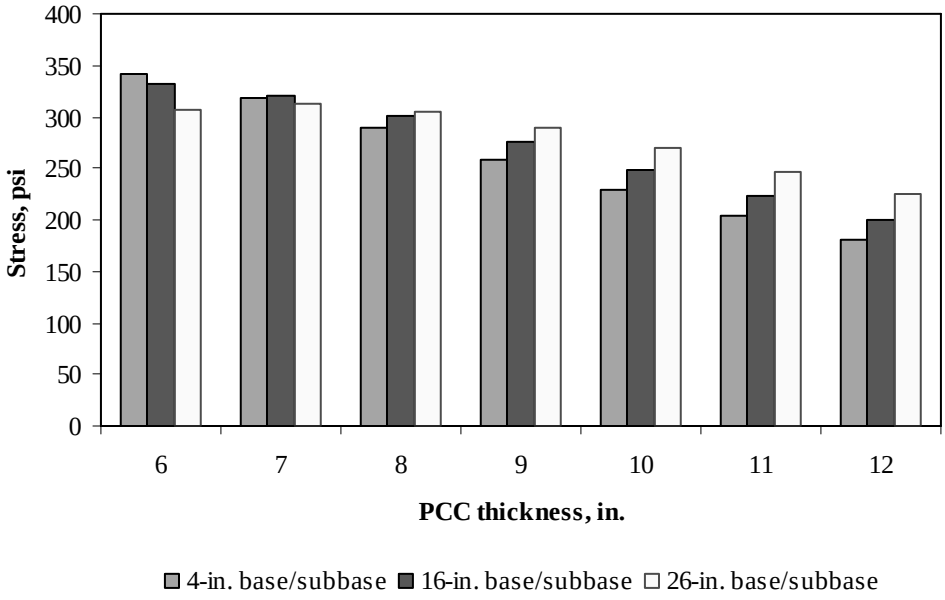


Figure F-13-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

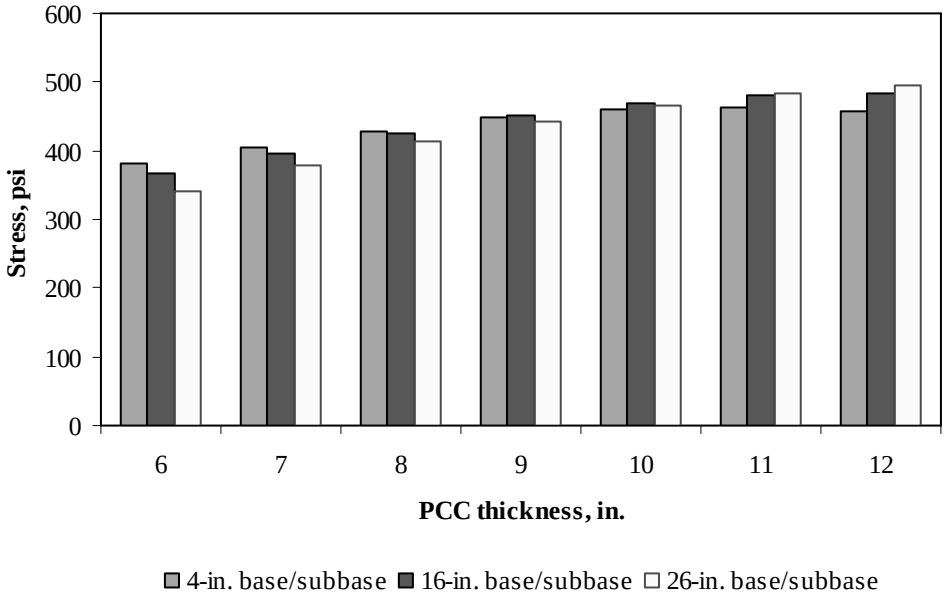


Figure F-13-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

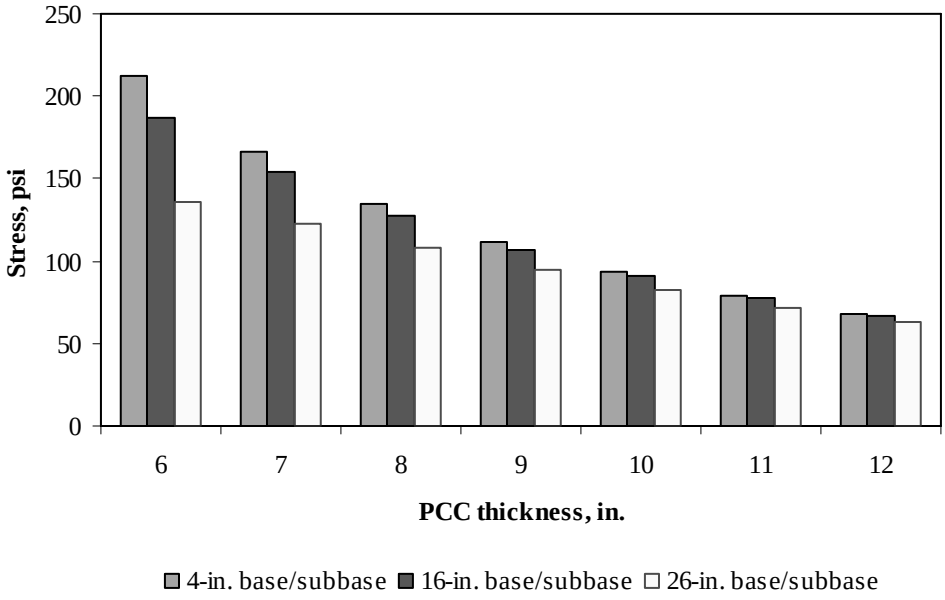


Figure F-13-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

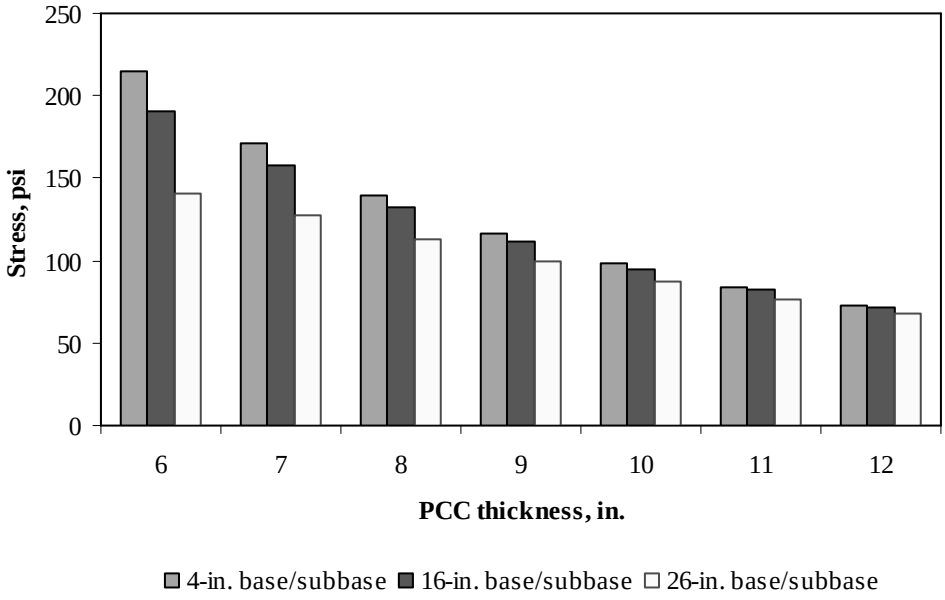


Figure F-13-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

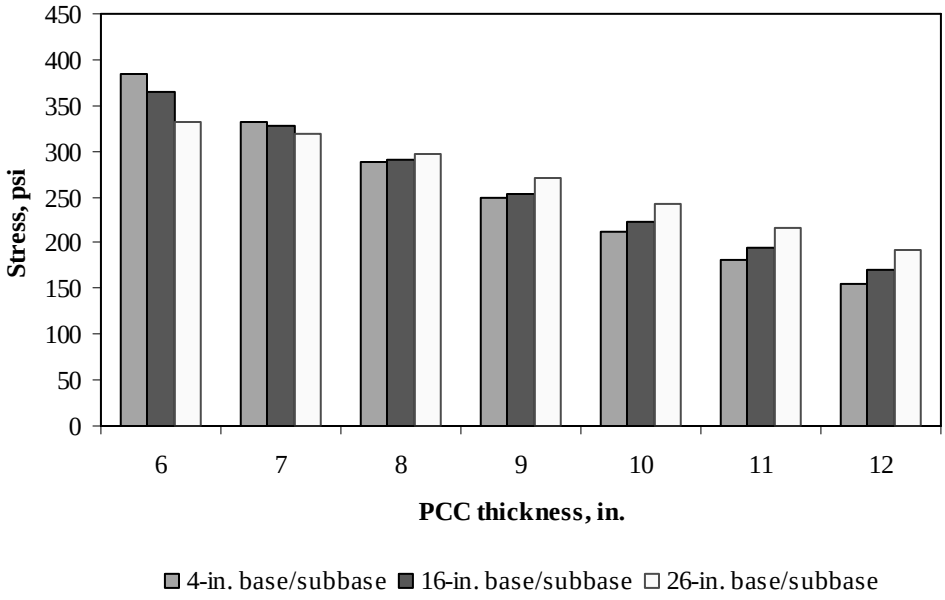


Figure F-13-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

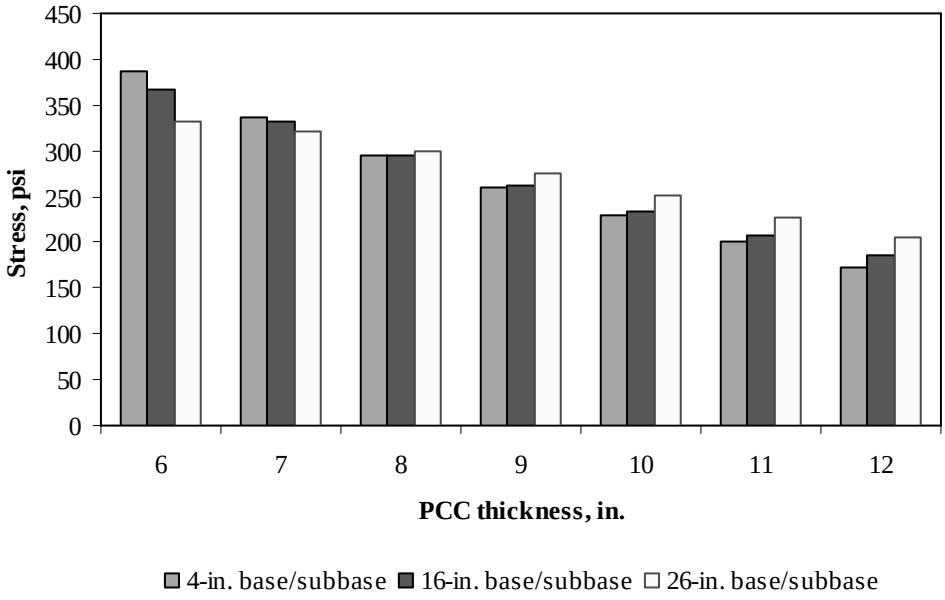


Figure F-13-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-13-13 through F-13-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

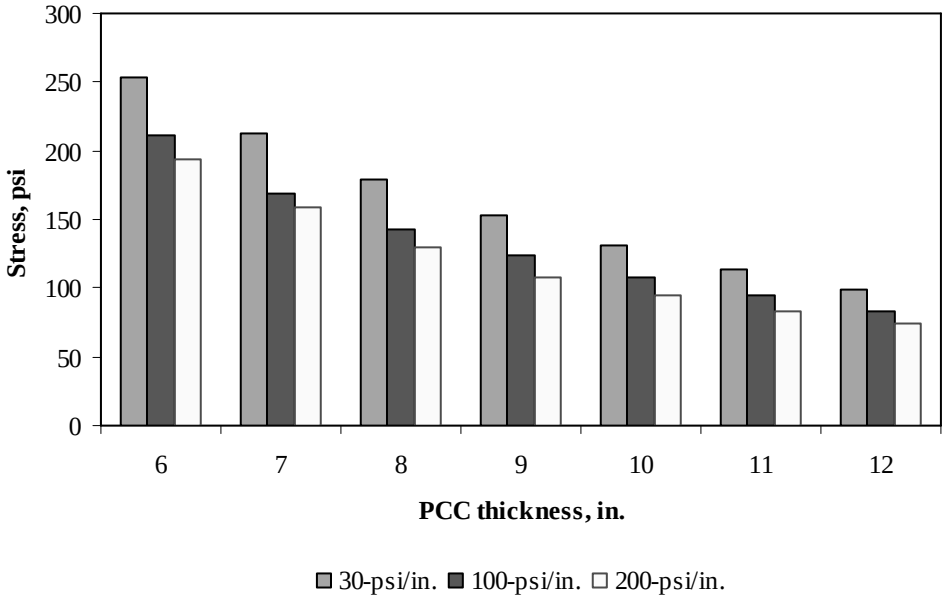


Figure F-13-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

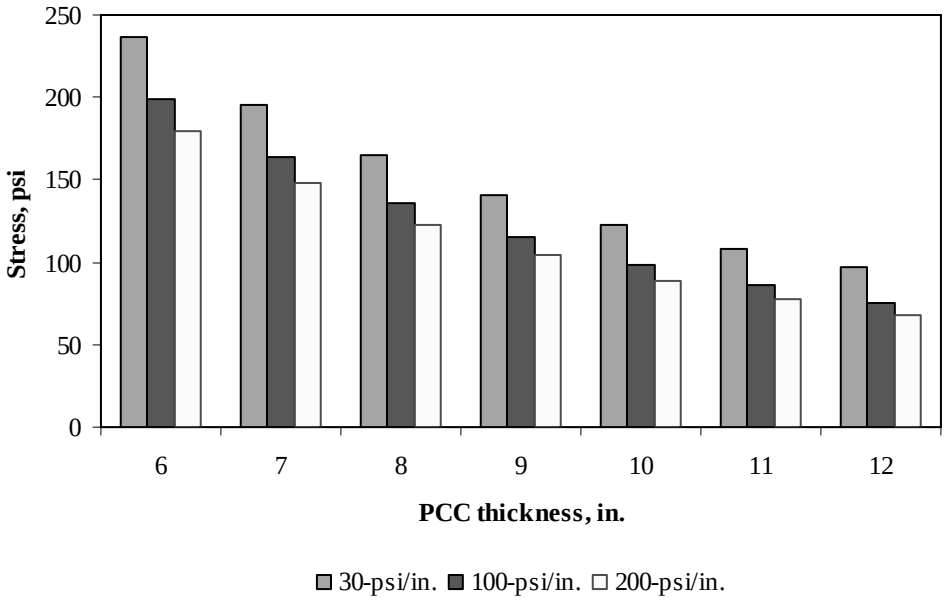


Figure F-13-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

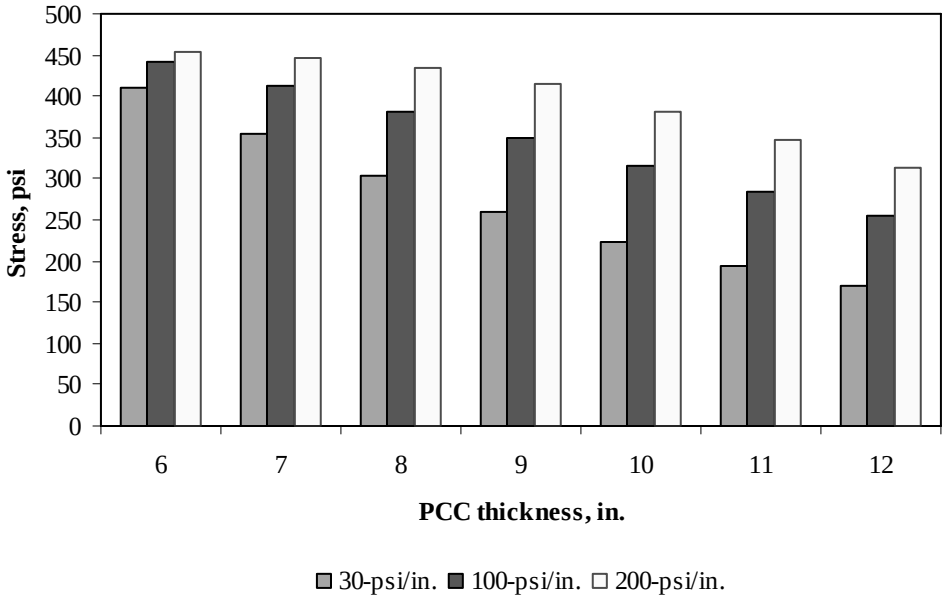


Figure F-13-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

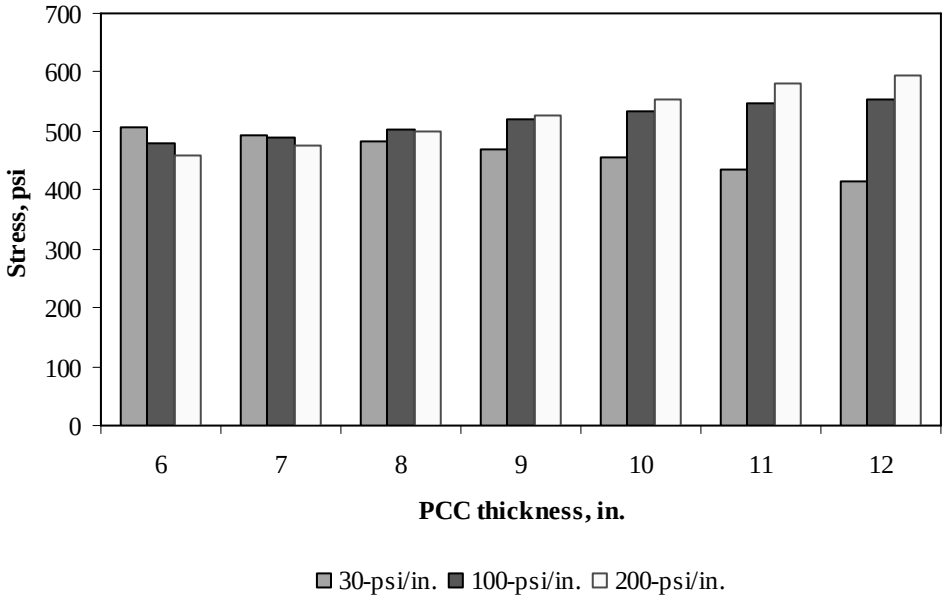


Figure F-13-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

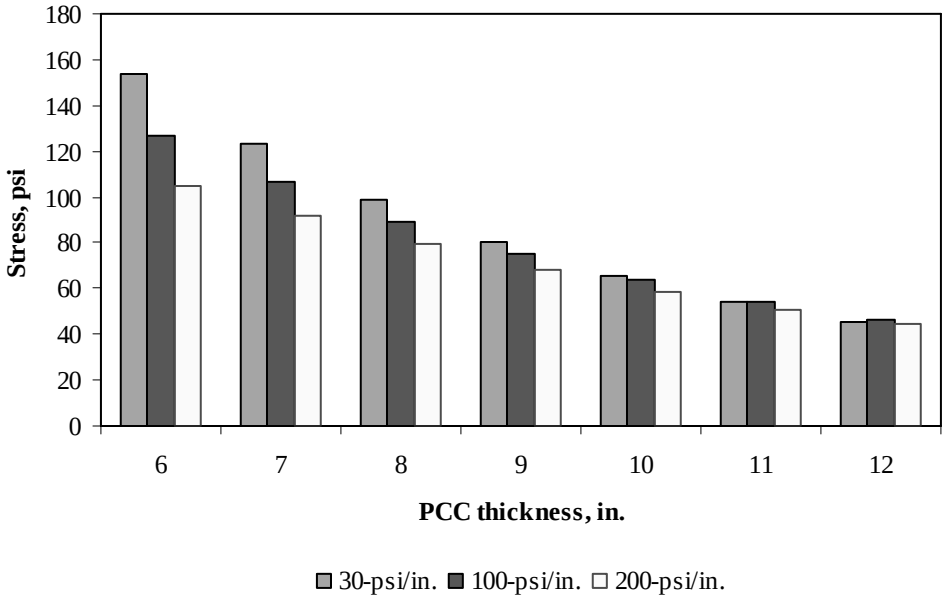


Figure F-13-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

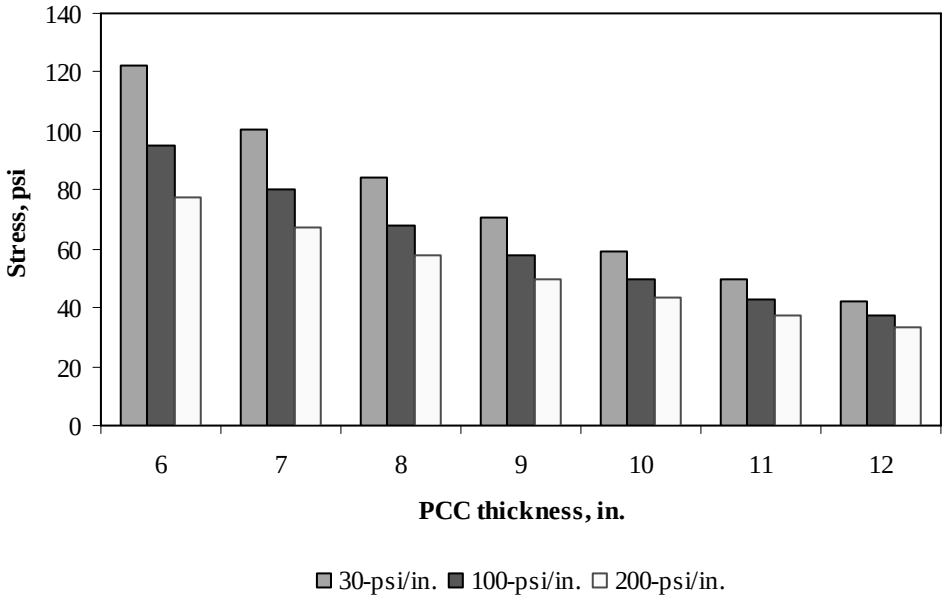


Figure F-13-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

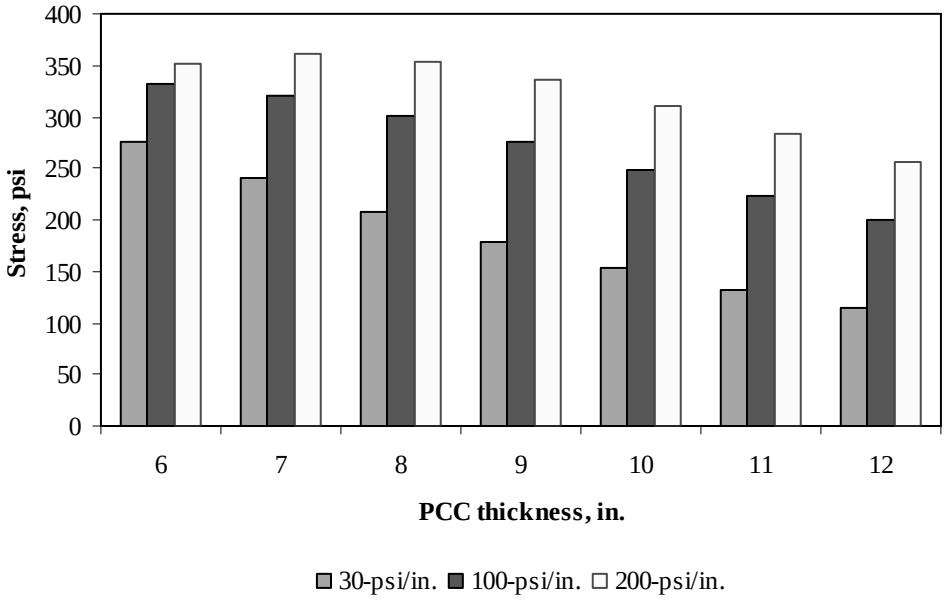


Figure F-13-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

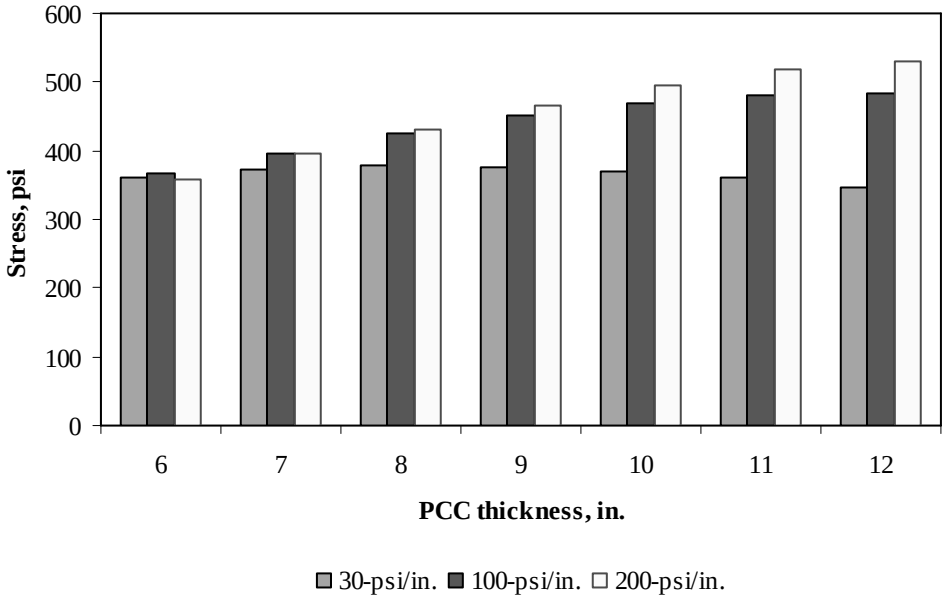


Figure F-13-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

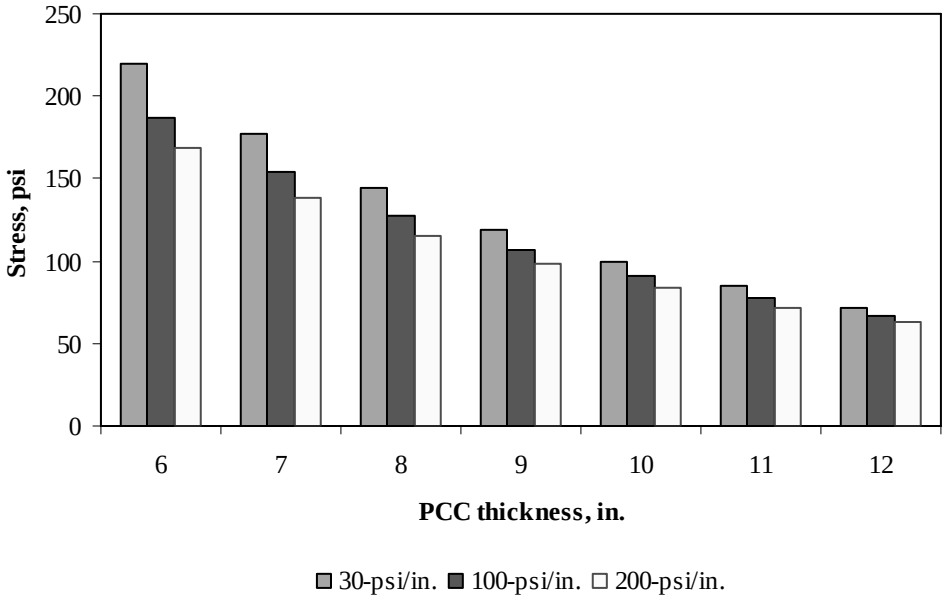


Figure F-13-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

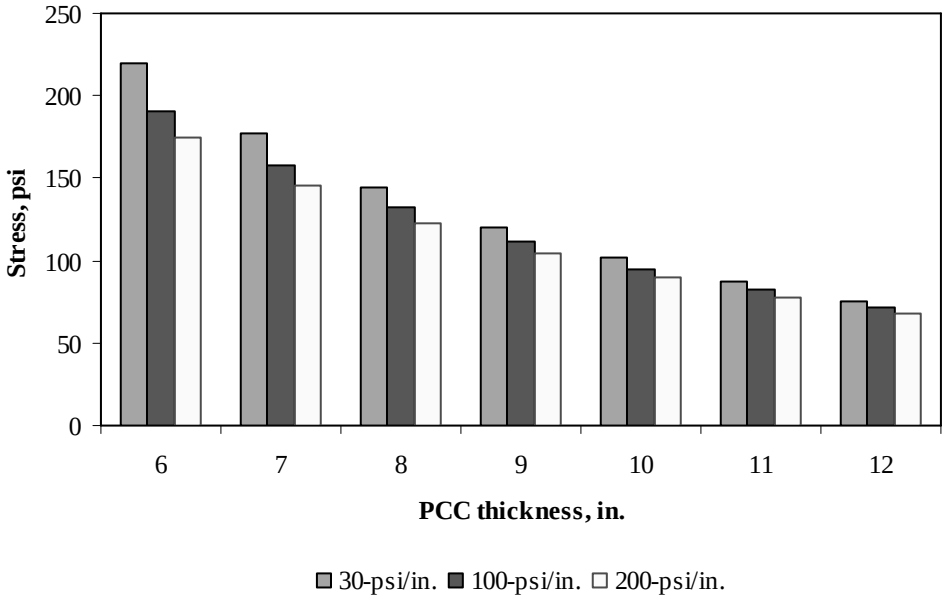


Figure F-13-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

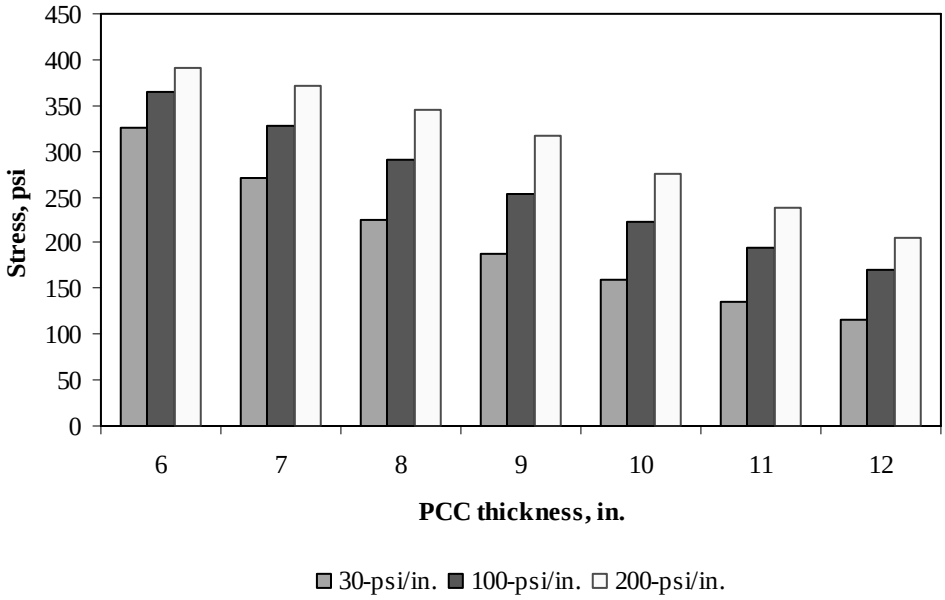


Figure F-13-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

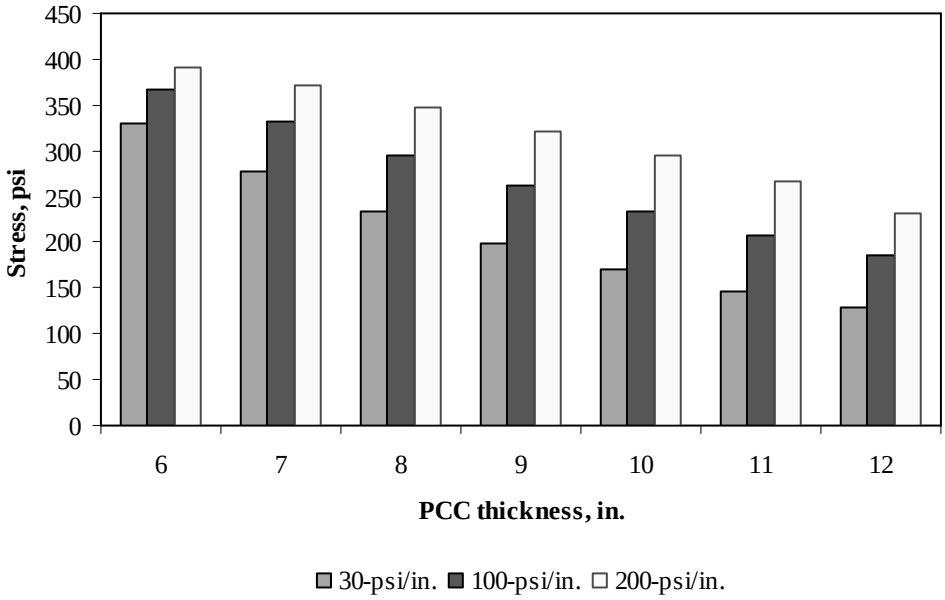


Figure F-13-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-13-25 through F-13-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

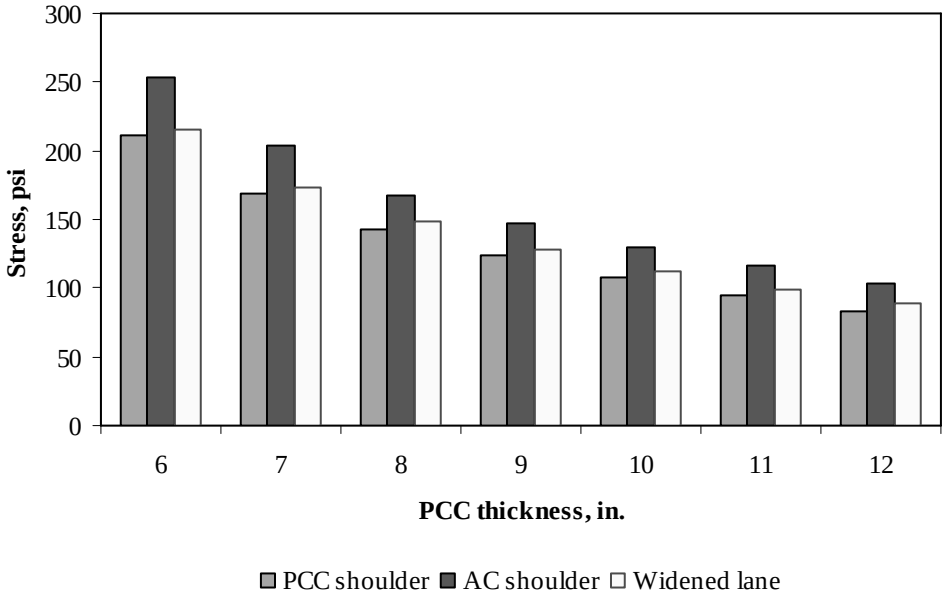


Figure F-13-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

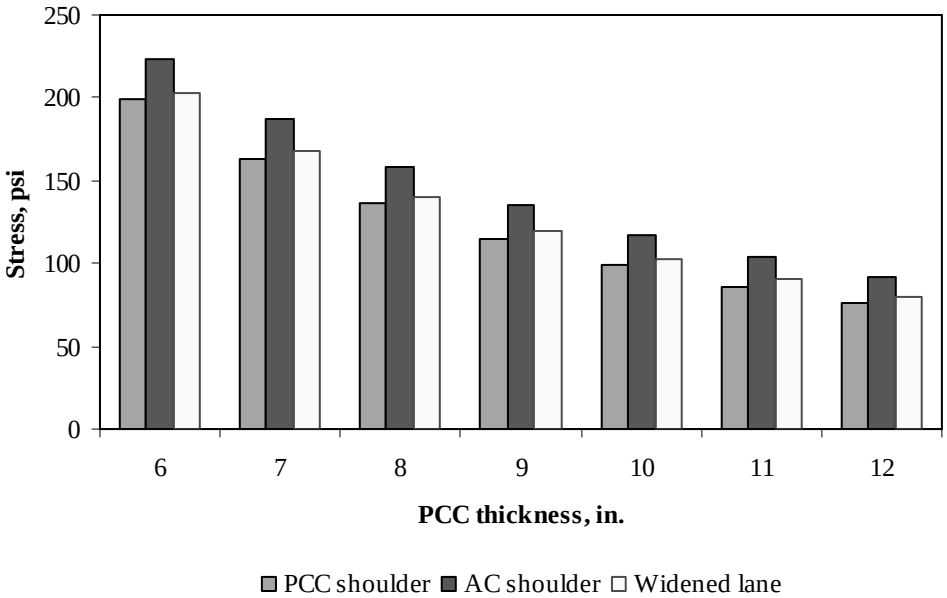


Figure F-13-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

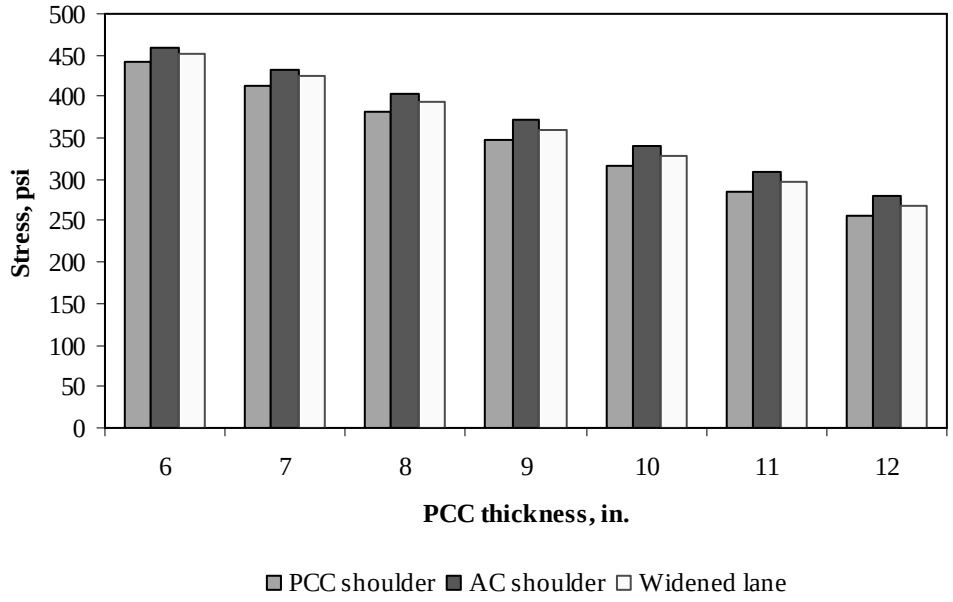


Figure F-13-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

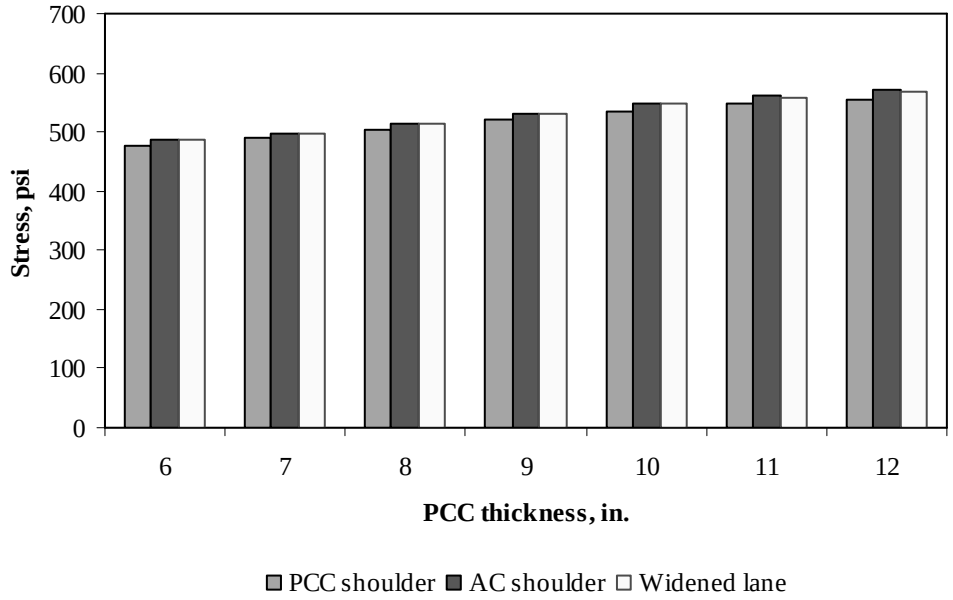


Figure F-13-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

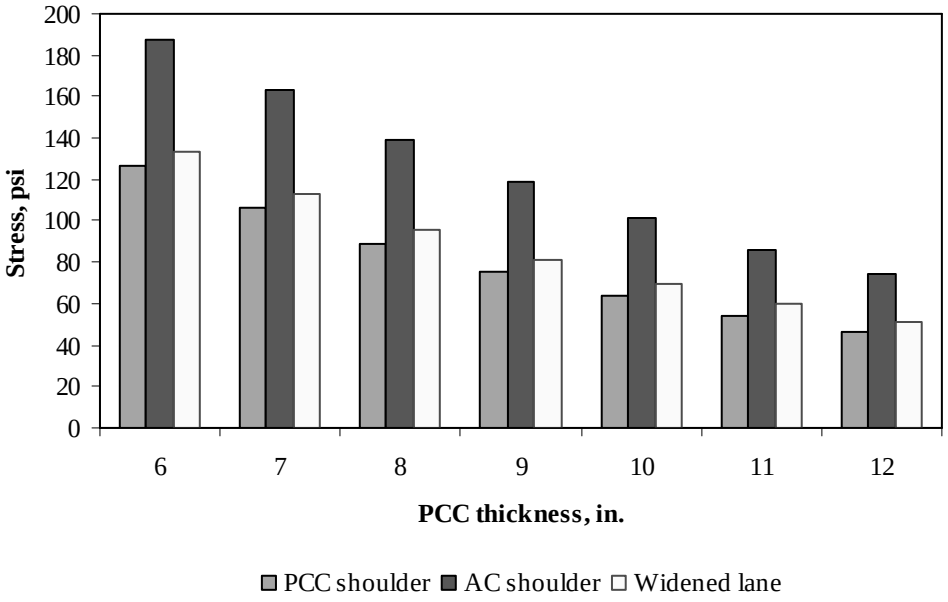


Figure F-13-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

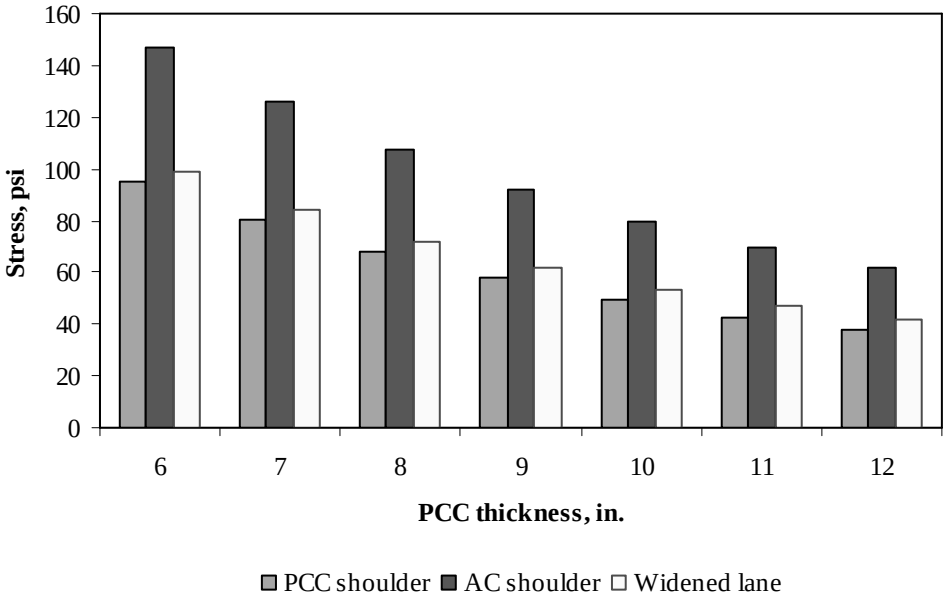


Figure F-13-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

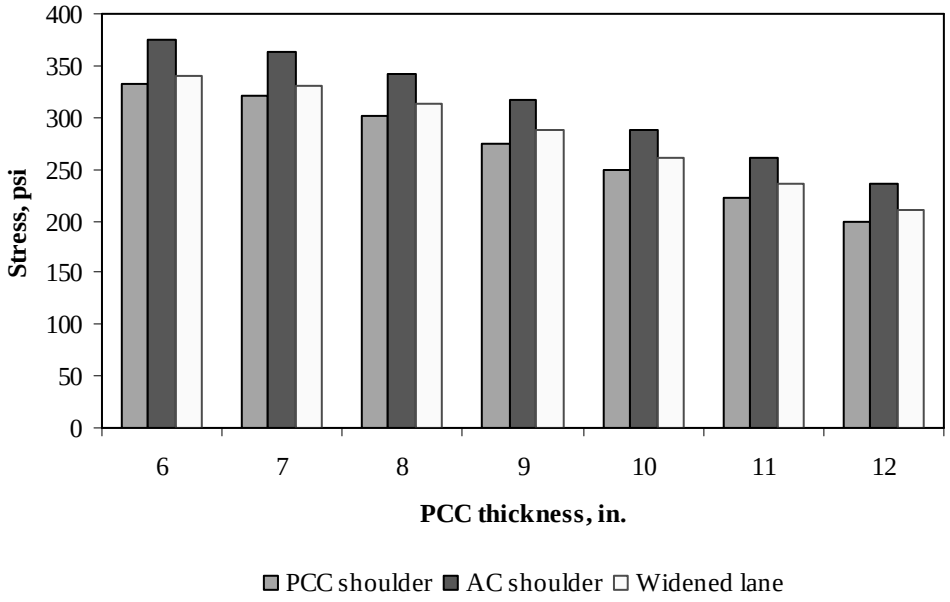


Figure F-13-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

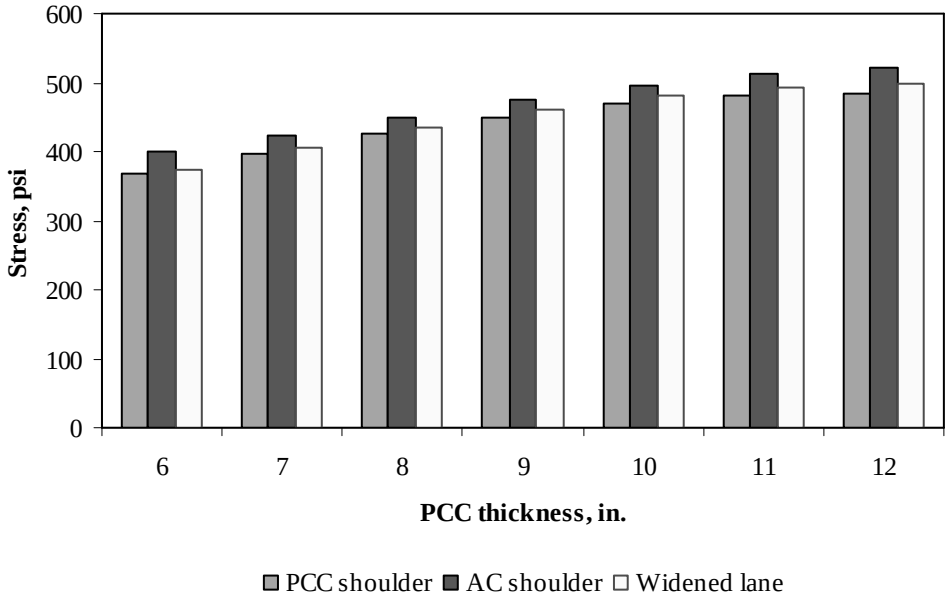


Figure F-13-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

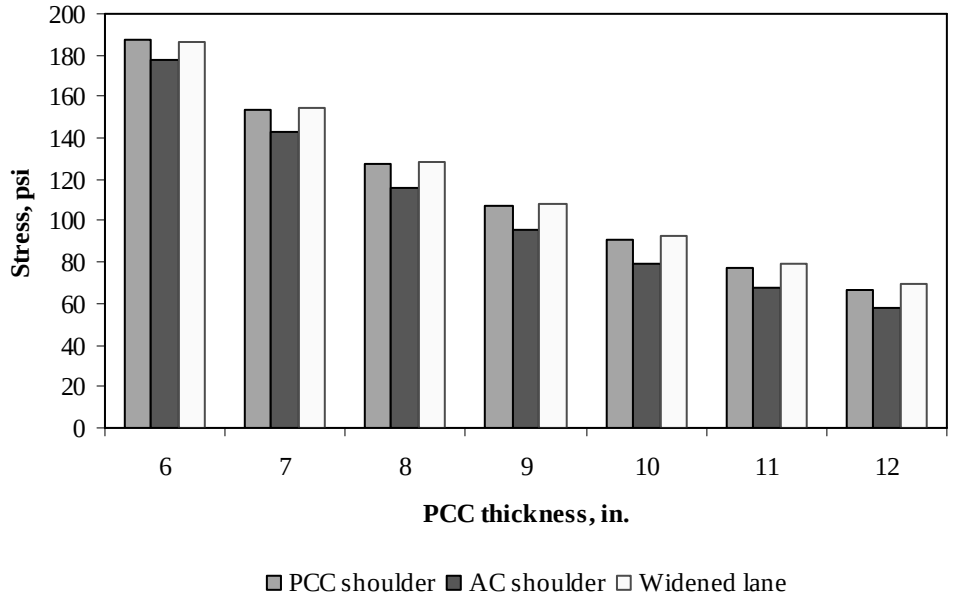


Figure F-13-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

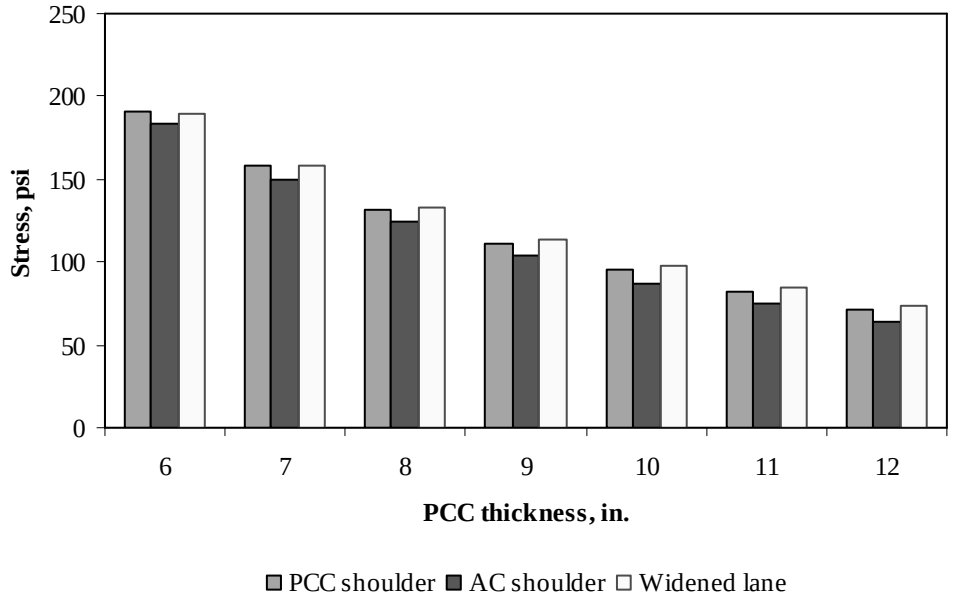


Figure F-13-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

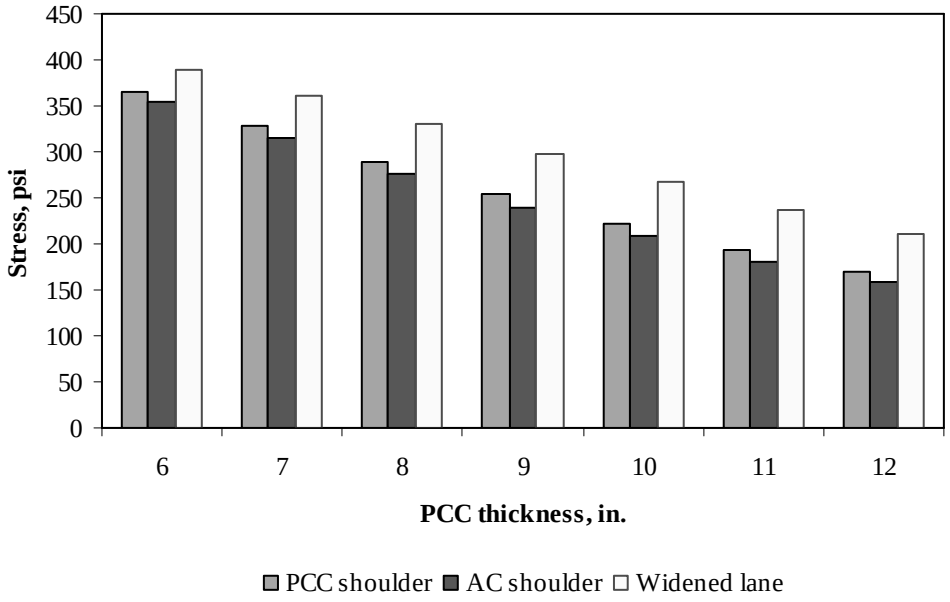


Figure F-13-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

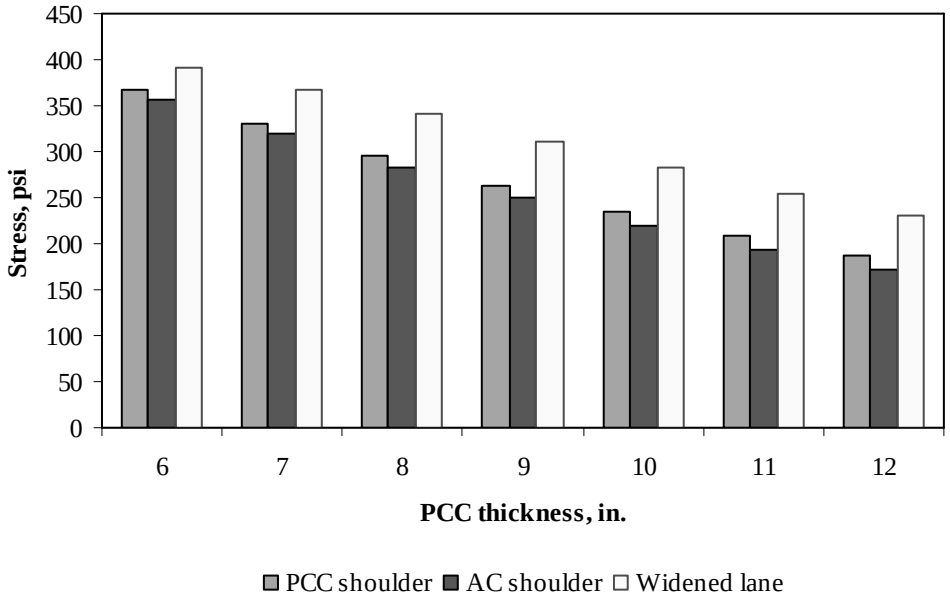


Figure F-13-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-13-37 through F-13-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

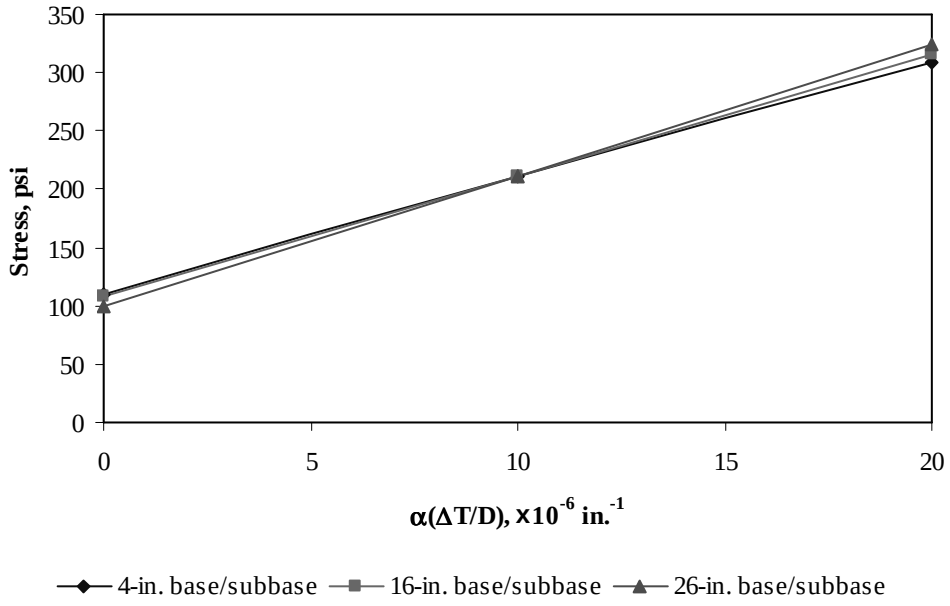


Figure F-13-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

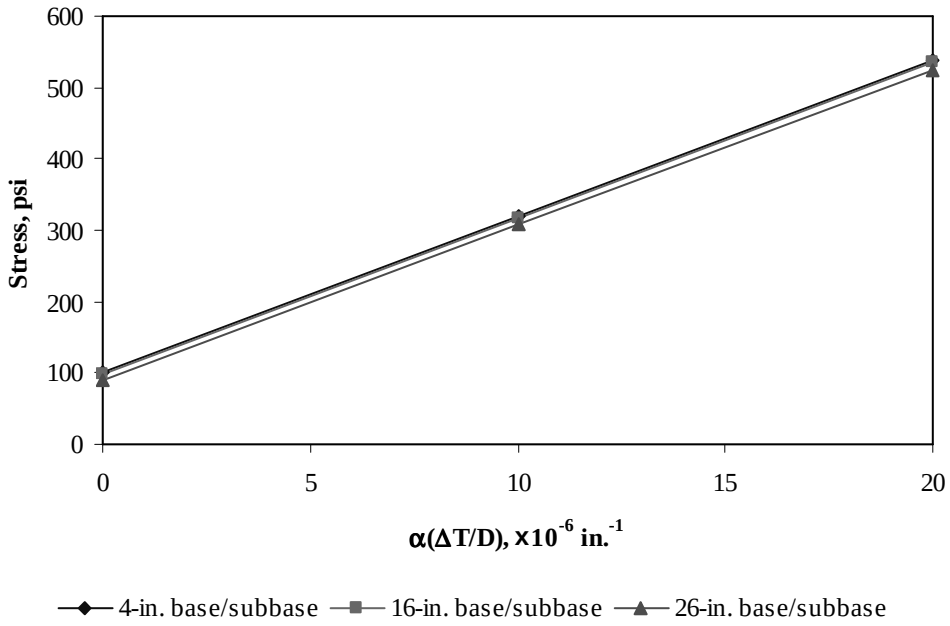


Figure F-13-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

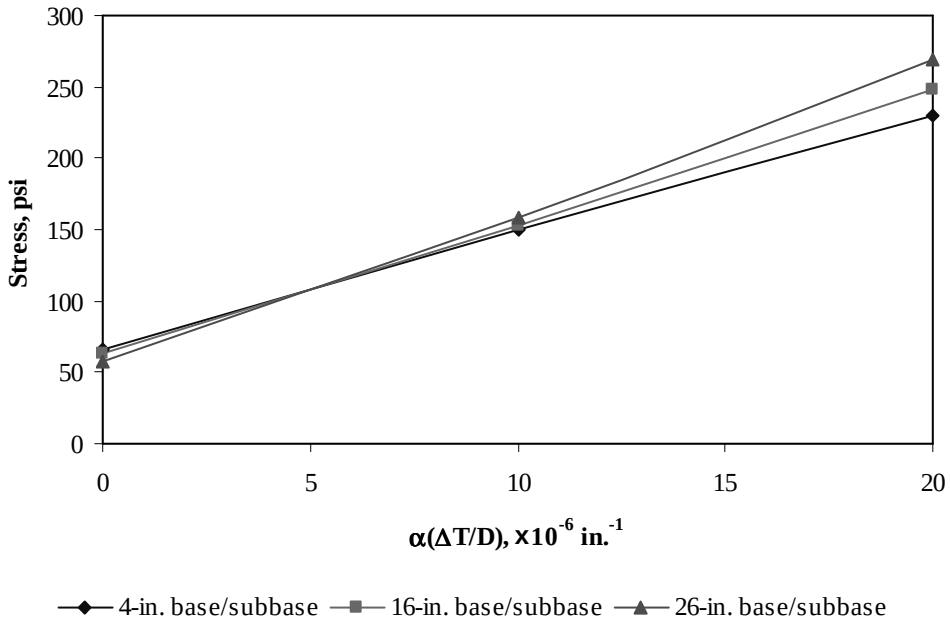


Figure F-13-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

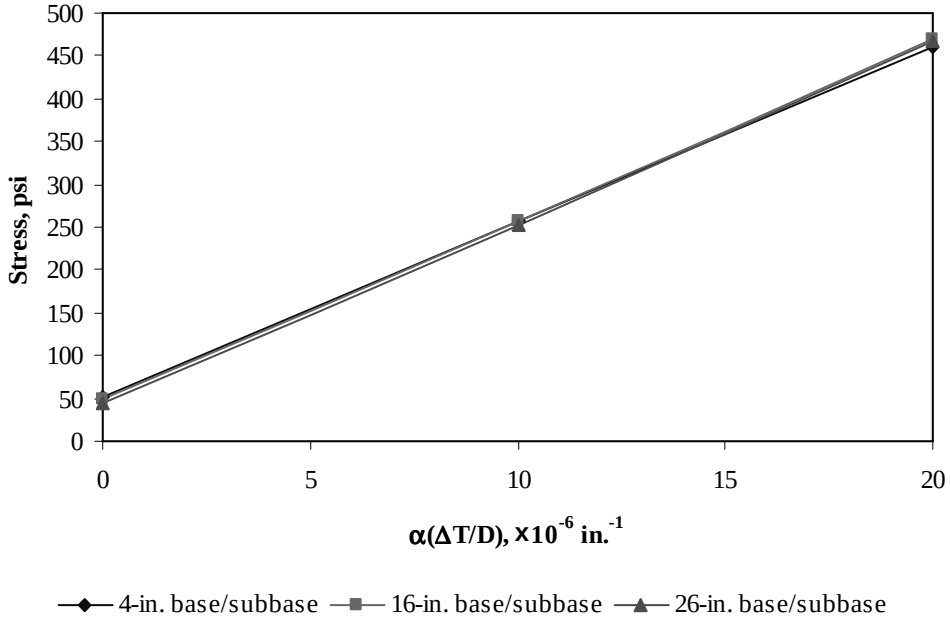


Figure F-13-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

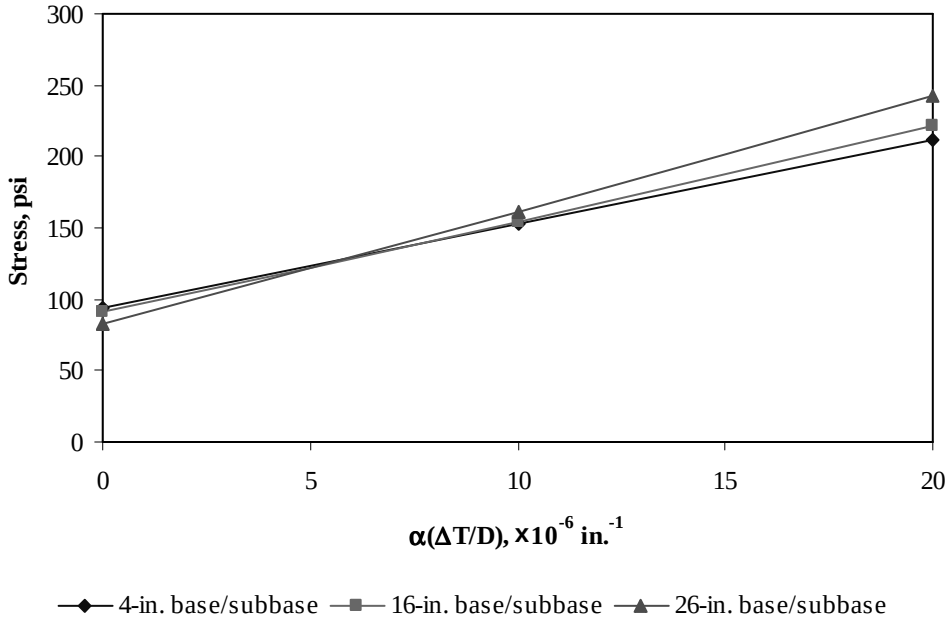


Figure F-13-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

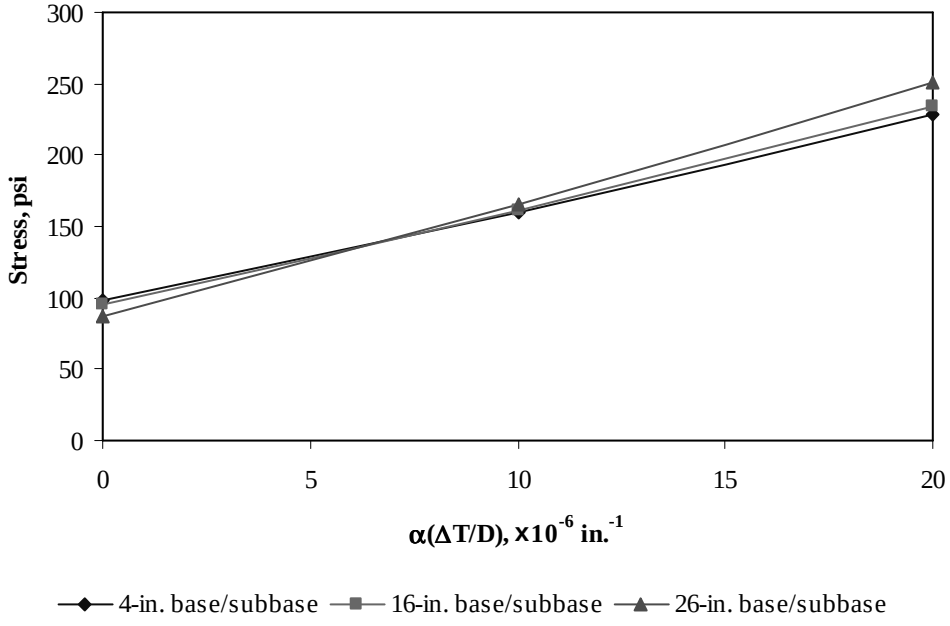


Figure F-13-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-13-43 through F-13-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

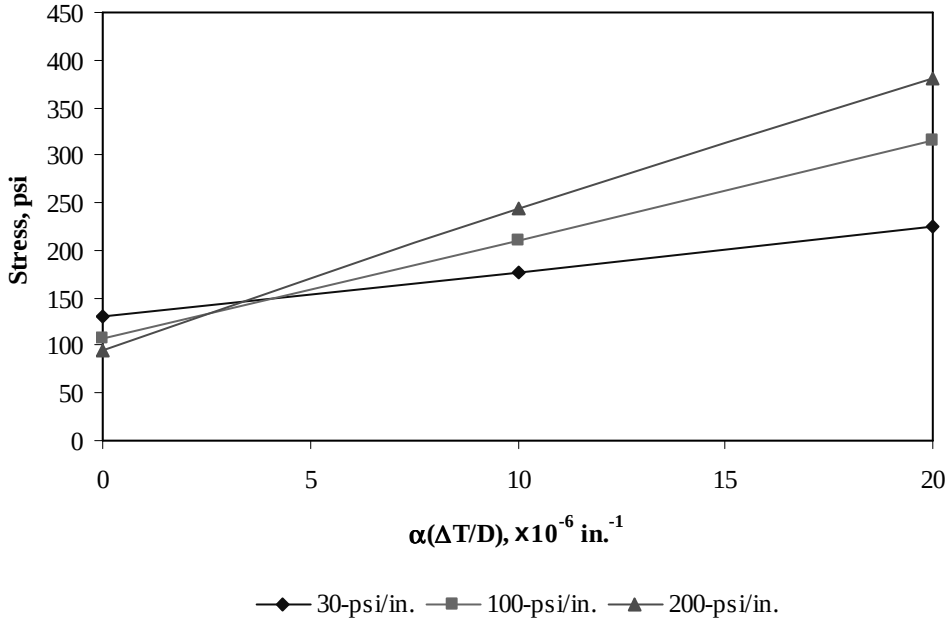


Figure F-13-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

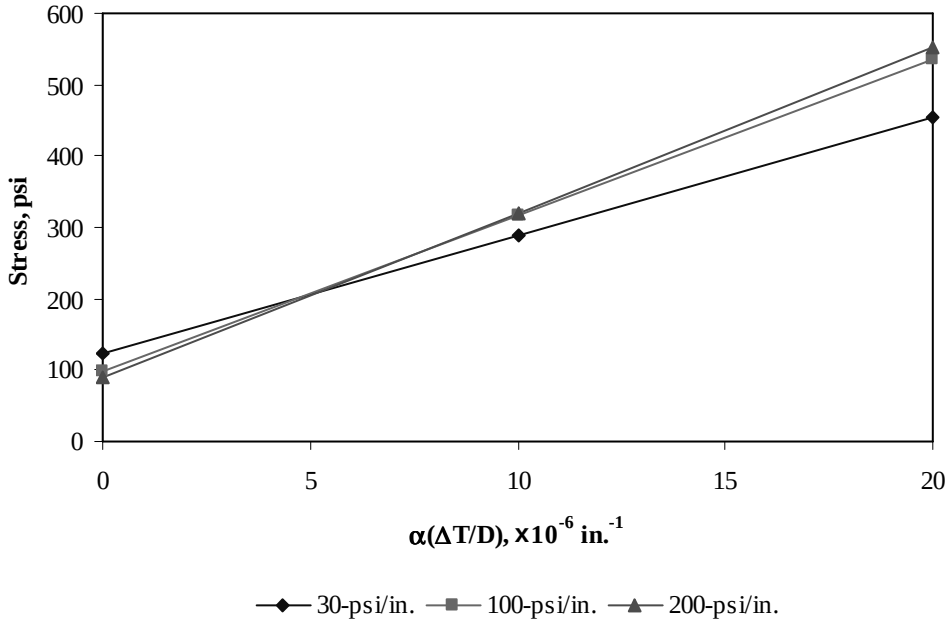


Figure F-13-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

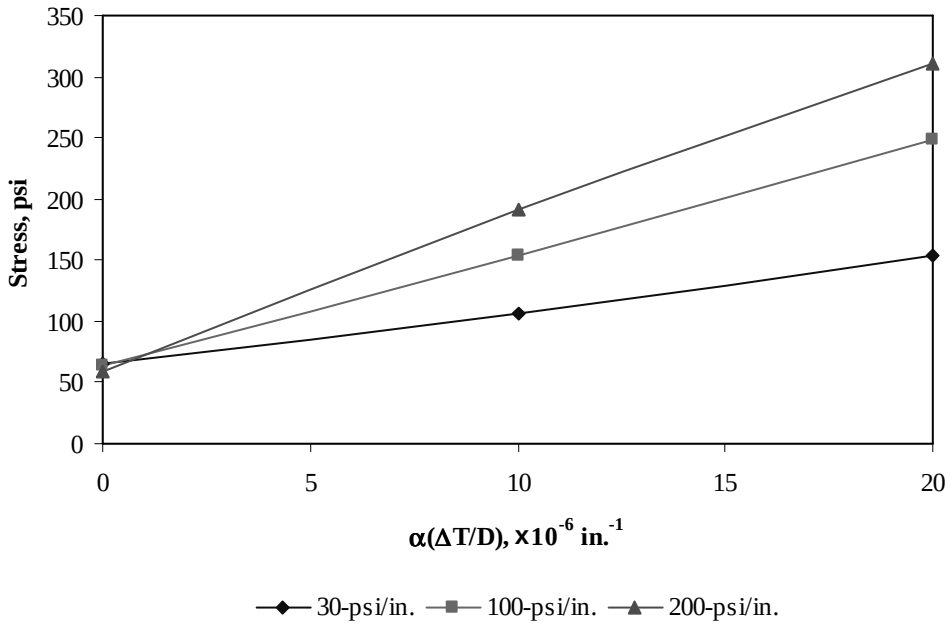


Figure F-13-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

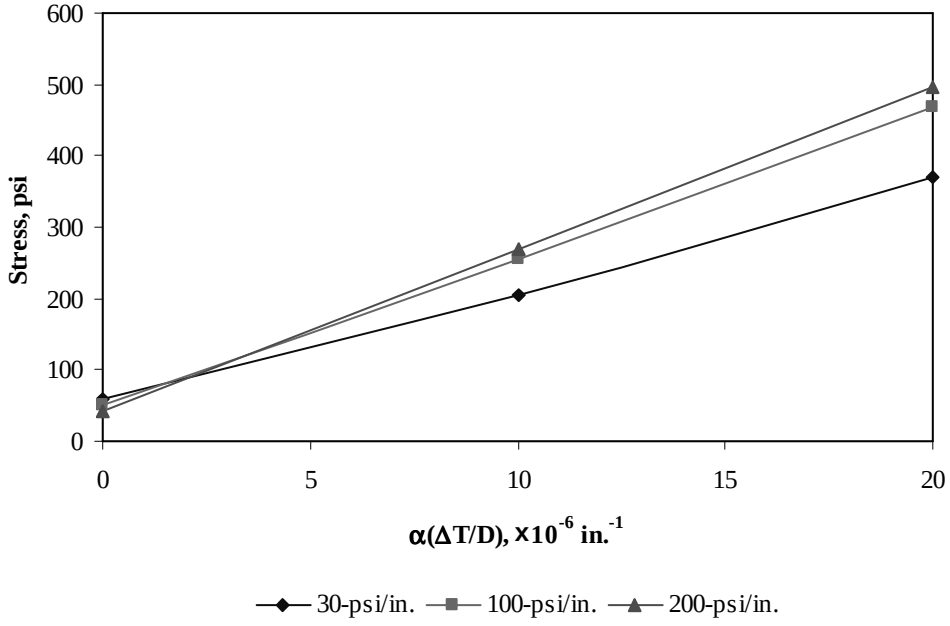


Figure F-13-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

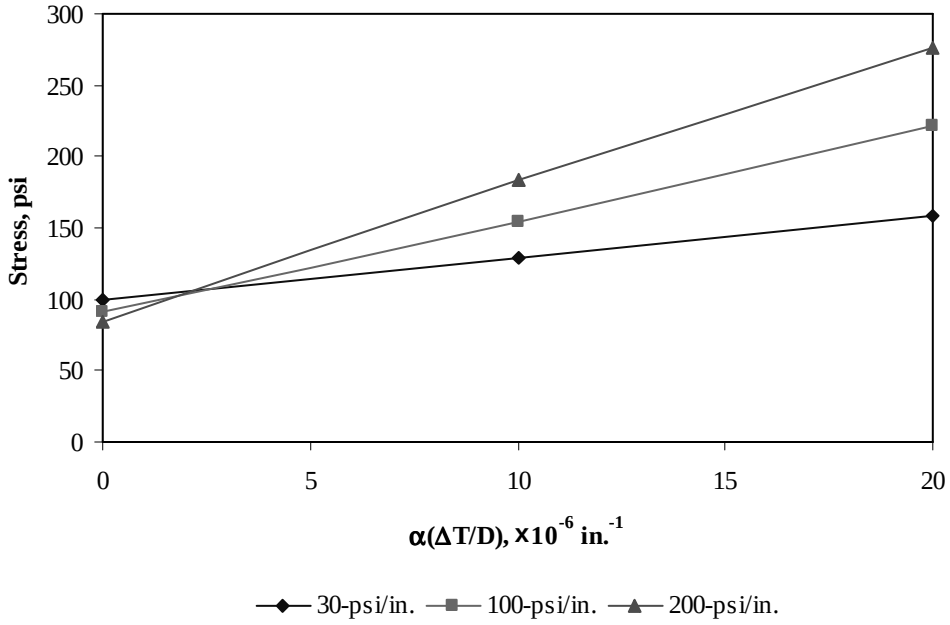


Figure F-13-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

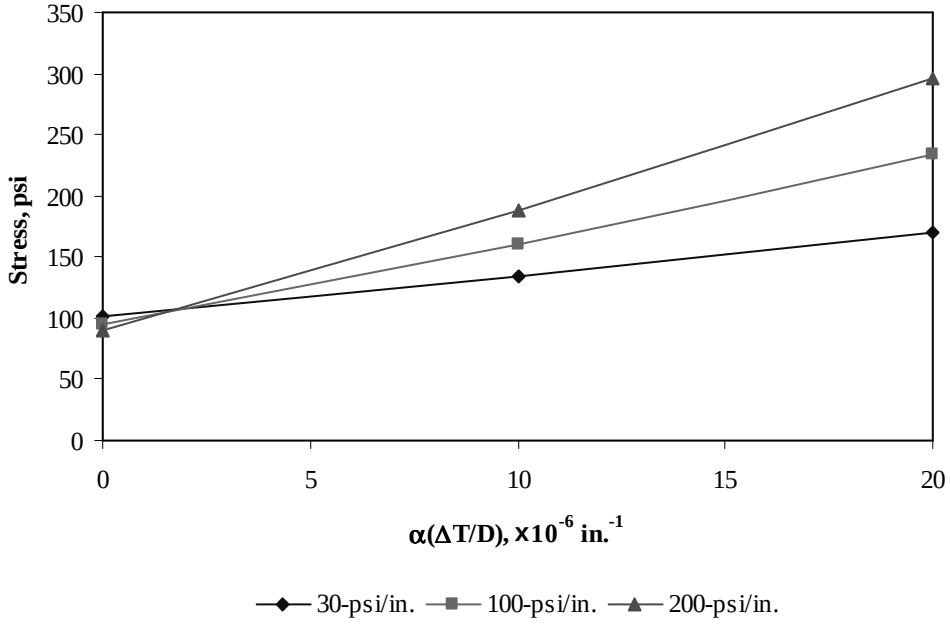


Figure F-13-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-13-49 through F-13-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

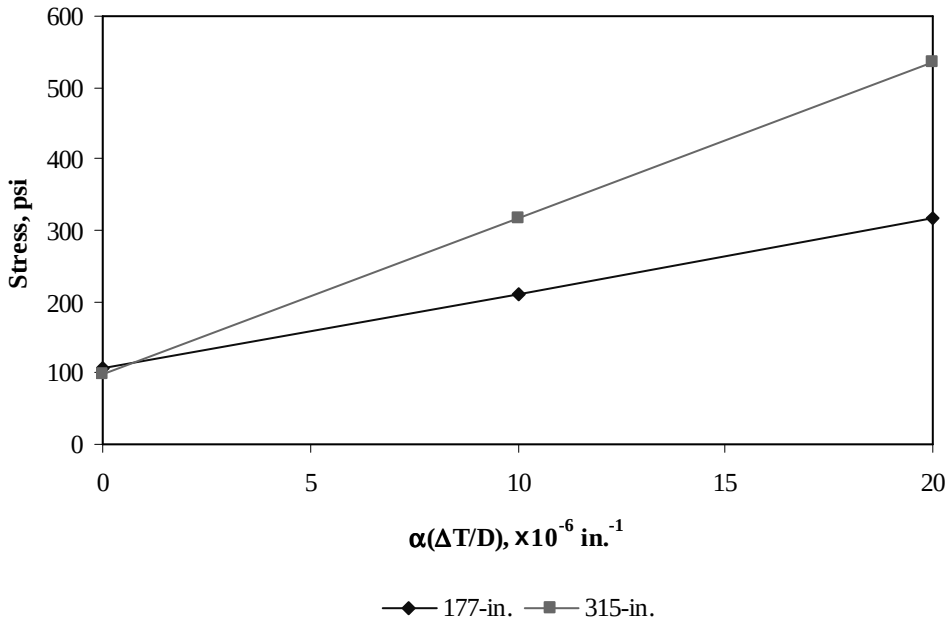


Figure F-13-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

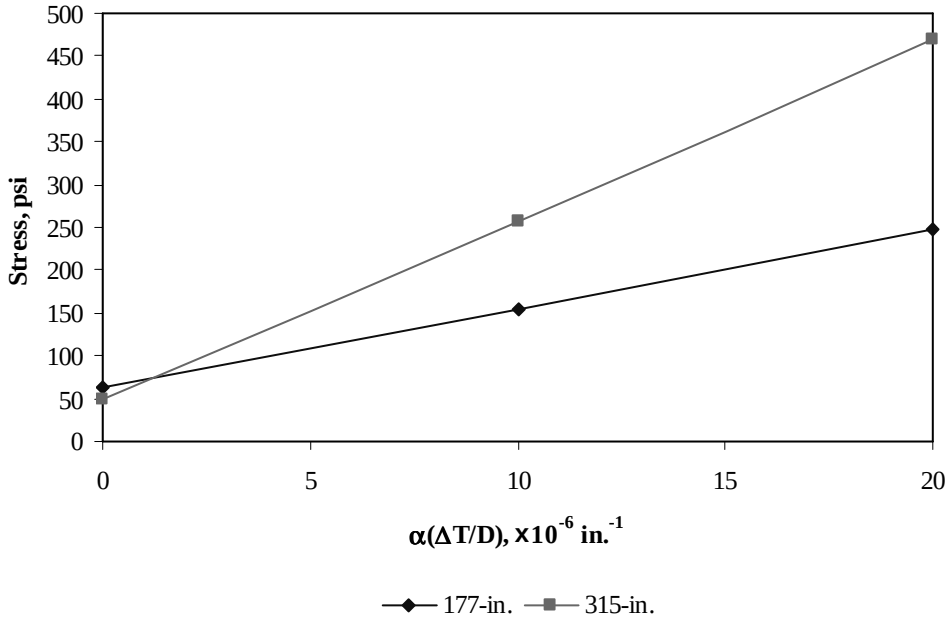


Figure F-13-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

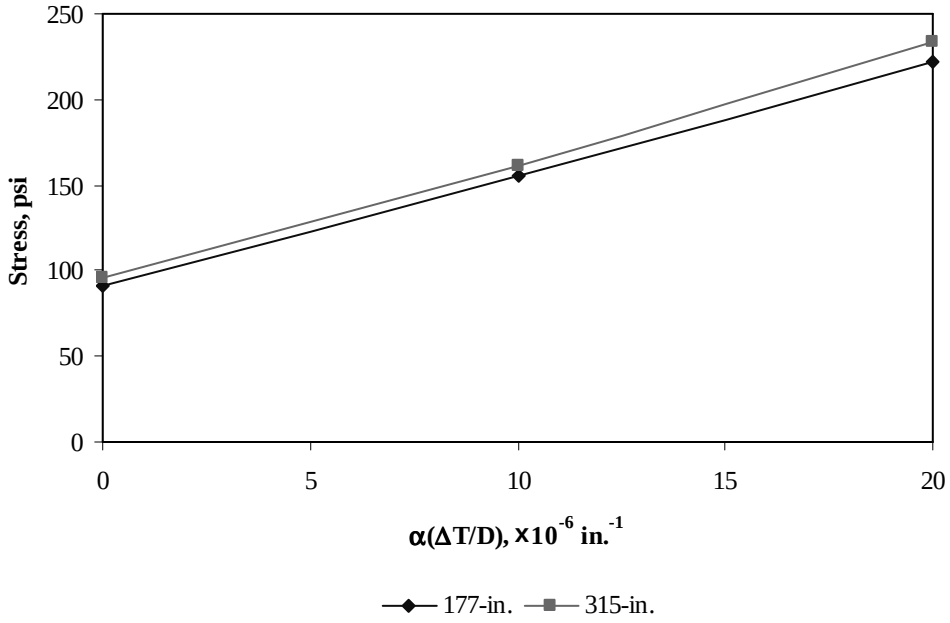
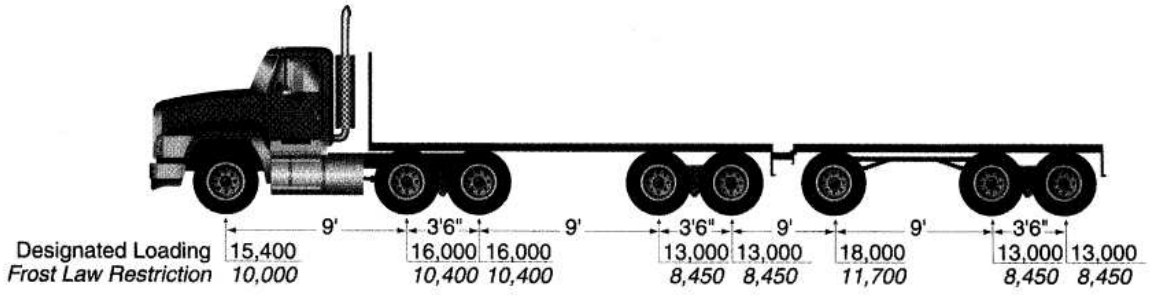


Figure F-13-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-14

Documentation of Pavement Responses for



MI-12

Figures F-14-1 through F-14-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

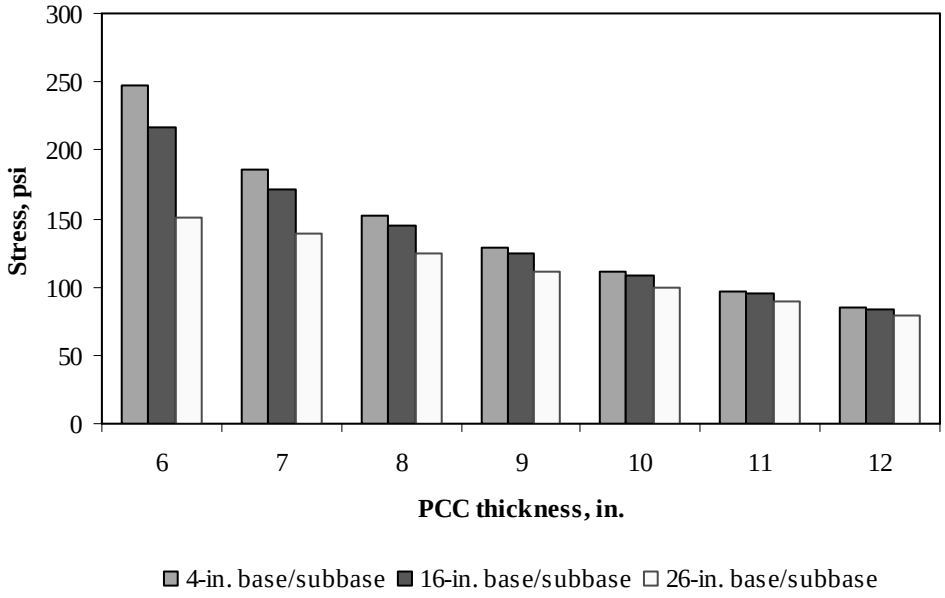


Figure F-14-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

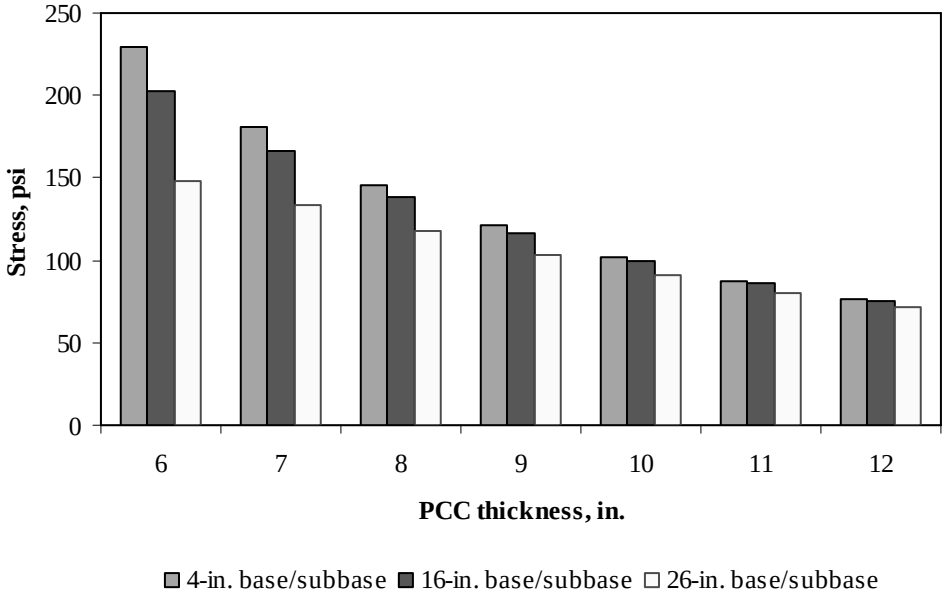


Figure F-14-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

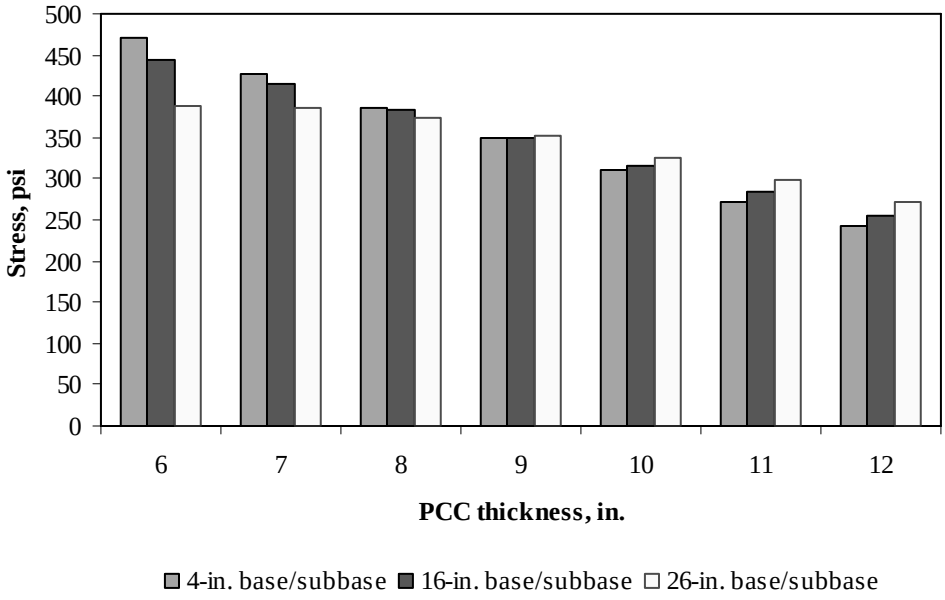


Figure F-14-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

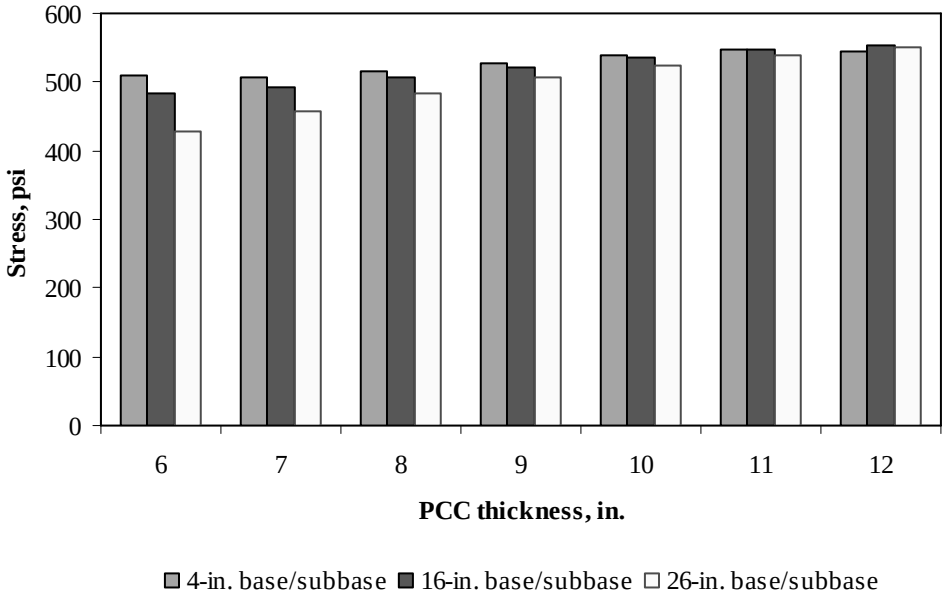


Figure F-14-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

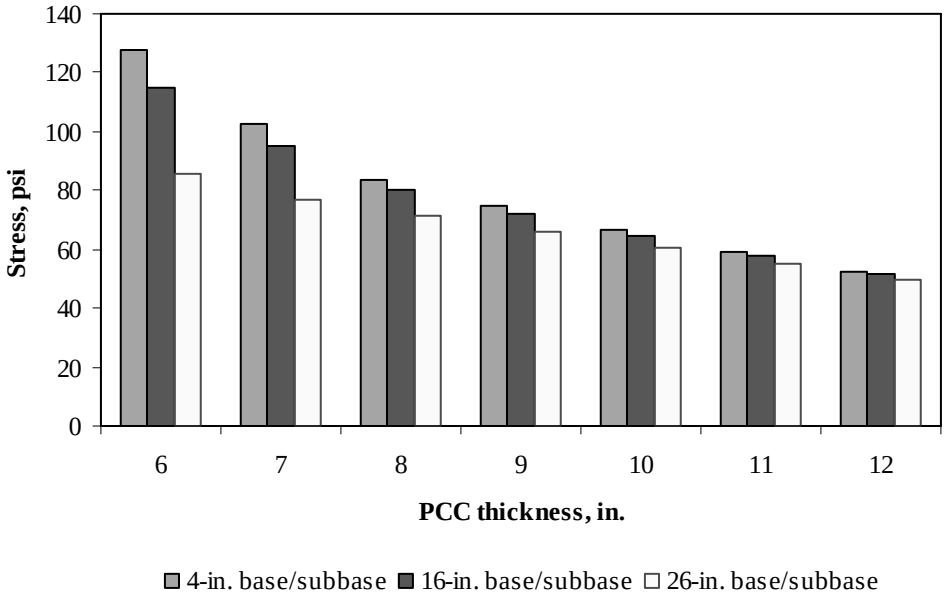


Figure F-14-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

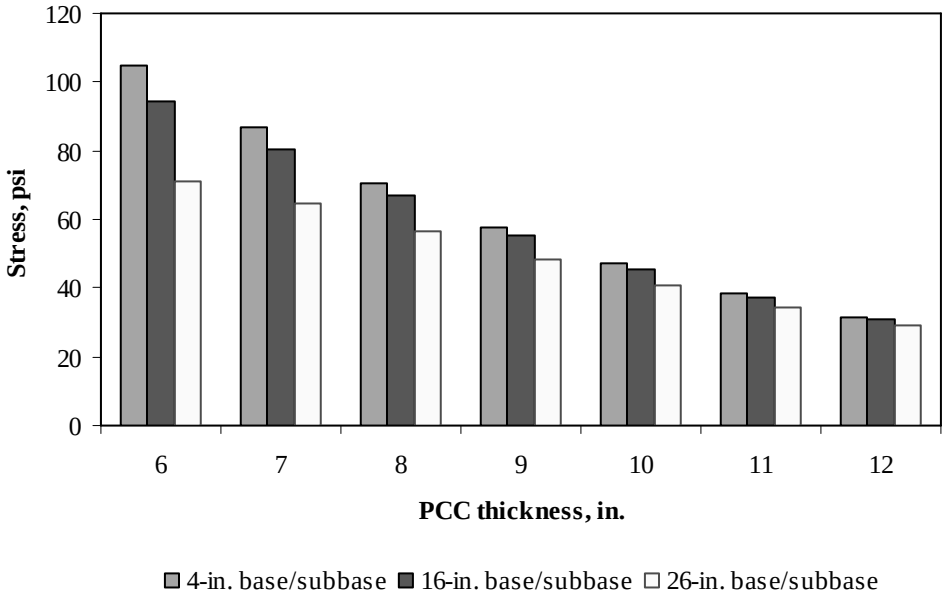


Figure F-14-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

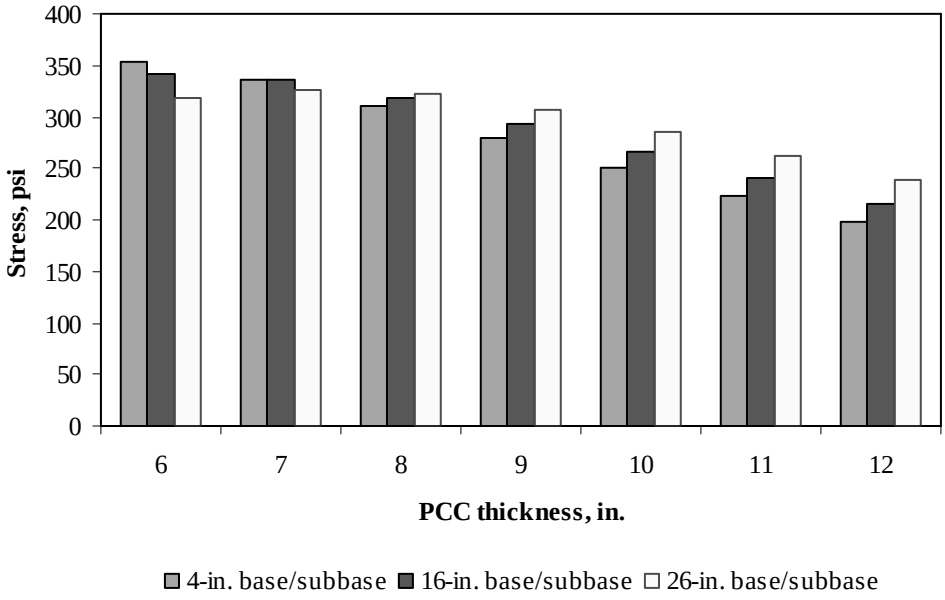


Figure F-14-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

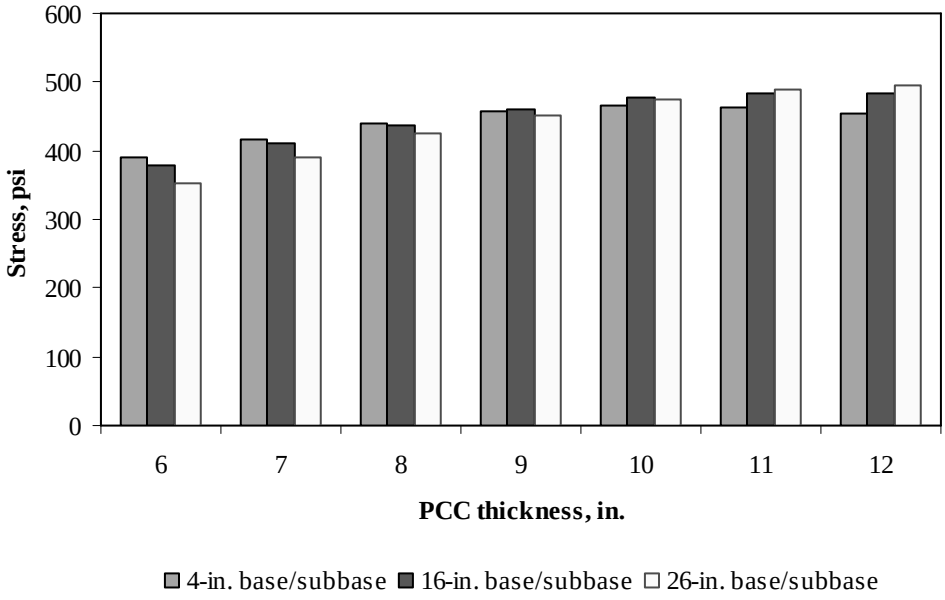


Figure F-14-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

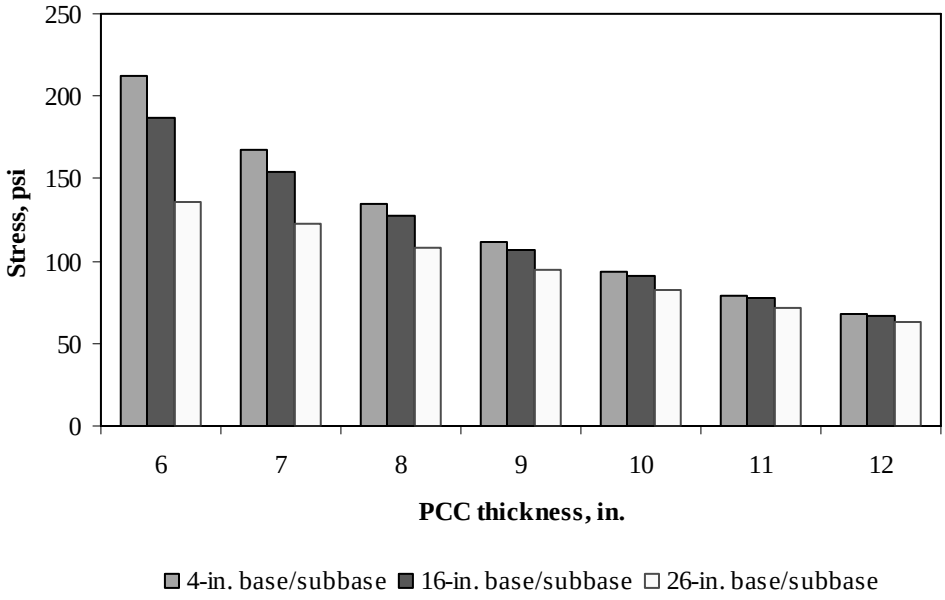


Figure F-14-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

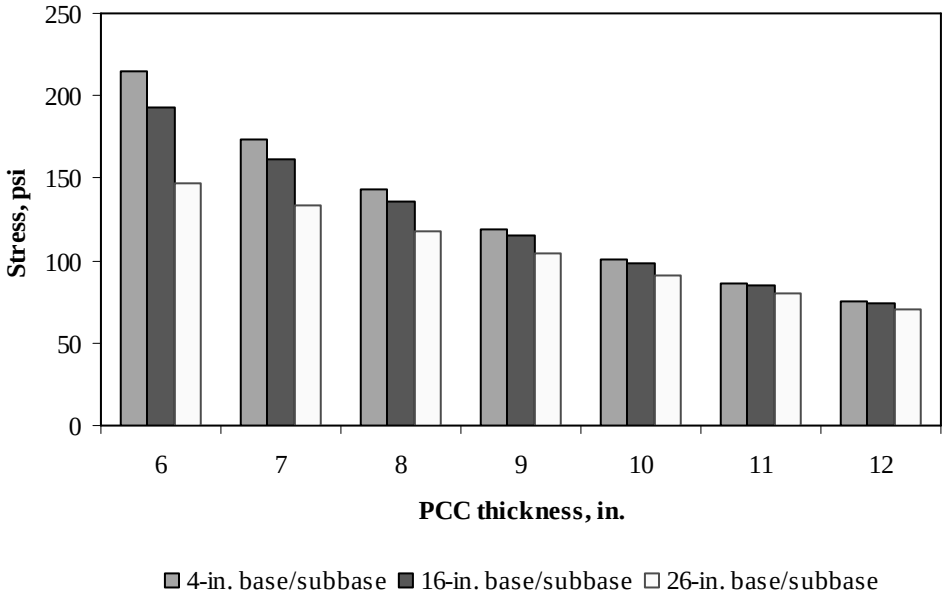


Figure F-14-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

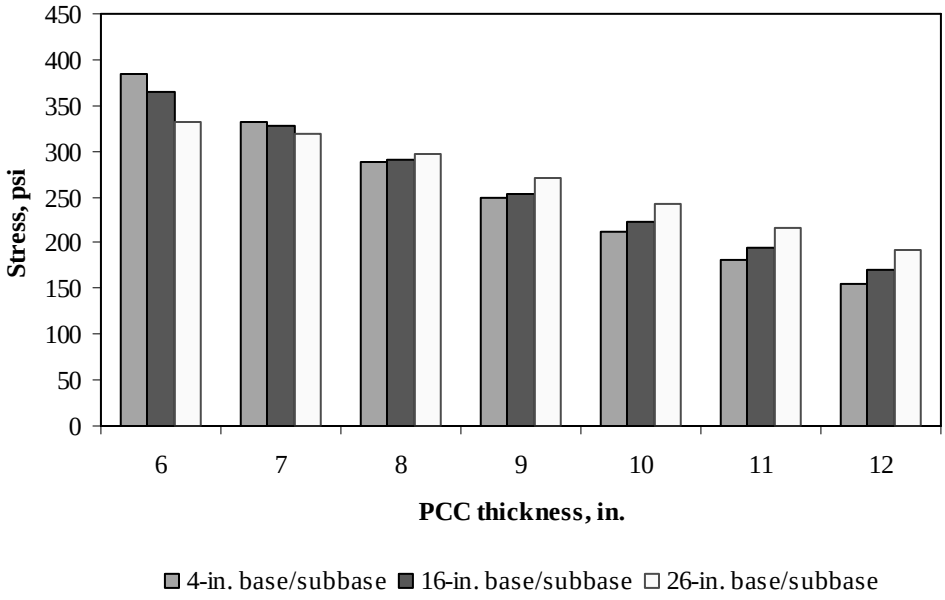


Figure F-14-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

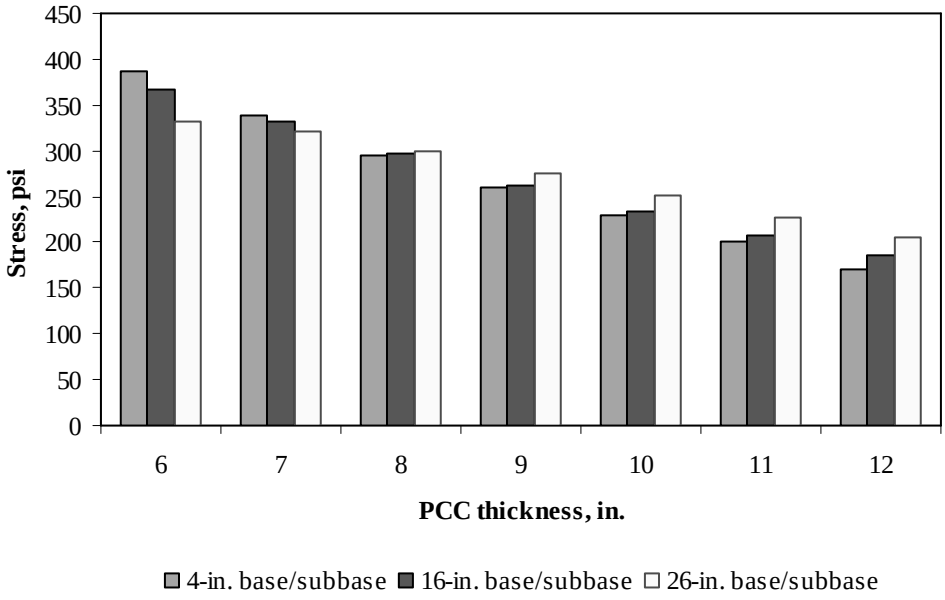


Figure F-14-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-14-13 through F-14-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

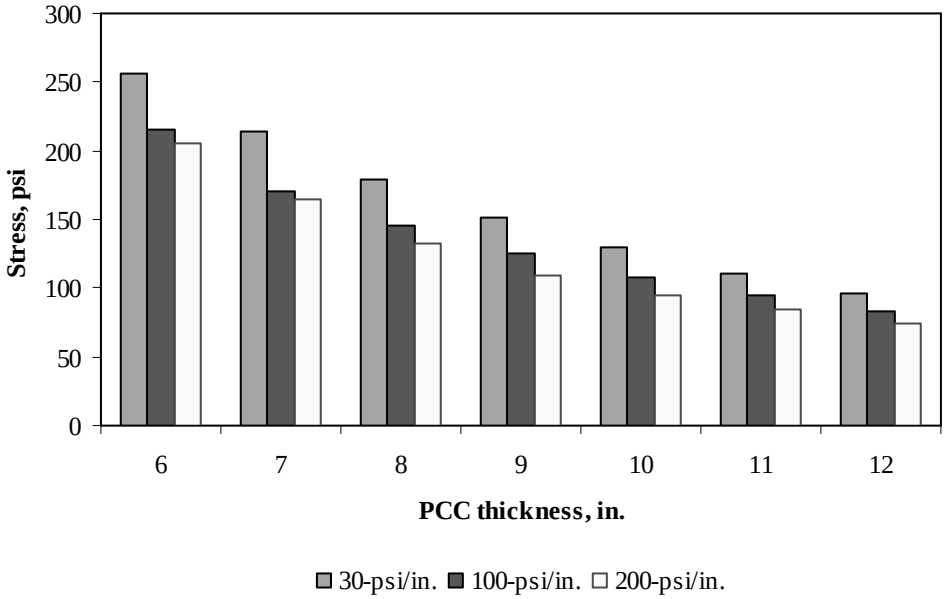


Figure F-14-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

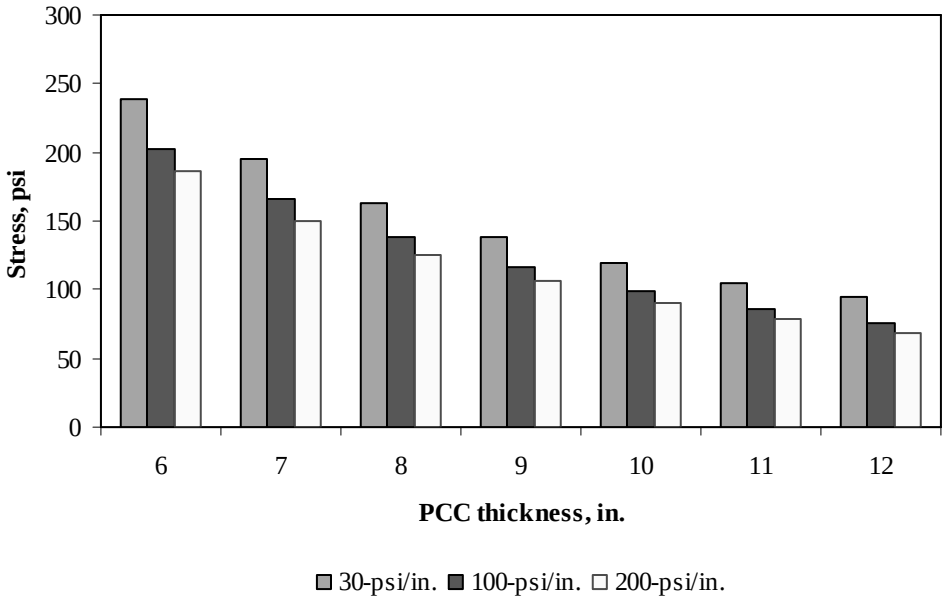


Figure F-14-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

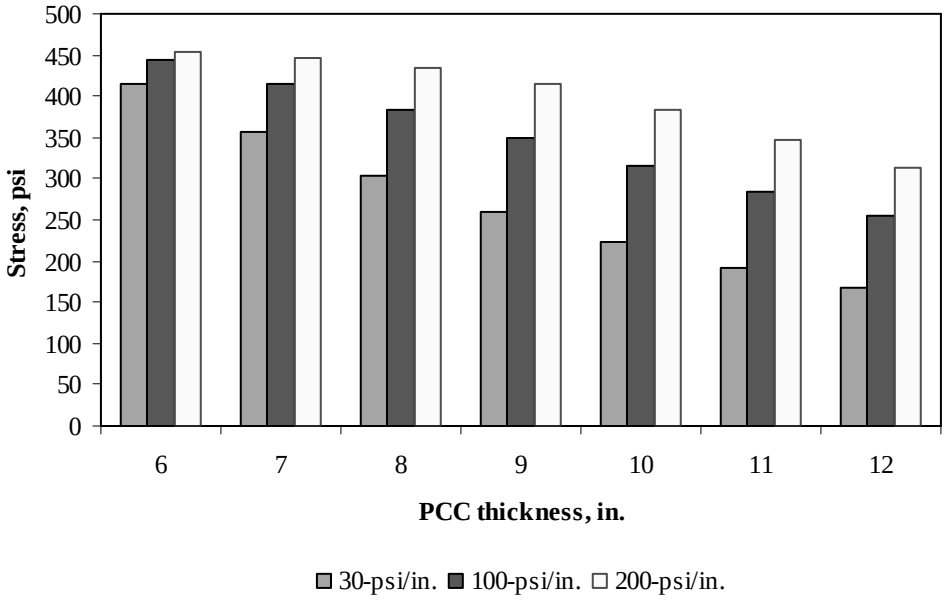


Figure F-14-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

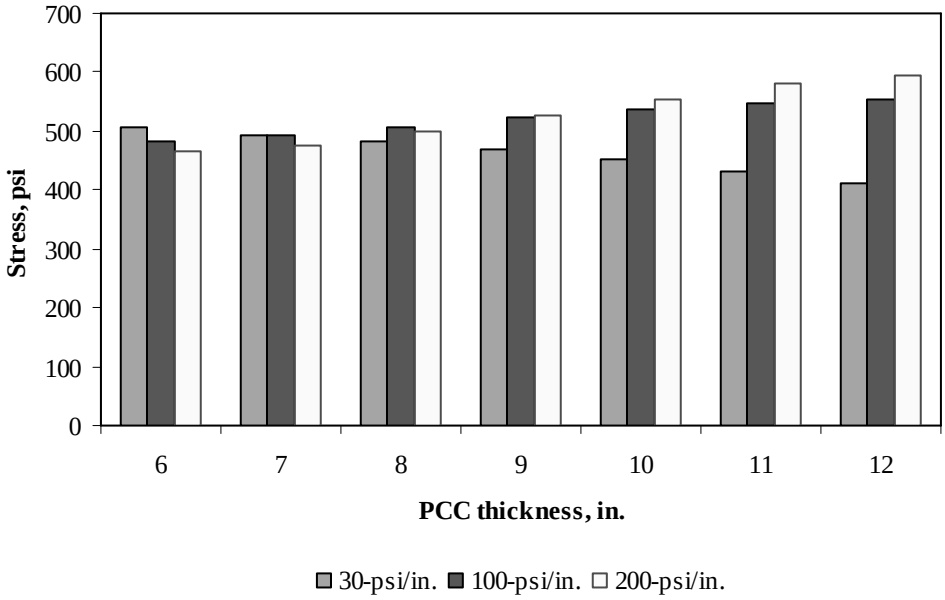


Figure F-14-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

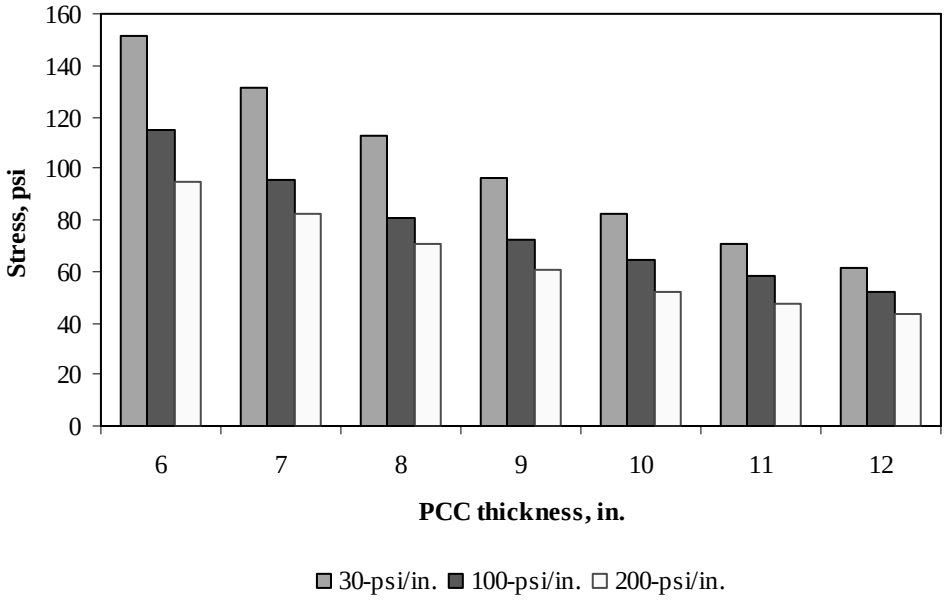


Figure F-14-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

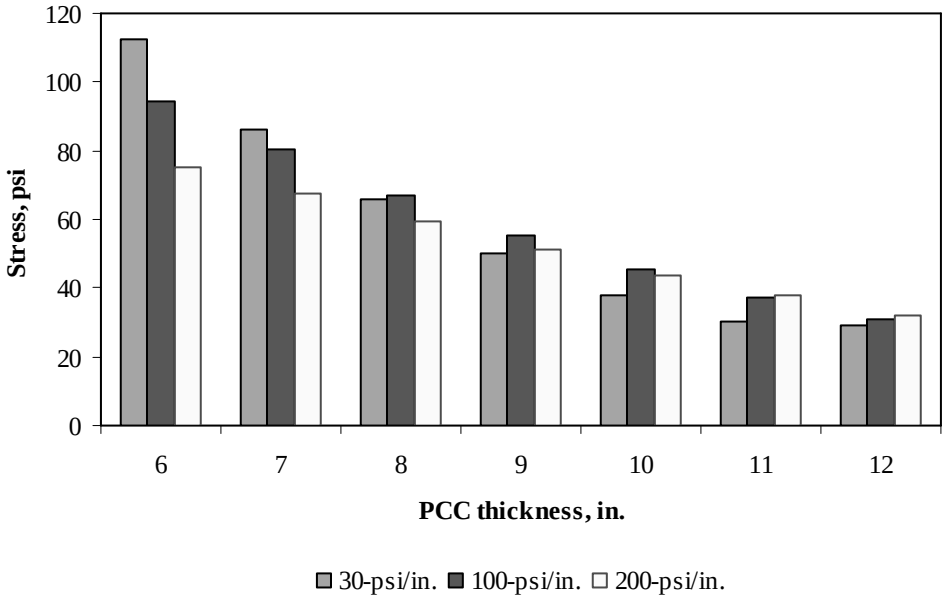


Figure F-14-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

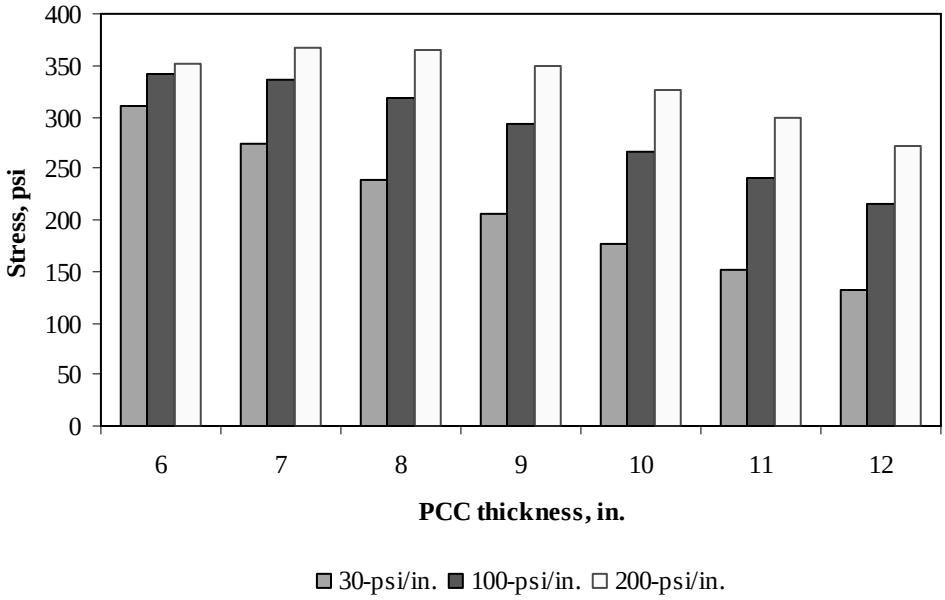


Figure F-14-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

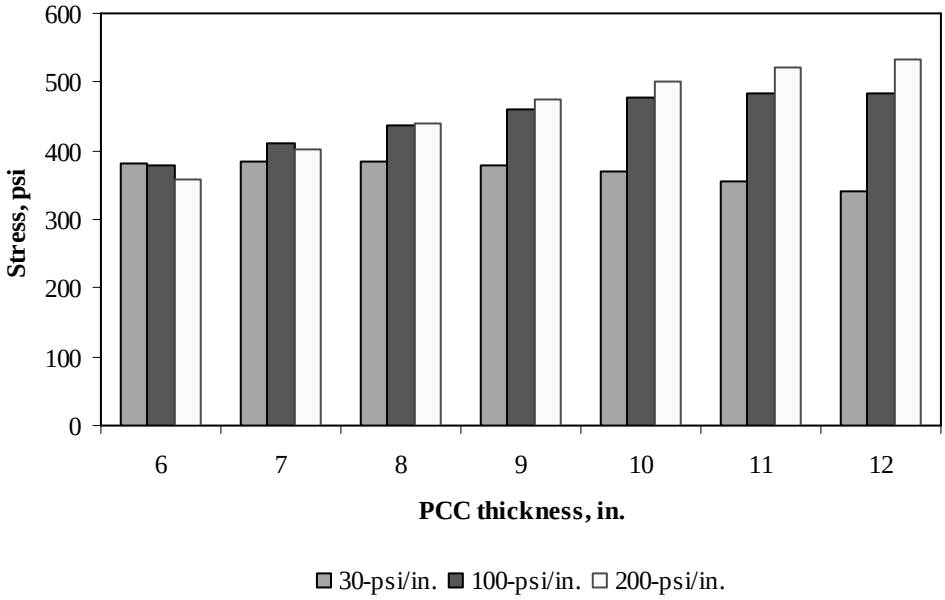


Figure F-14-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

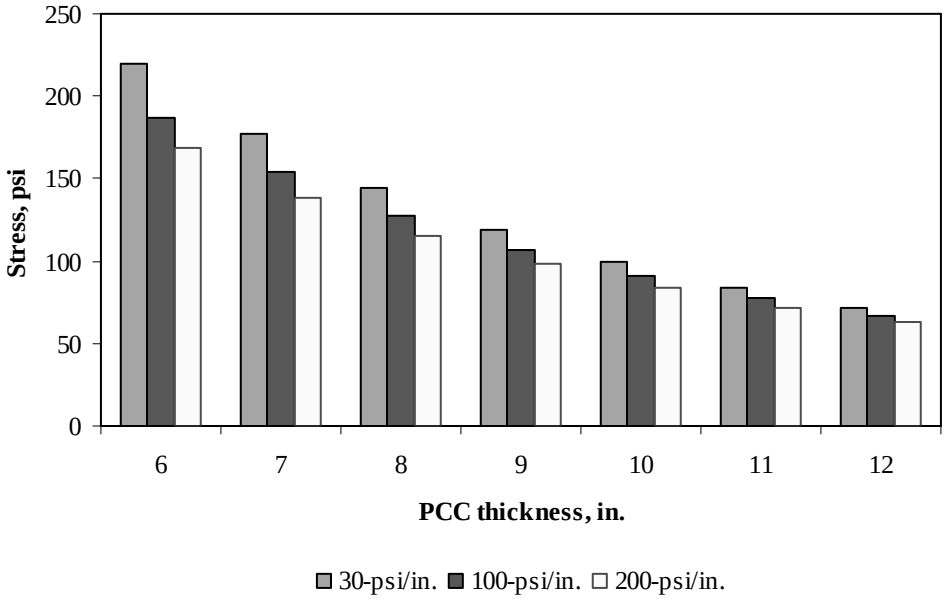


Figure F-14-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

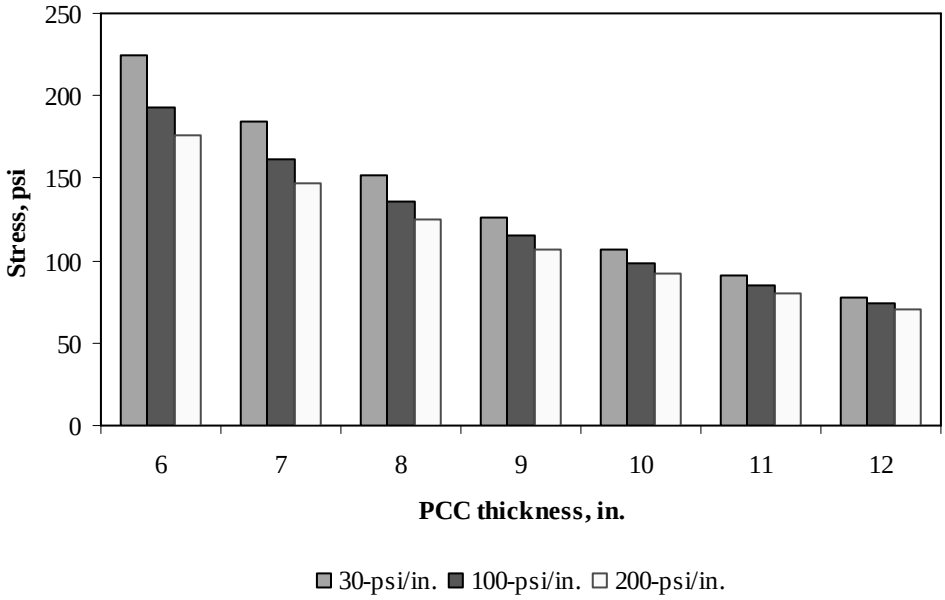


Figure F-14-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

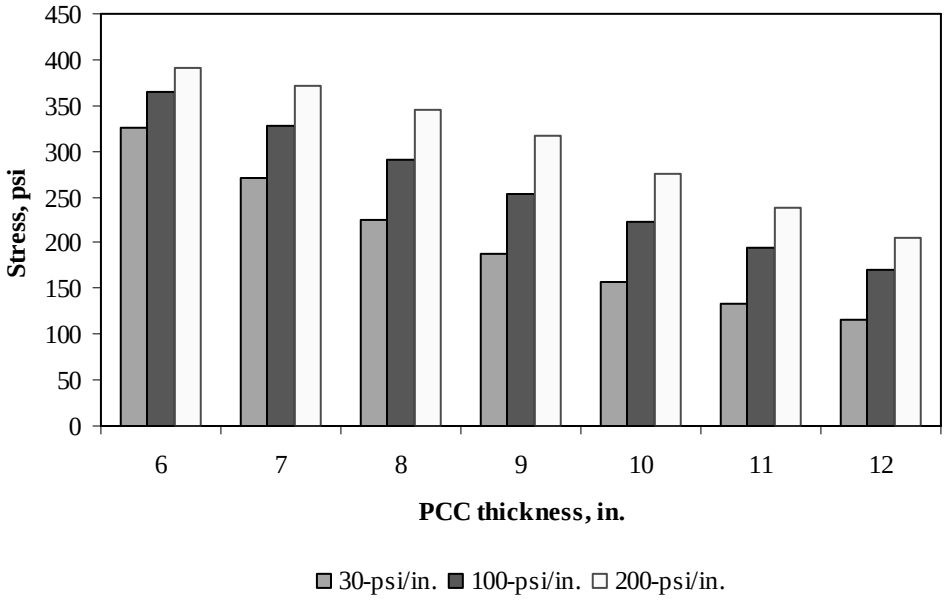


Figure F-14-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

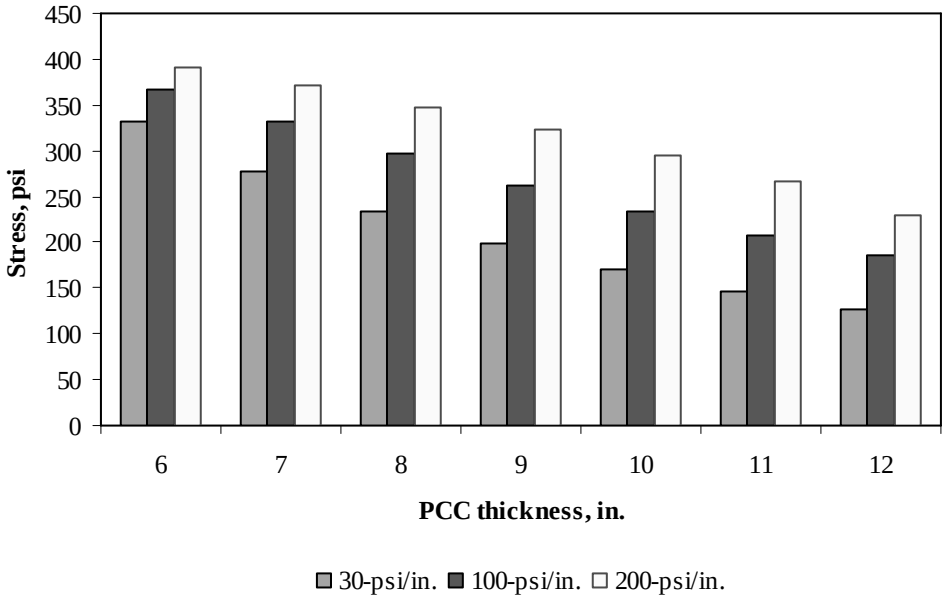


Figure F-14-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-14-25 through F-14-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

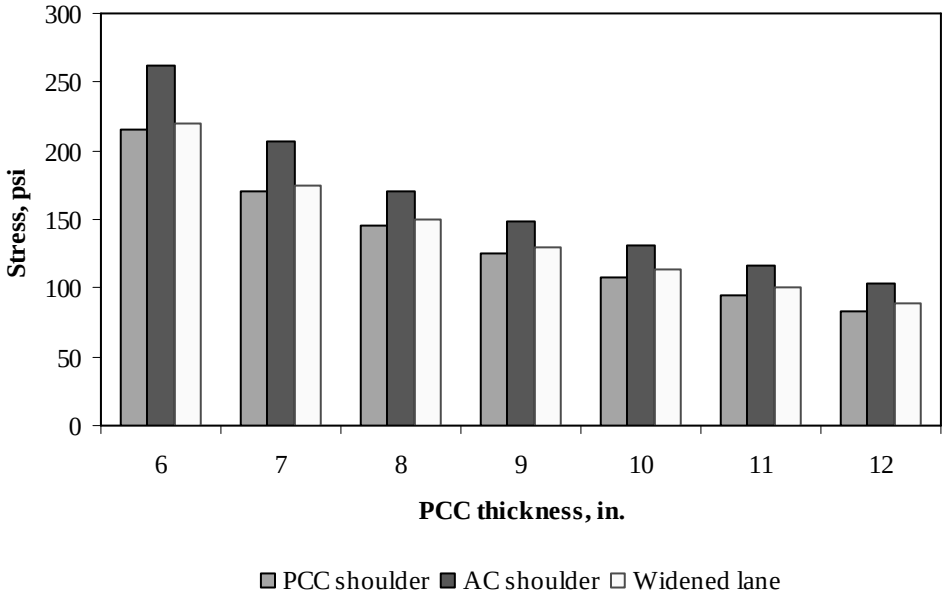


Figure F-14-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

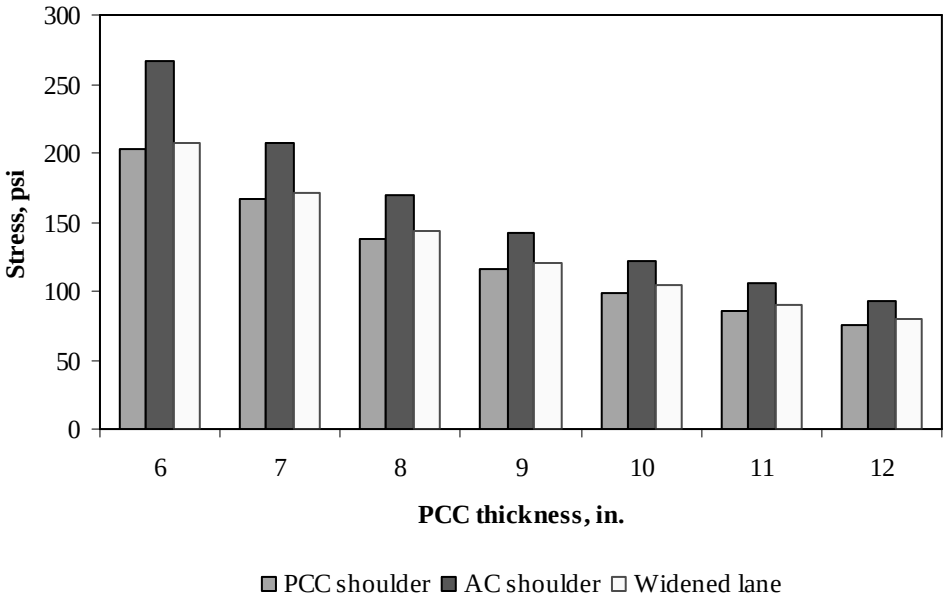


Figure F-14-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

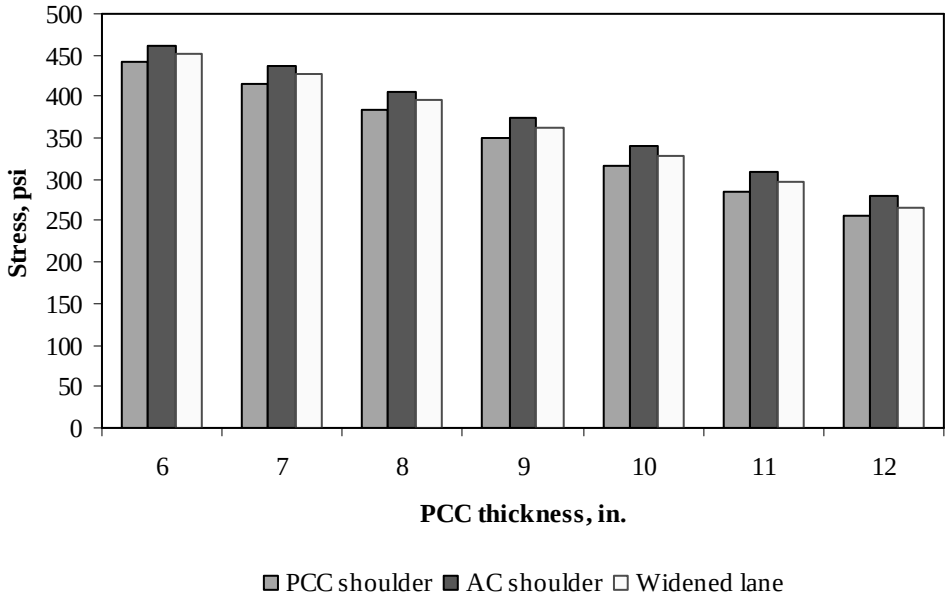


Figure F-14-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

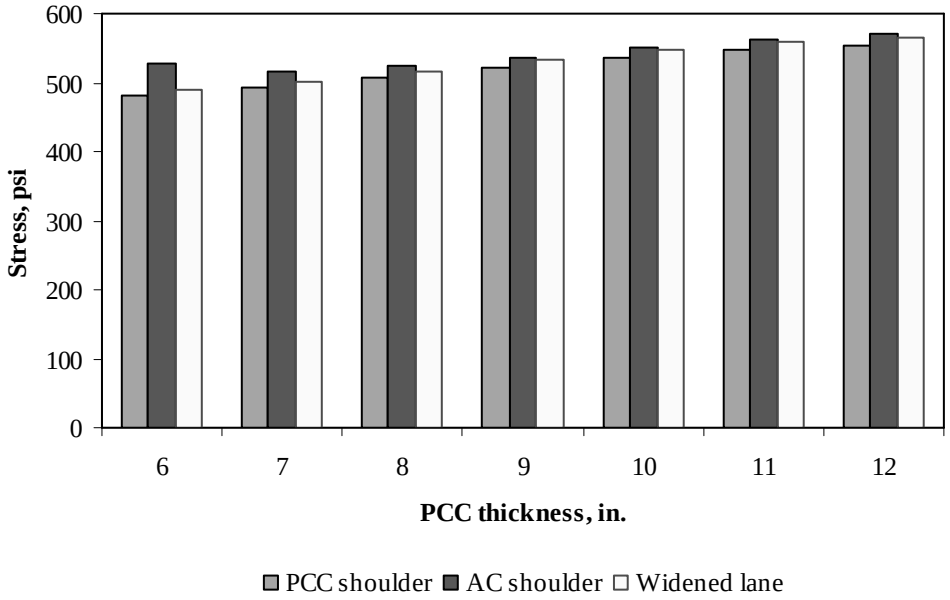


Figure F-14-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

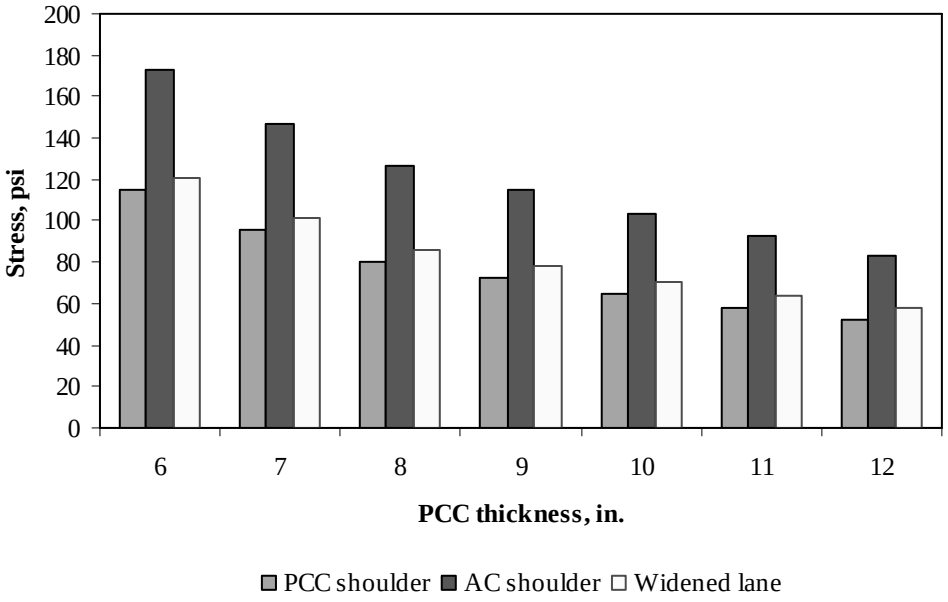


Figure F-14-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

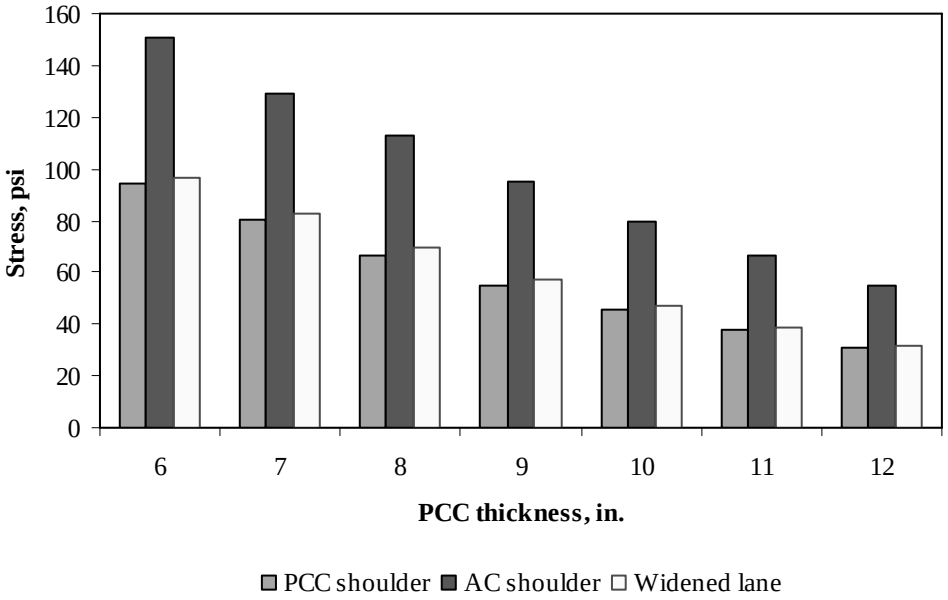


Figure F-14-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

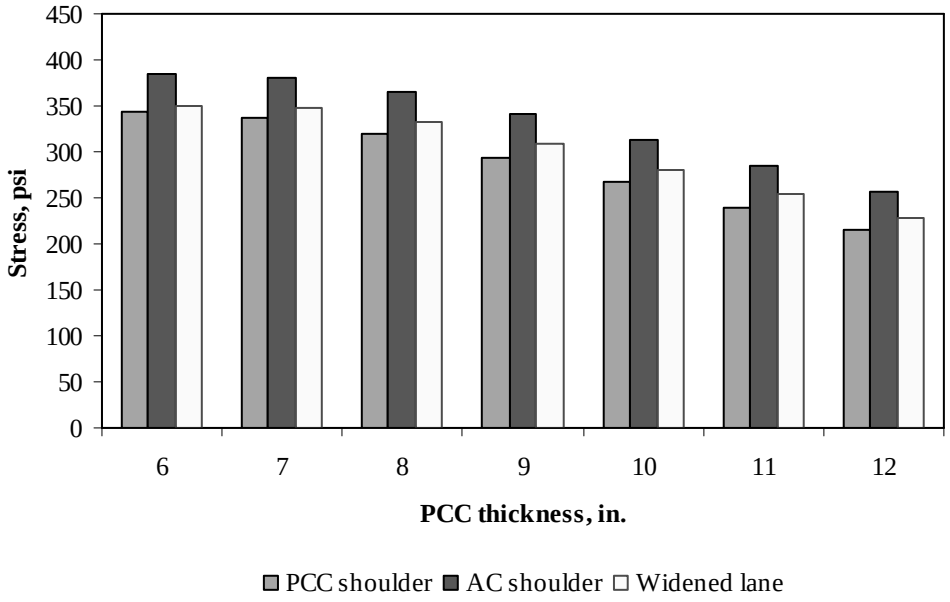


Figure F-14-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

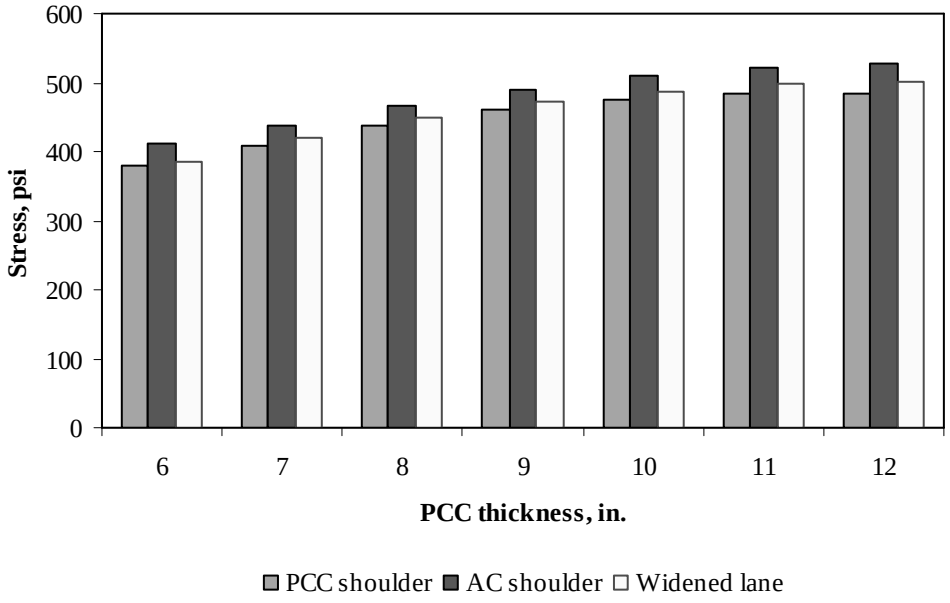


Figure F-14-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

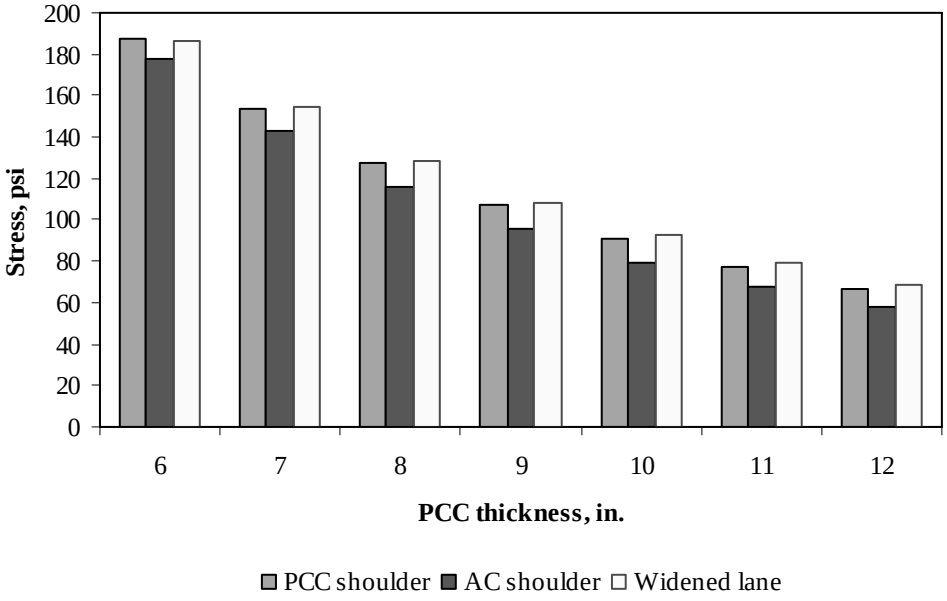


Figure F-14-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

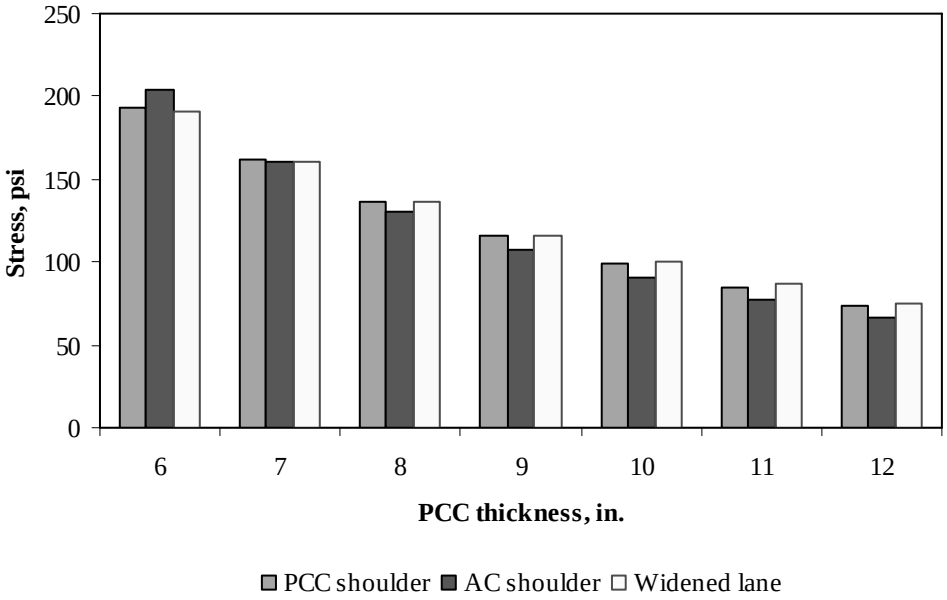


Figure F-14-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

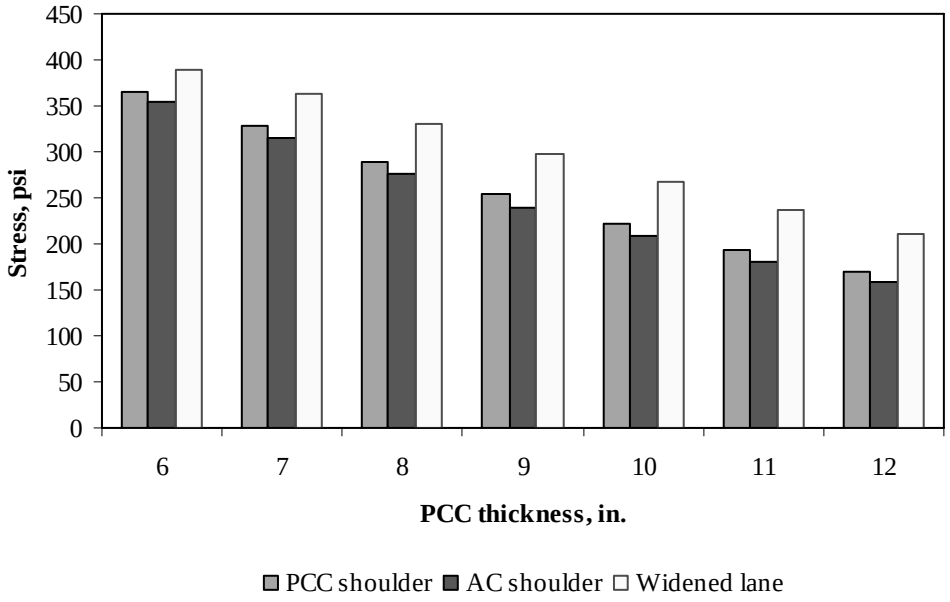


Figure F-14-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

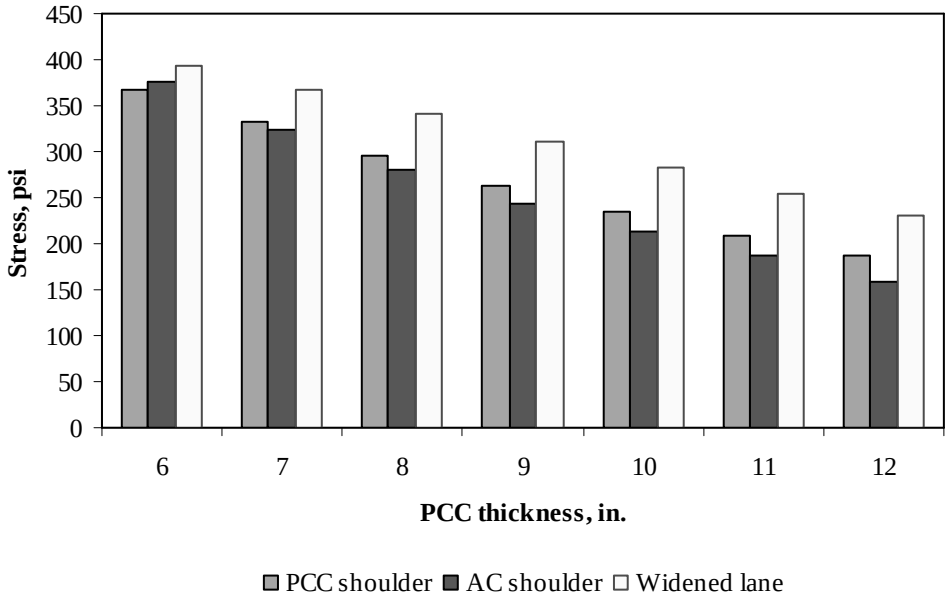


Figure F-14-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-14-37 through F-14-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

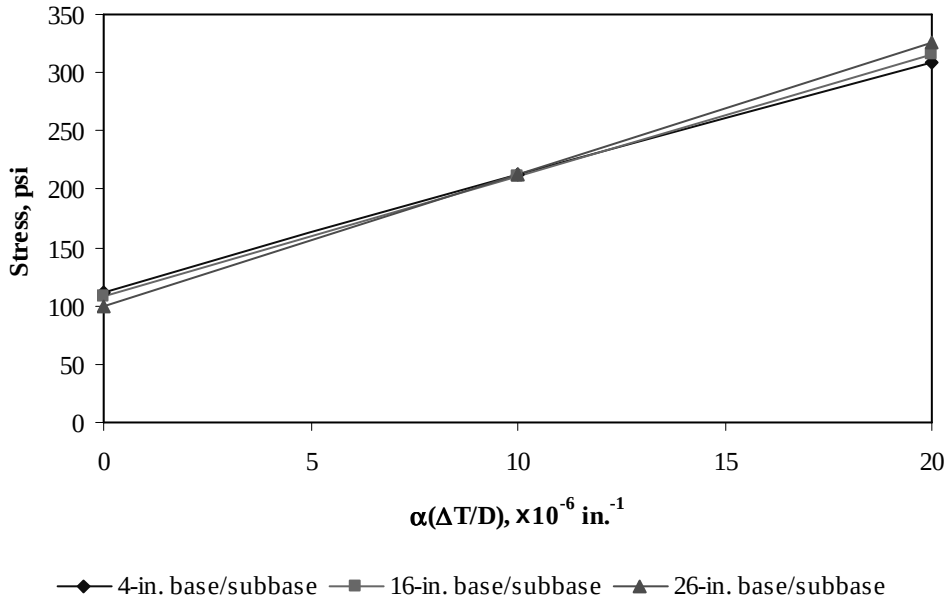


Figure F-14-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

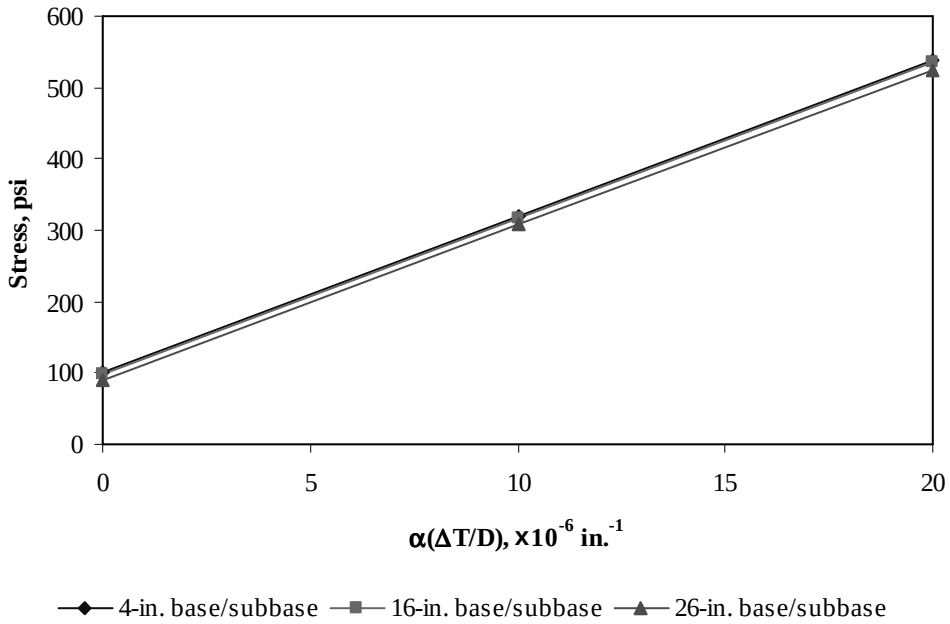


Figure F-14-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

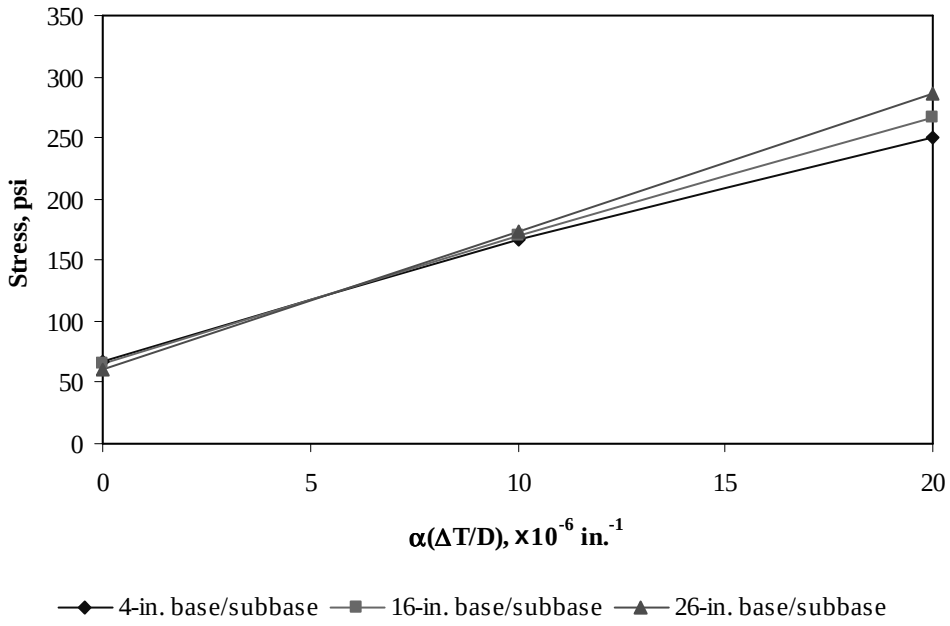


Figure F-14-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

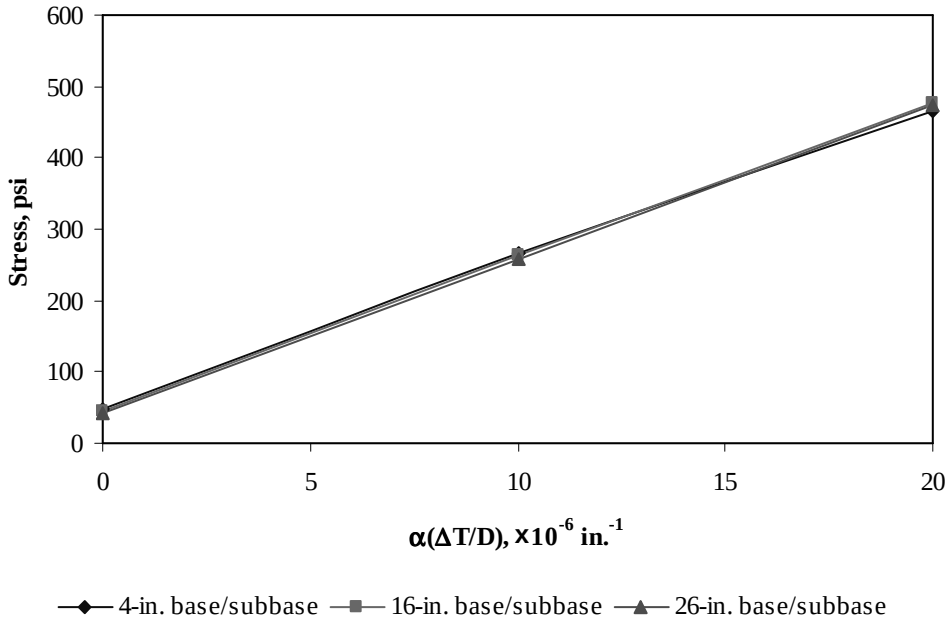


Figure F-14-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

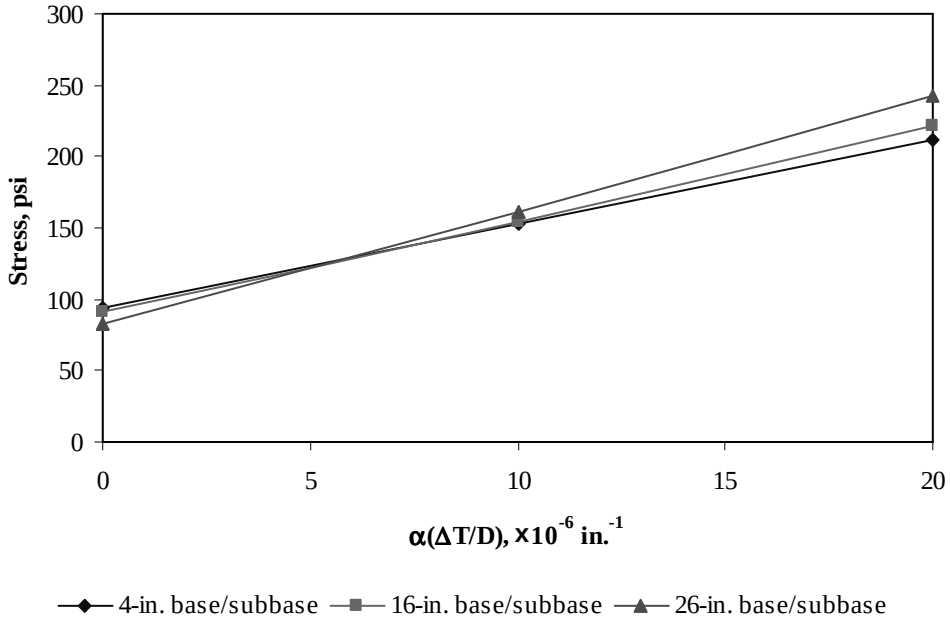


Figure F-14-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

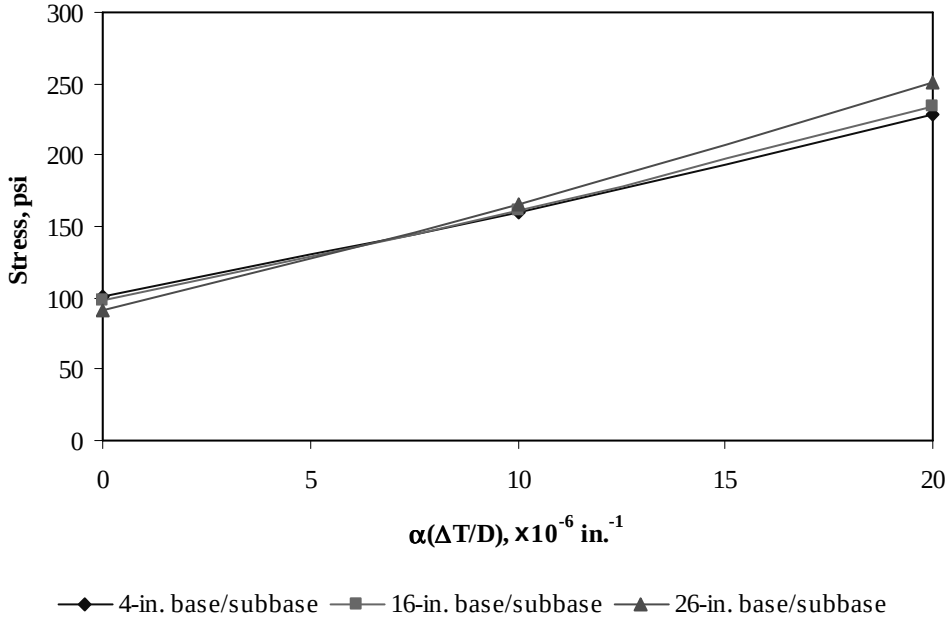


Figure F-14-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-14-43 through F-14-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

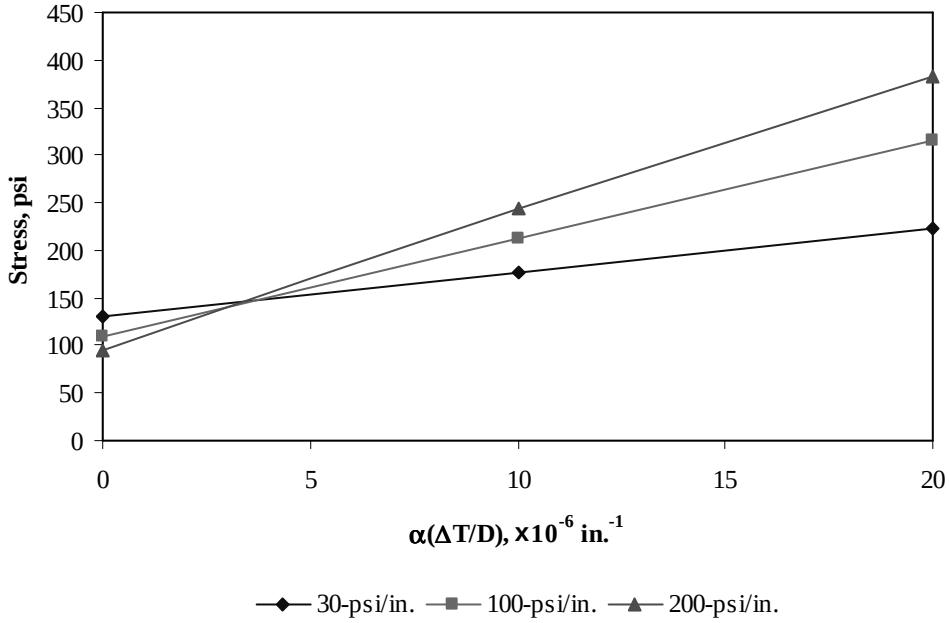


Figure F-14-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

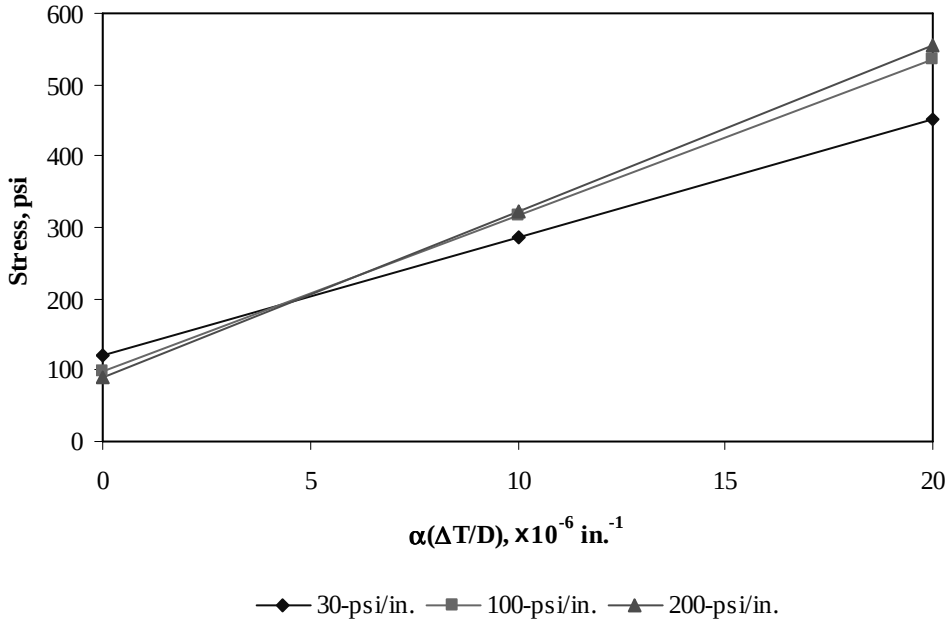


Figure F-14-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

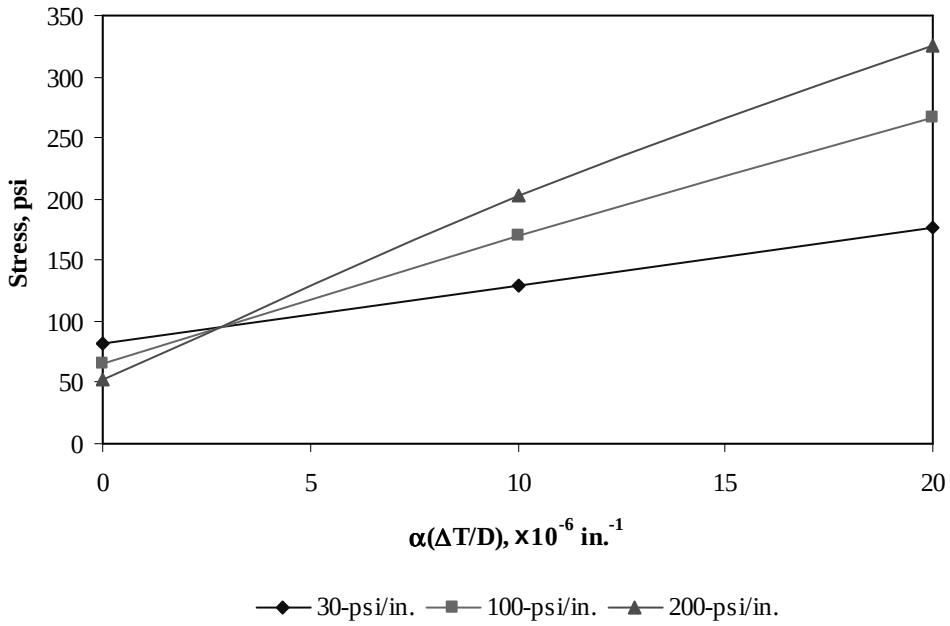


Figure F-14-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

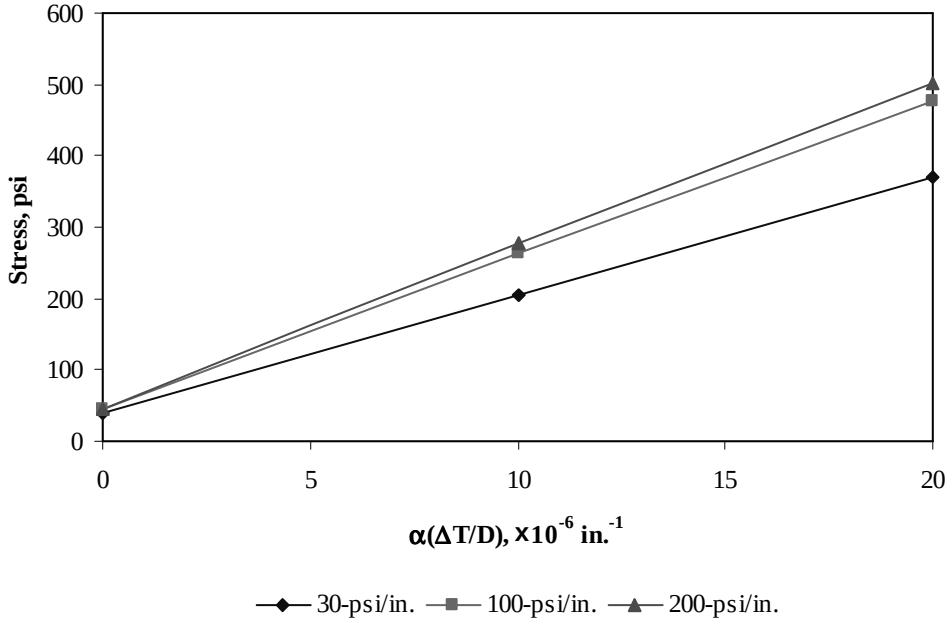


Figure F-14-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

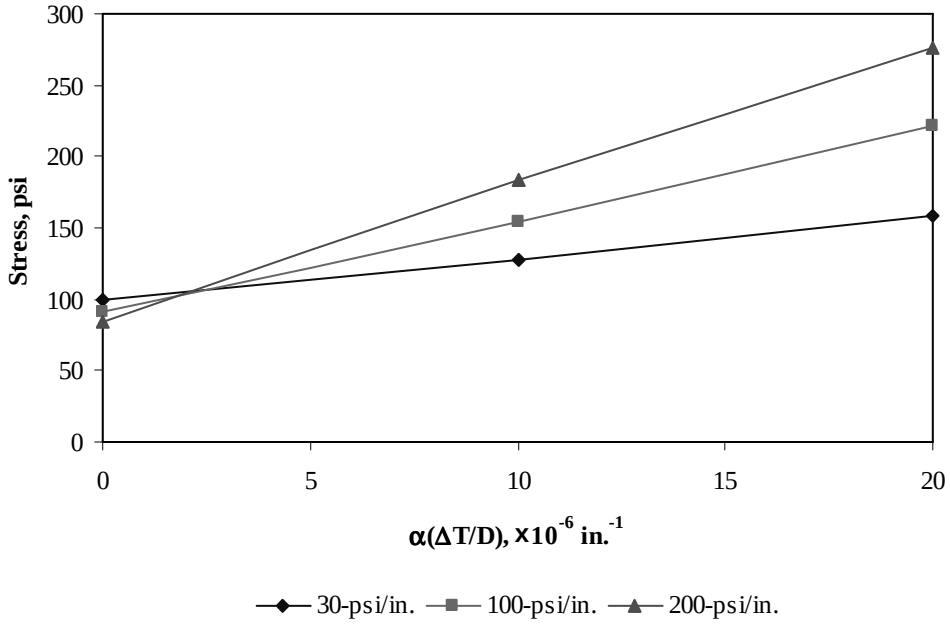


Figure F-14-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

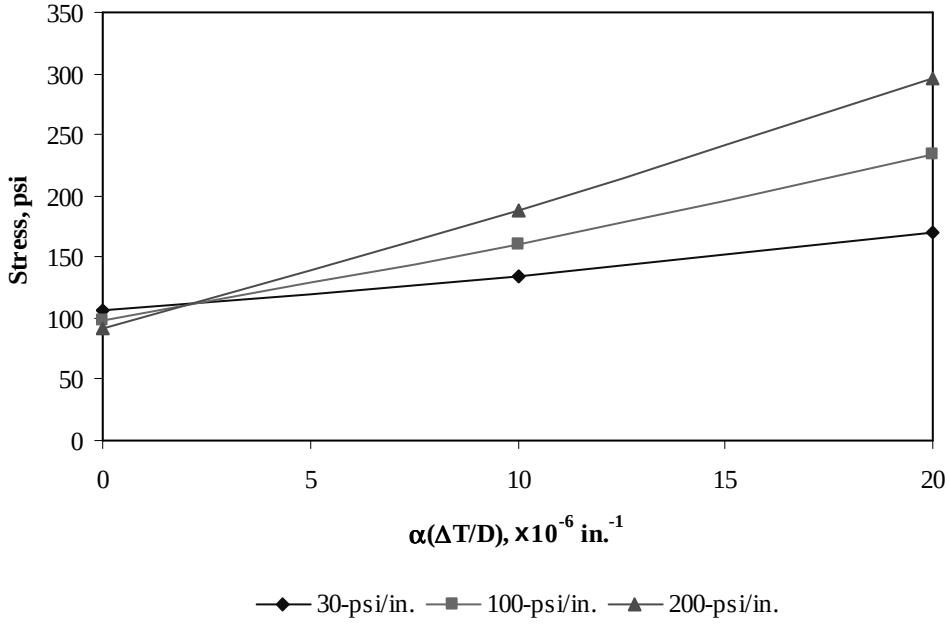


Figure F-14-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-14-49 through F-14-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

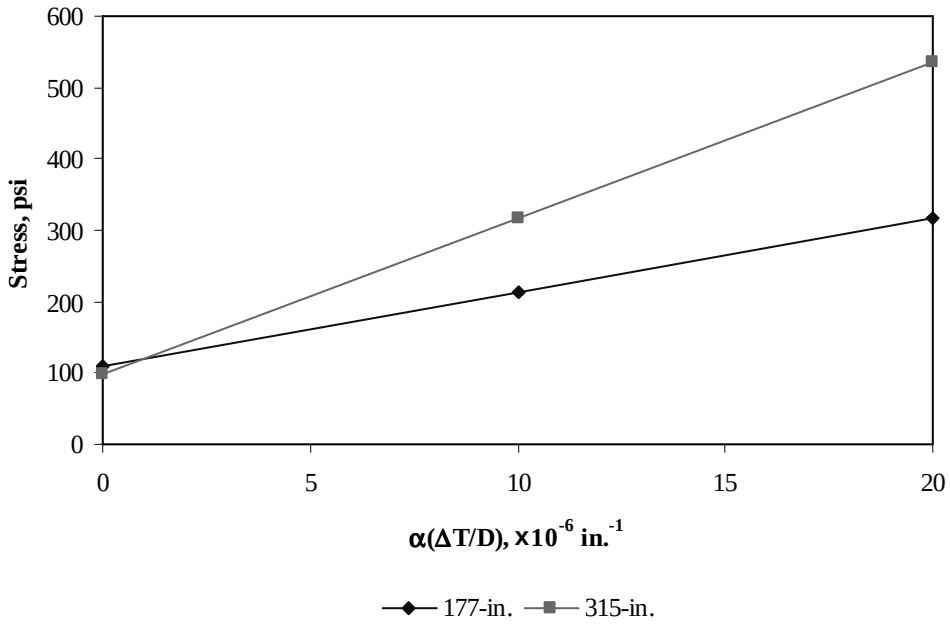


Figure F-14-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

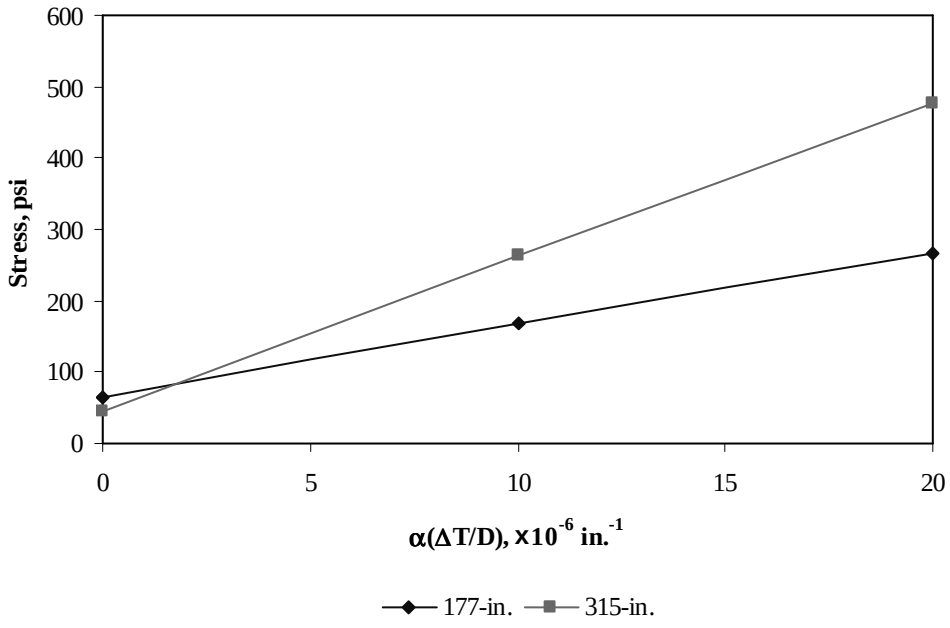


Figure F-14-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

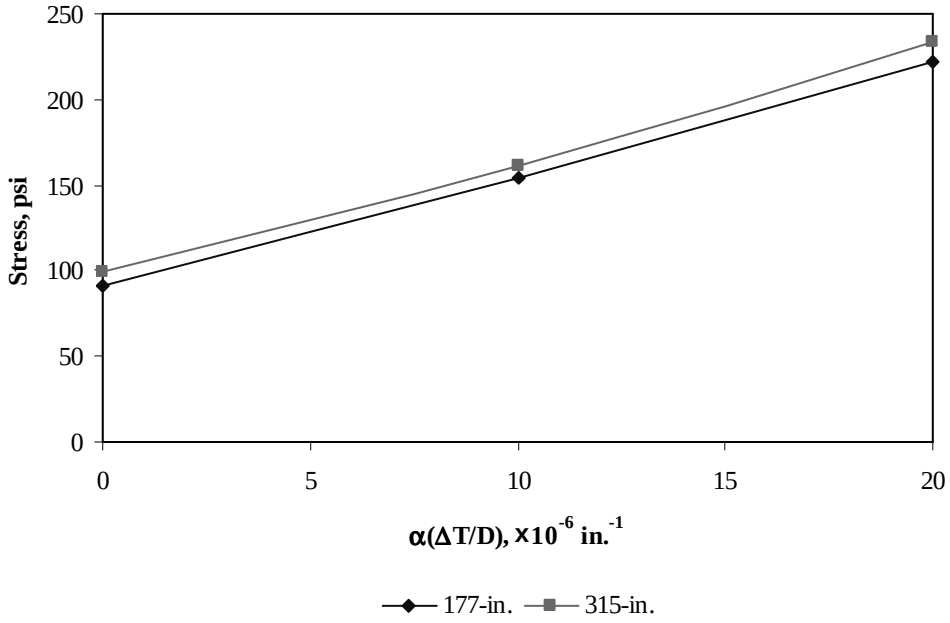
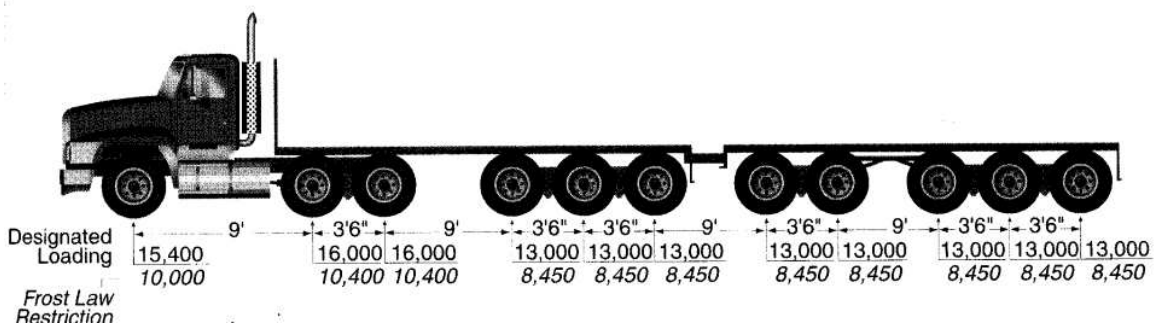


Figure F-14-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-15

Documentation of Pavement Responses for



MI-13

Figures F-15-1 through F-15-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

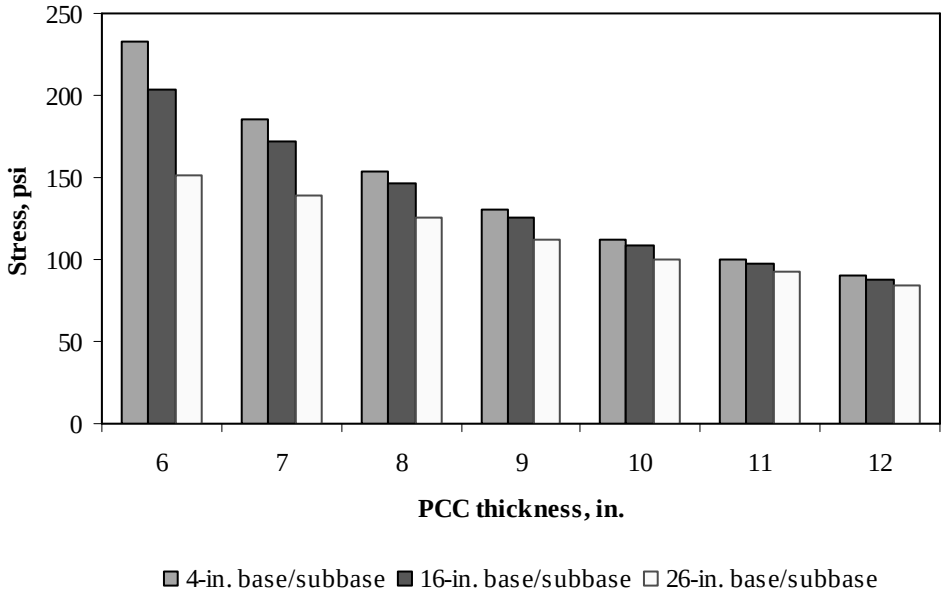


Figure F-15-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

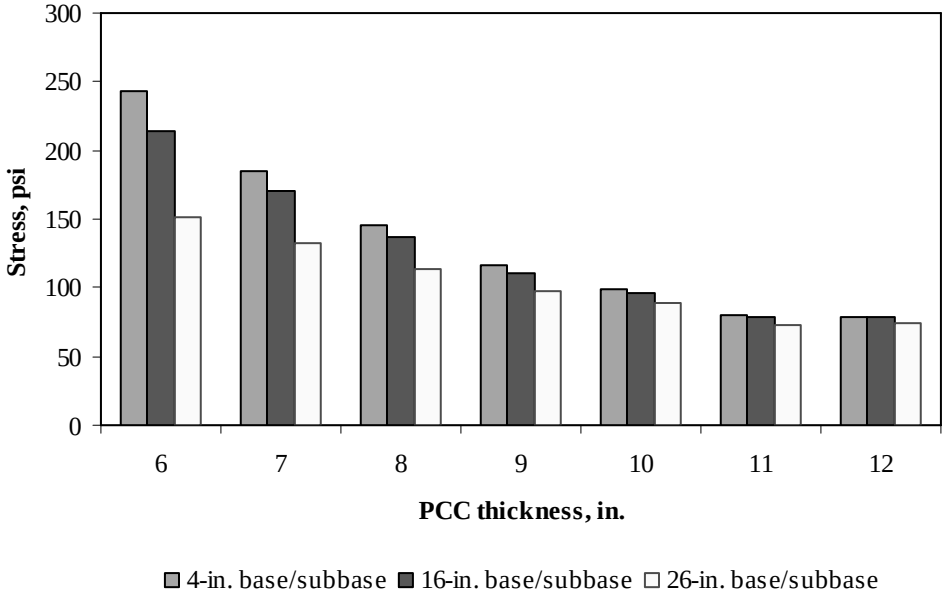


Figure F-15-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

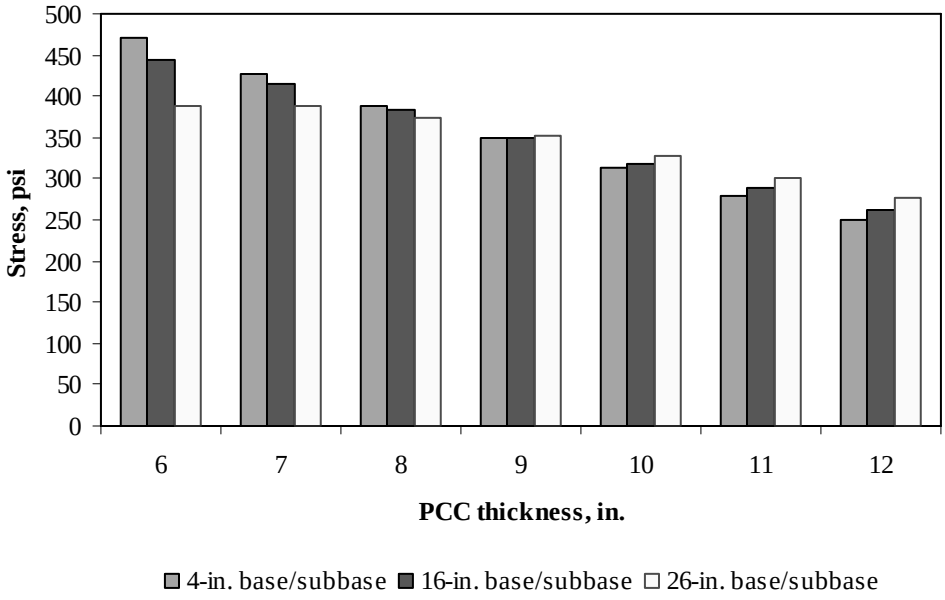


Figure F-15-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

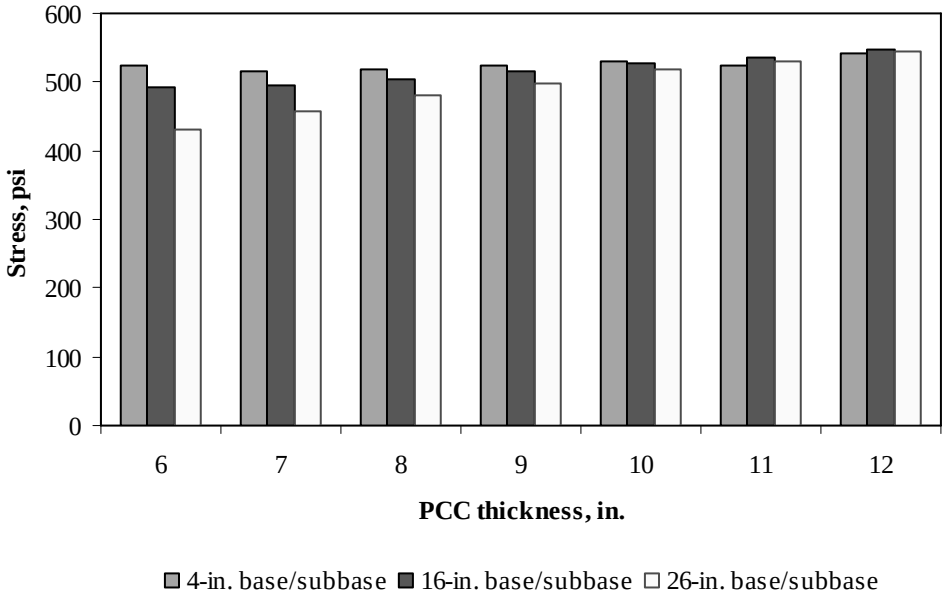


Figure F-15-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

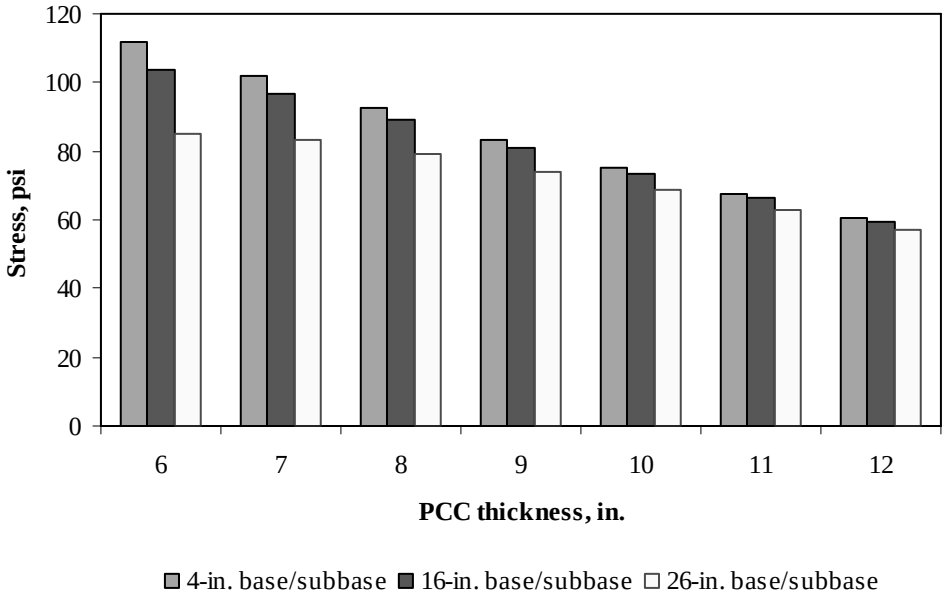


Figure F-15-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

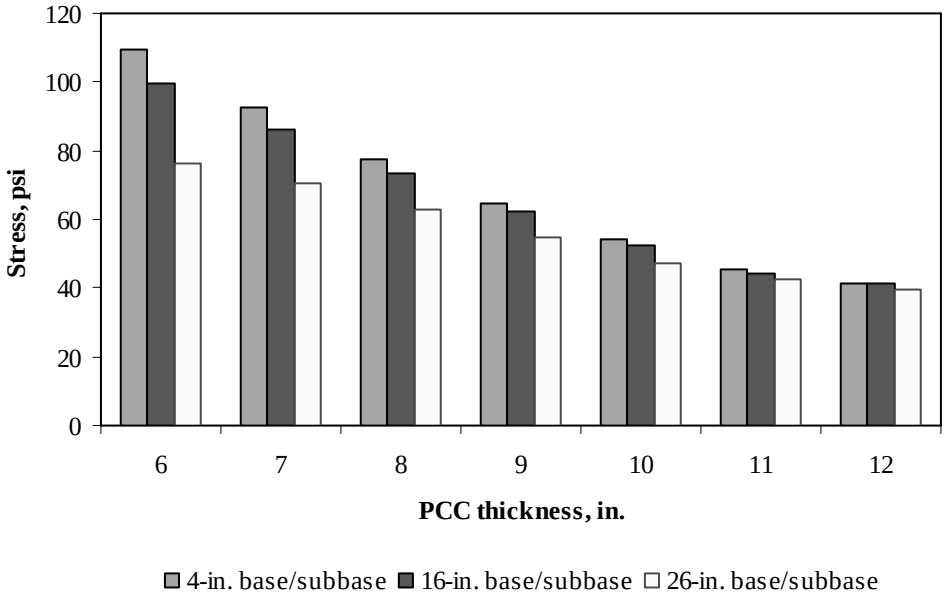


Figure F-15-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

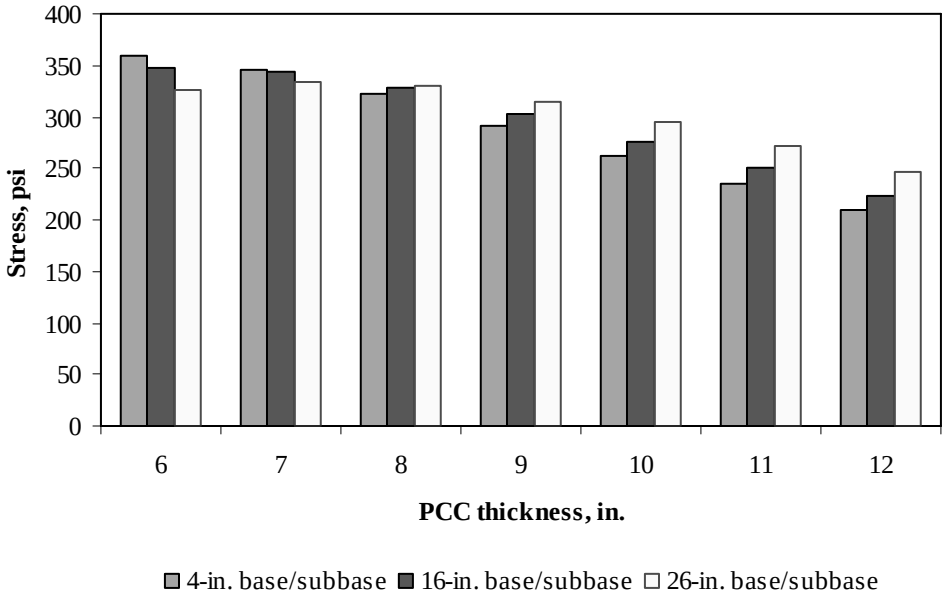


Figure F-15-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

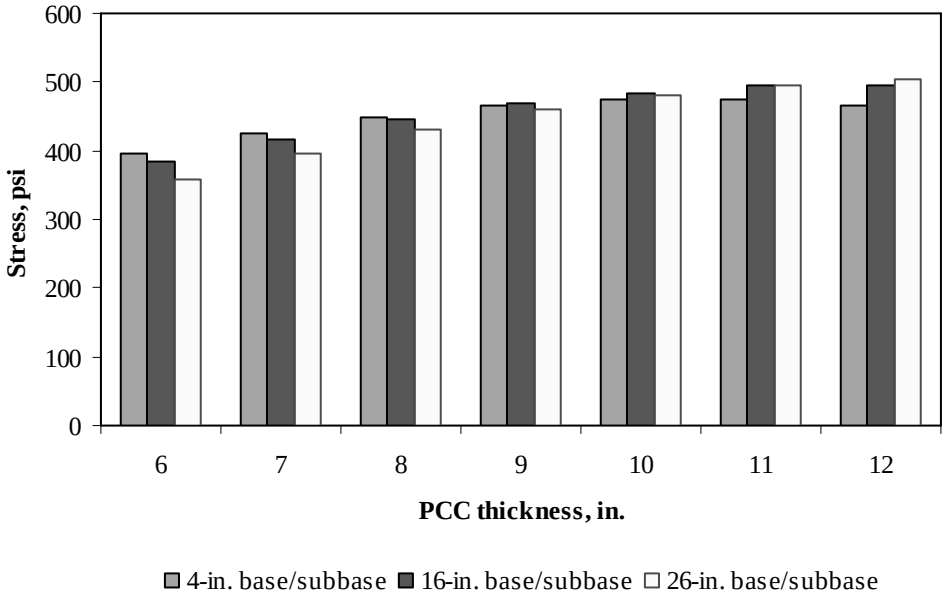


Figure F-15-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

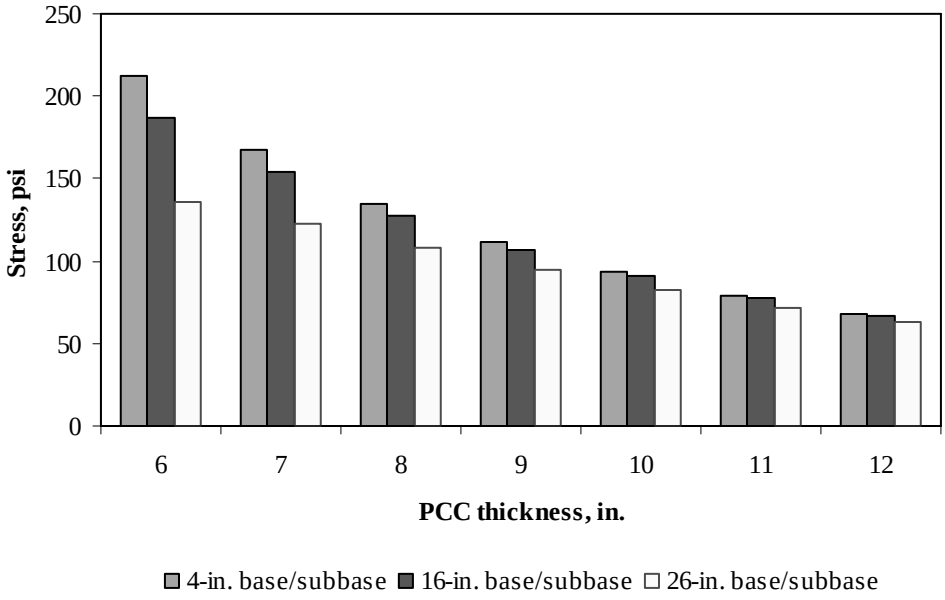


Figure F-15-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

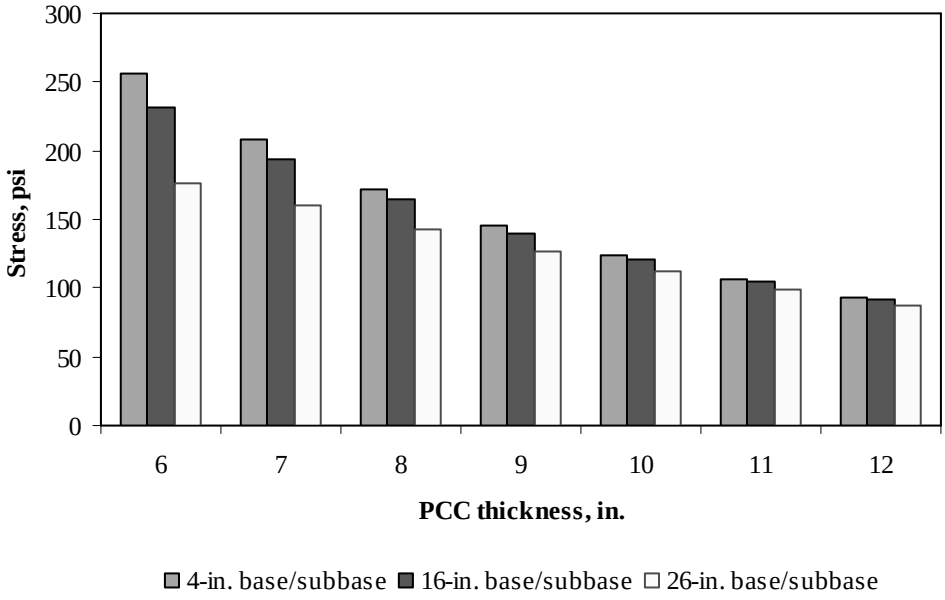


Figure F-15-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

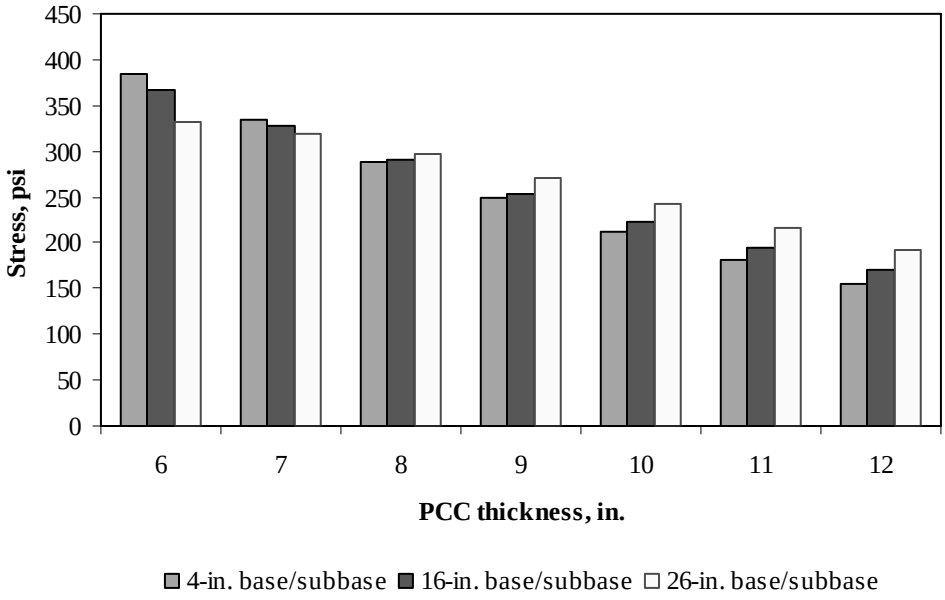


Figure F-15-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

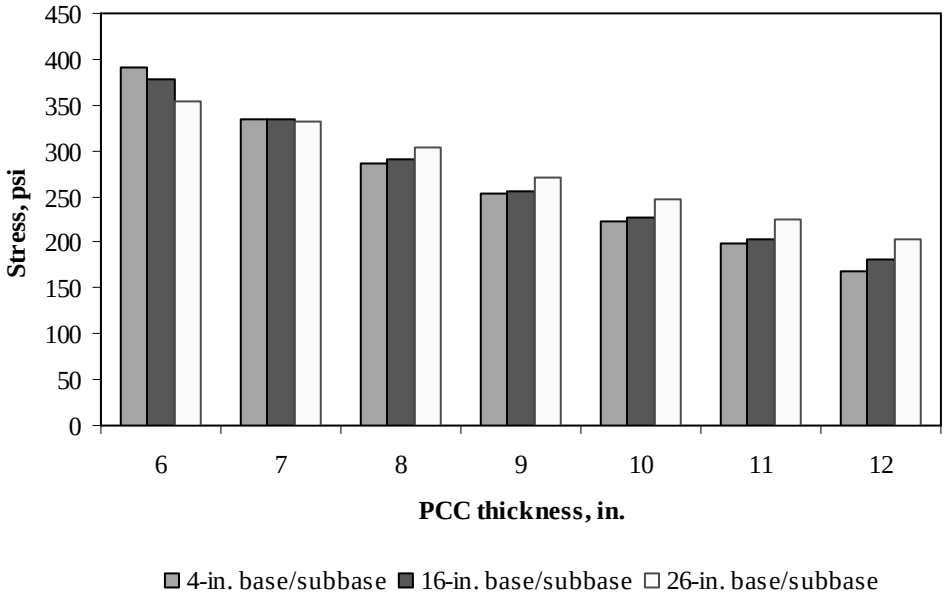


Figure F-15-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-15-13 through F-15-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

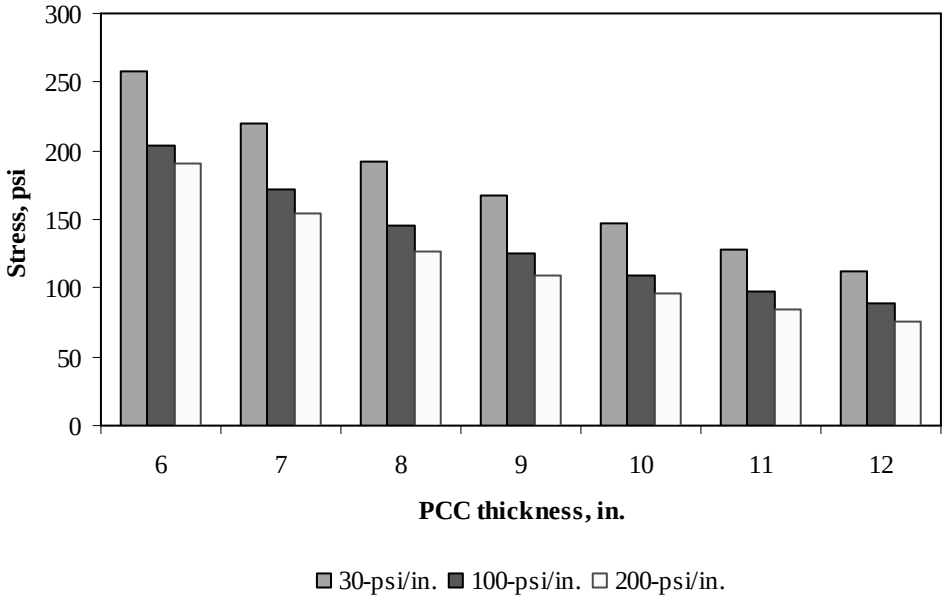


Figure F-15-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

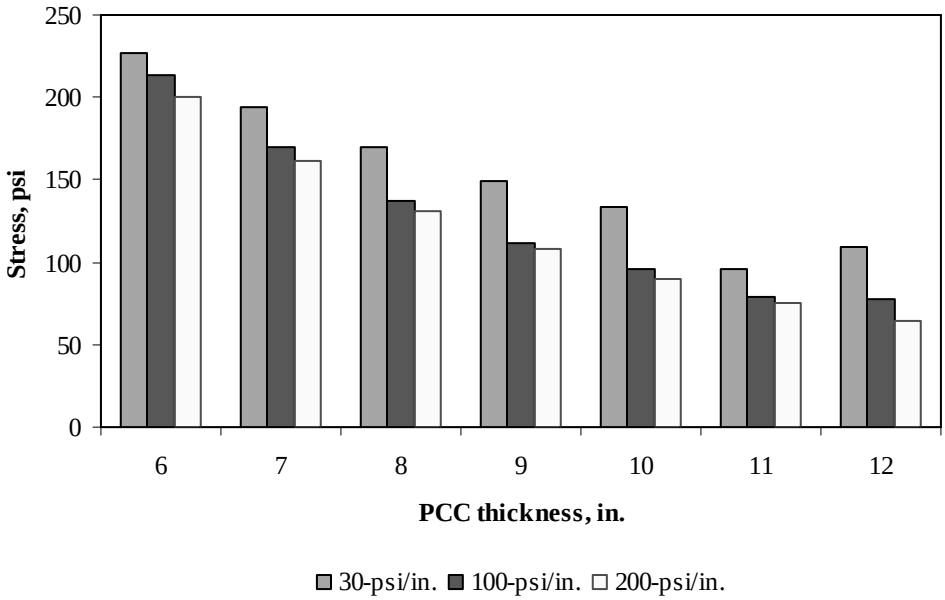


Figure F-15-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

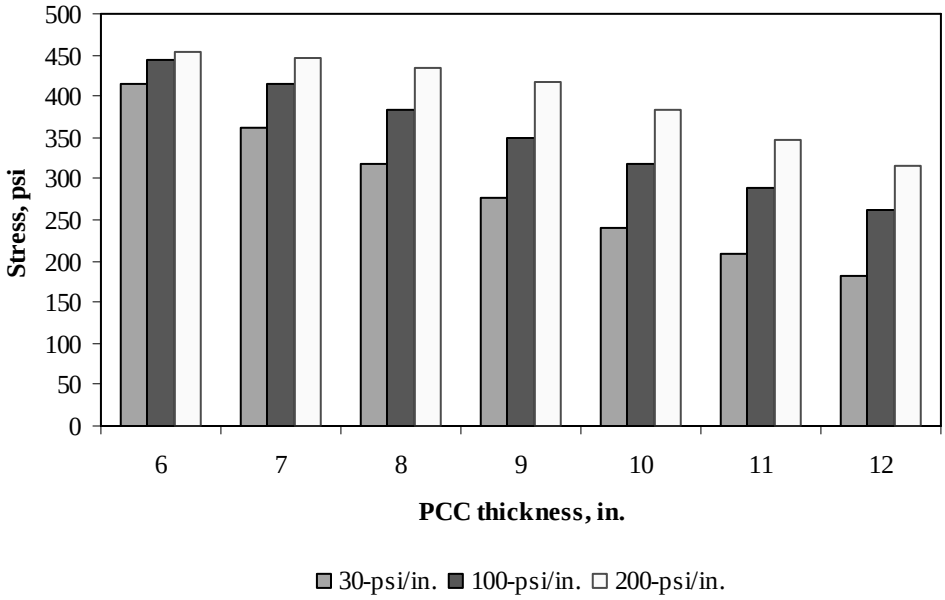


Figure F-15-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

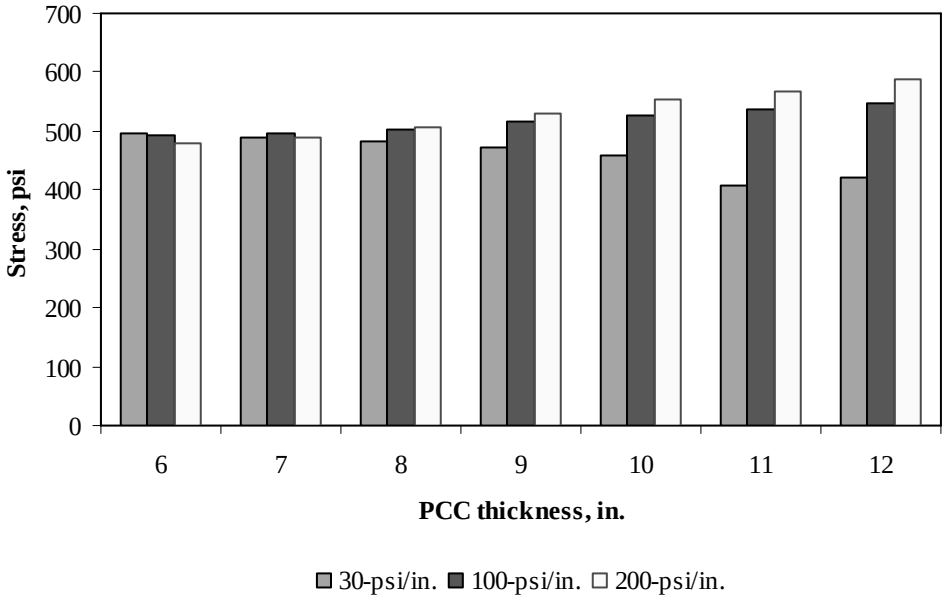


Figure F-15-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

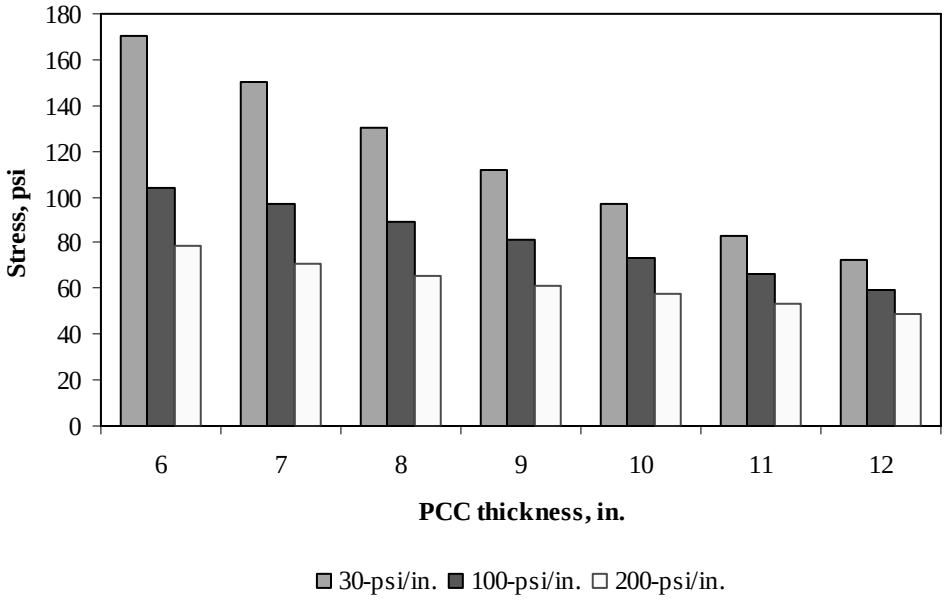


Figure F-15-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

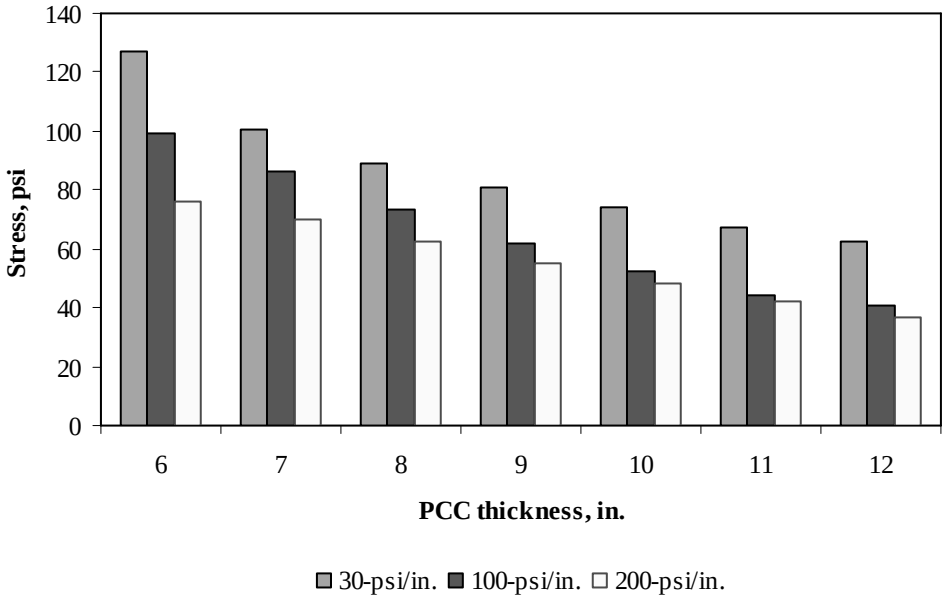


Figure F-15-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

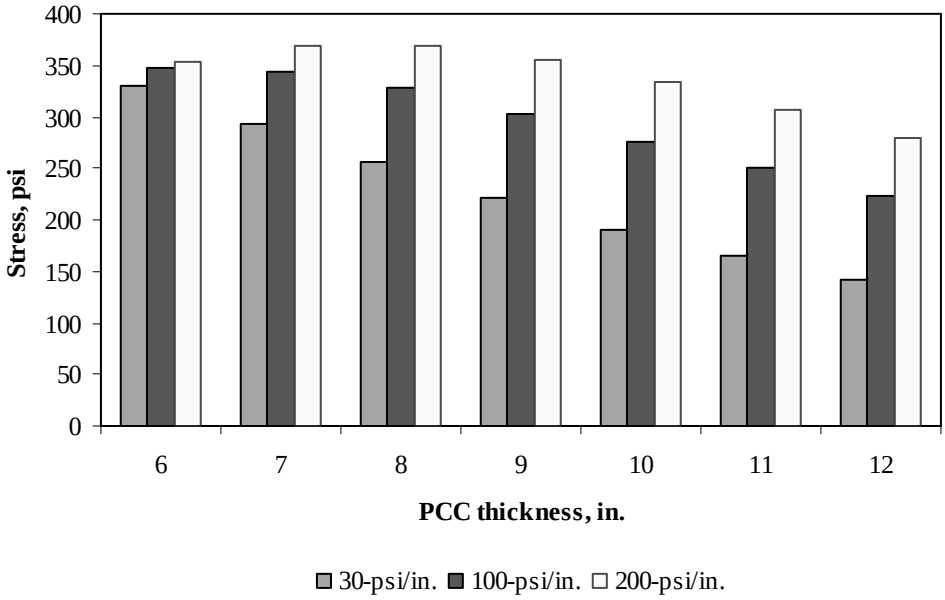


Figure F-15-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

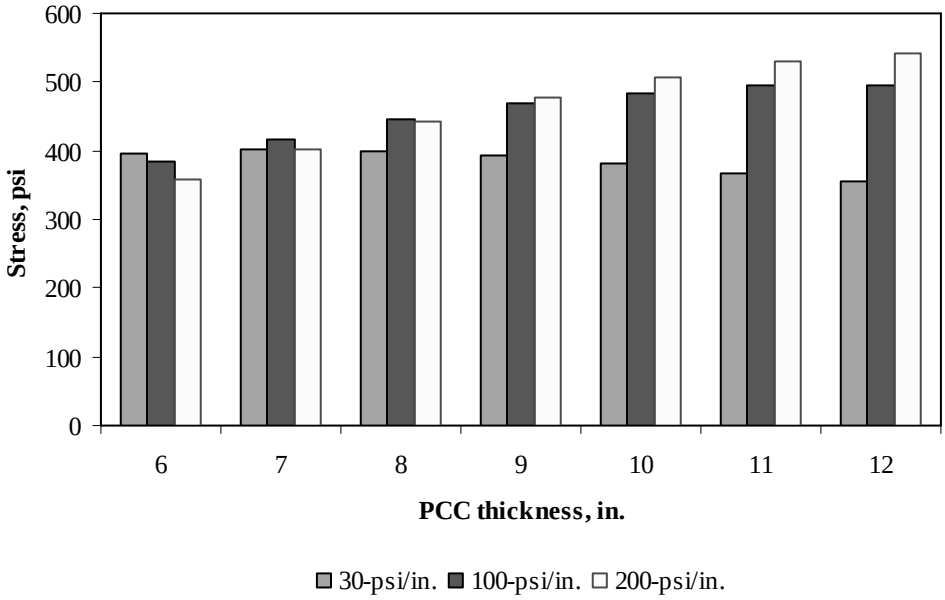


Figure F-15-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

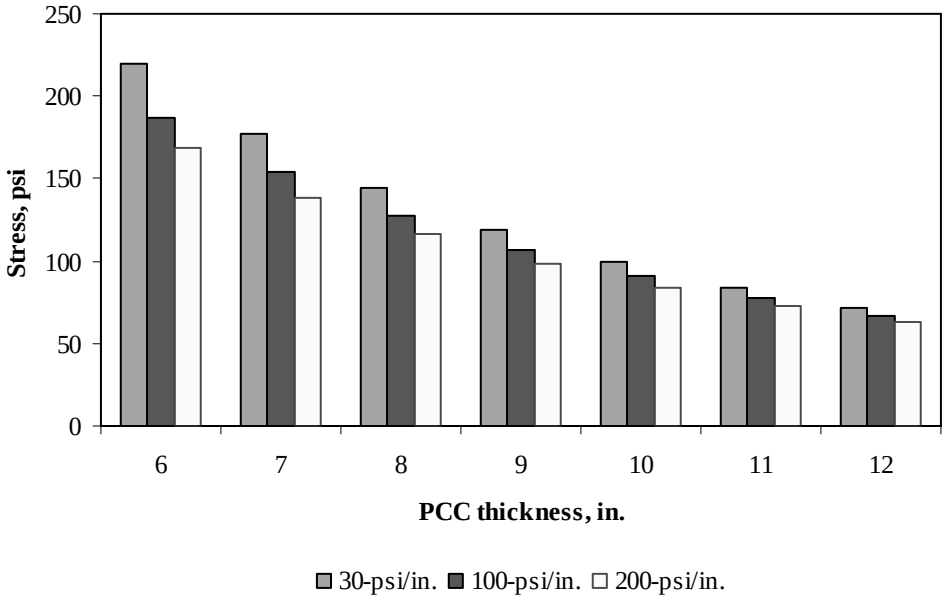


Figure F-15-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

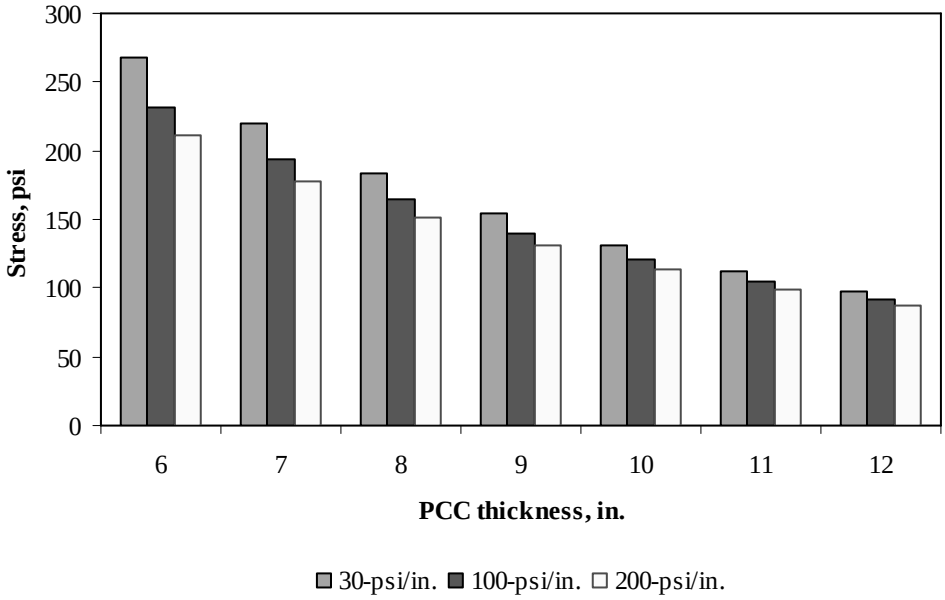


Figure F-15-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

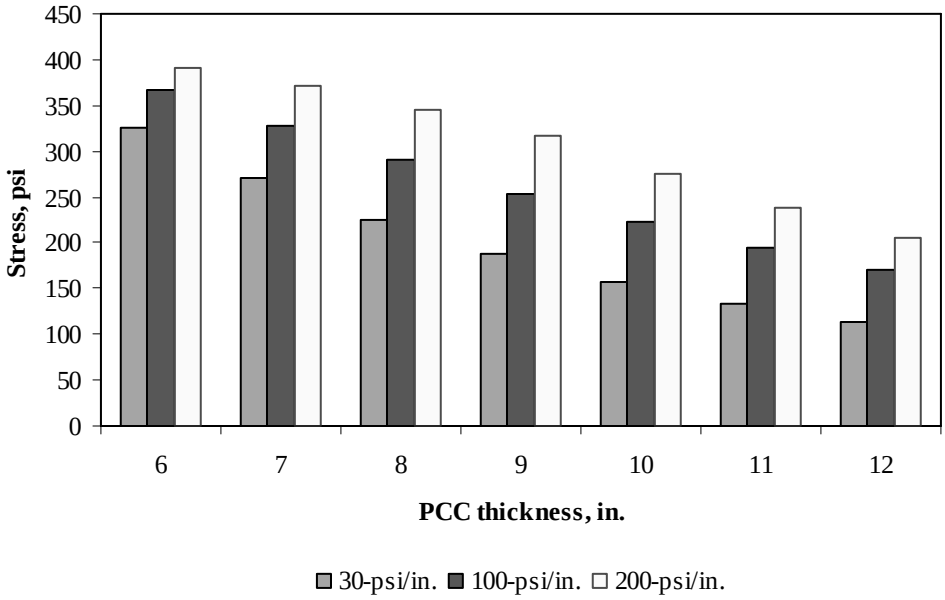


Figure F-15-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

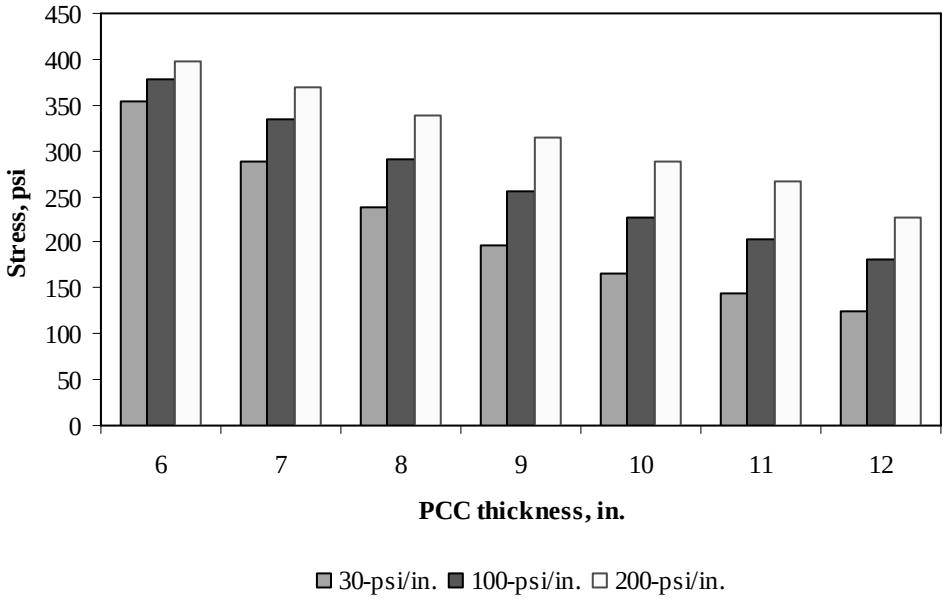


Figure F-15-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-15-25 through F-15-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

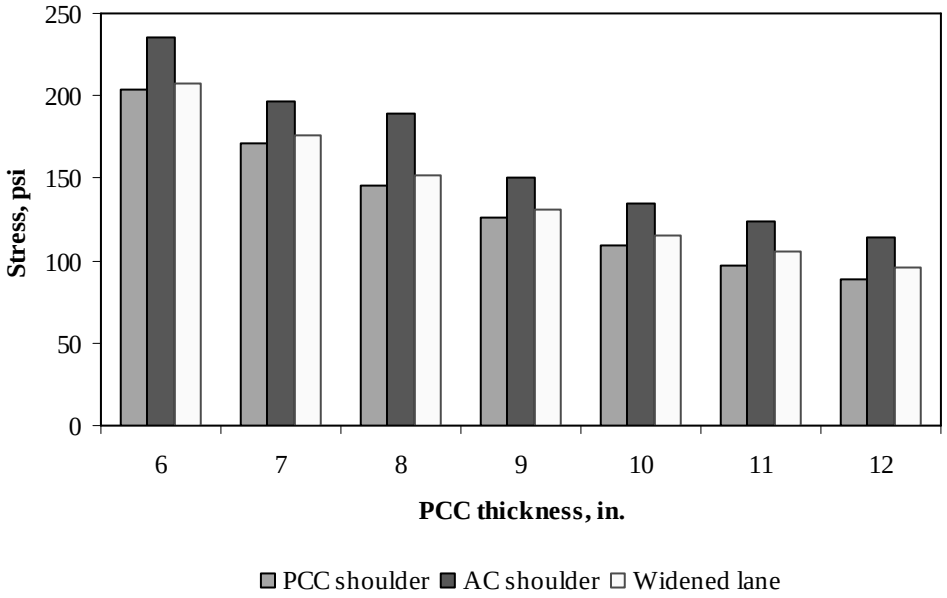


Figure F-15-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

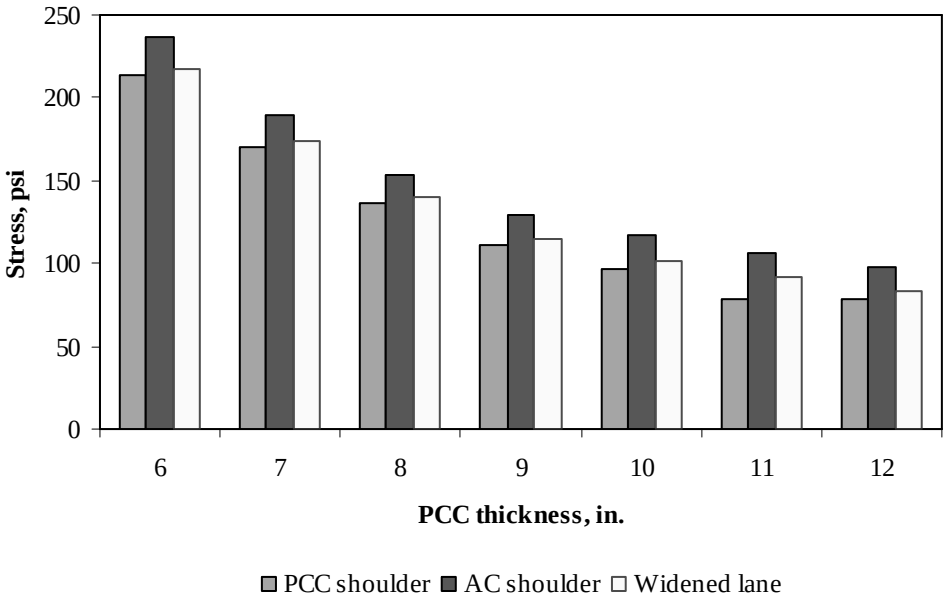


Figure F-15-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

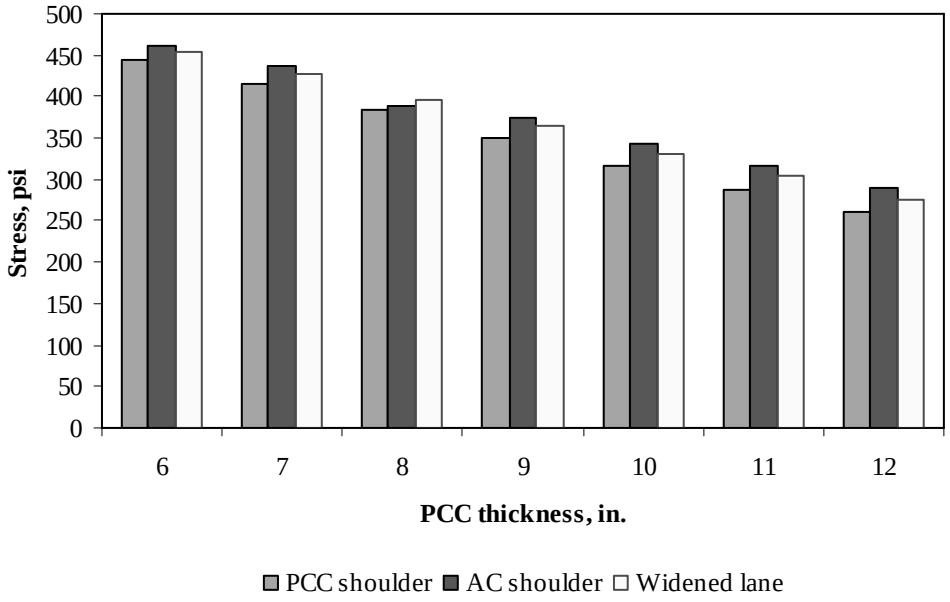


Figure F-15-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

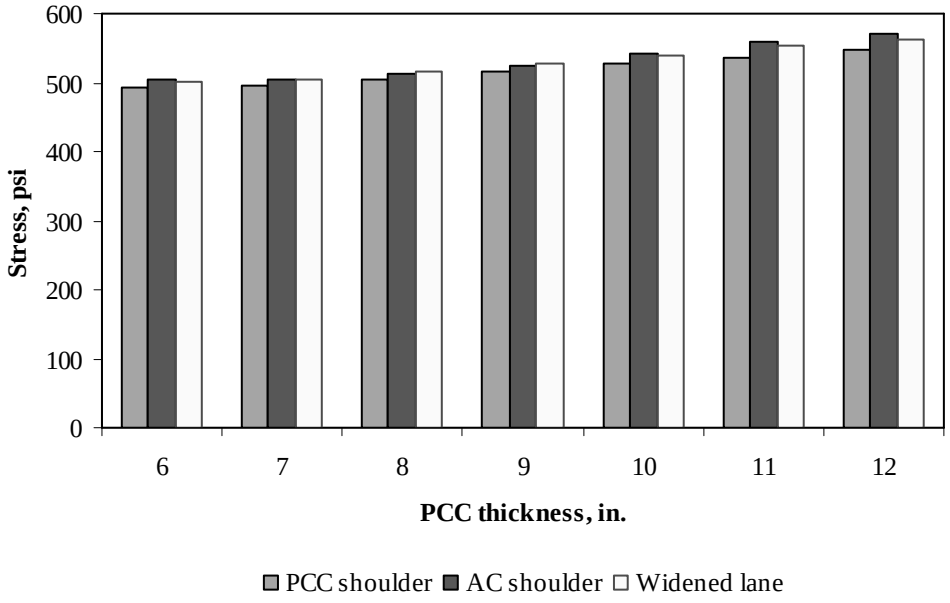


Figure F-15-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

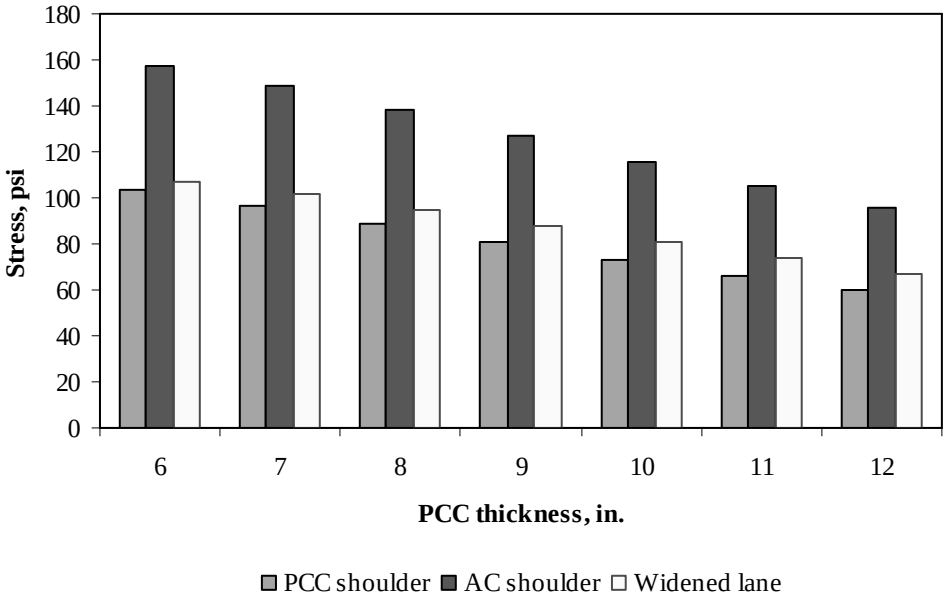


Figure F-15-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

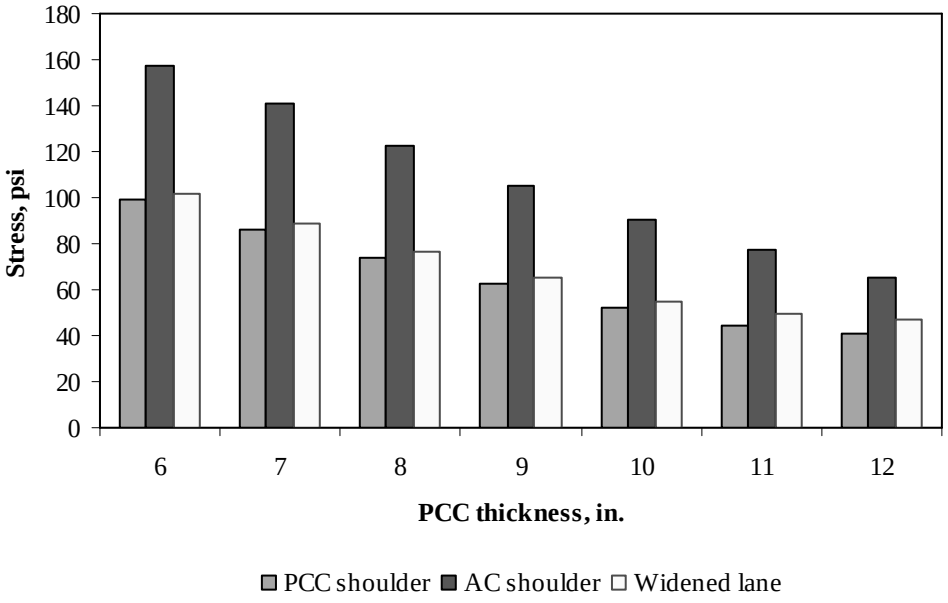


Figure F-15-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

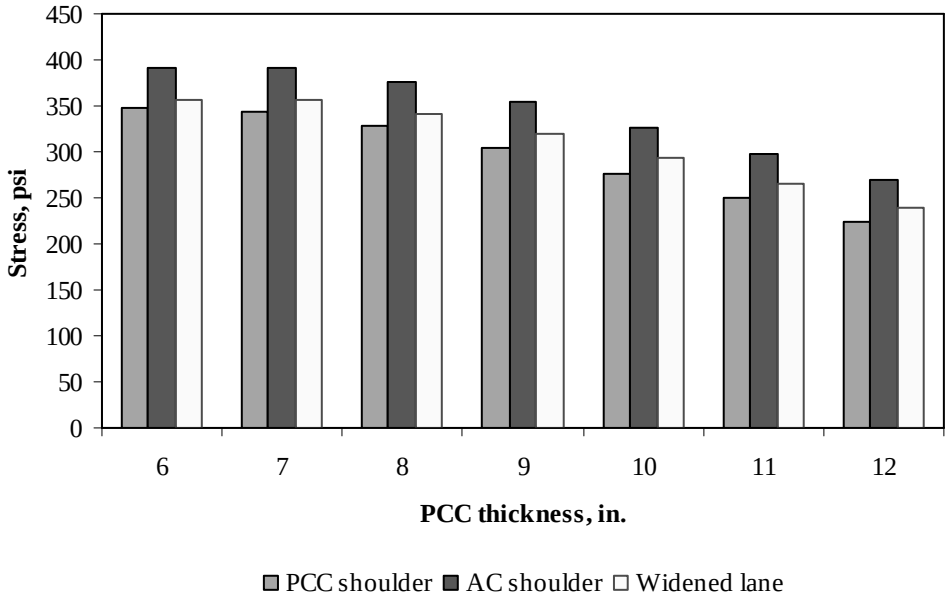


Figure F-15-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

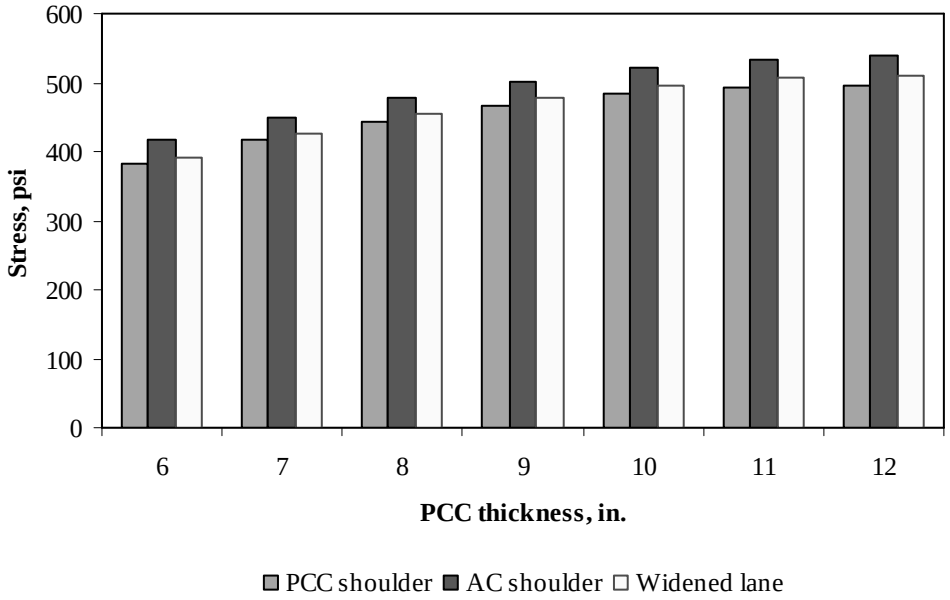


Figure F-15-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

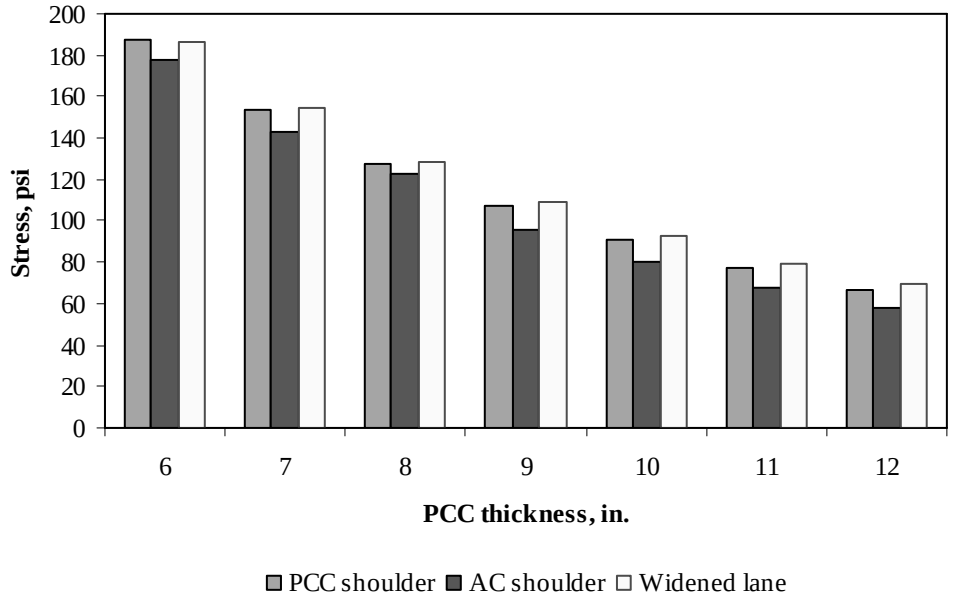


Figure F-15-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

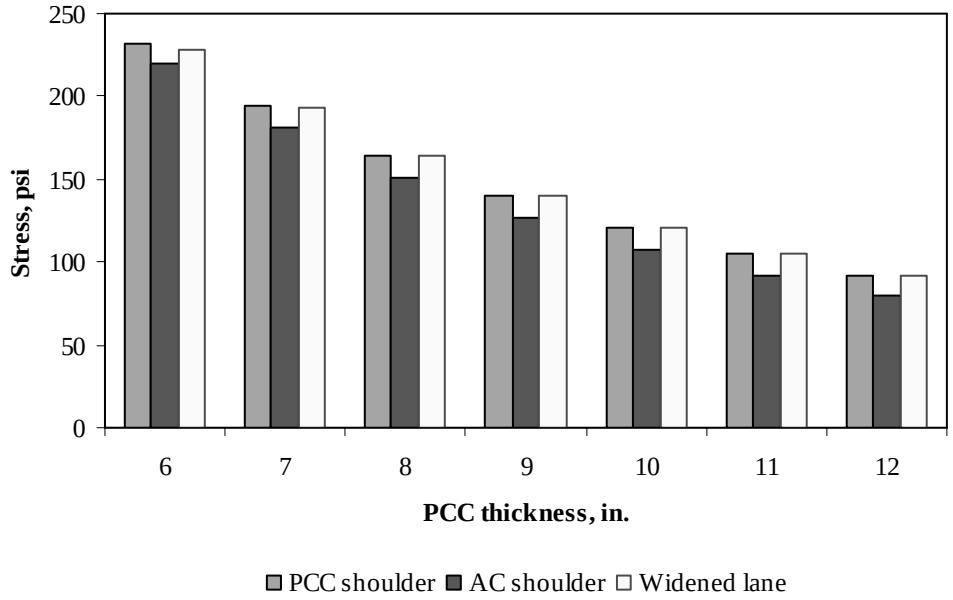


Figure F-15-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

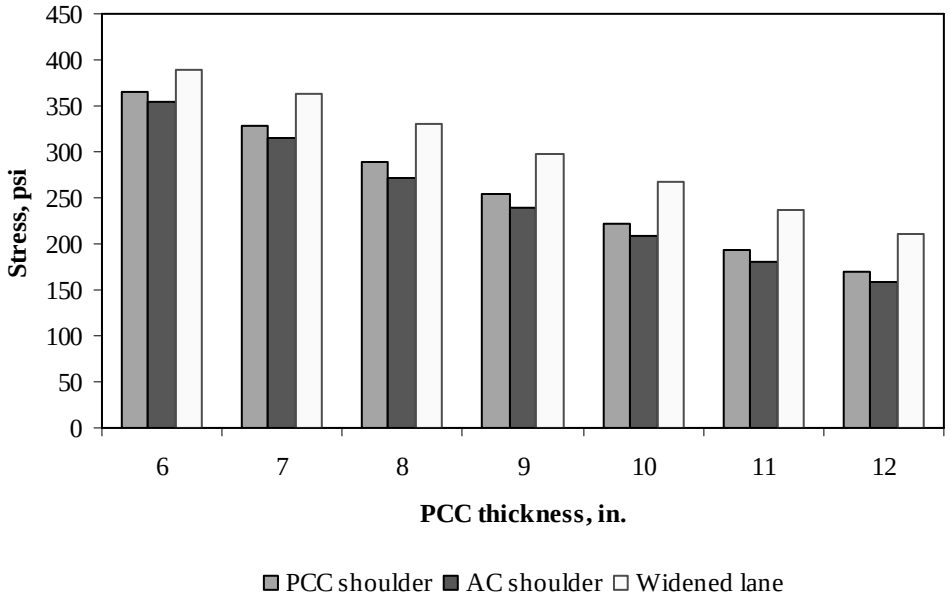


Figure F-15-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

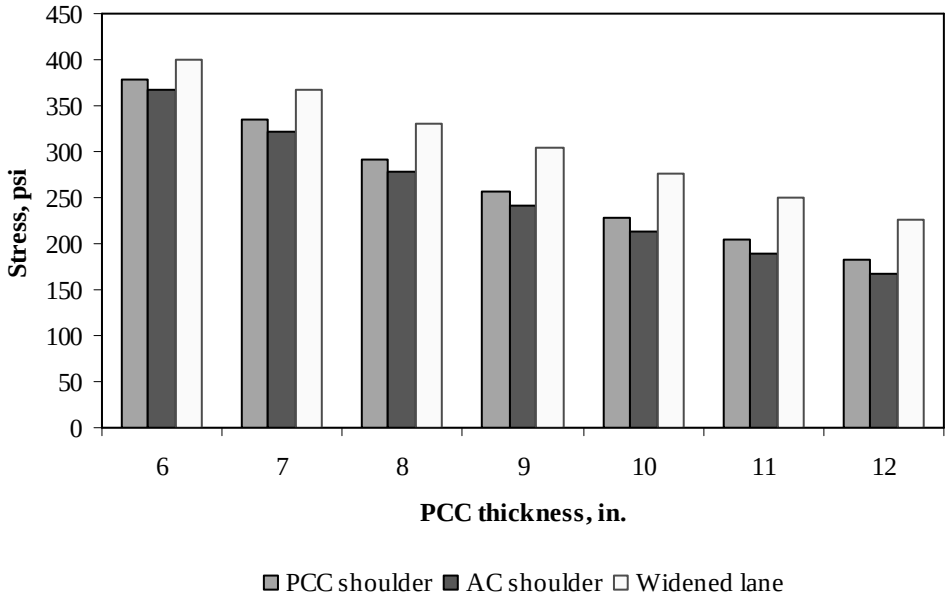


Figure F-15-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-15-37 through F-15-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

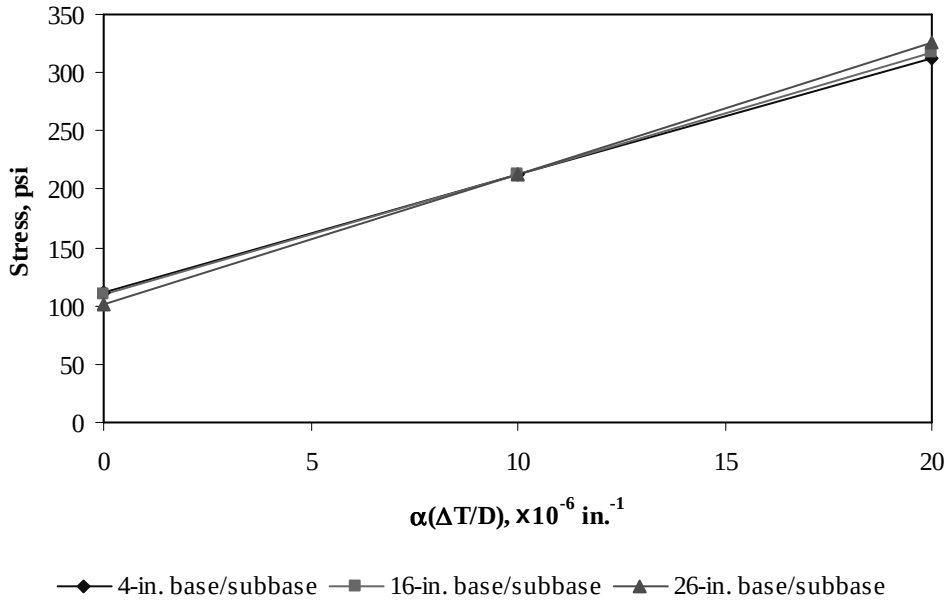


Figure F-15-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

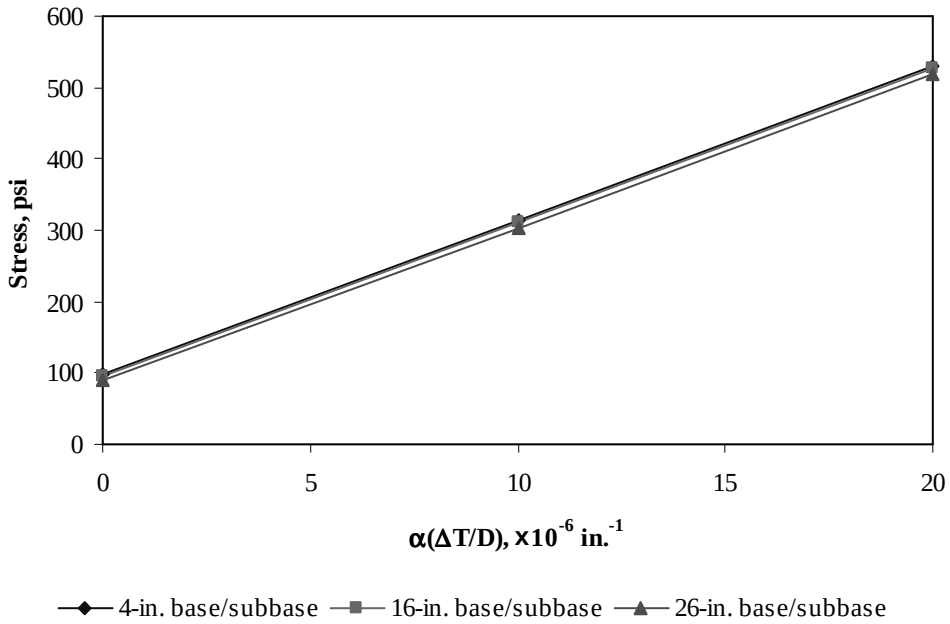


Figure F-15-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

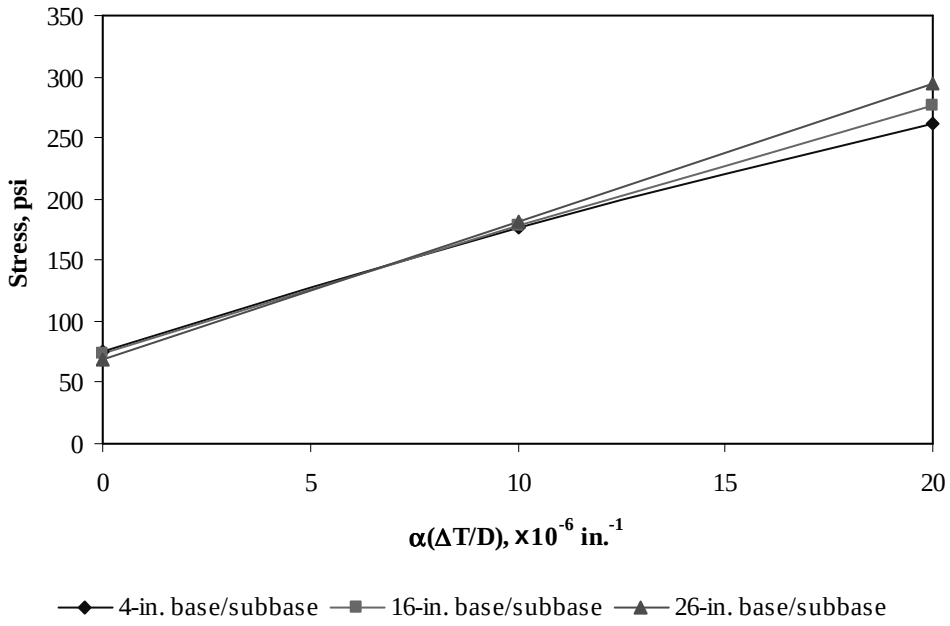


Figure F-15-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

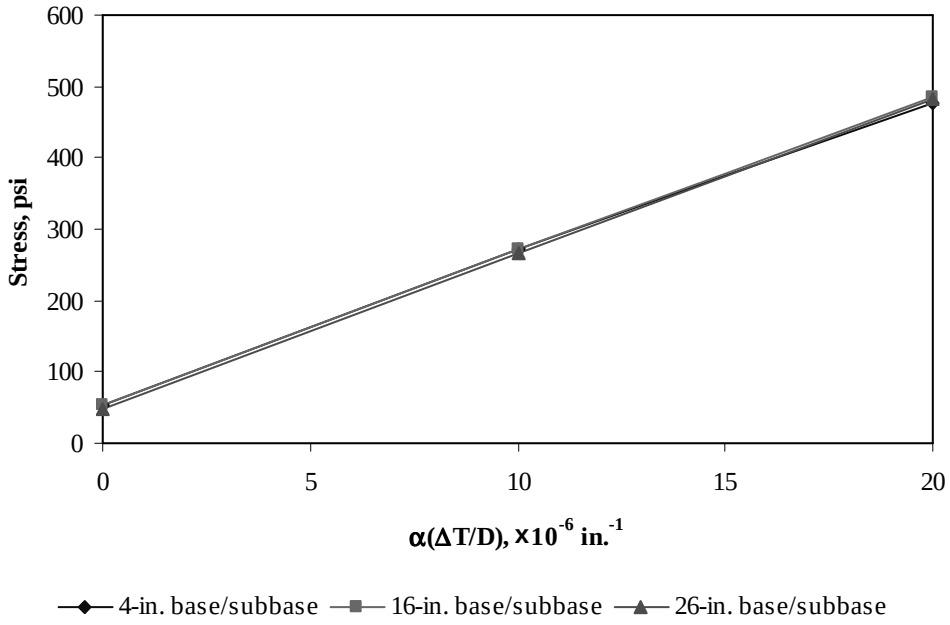


Figure F-15-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

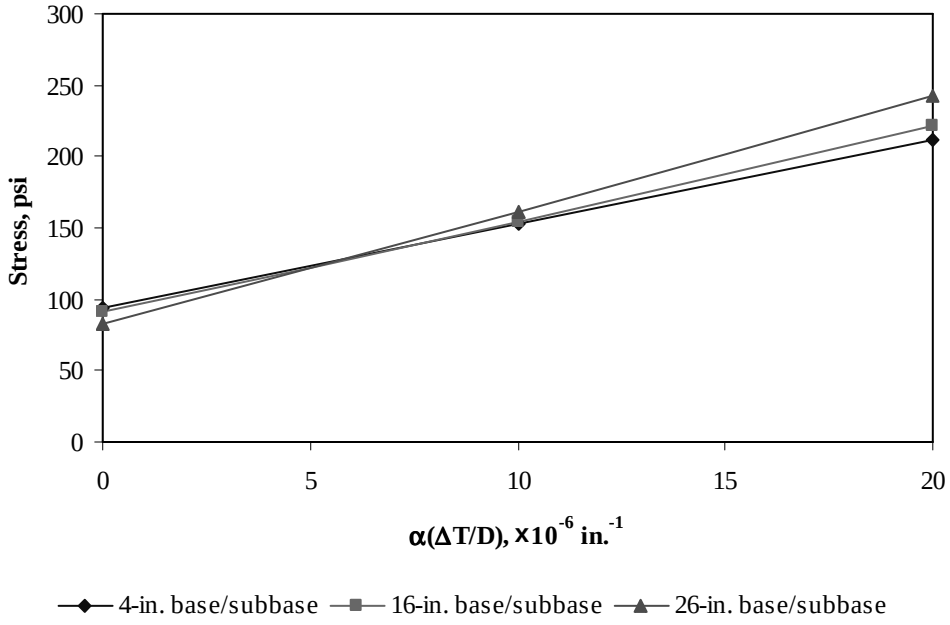


Figure F-15-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

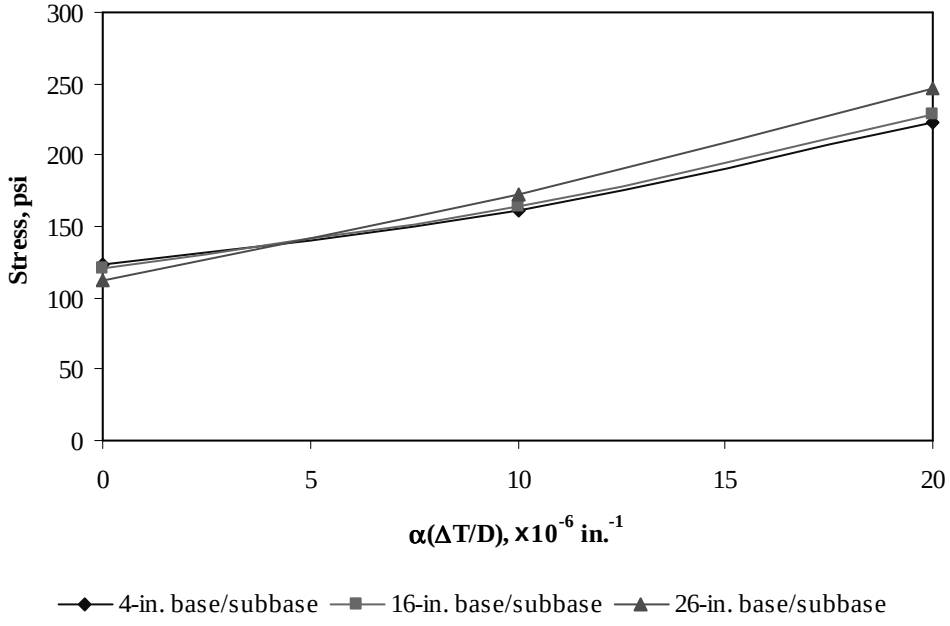


Figure F-15-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-15-43 through F-15-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

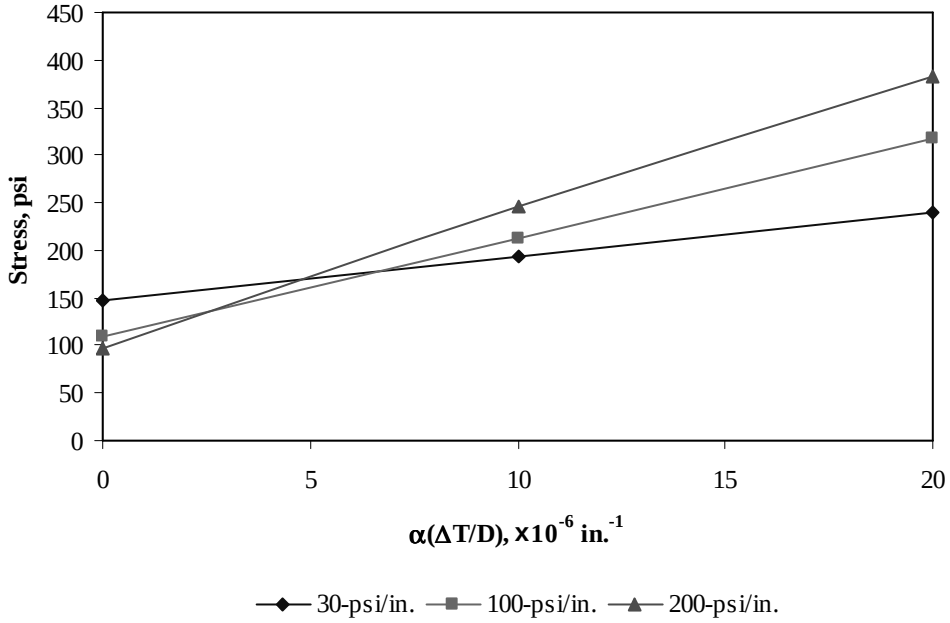


Figure F-15-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

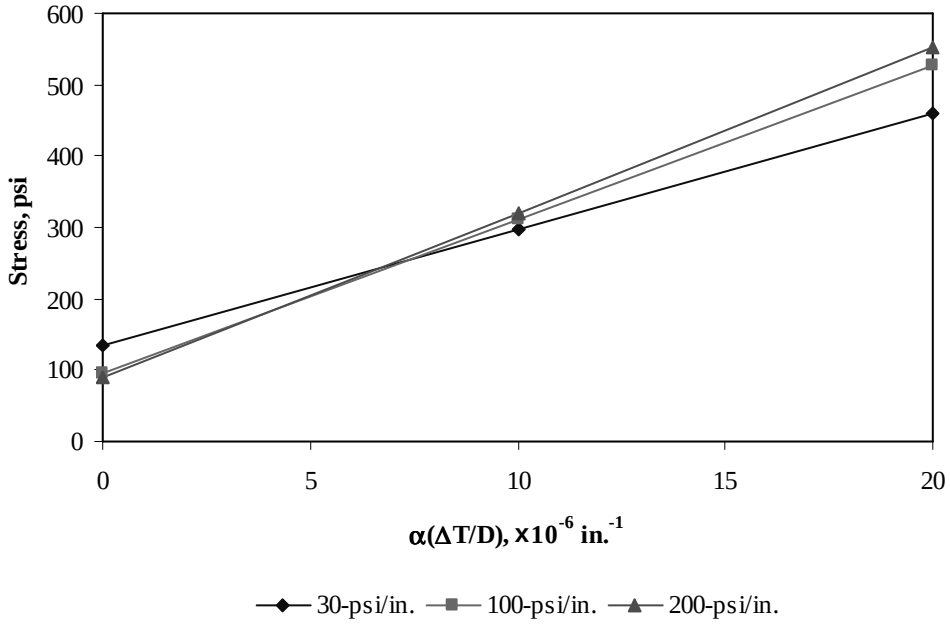


Figure F-15-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

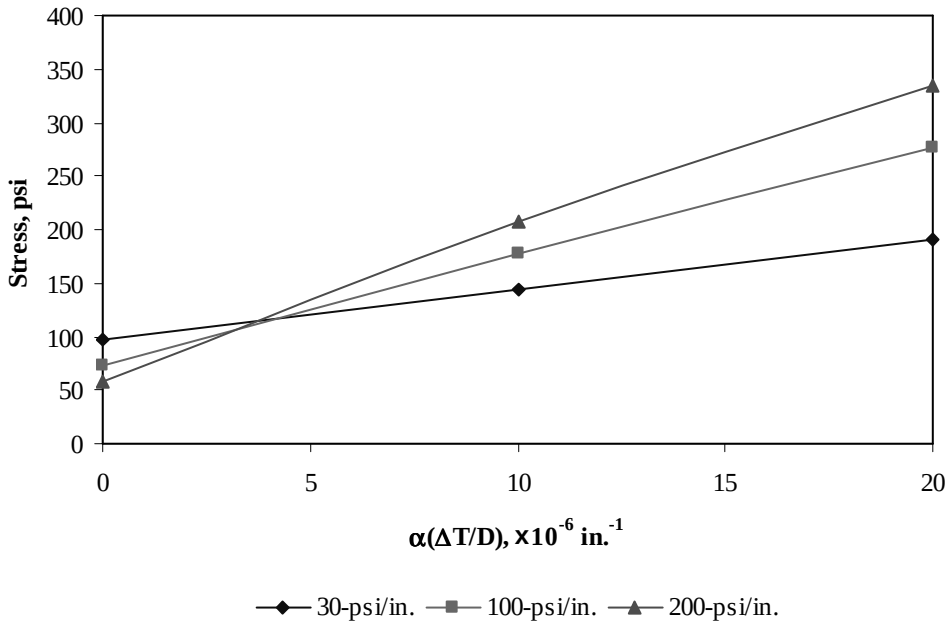


Figure F-15-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

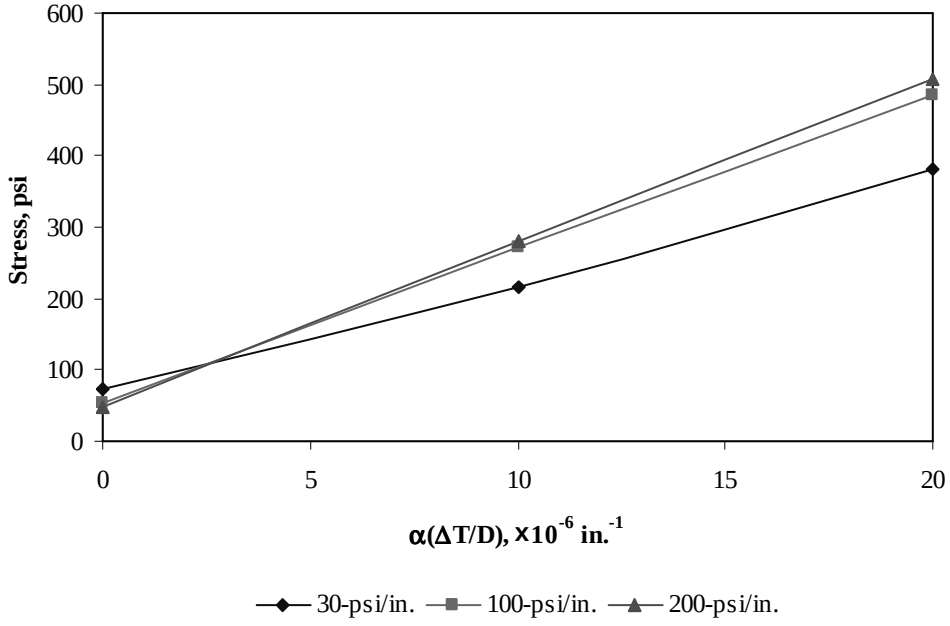


Figure F-15-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

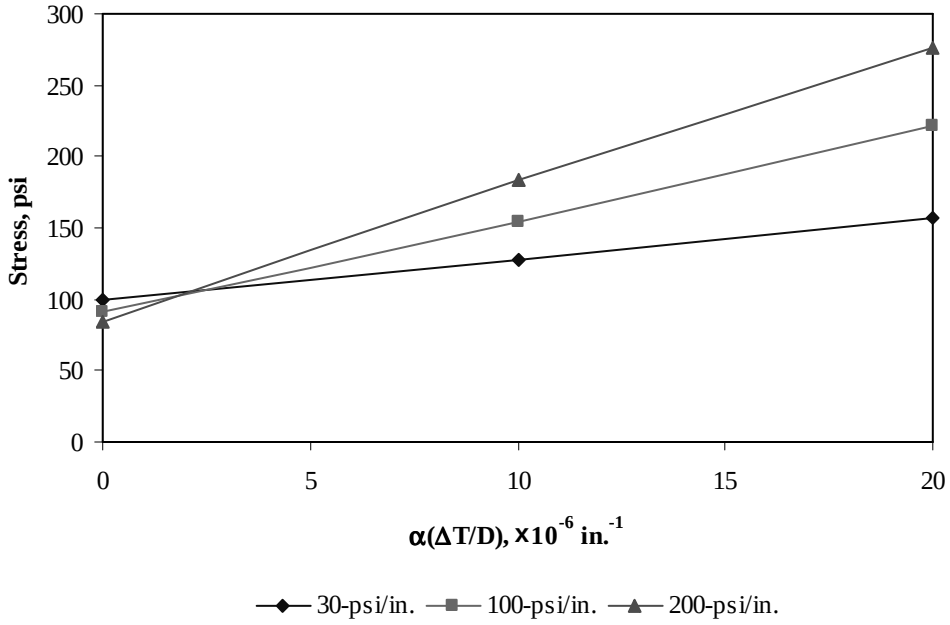


Figure F-15-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

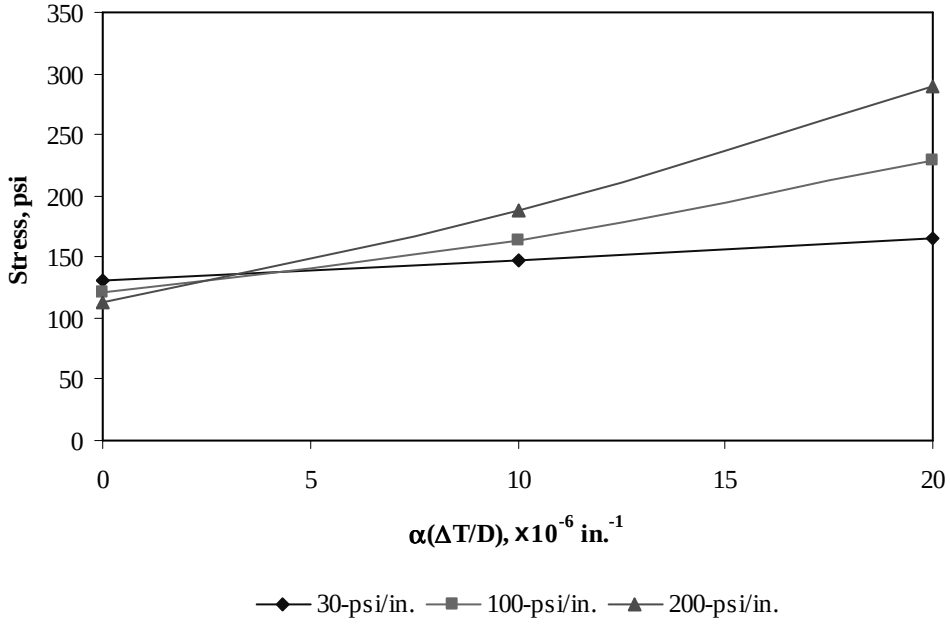


Figure F-15-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-15-49 through F-15-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

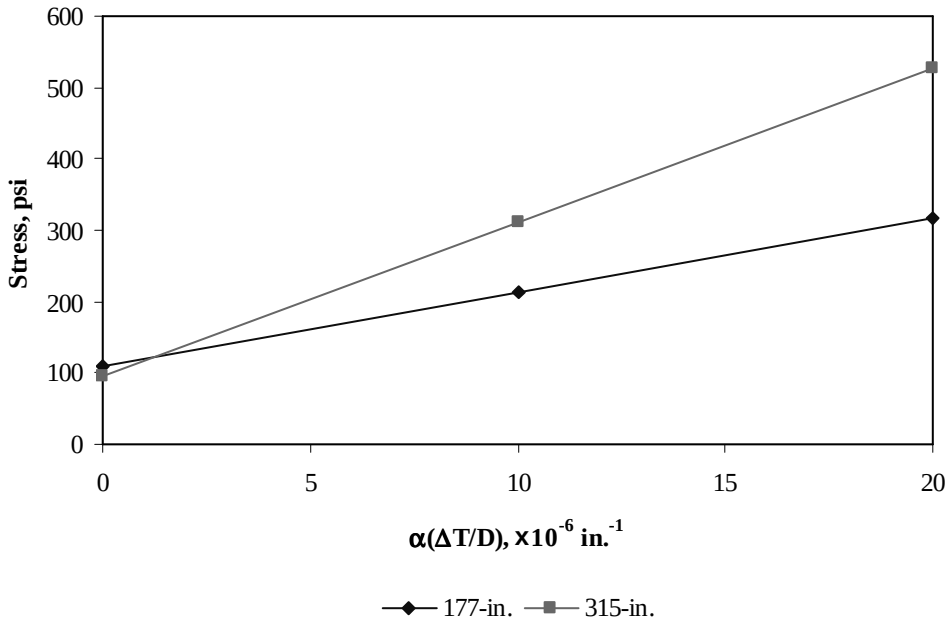


Figure F-15-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

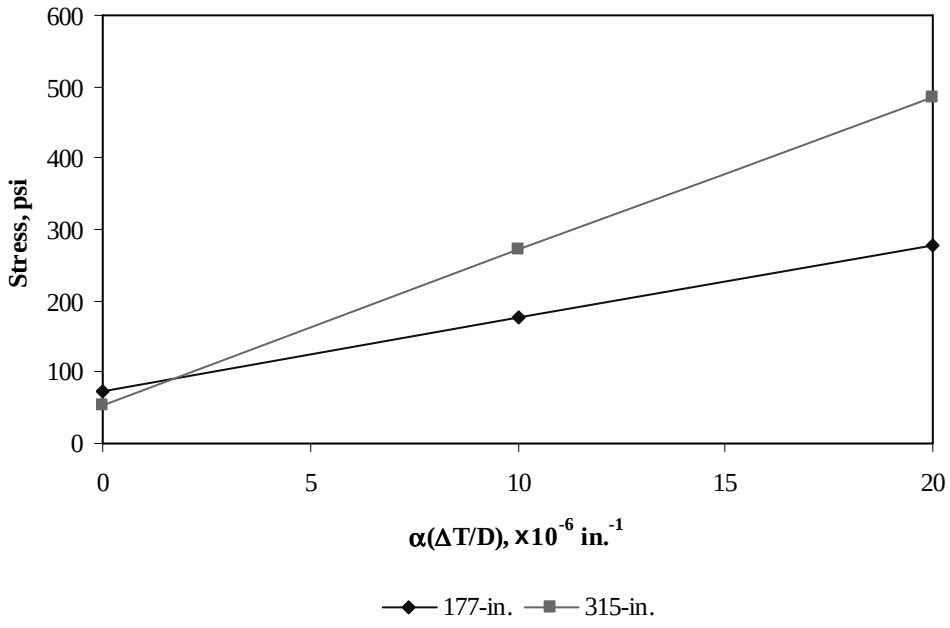


Figure F-15-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

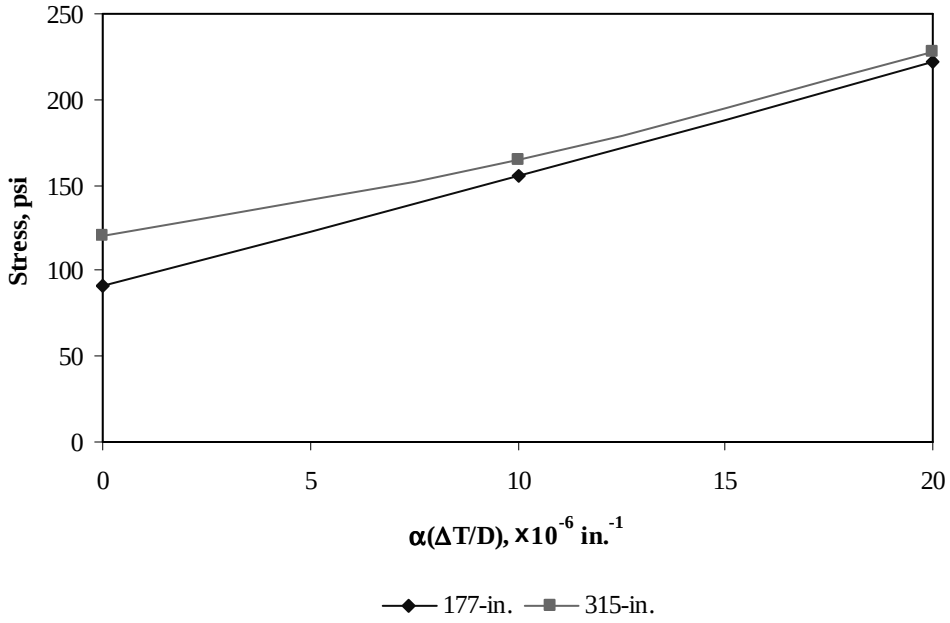
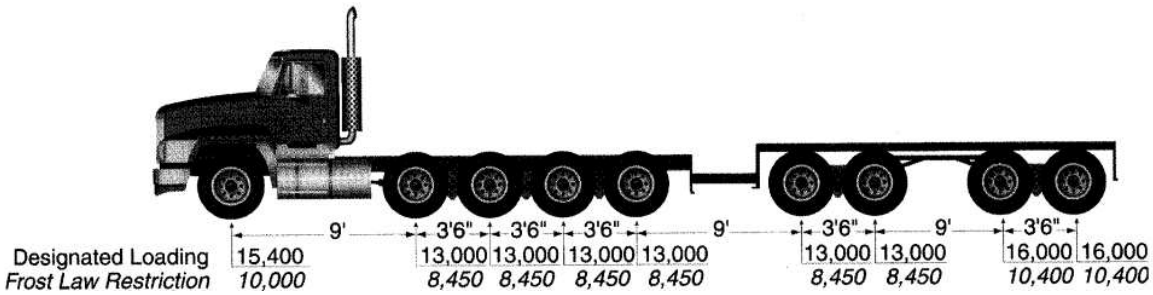


Figure F-15-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-16

Documentation of Pavement Responses for



MI-16

Figures F-16-1 through F-16-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

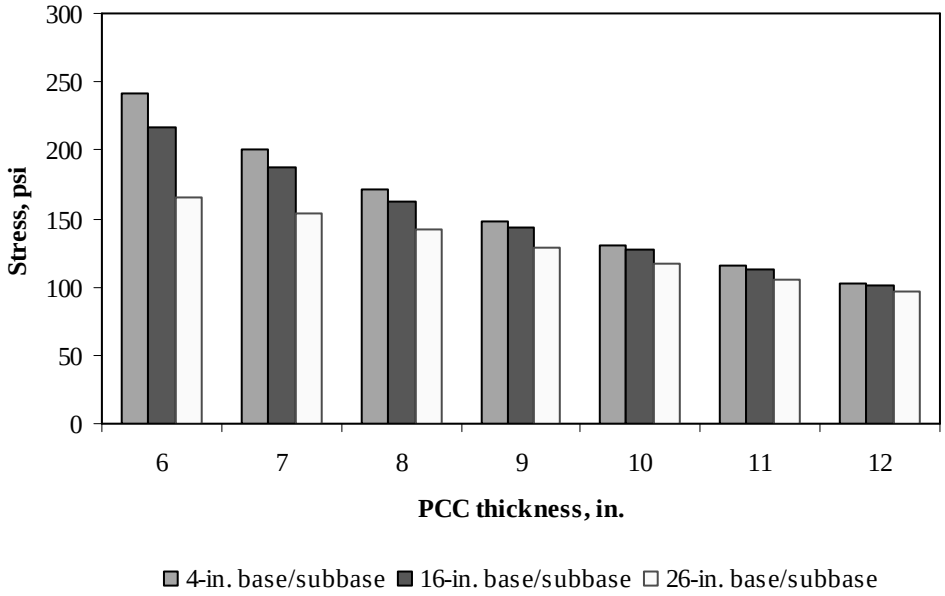


Figure F-16-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

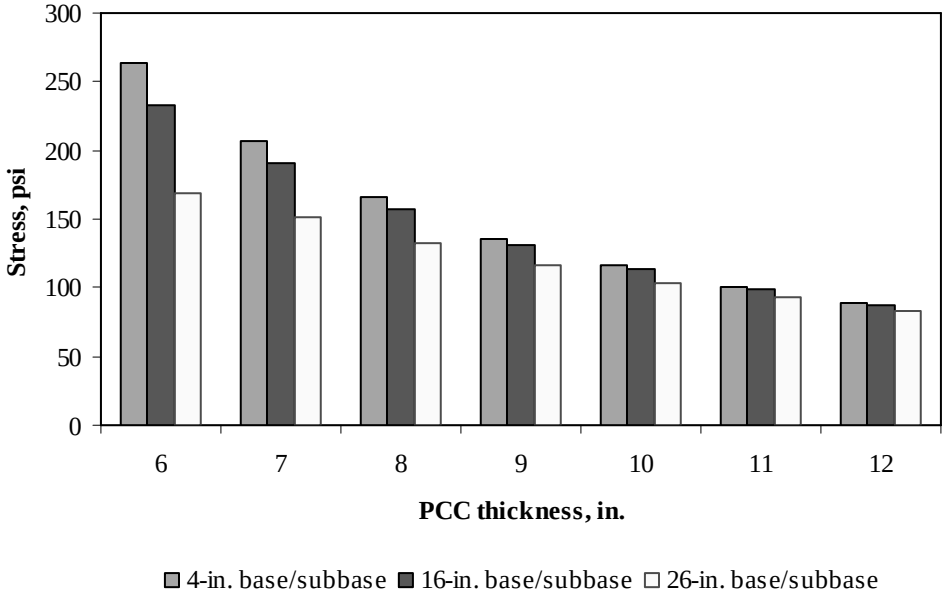


Figure F-16-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

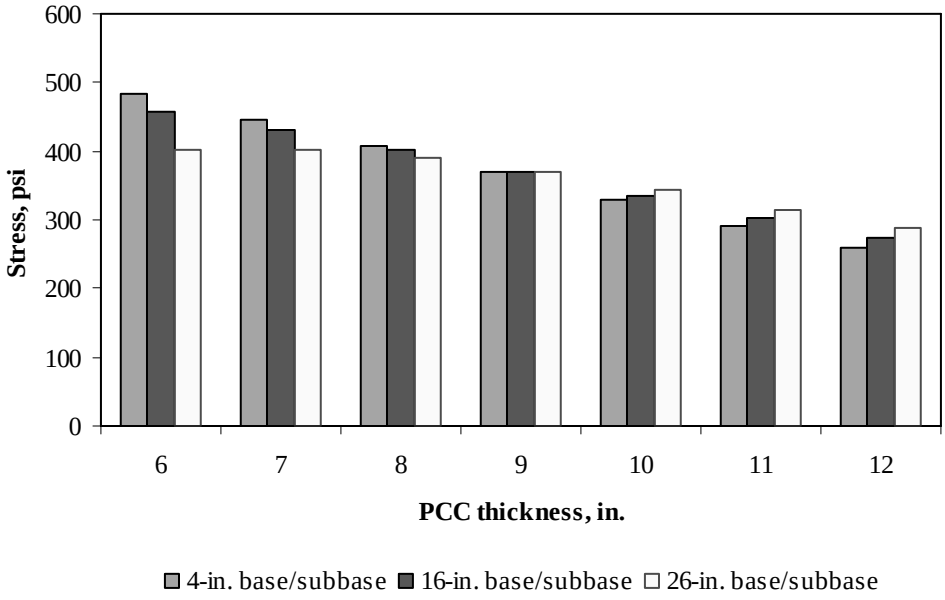


Figure F-16-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

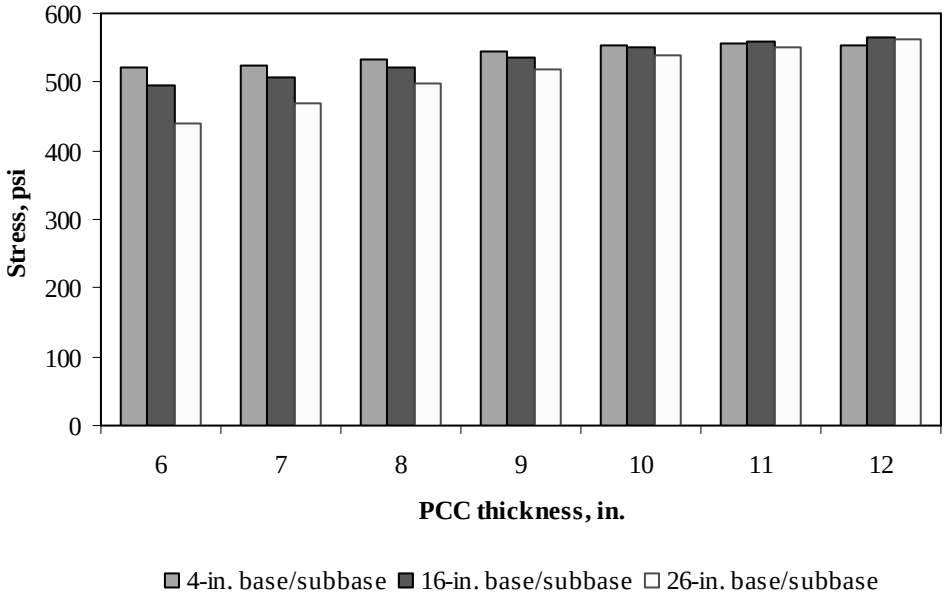


Figure F-16-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

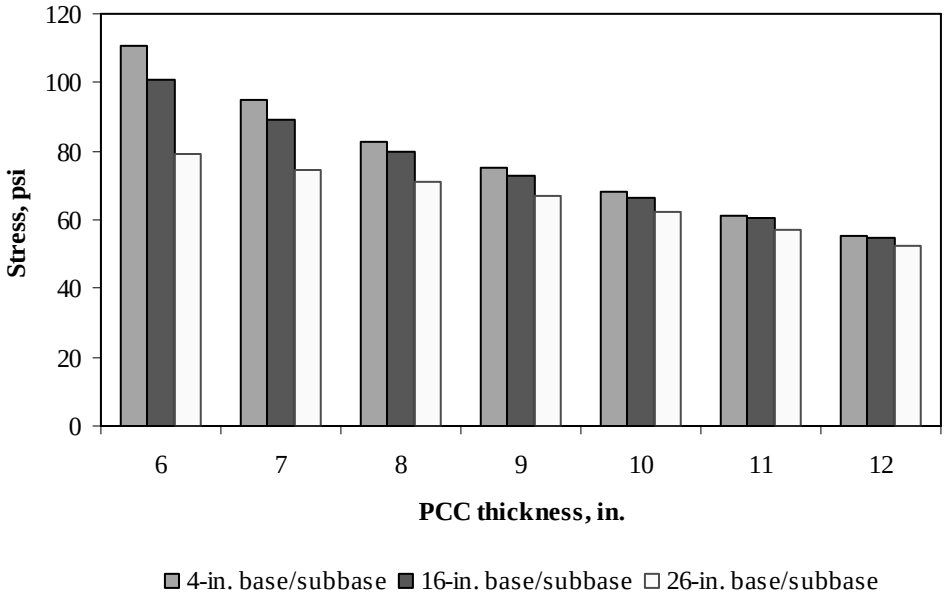


Figure F-16-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

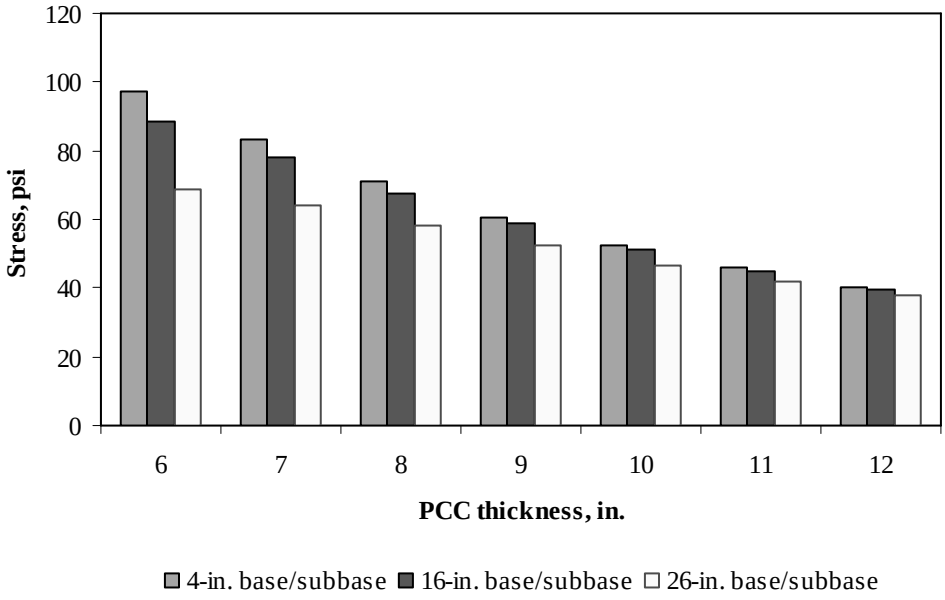


Figure F-16-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

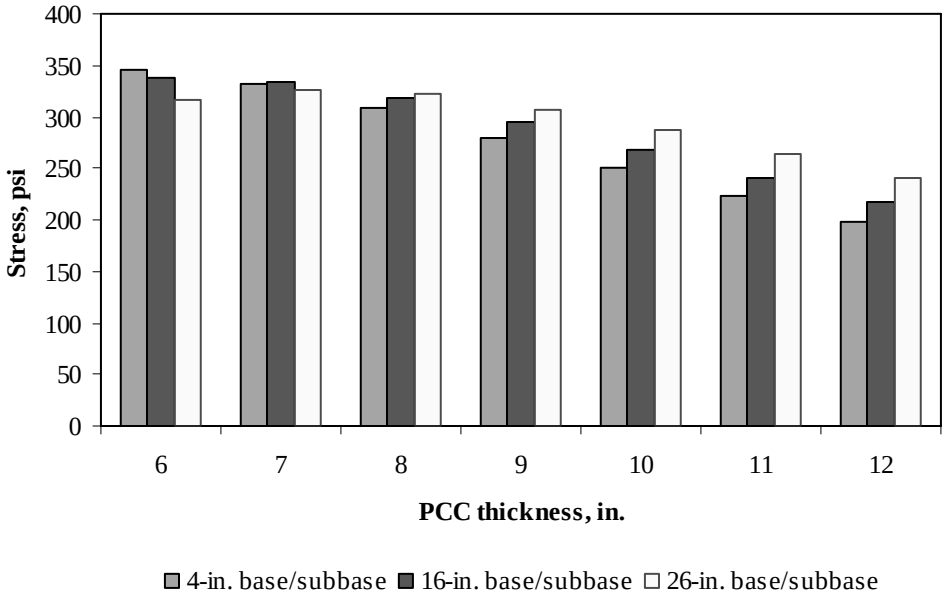


Figure F-16-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

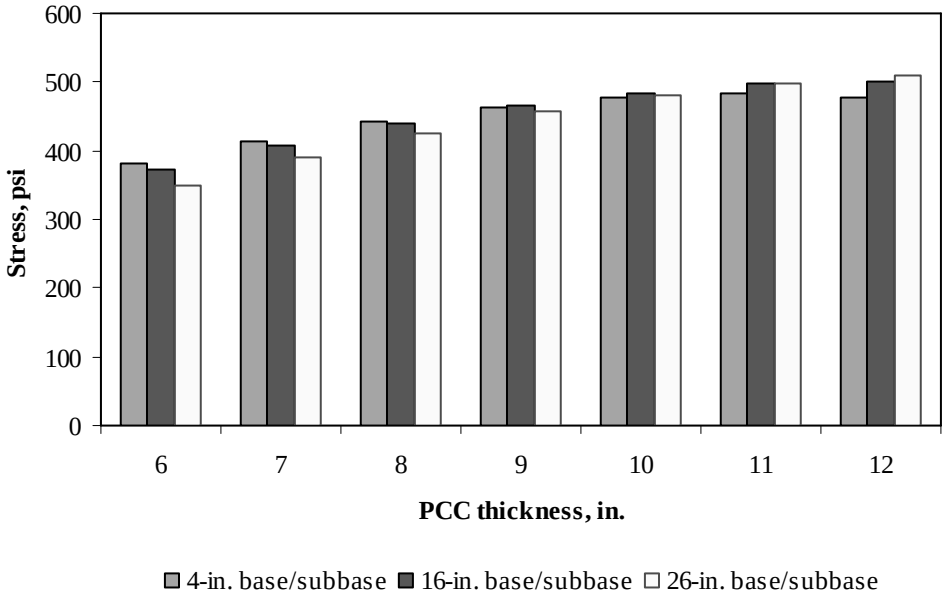


Figure F-16-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

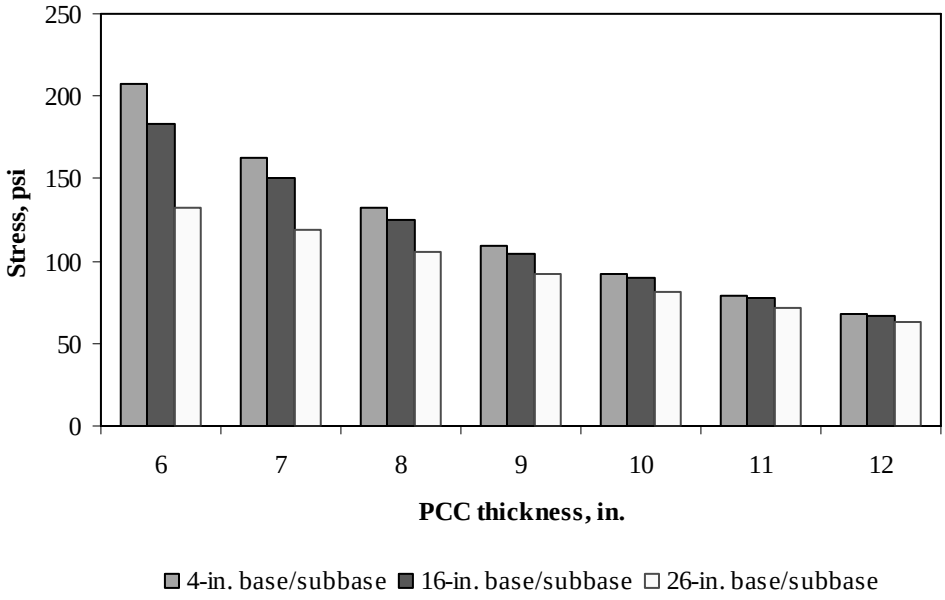


Figure F-16-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

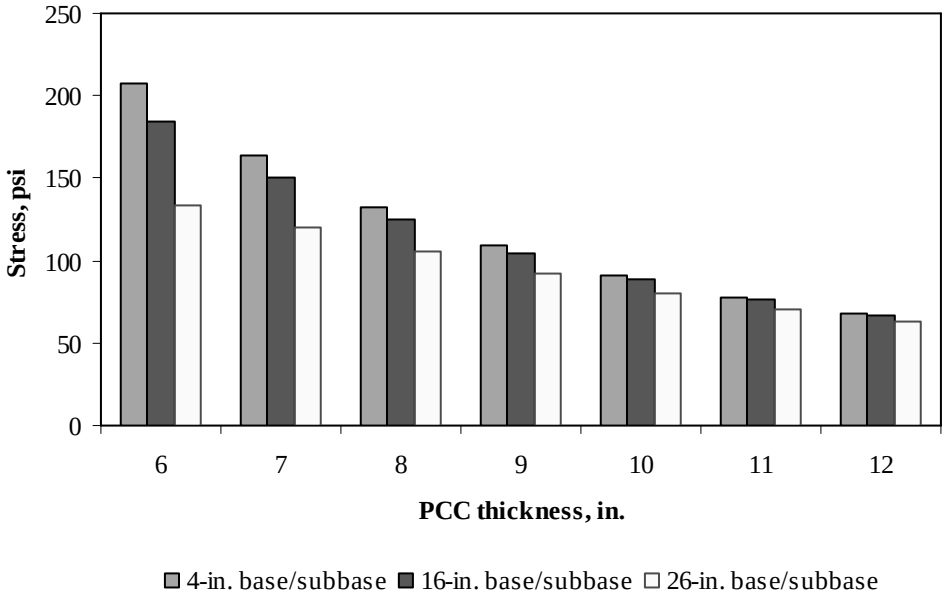


Figure F-16-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

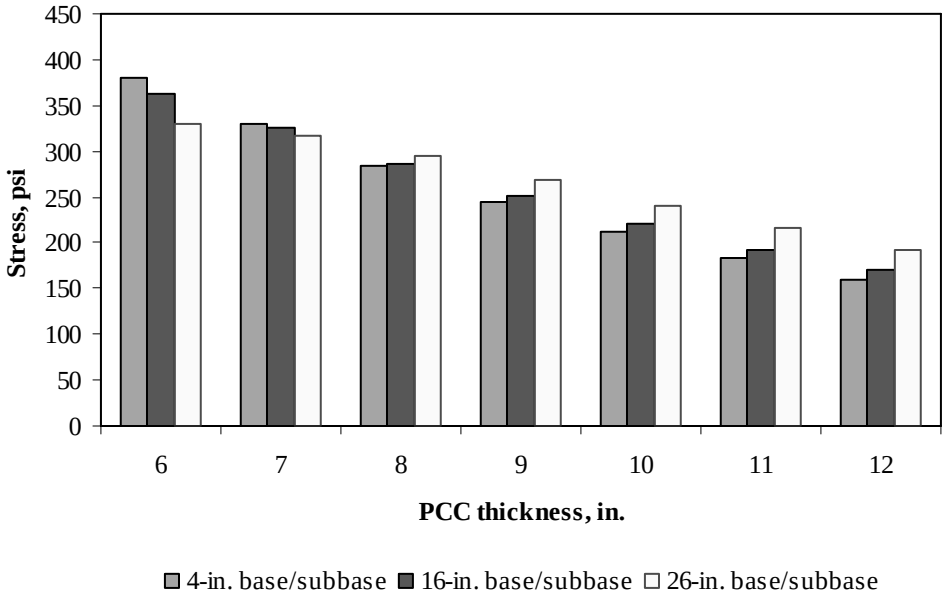


Figure F-16-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

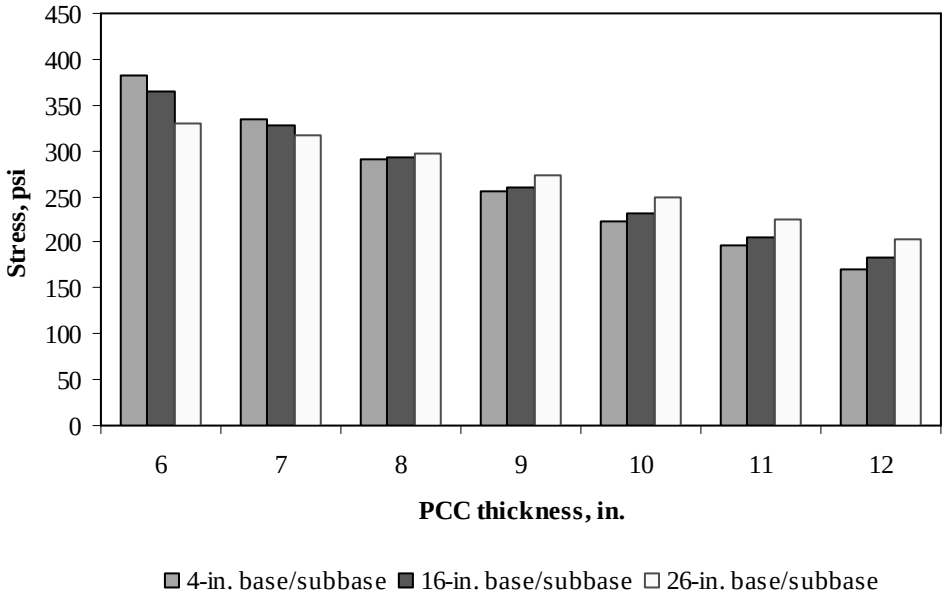


Figure F-16-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-16-13 through F-16-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

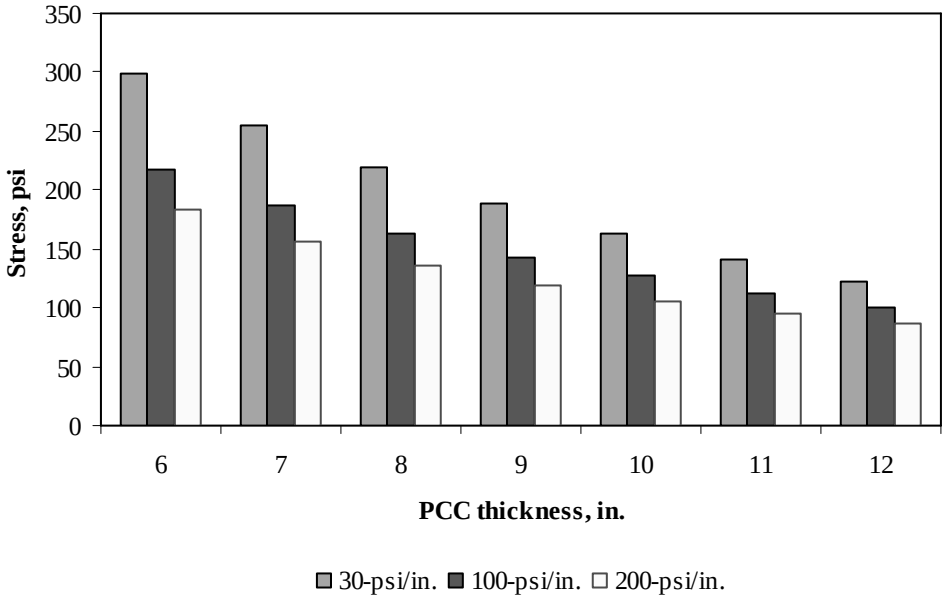


Figure F-16-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

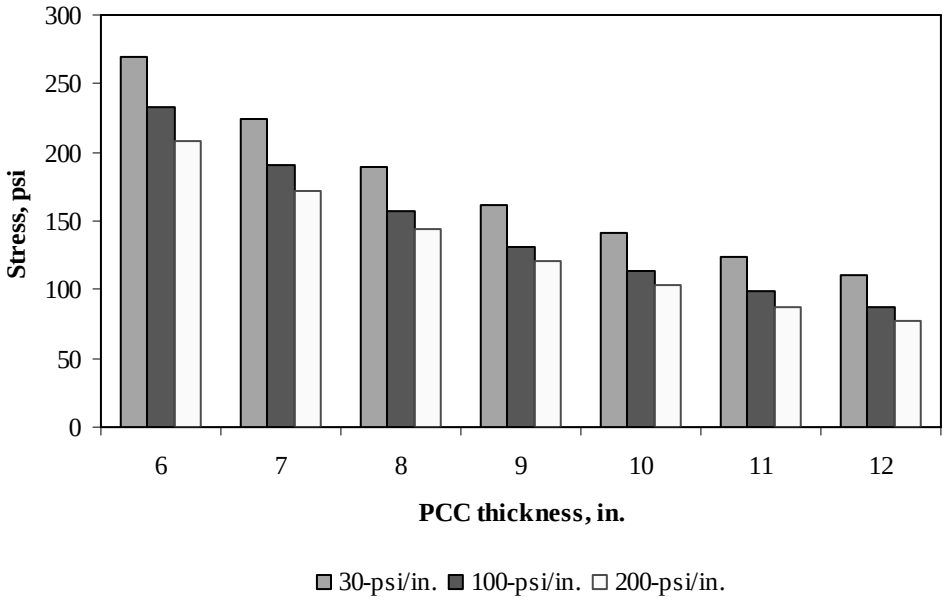


Figure F-16-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

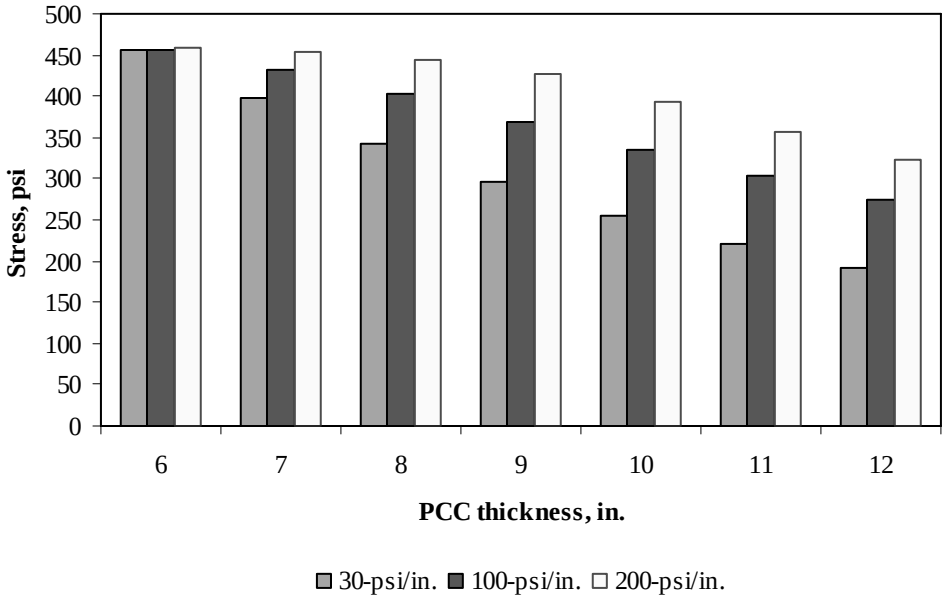


Figure F-16-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

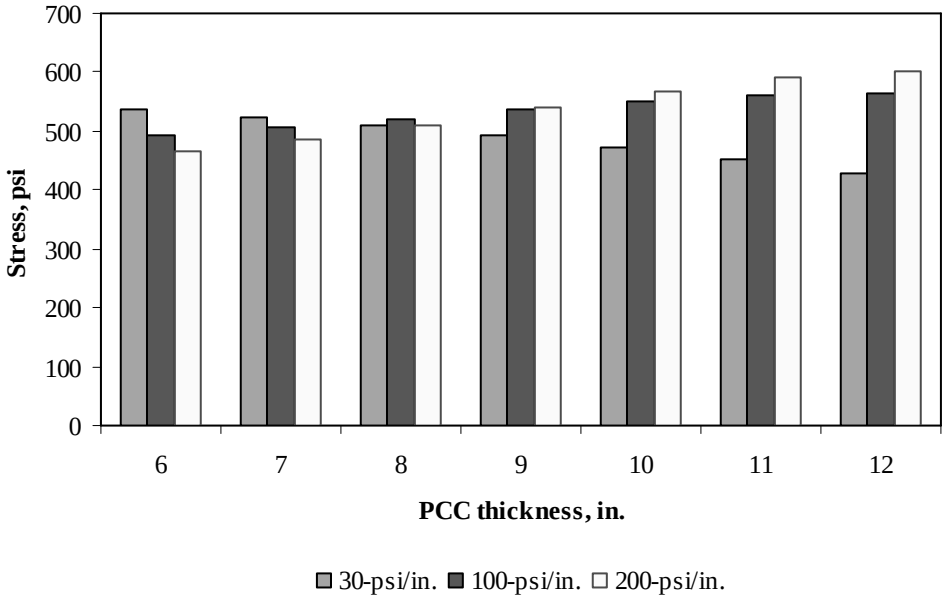


Figure F-16-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

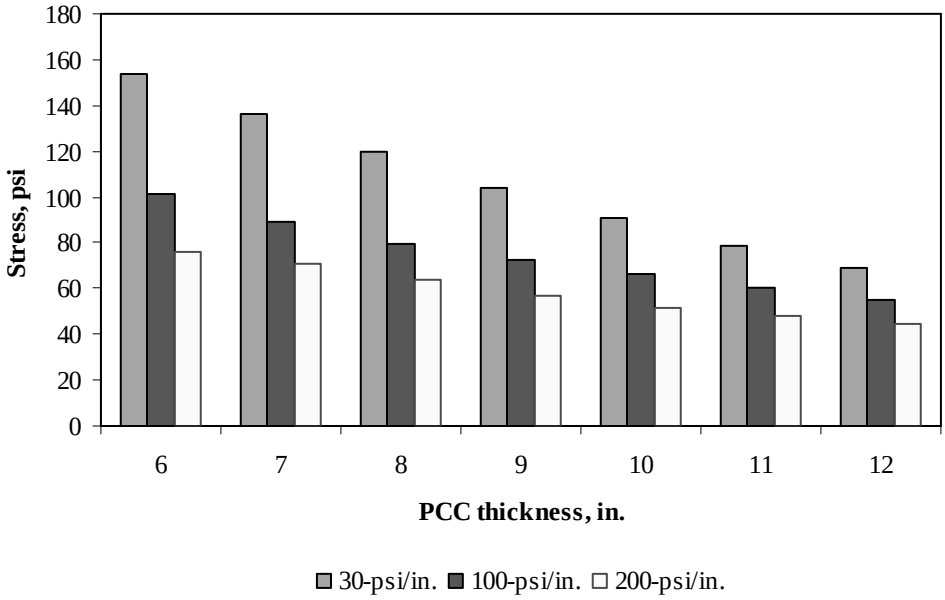


Figure F-16-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

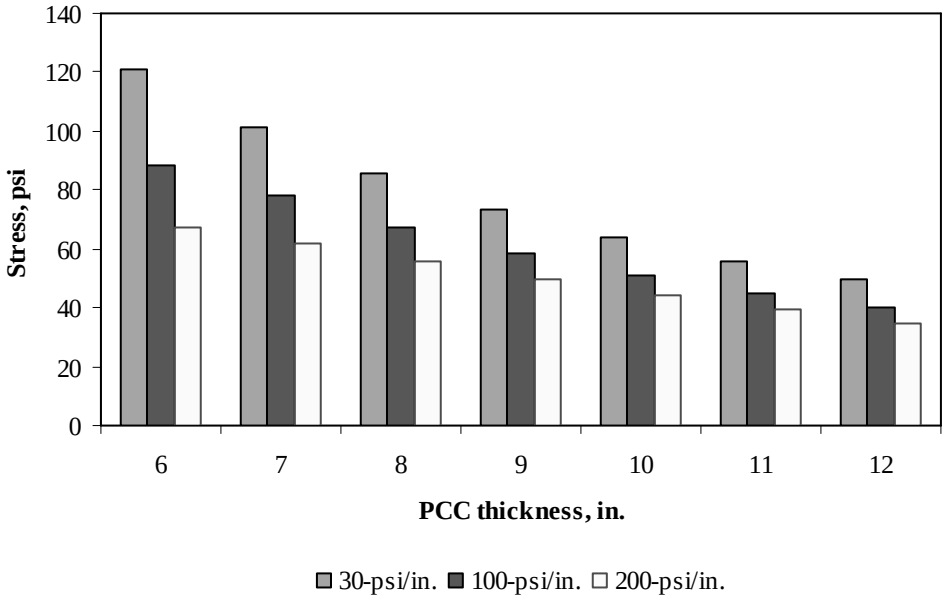


Figure F-16-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

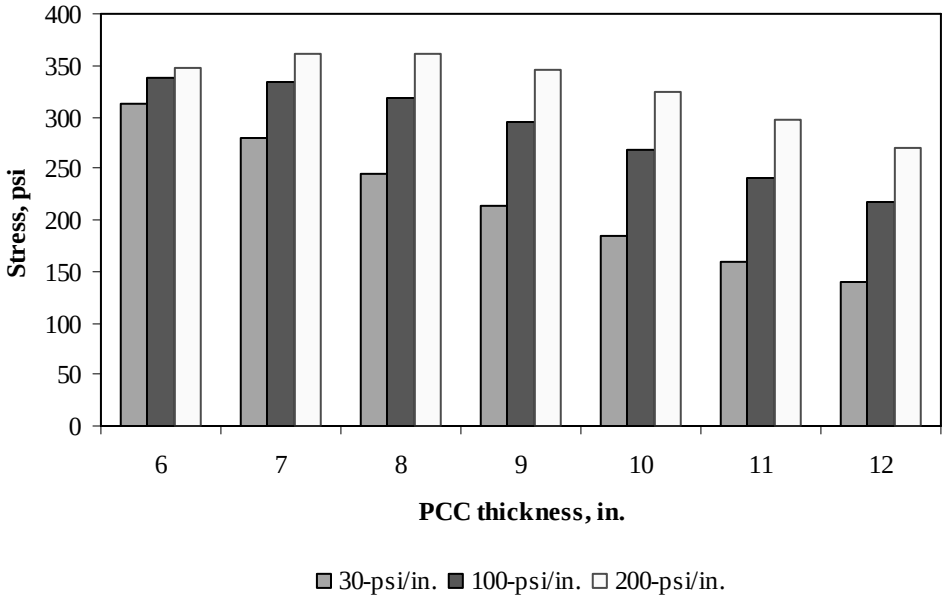


Figure F-16-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

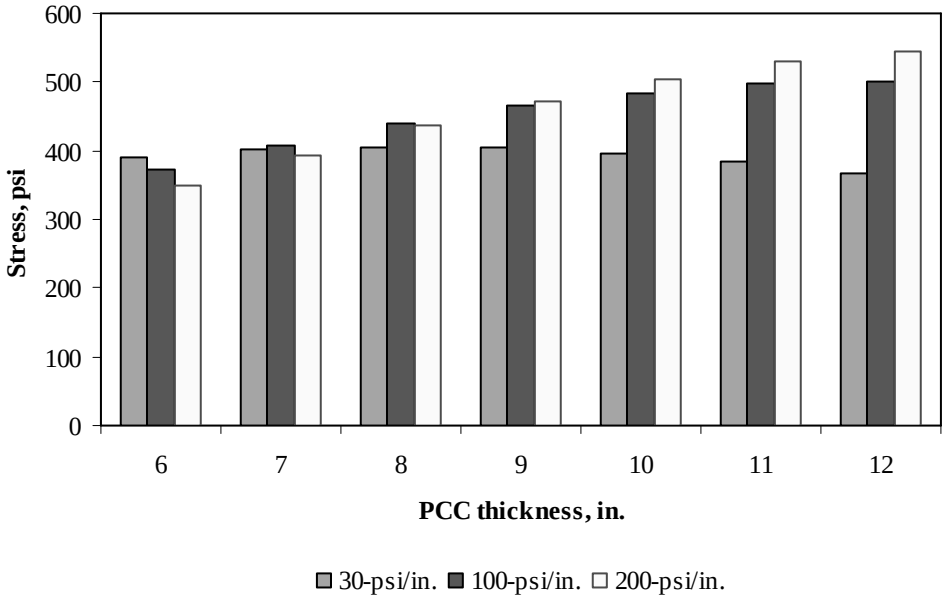


Figure F-16-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

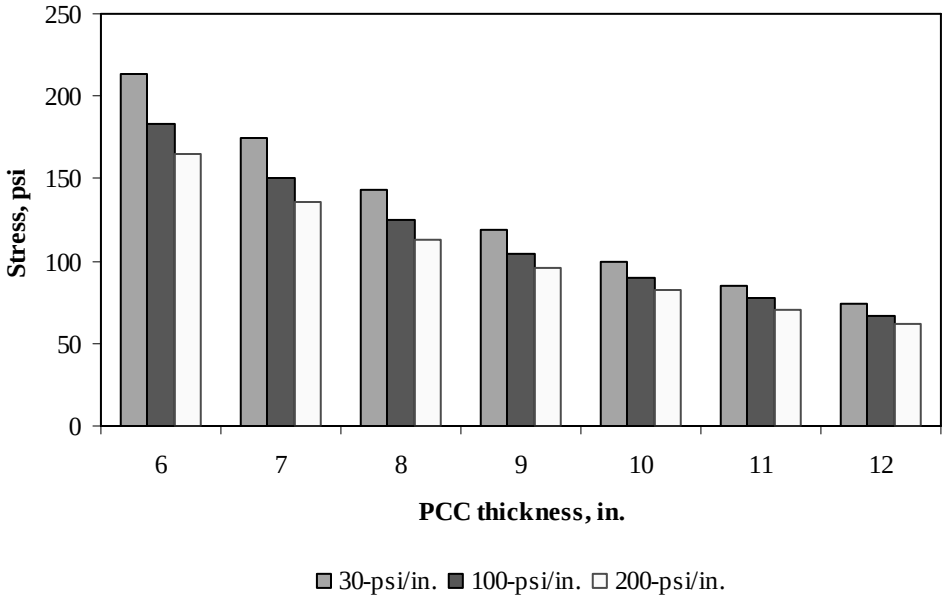


Figure F-16-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

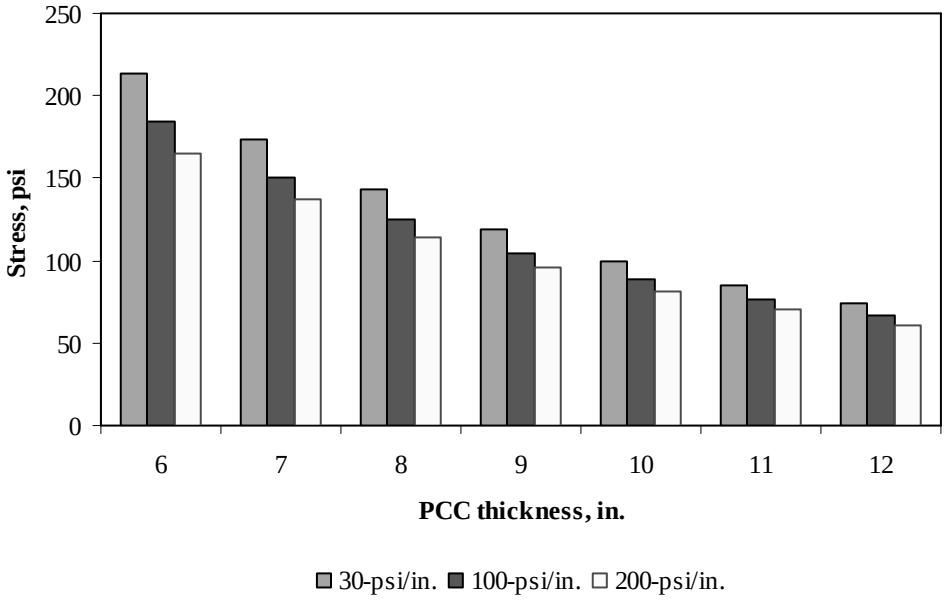


Figure F-16-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

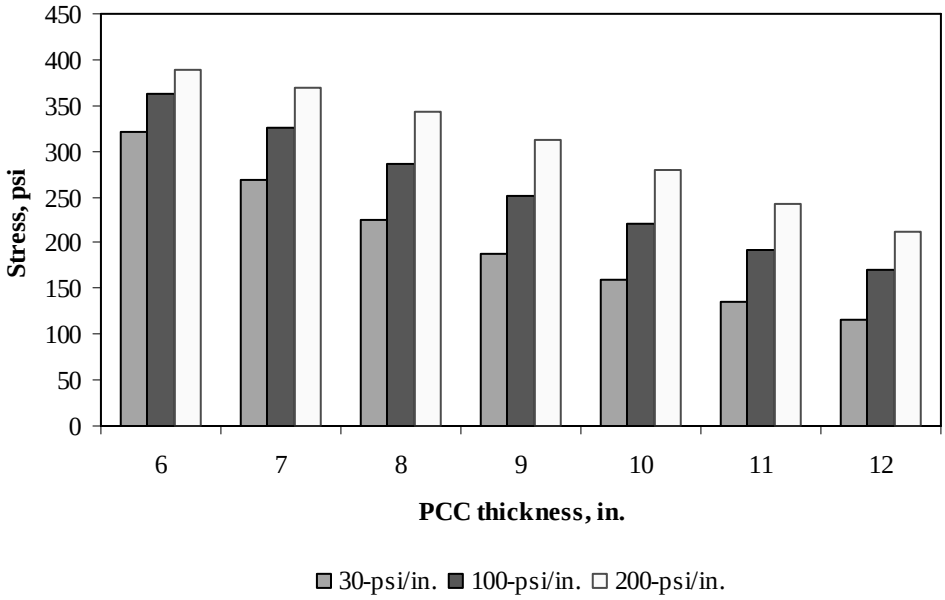


Figure F-16-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

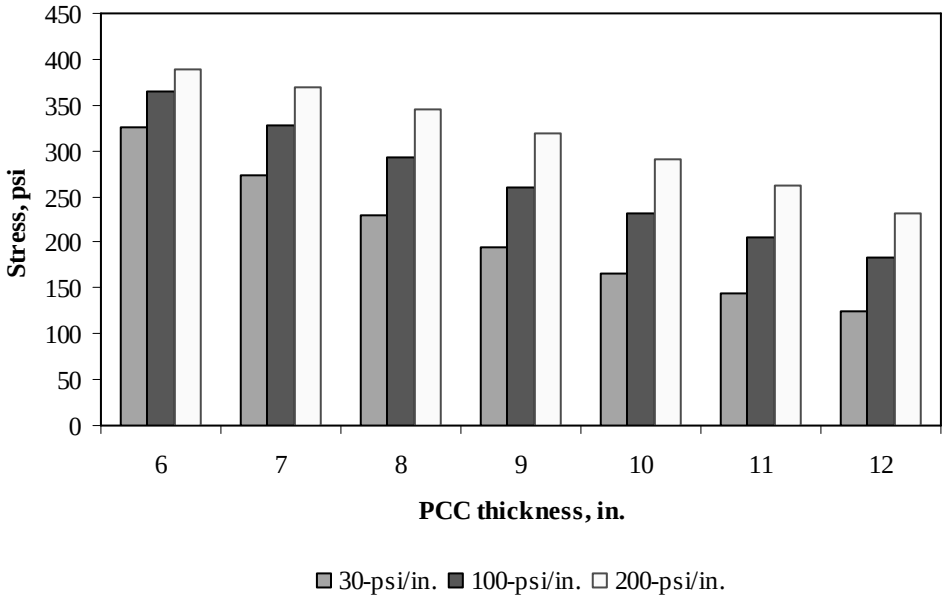


Figure F-16-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-16-25 through F-16-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

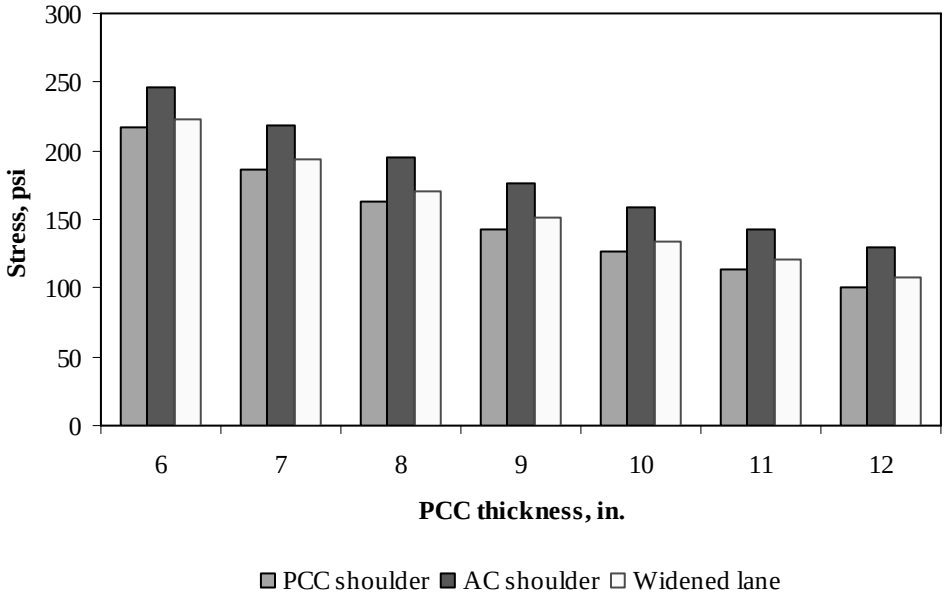


Figure F-16-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

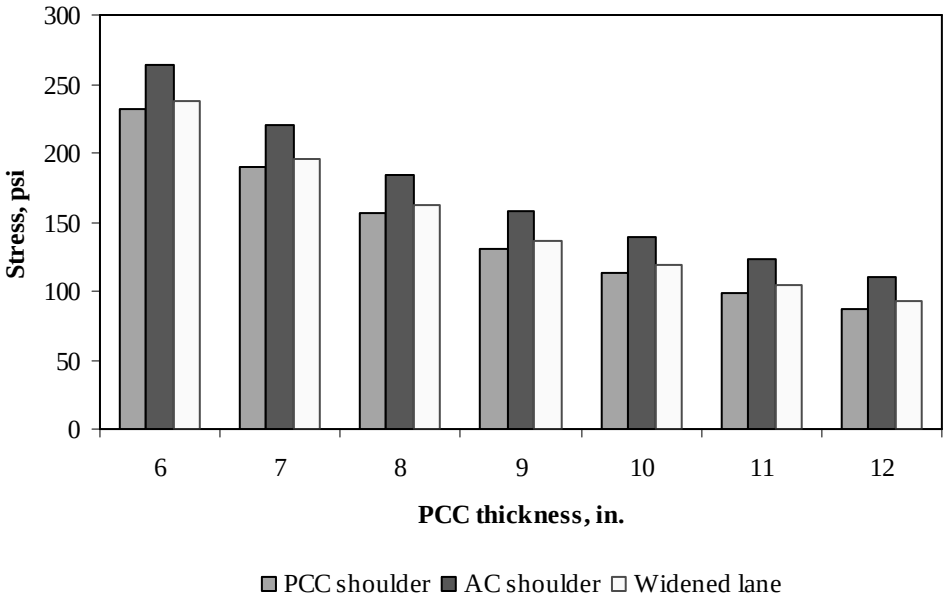


Figure F-16-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

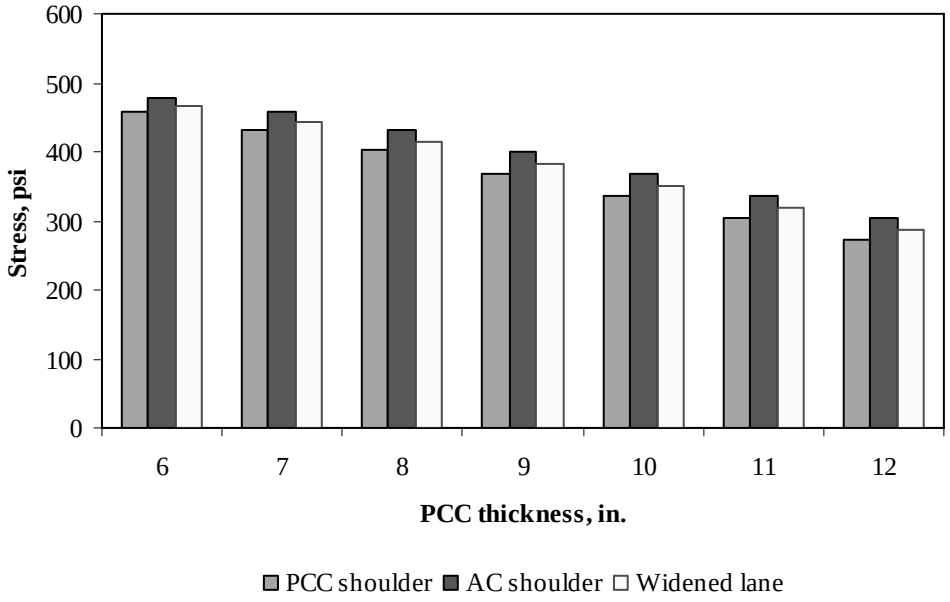


Figure F-16-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

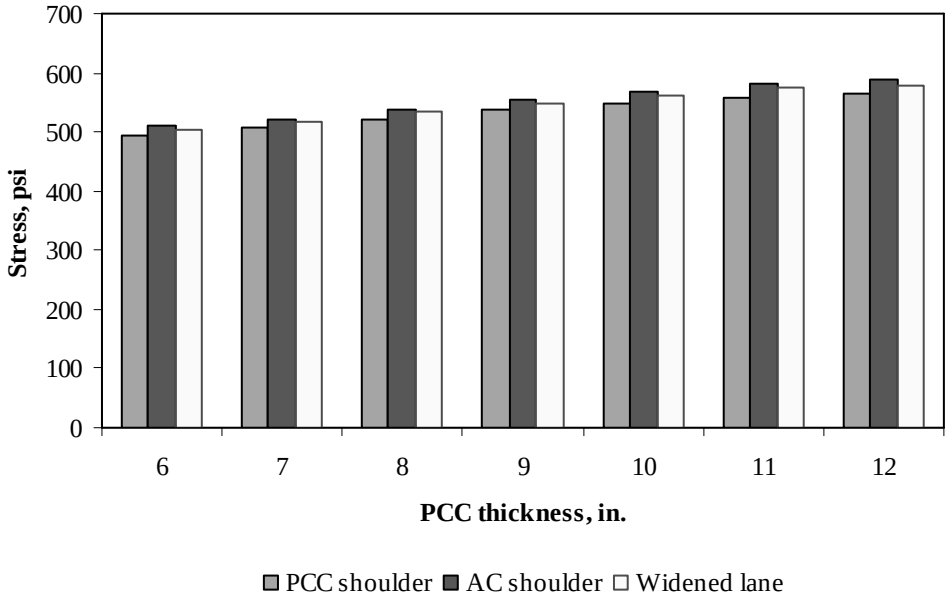


Figure F-16-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

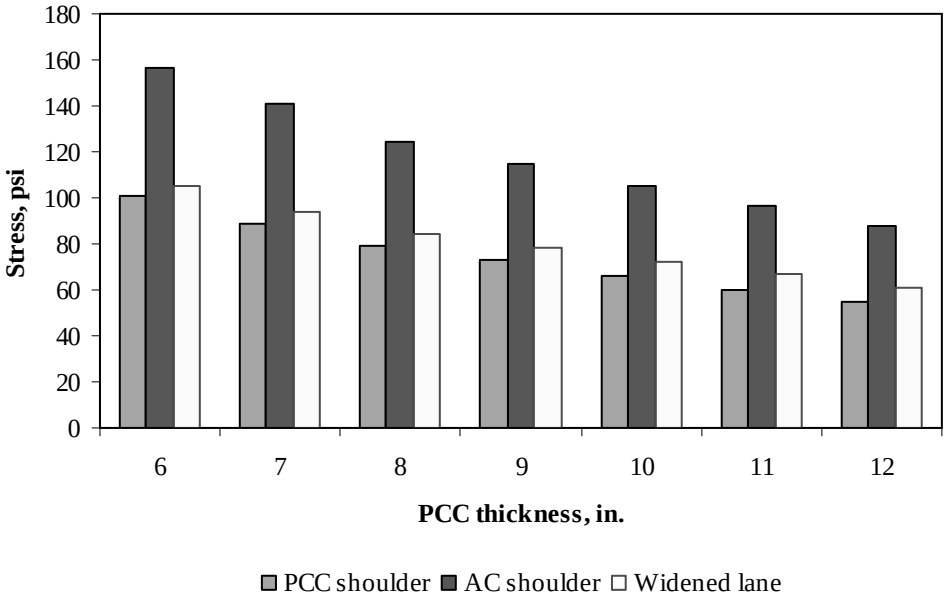


Figure F-16-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

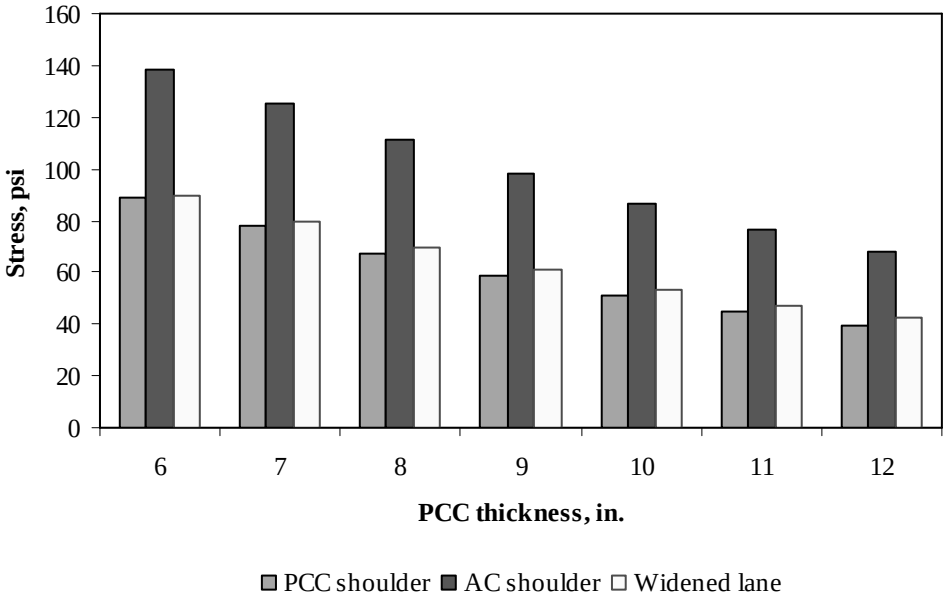


Figure F-16-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

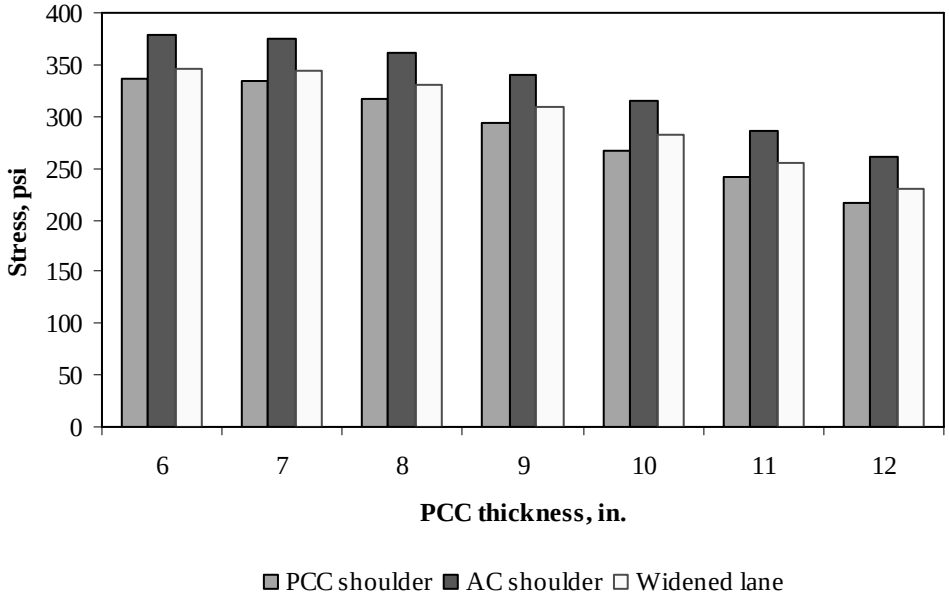


Figure F-16-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

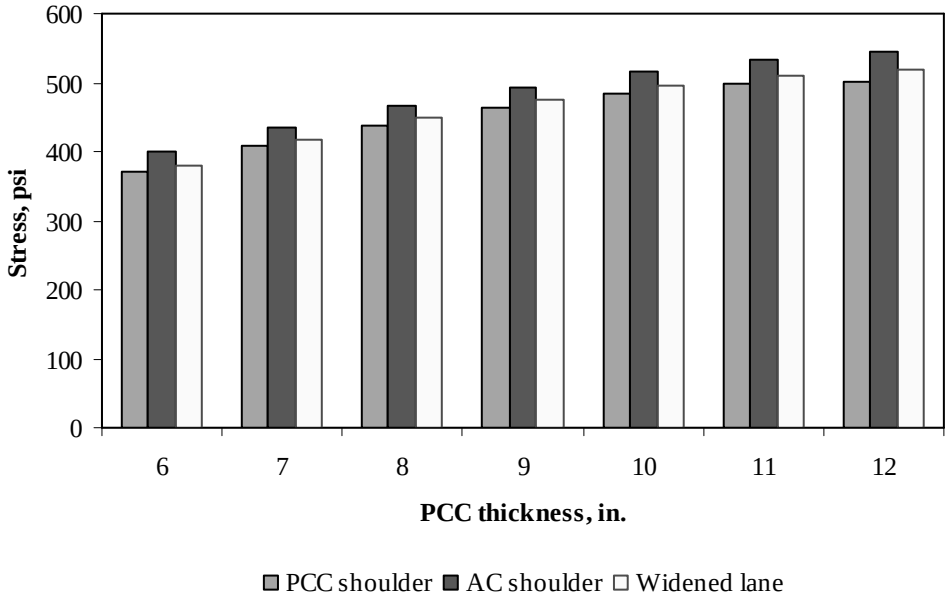


Figure F-16-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

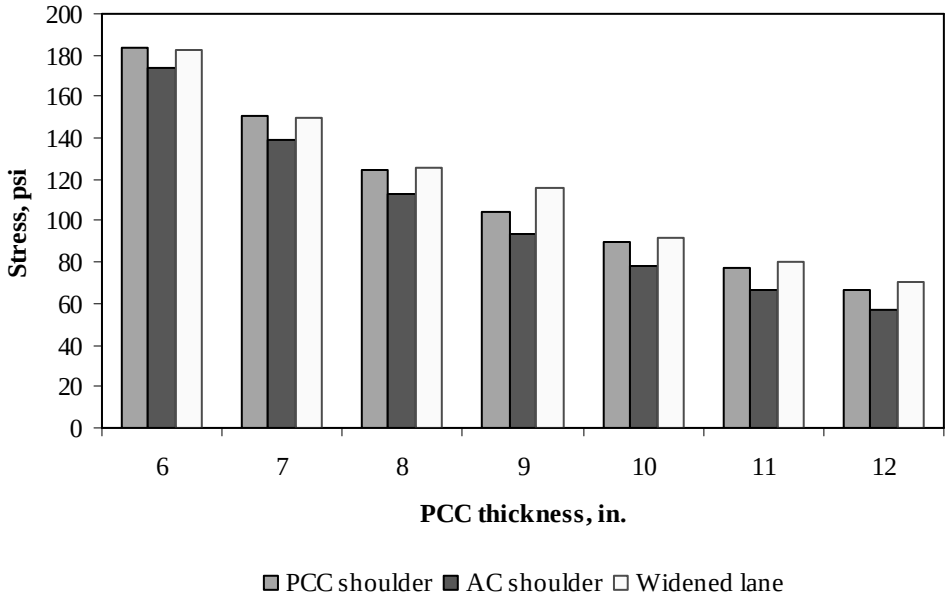


Figure F-16-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

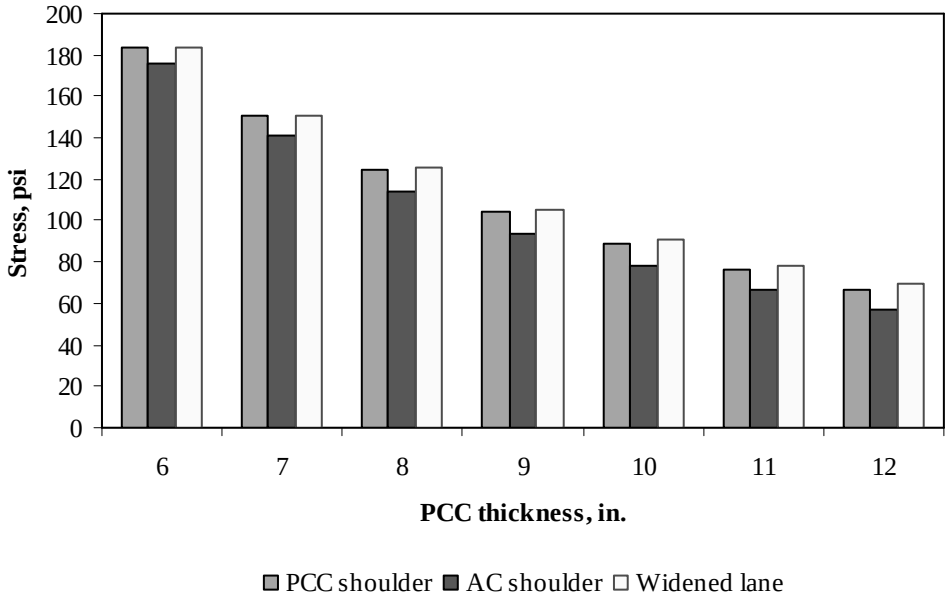


Figure F-16-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

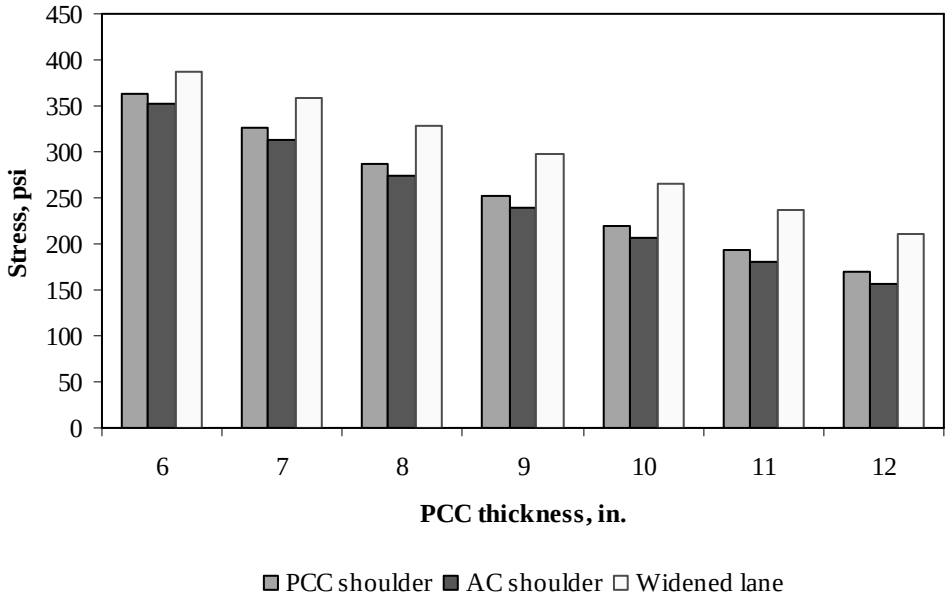


Figure F-16-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

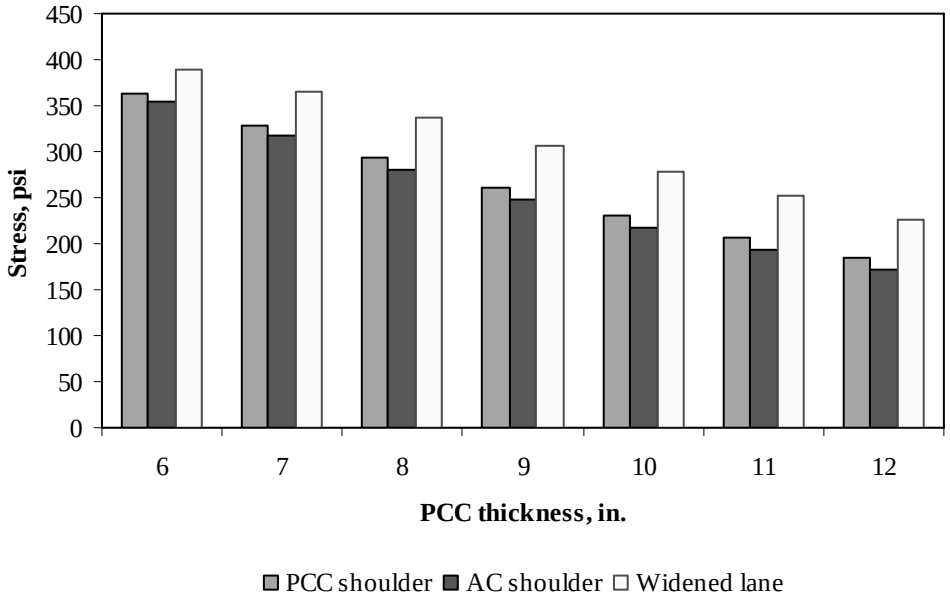


Figure F-16-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-16-37 through F-16-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

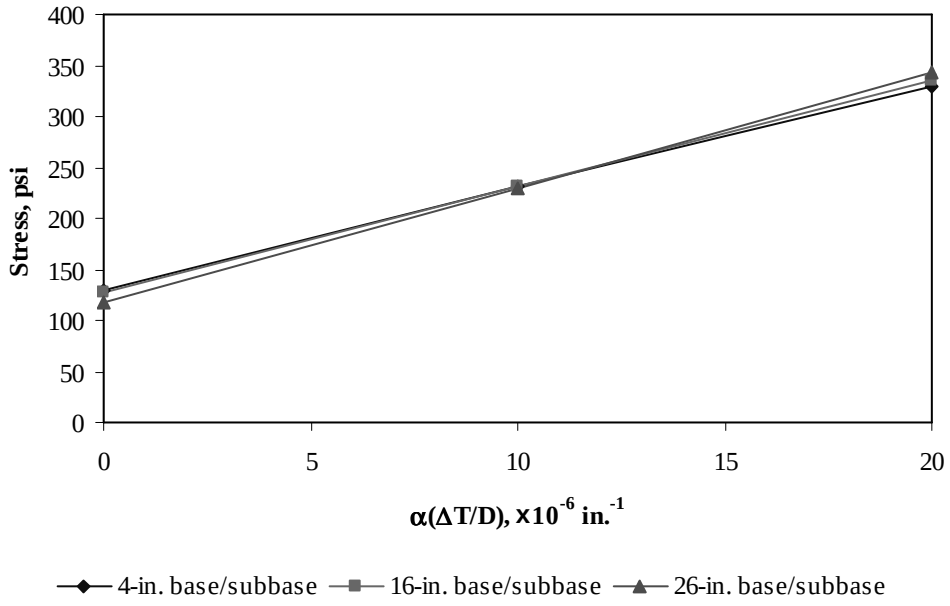


Figure F-16-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

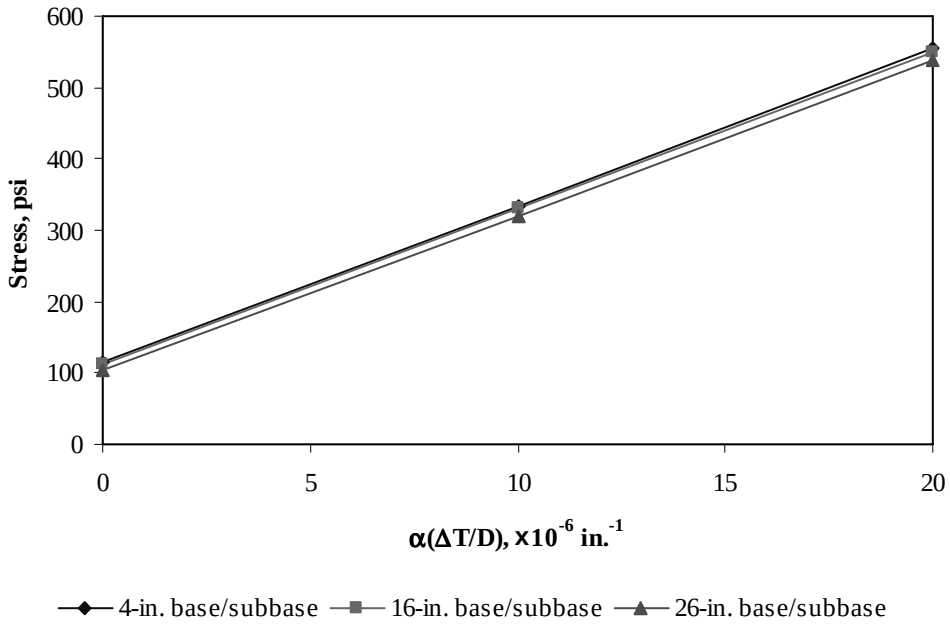


Figure F-16-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

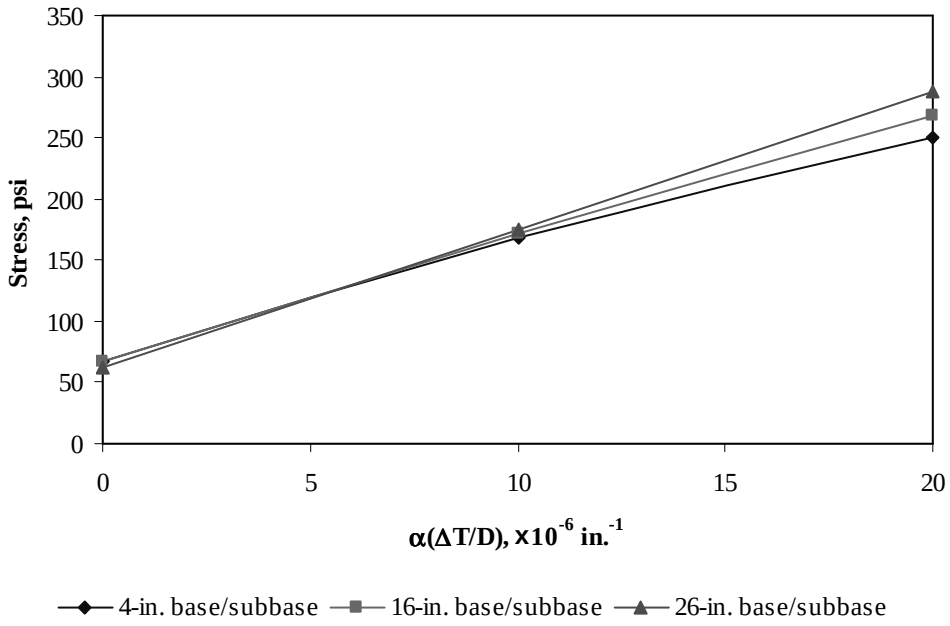


Figure F-16-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

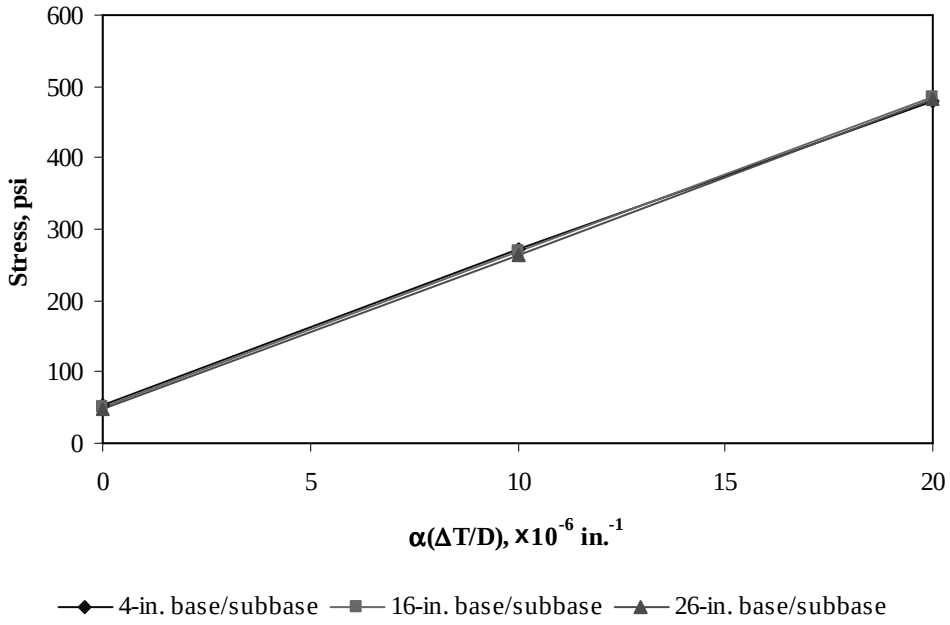


Figure F-16-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

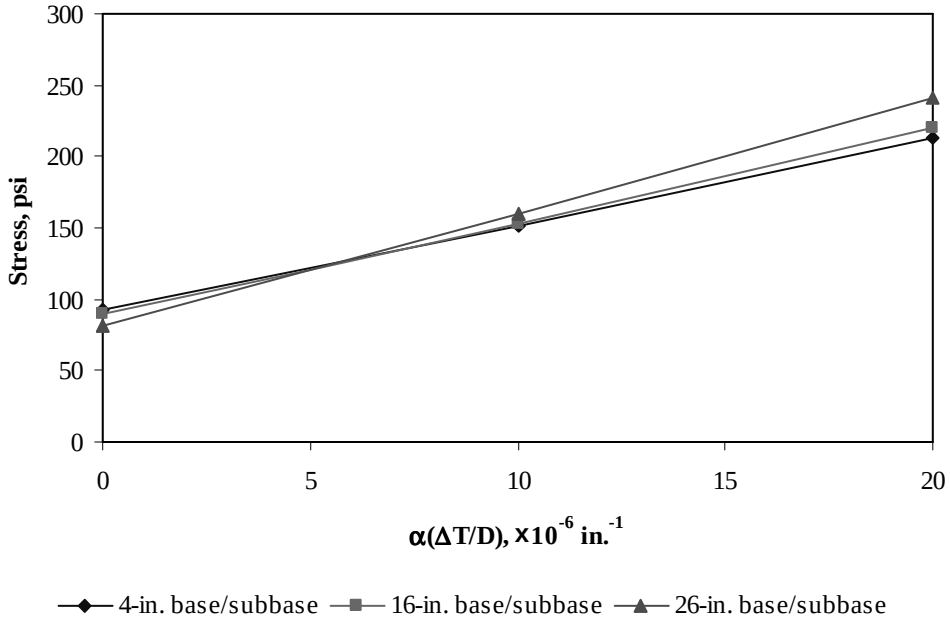


Figure F-16-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

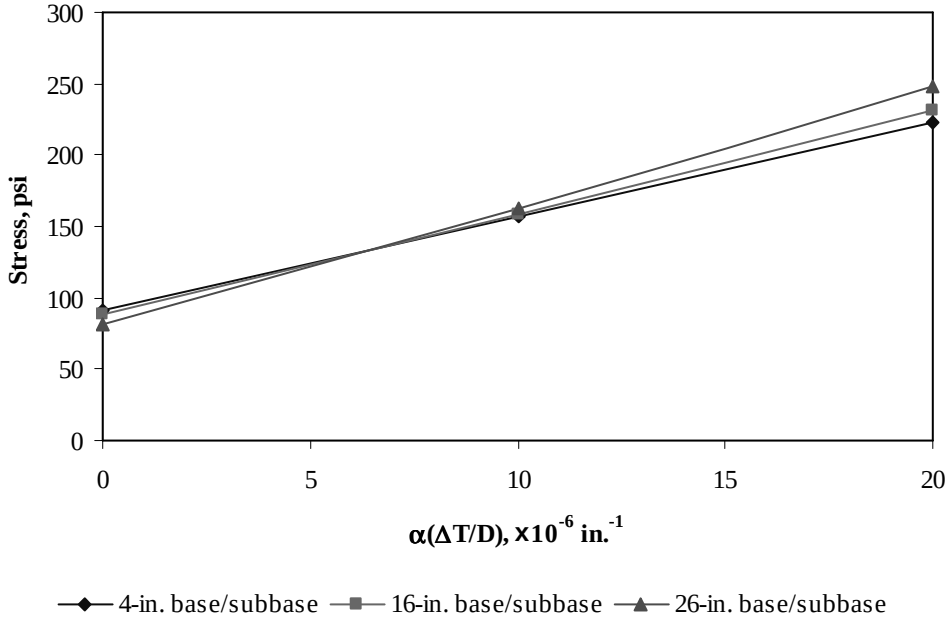


Figure F-16-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-16-43 through F-16-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

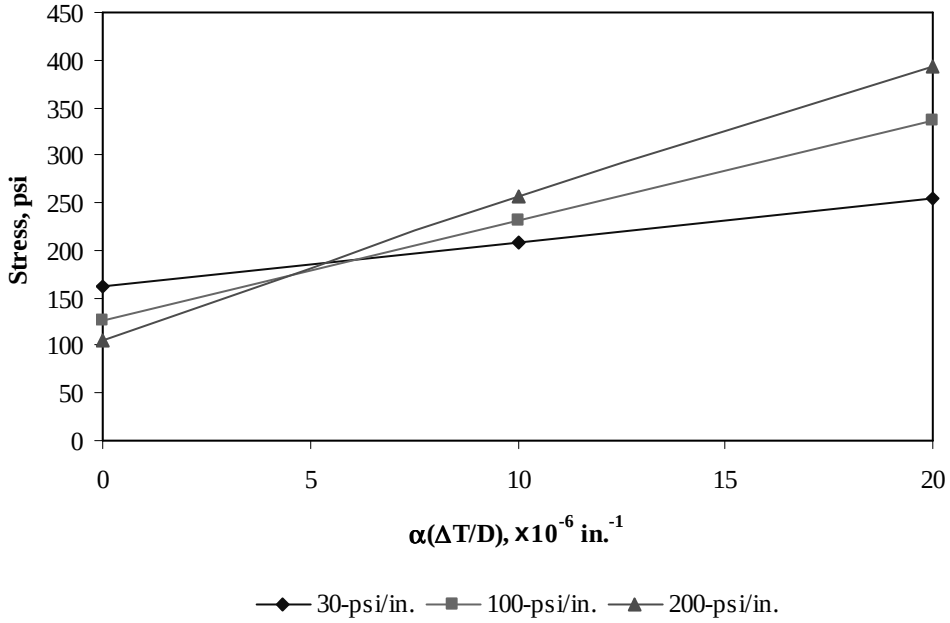


Figure F-16-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

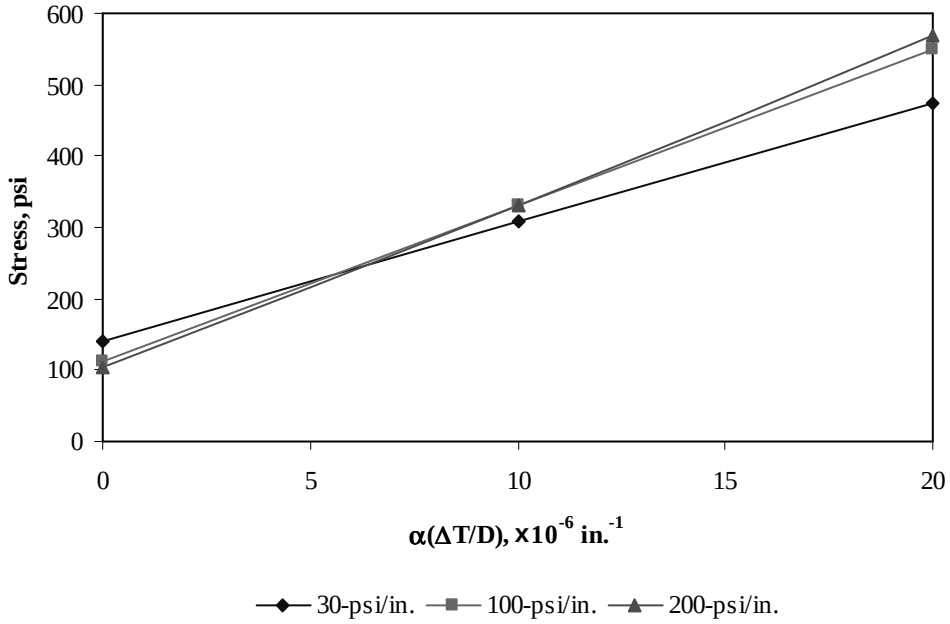


Figure F-16-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

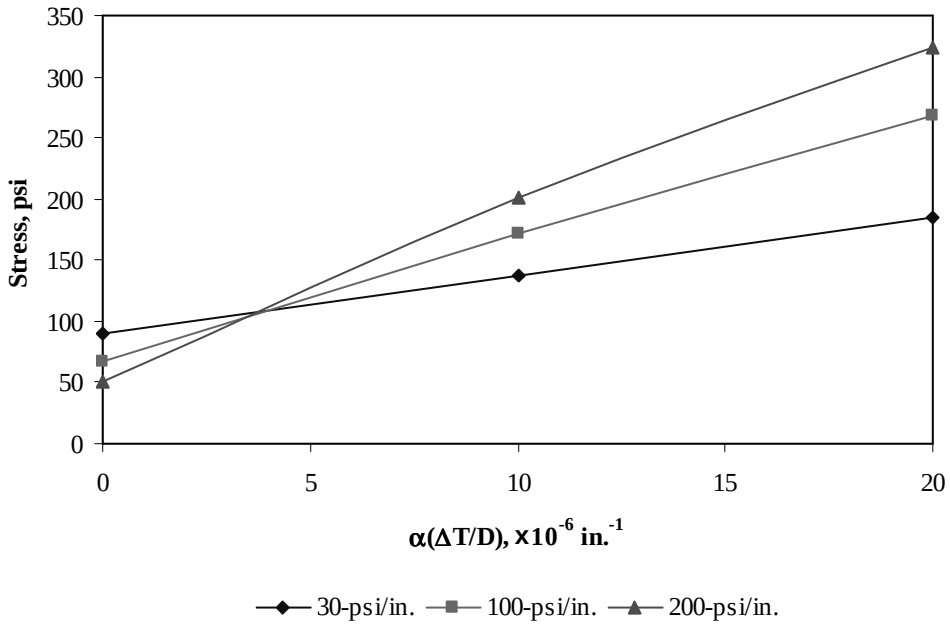


Figure F-16-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

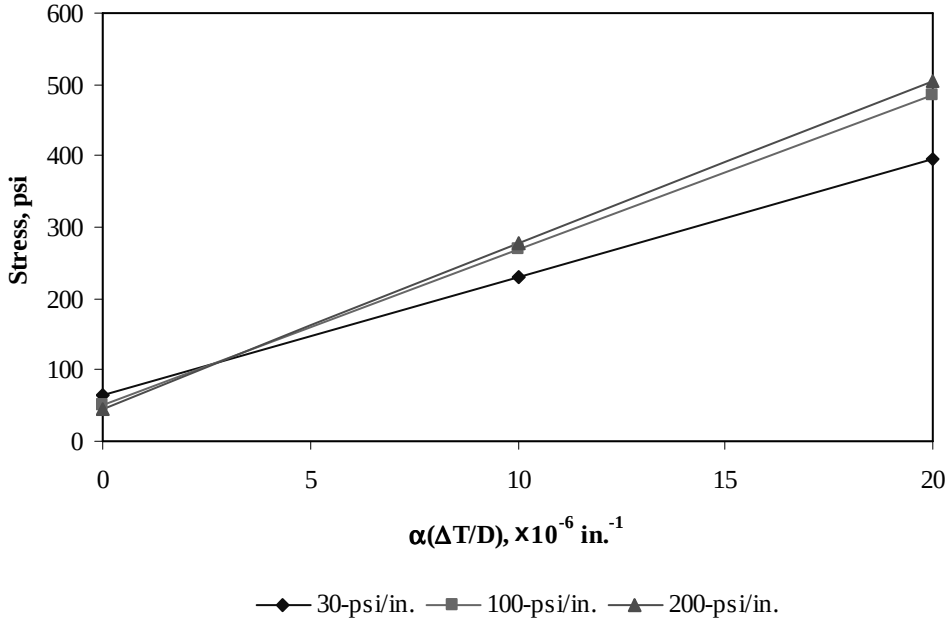


Figure F-16-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

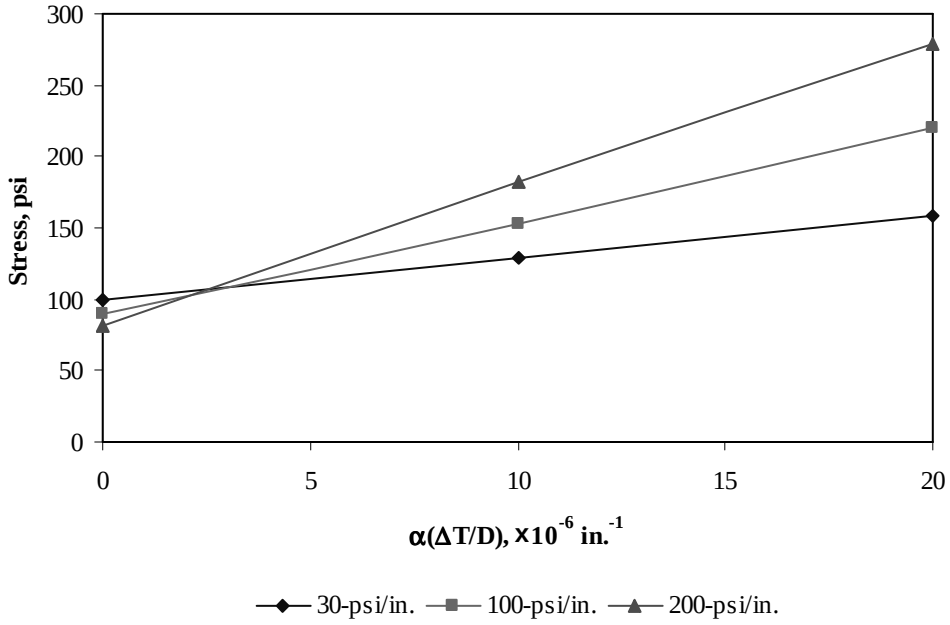


Figure F-16-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

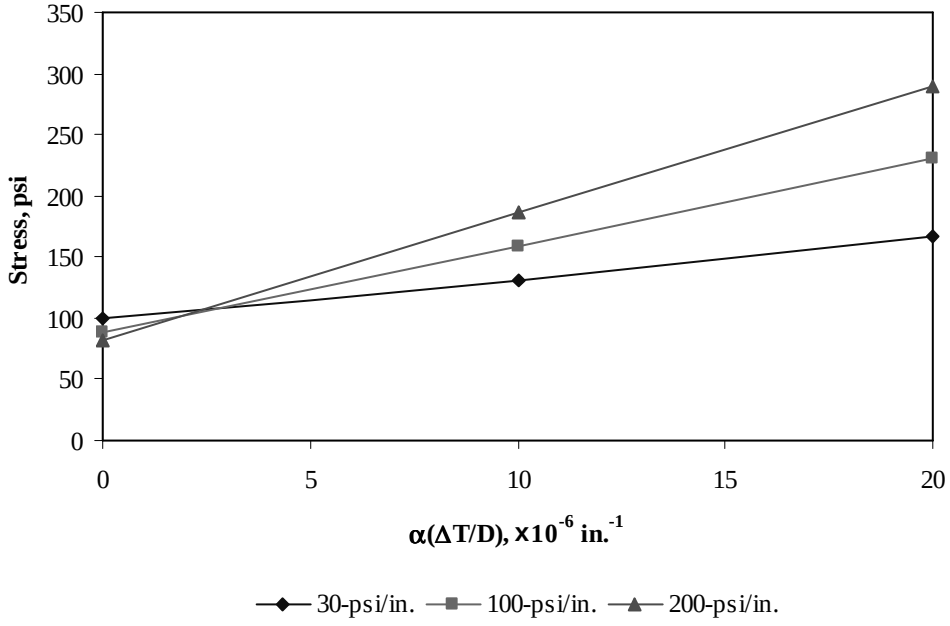


Figure F-16-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-16-49 through F-16-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

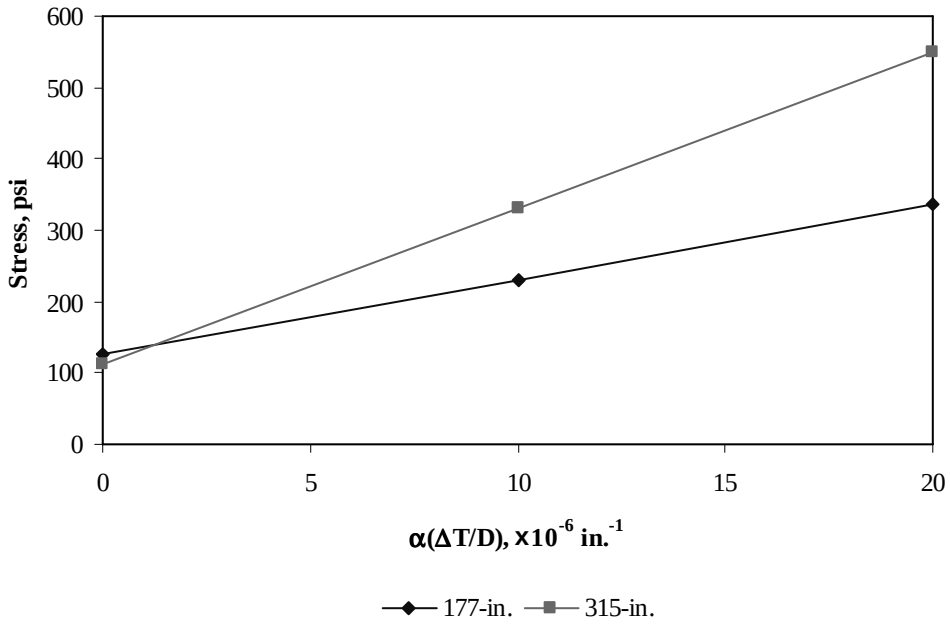


Figure F-16-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

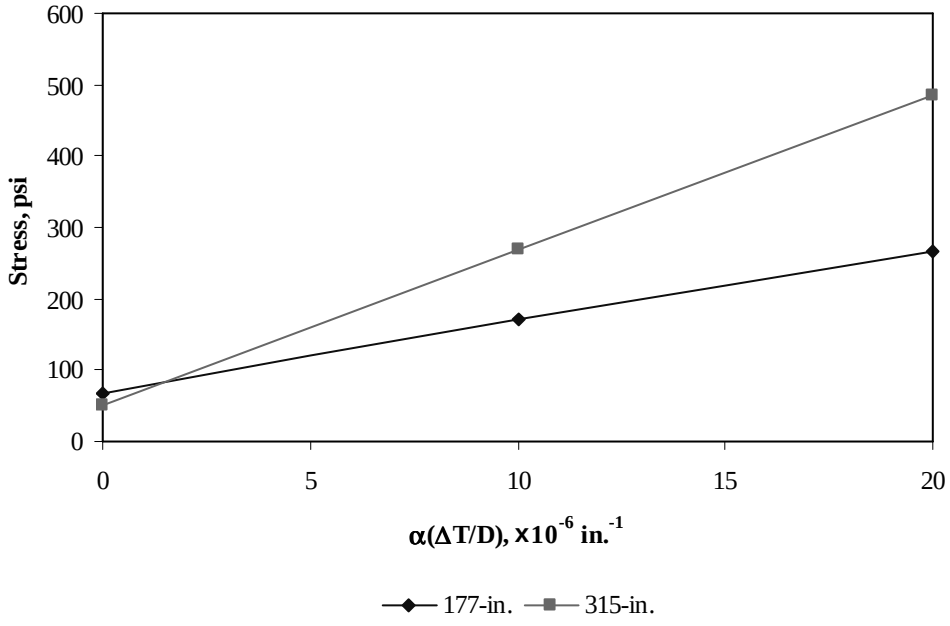


Figure F-16-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

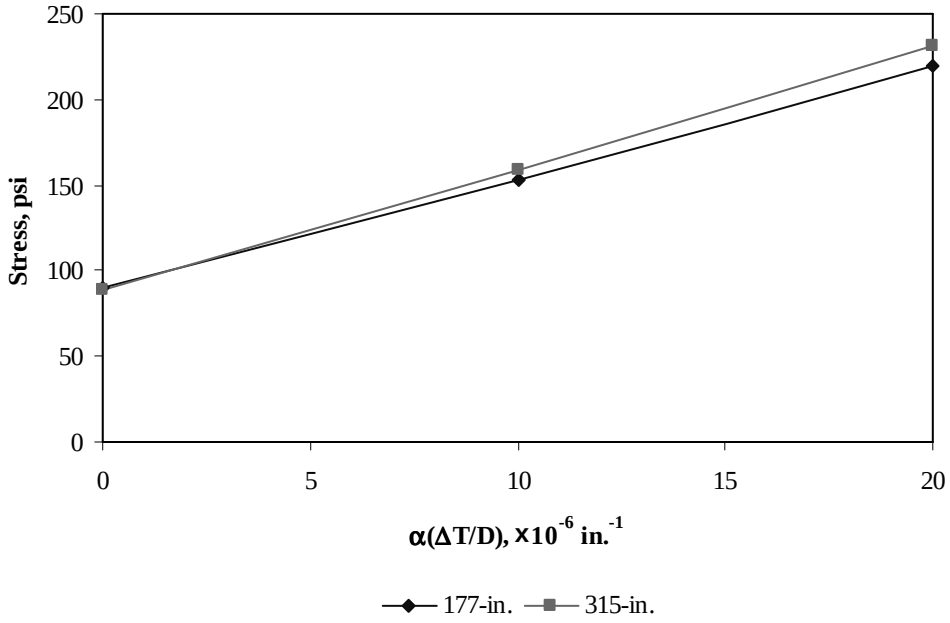
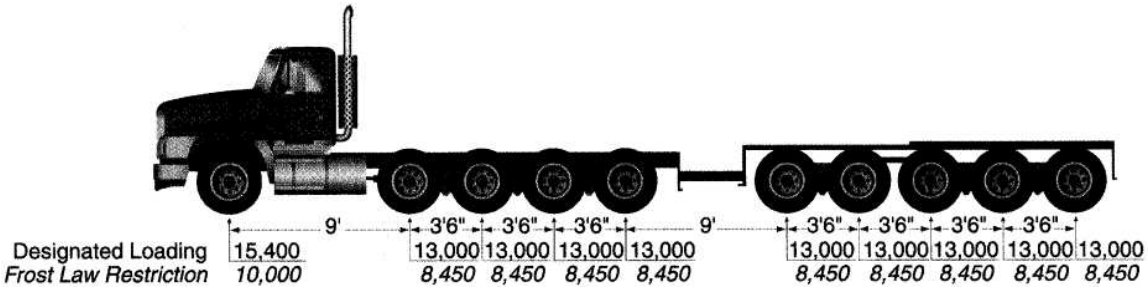


Figure F-16-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-17

Documentation of Pavement Responses for



MI-17

Figures F-17-1 through F-17-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

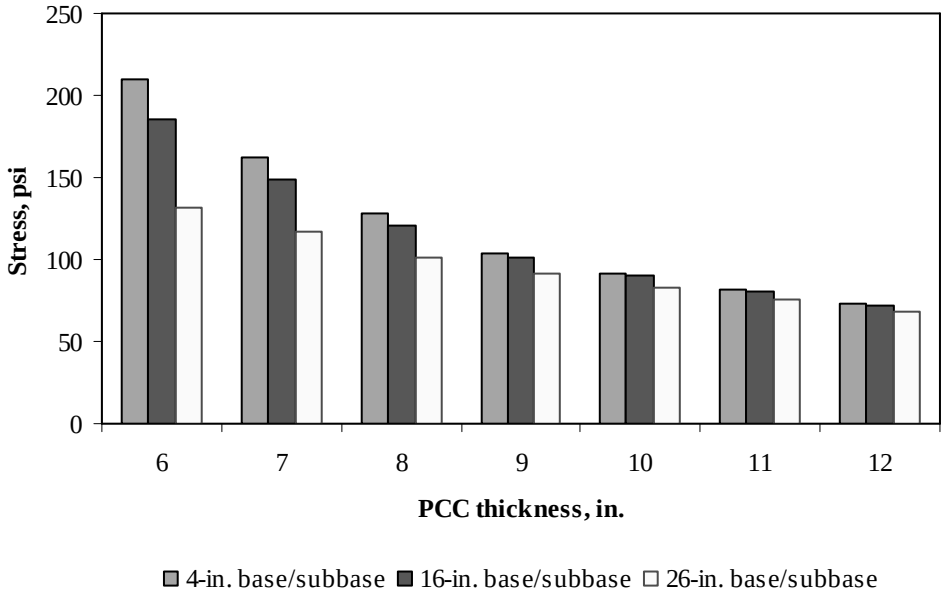


Figure F-17-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

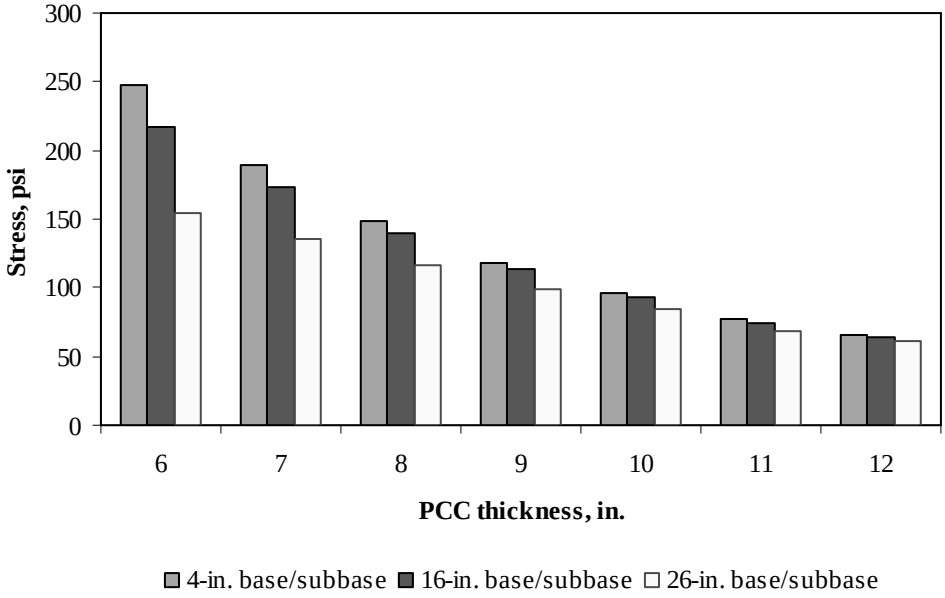


Figure F-17-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

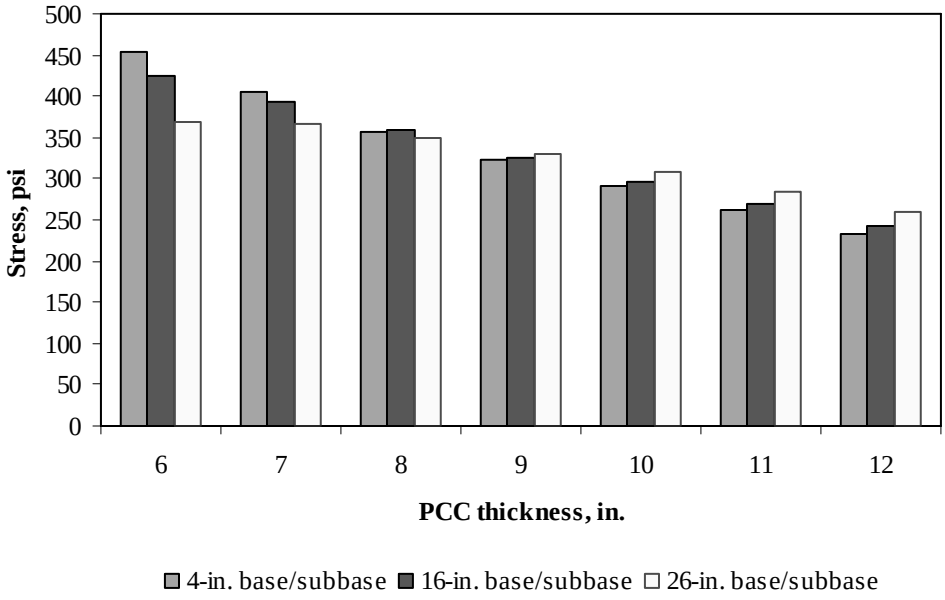


Figure F-17-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

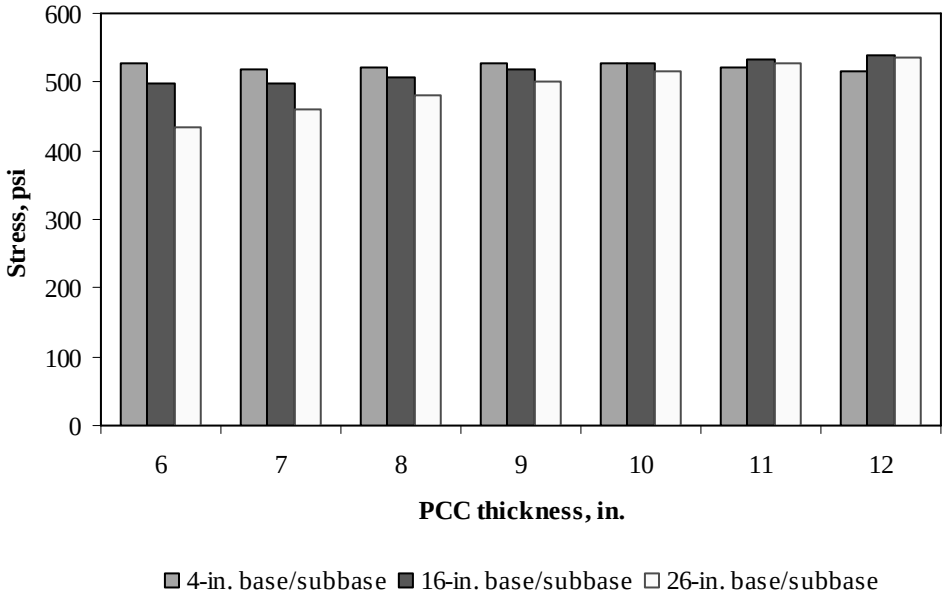


Figure F-17-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

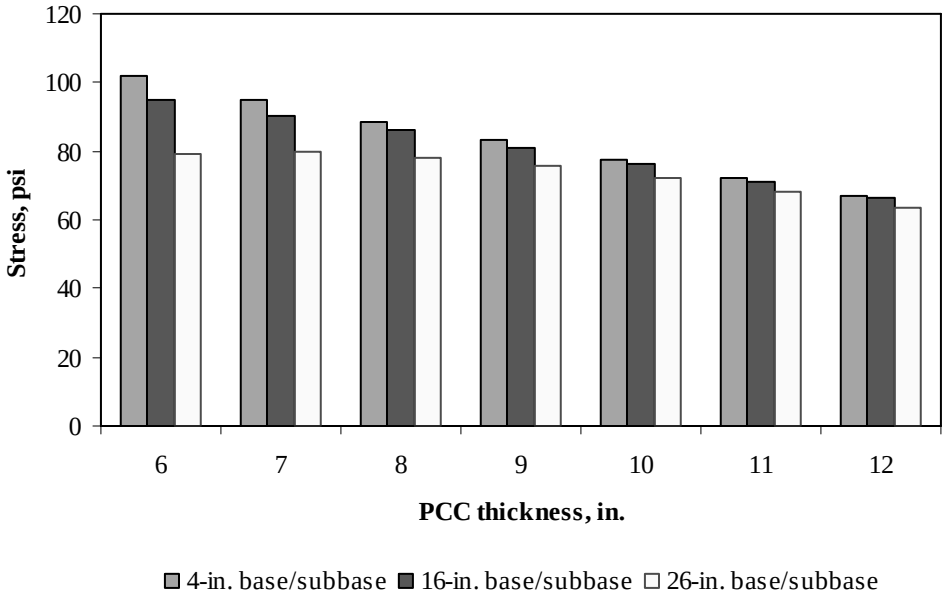


Figure F-17-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

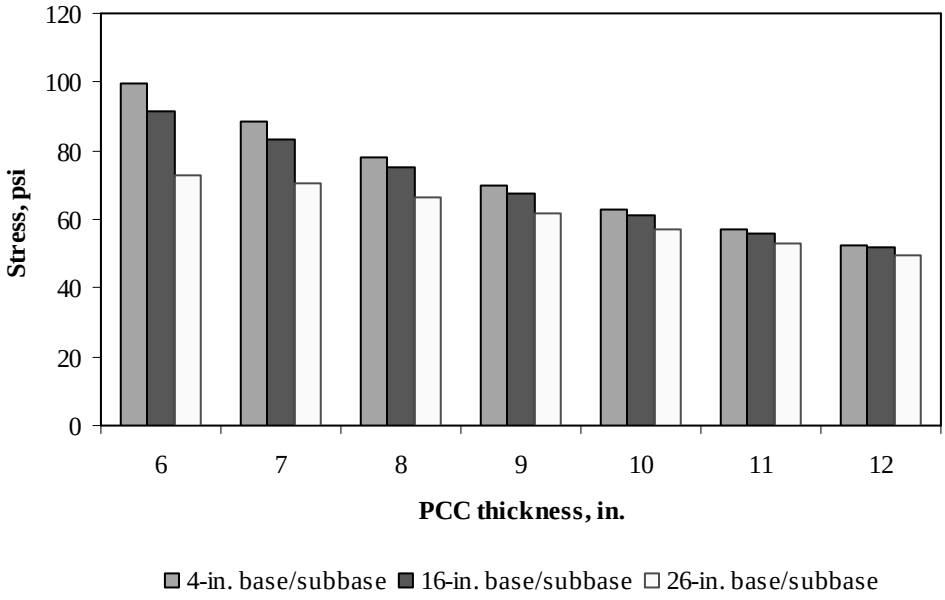


Figure F-17-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

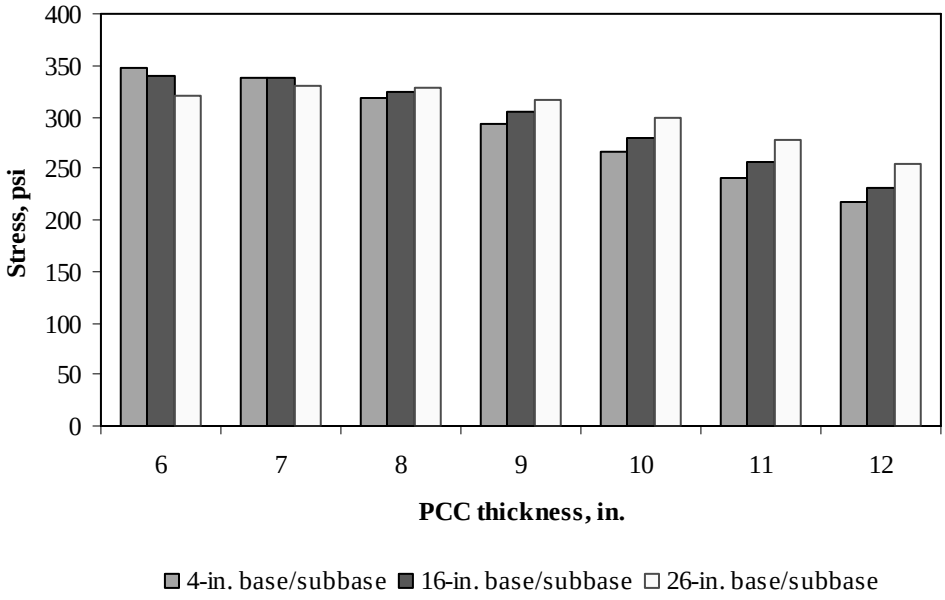


Figure F-17-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

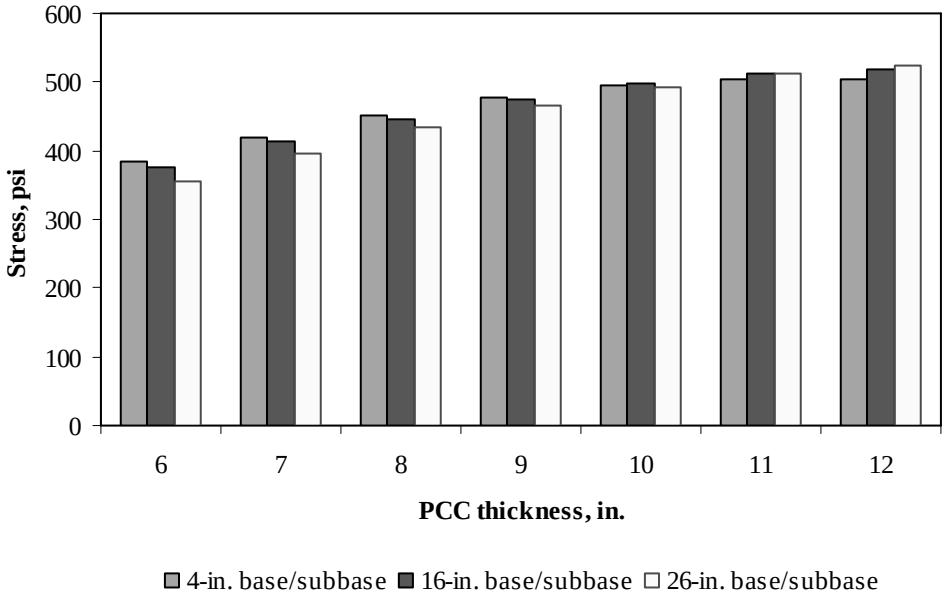


Figure F-17-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

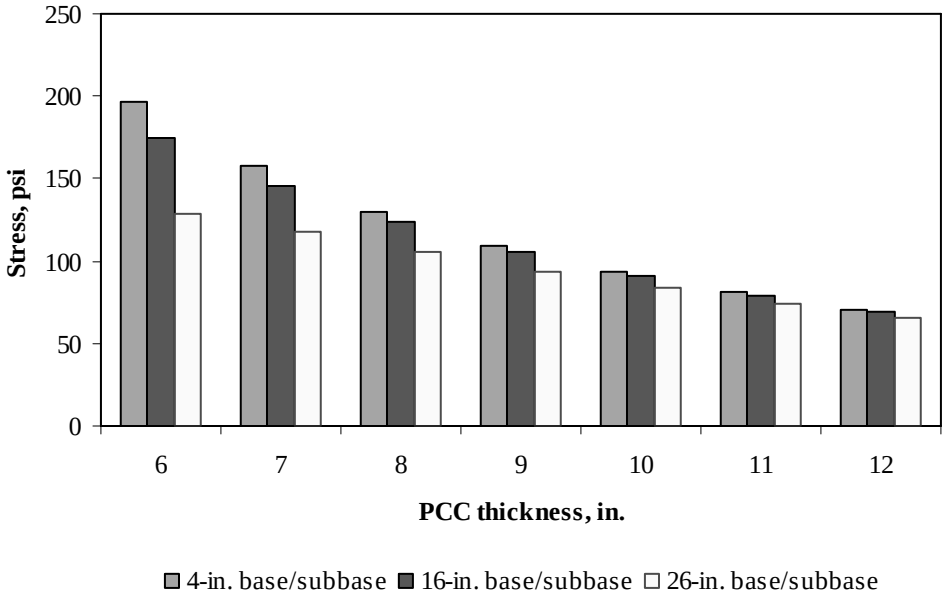


Figure F-17-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

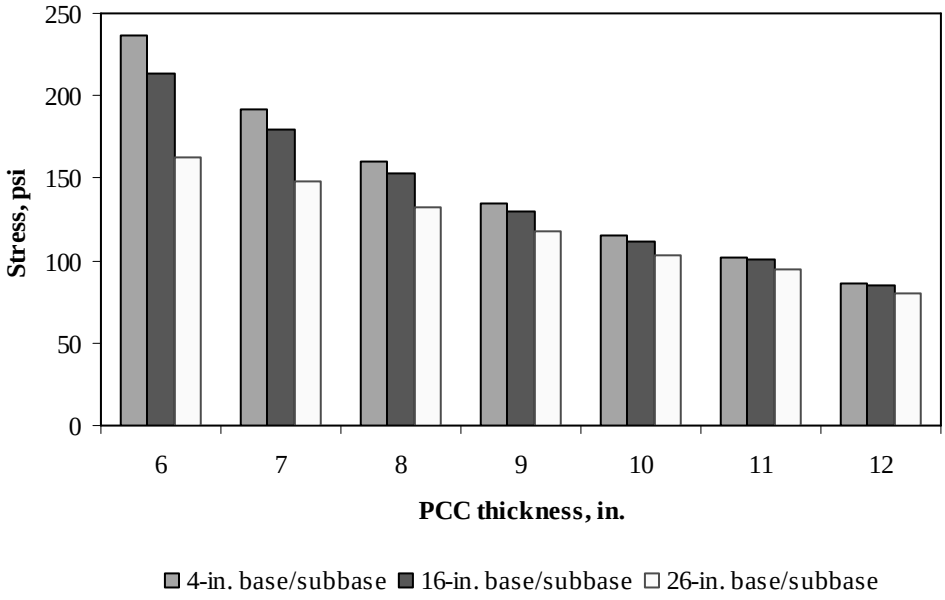


Figure F-17-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

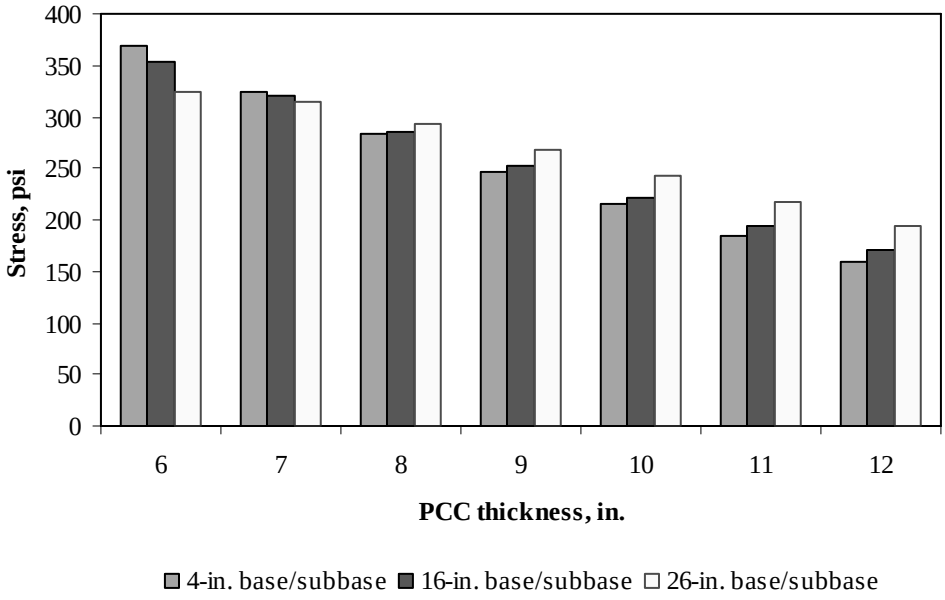


Figure F-17-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

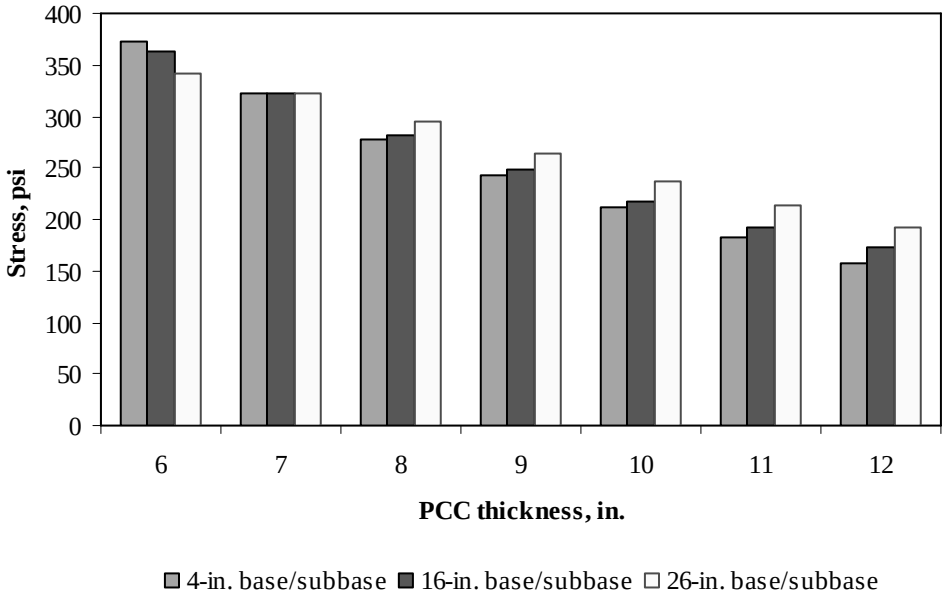


Figure F-17-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-17-13 through F-17-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

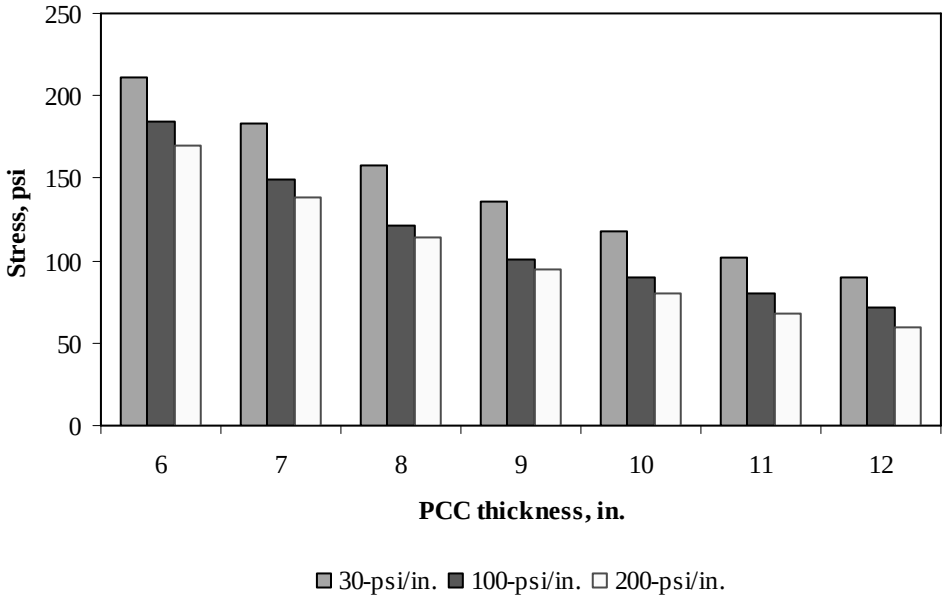


Figure F-17-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

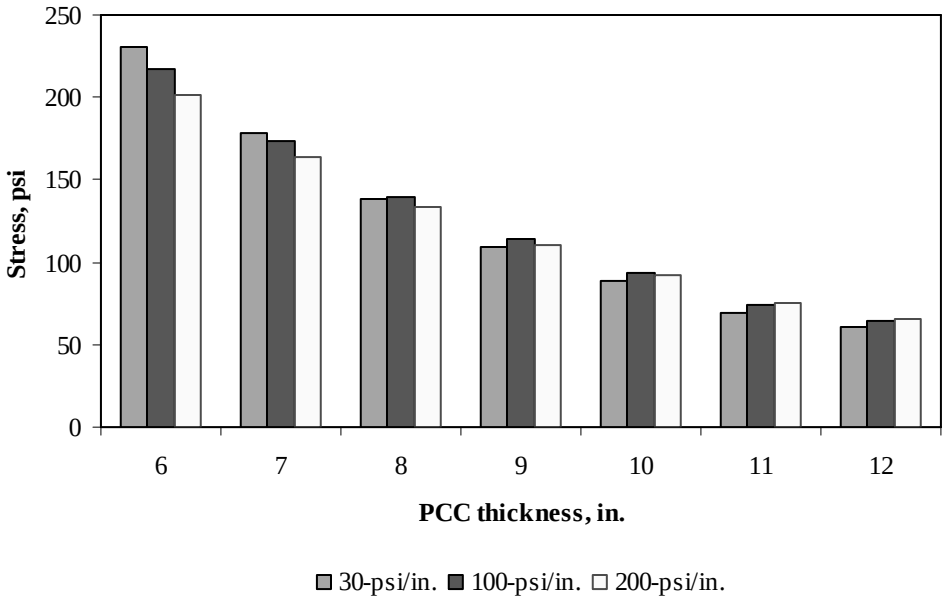


Figure F-17-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

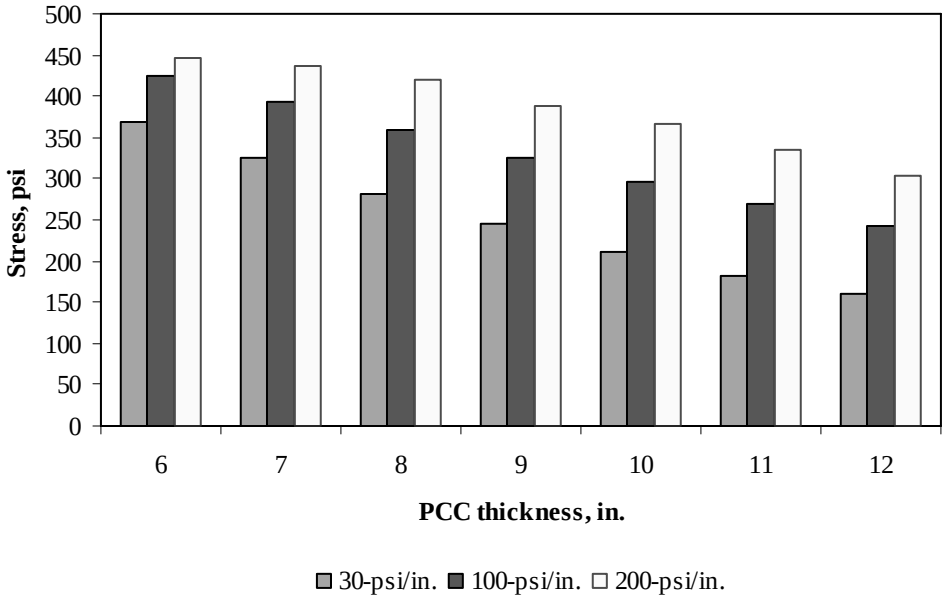


Figure F-17-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

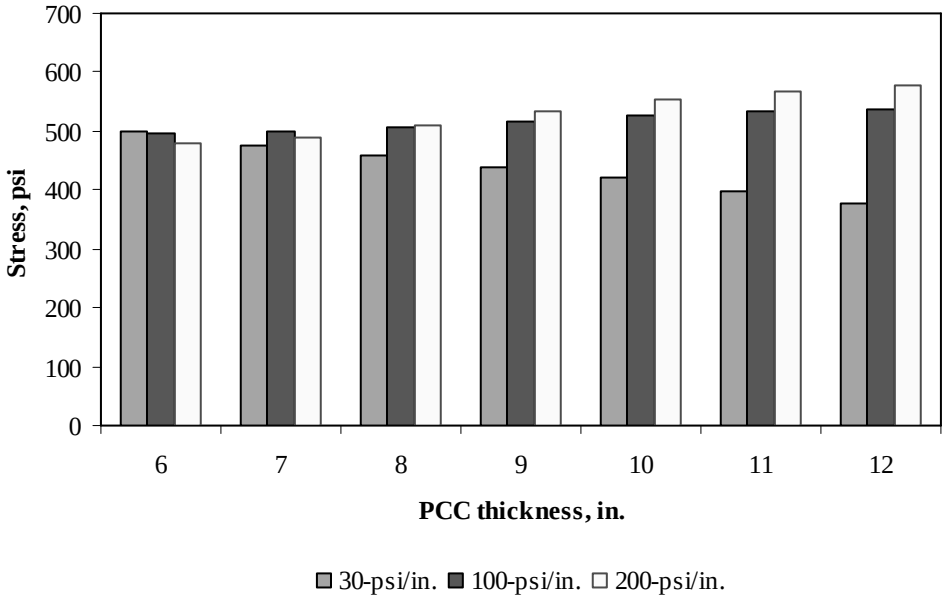


Figure F-17-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

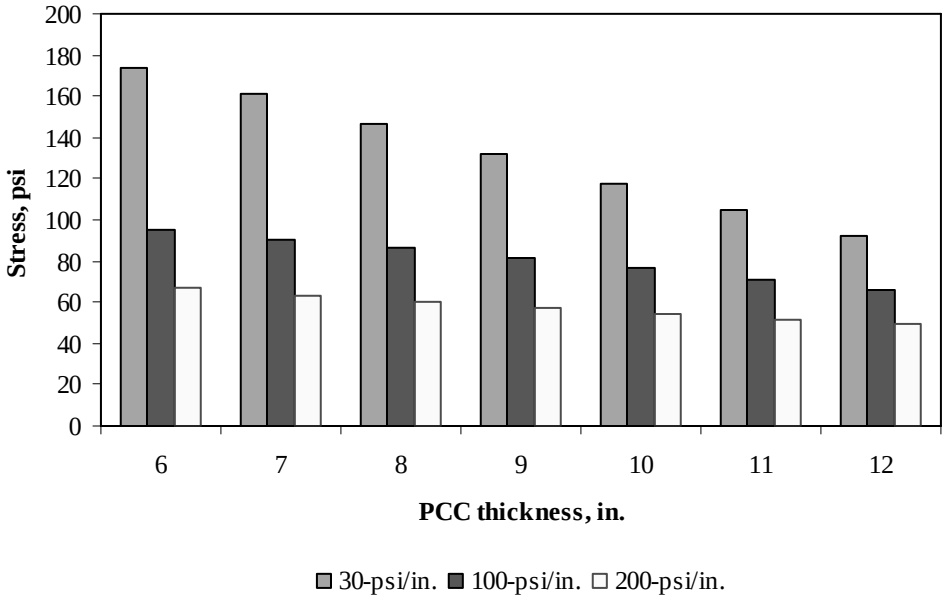


Figure F-17-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

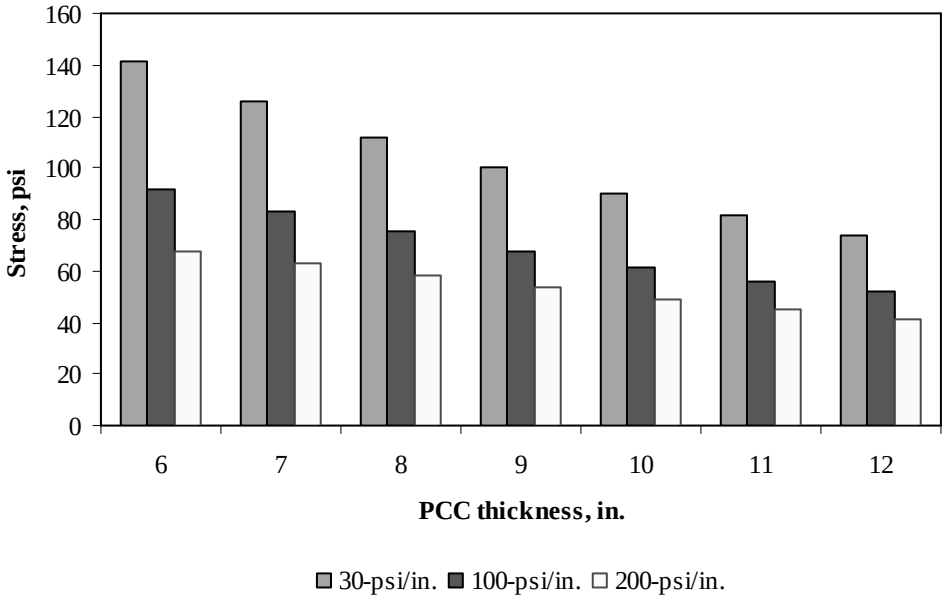


Figure F-17-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

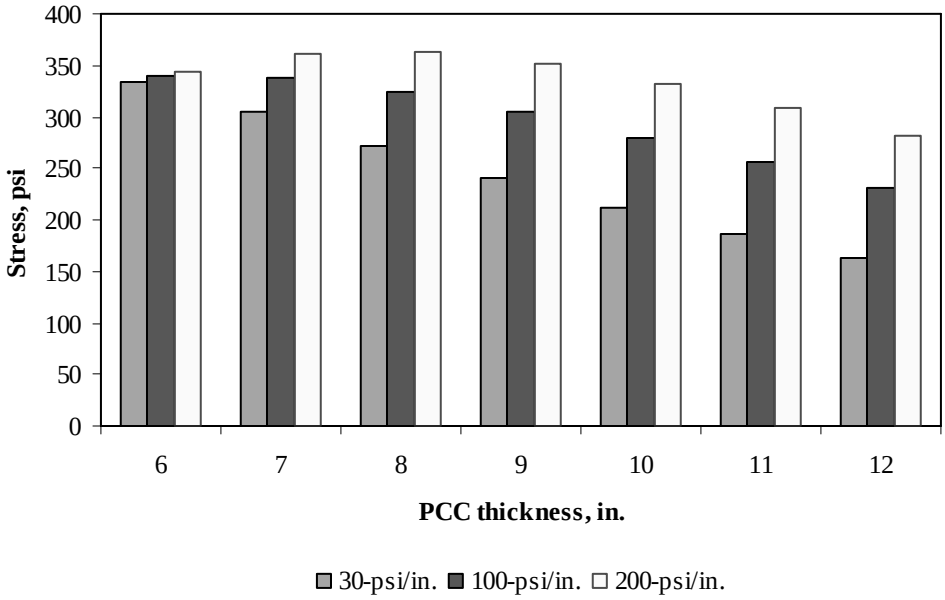


Figure F-17-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

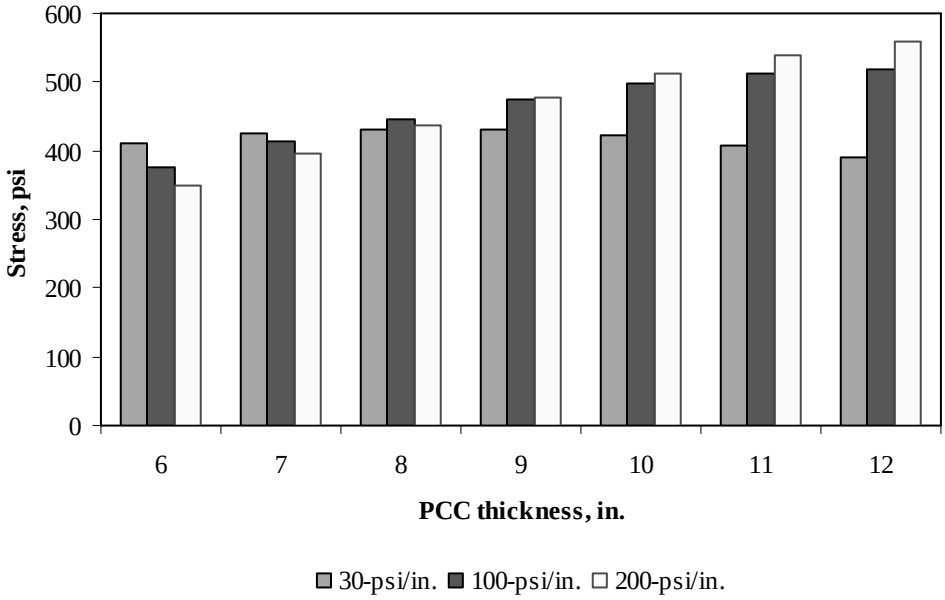


Figure F-17-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

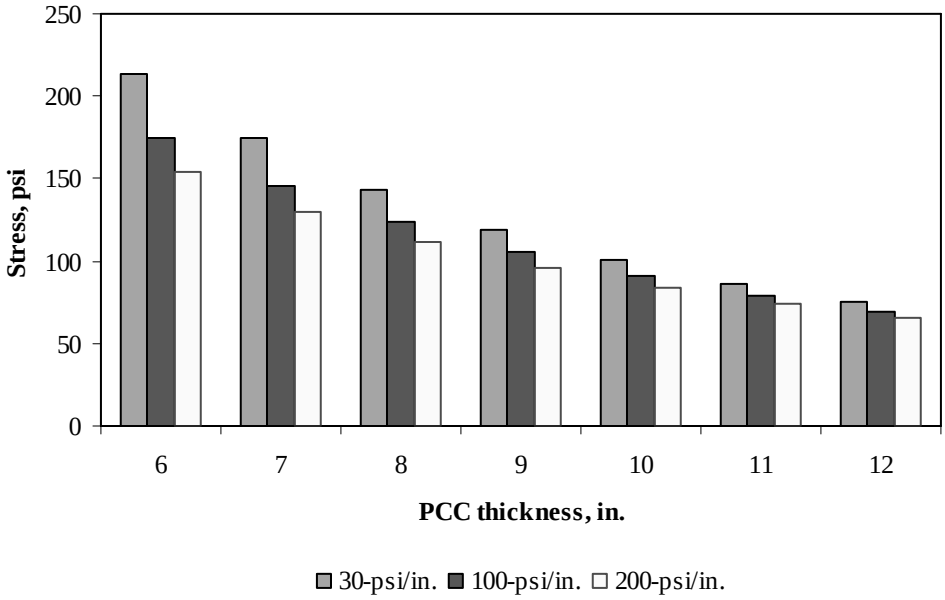


Figure F-17-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

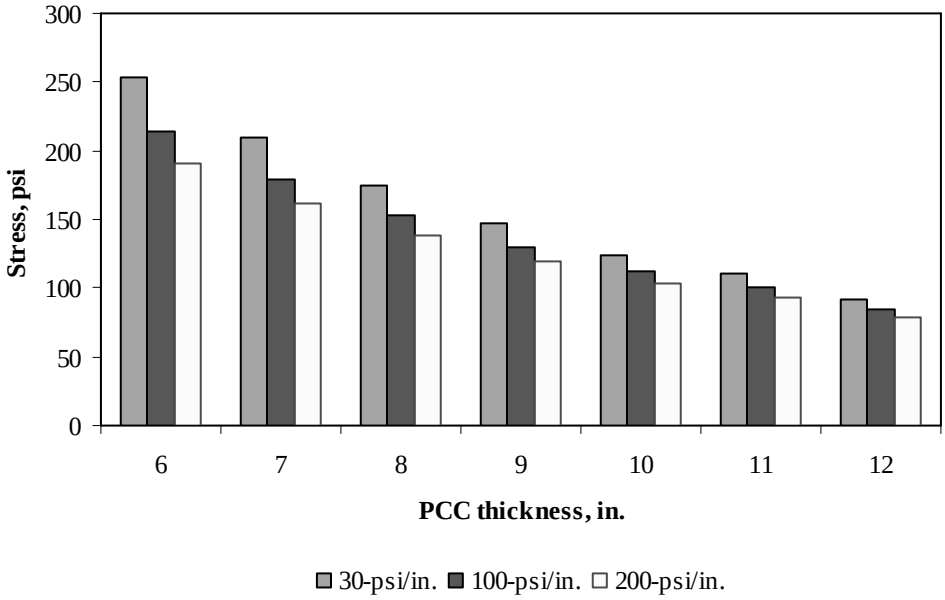


Figure F-17-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

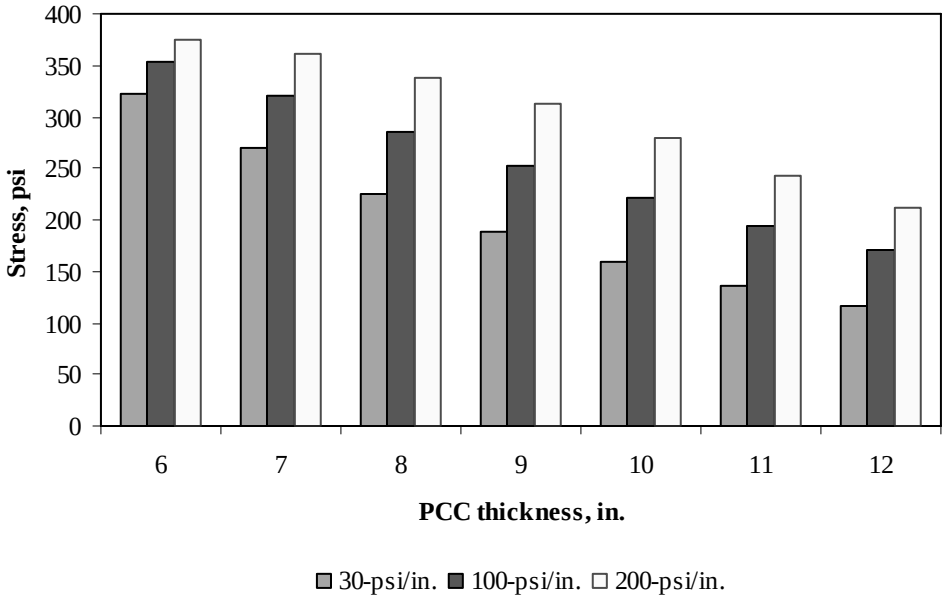


Figure F-17-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

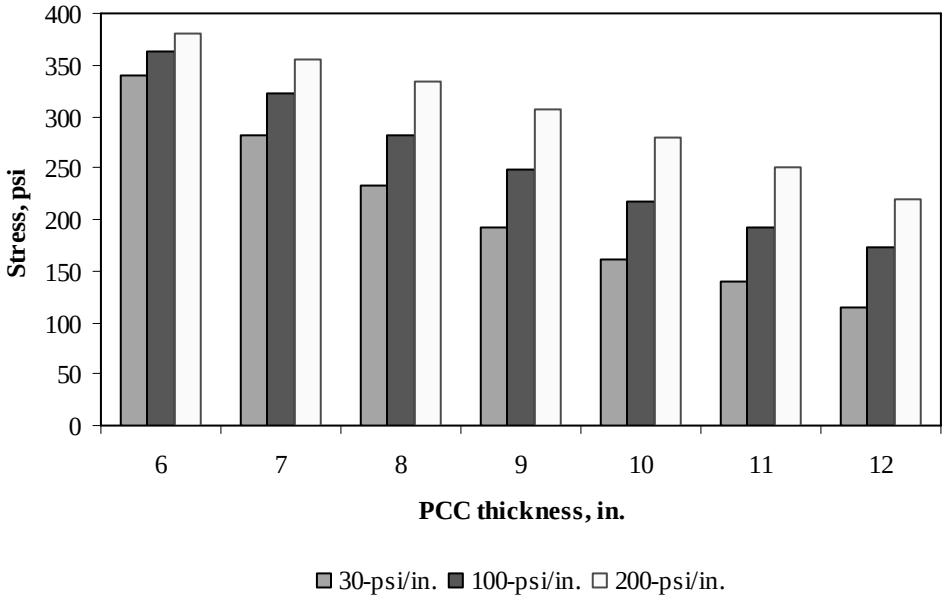


Figure F-17-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-17-25 through F-17-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

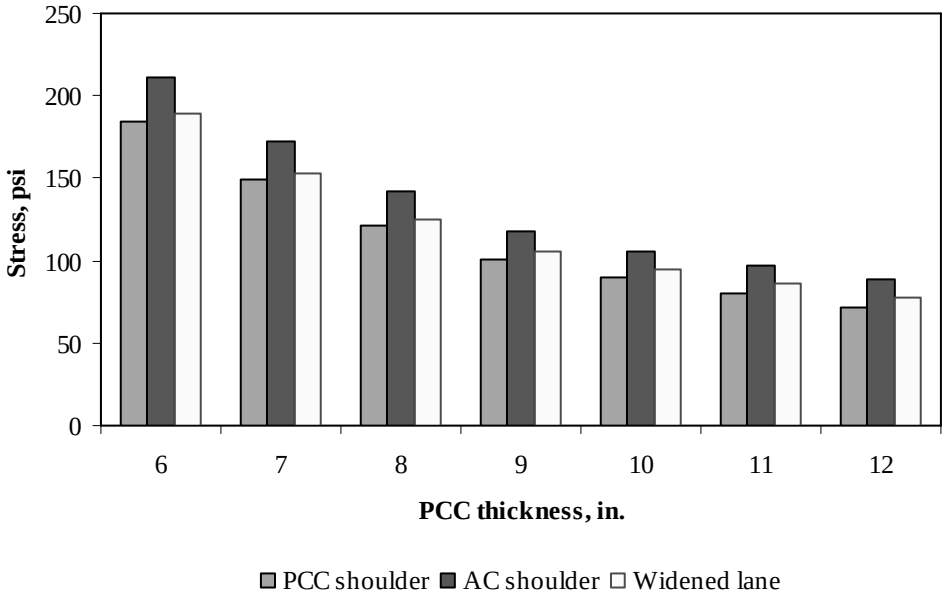


Figure F-17-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

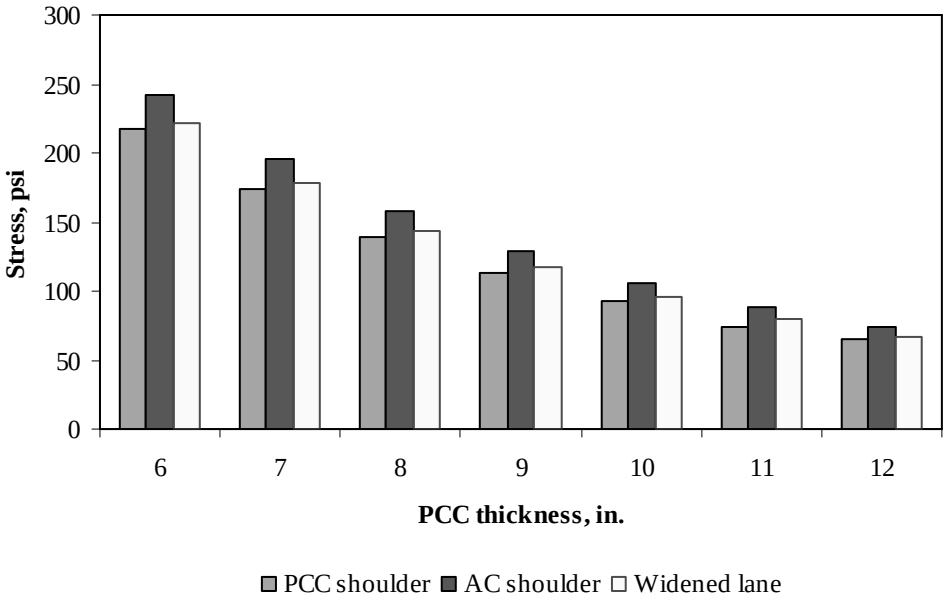


Figure F-17-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

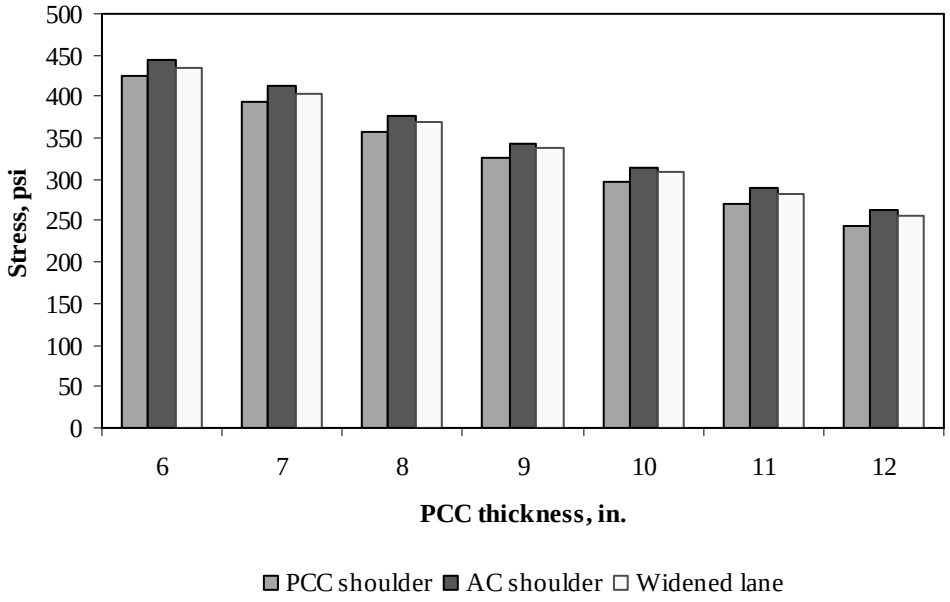


Figure F-17-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

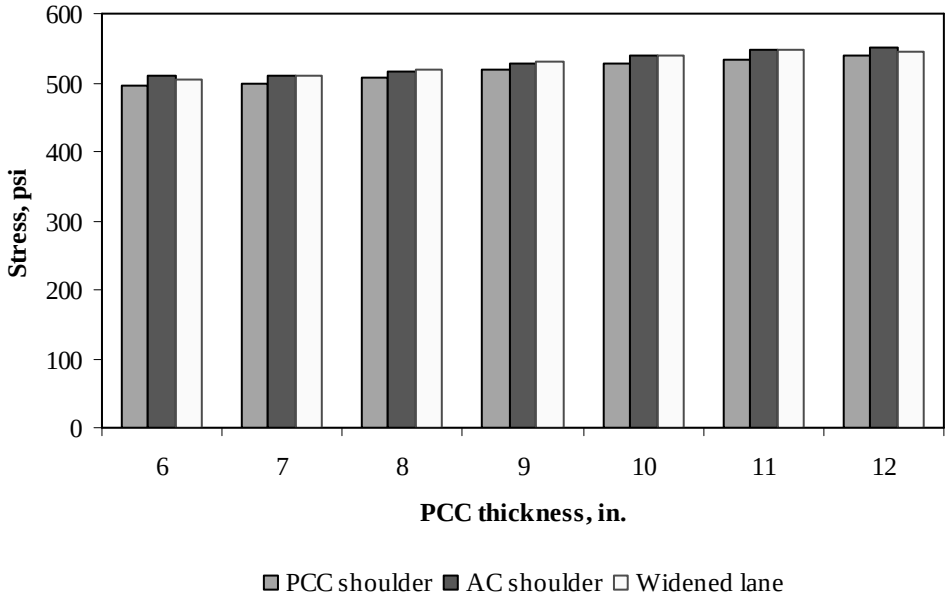


Figure F-17-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

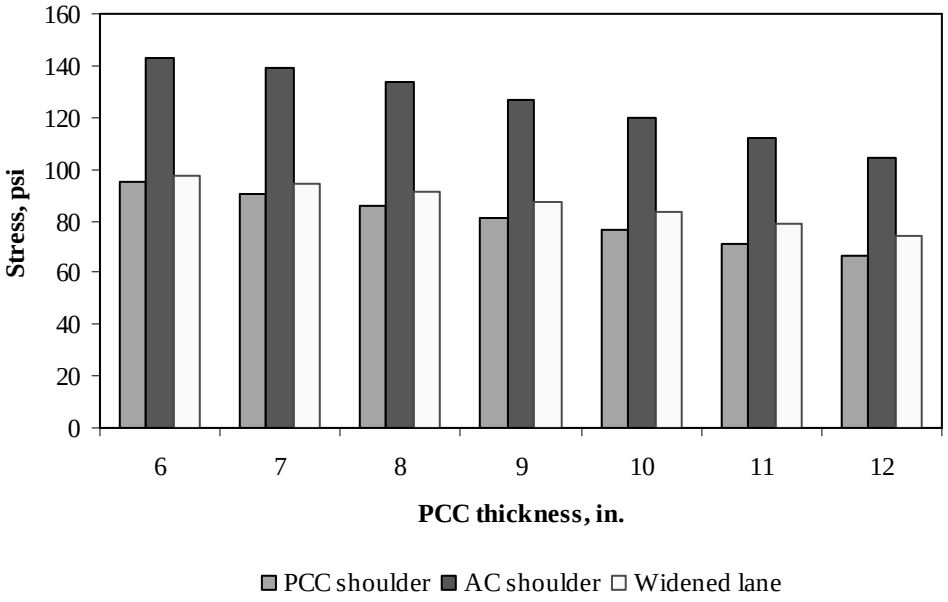


Figure F-17-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

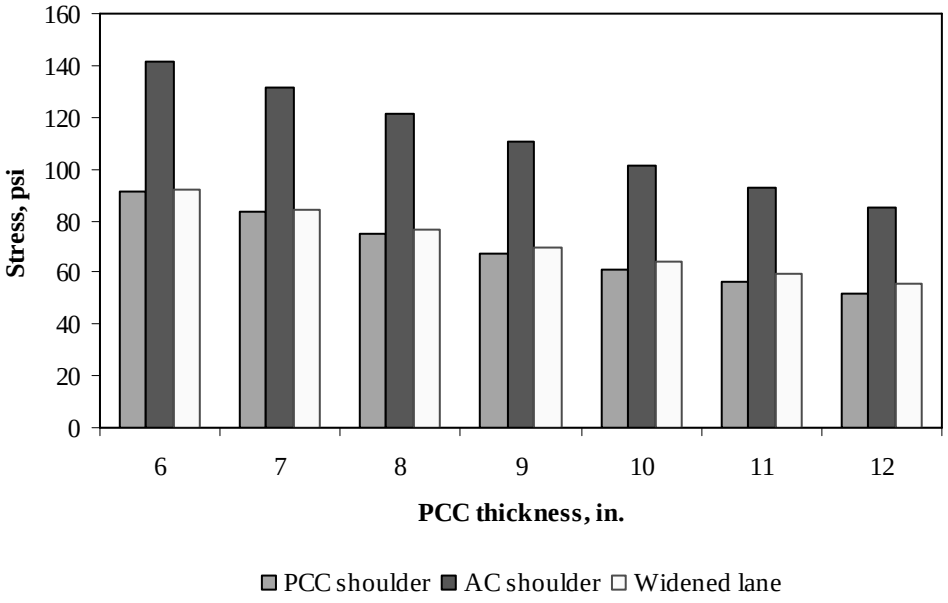


Figure F-17-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

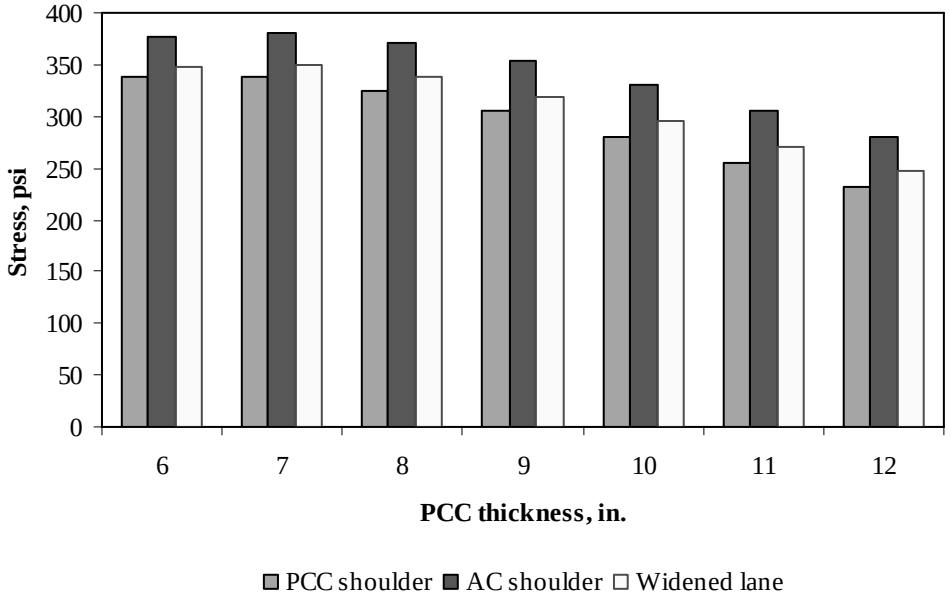


Figure F-17-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

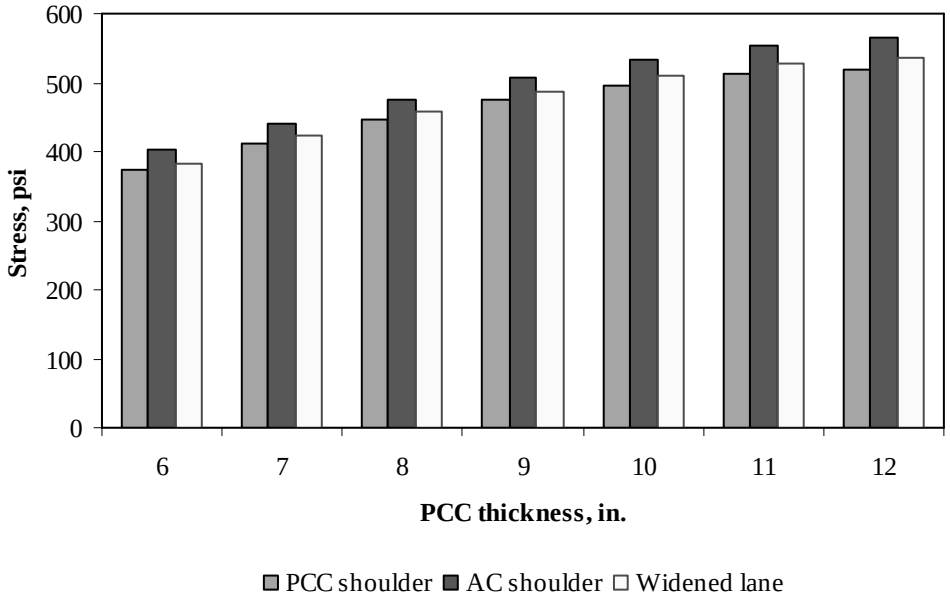


Figure F-17-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

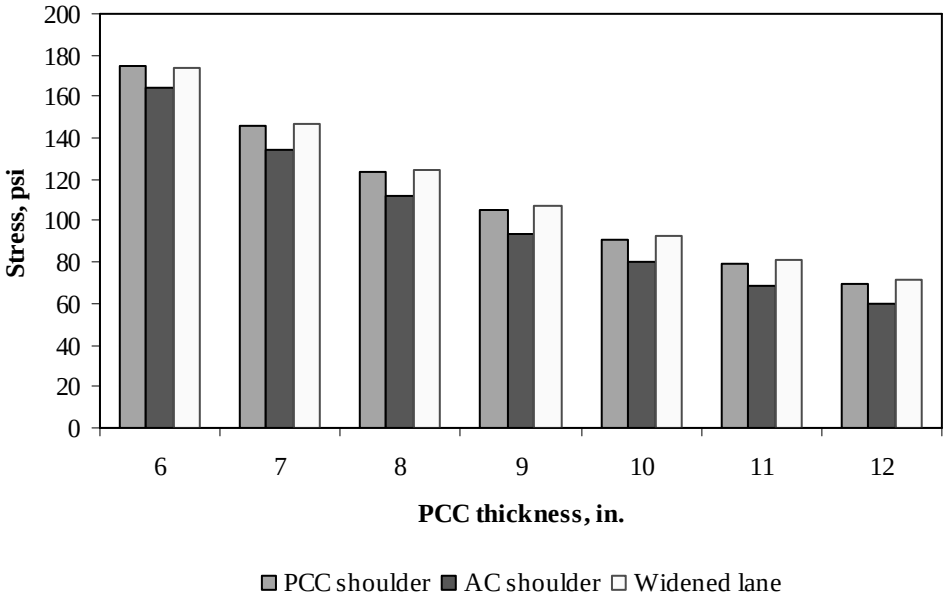


Figure F-17-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

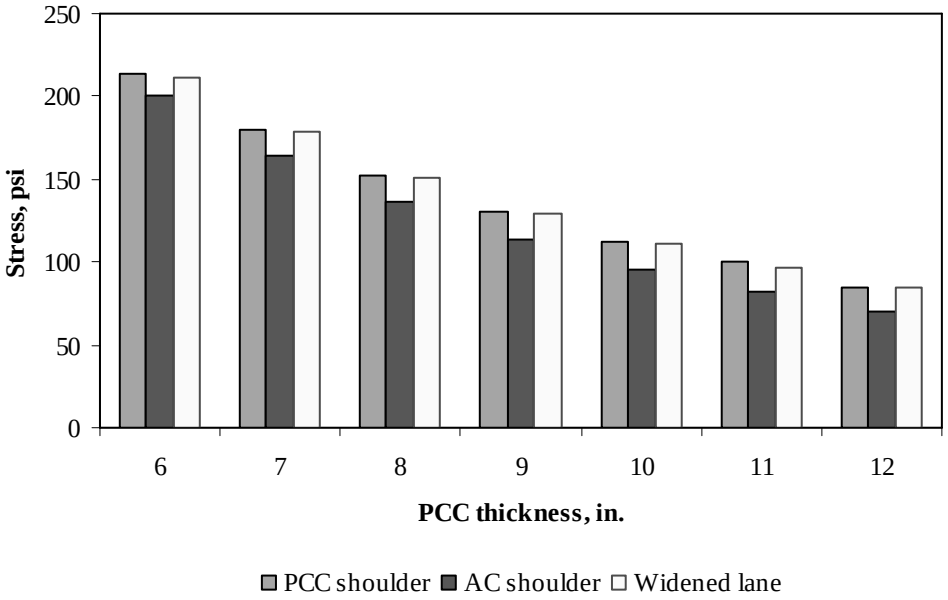


Figure F-17-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

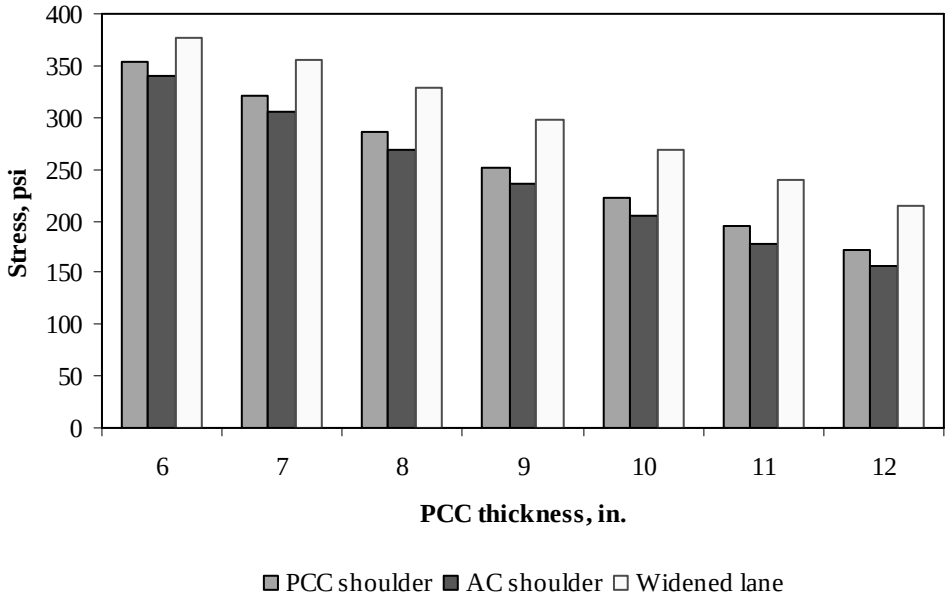


Figure F-17-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

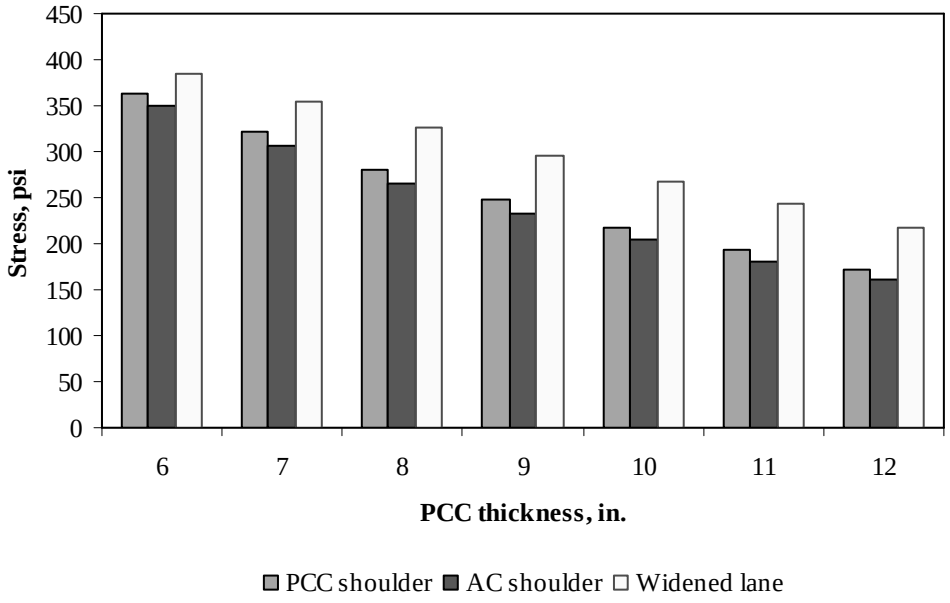


Figure F-17-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-17-37 through F-17-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

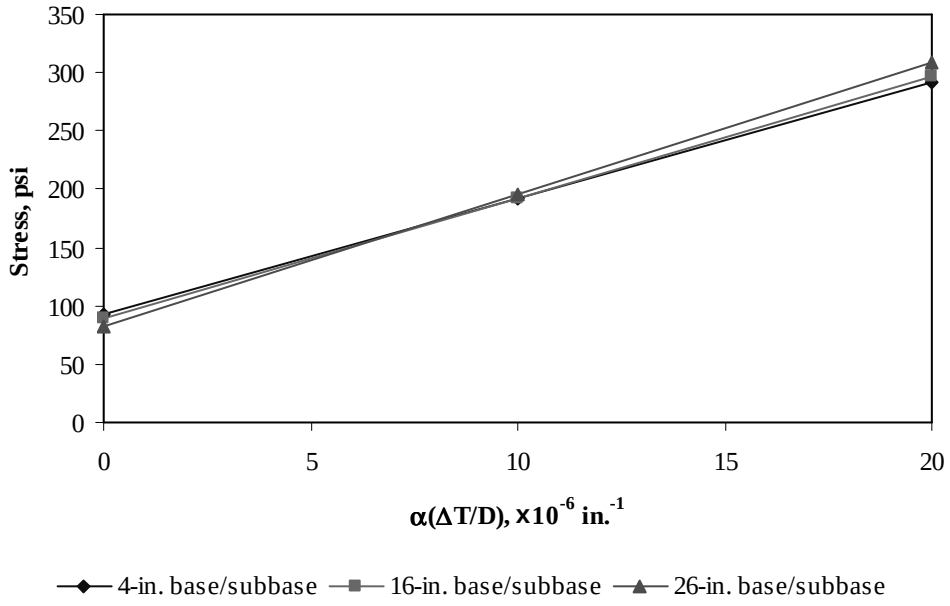


Figure F-17-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

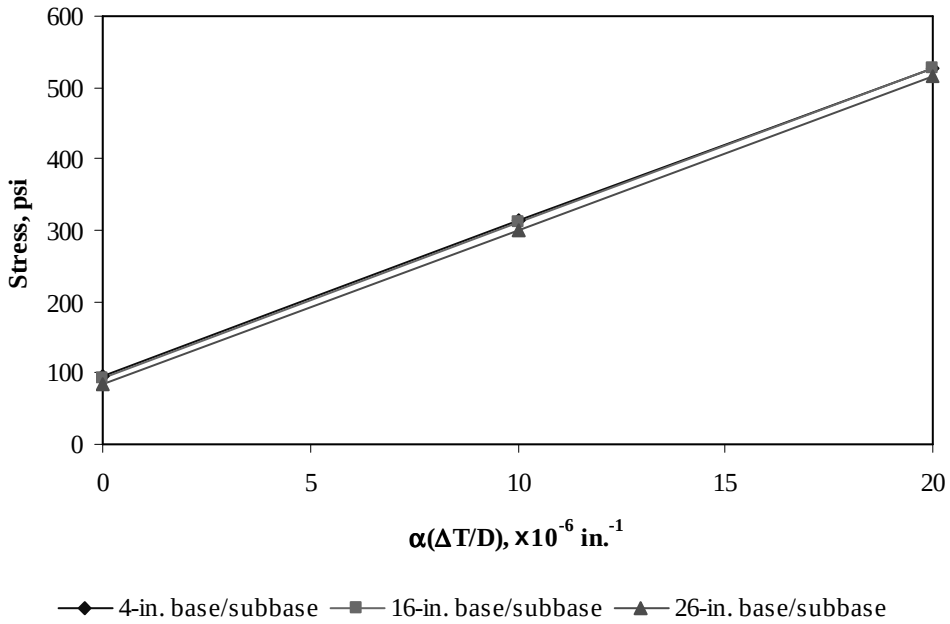


Figure F-17-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

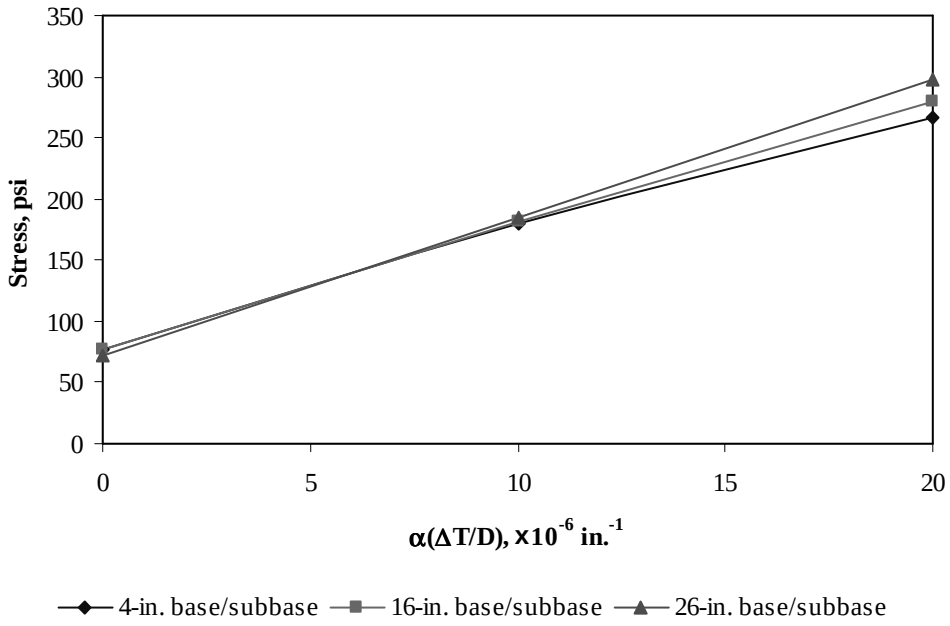


Figure F-17-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

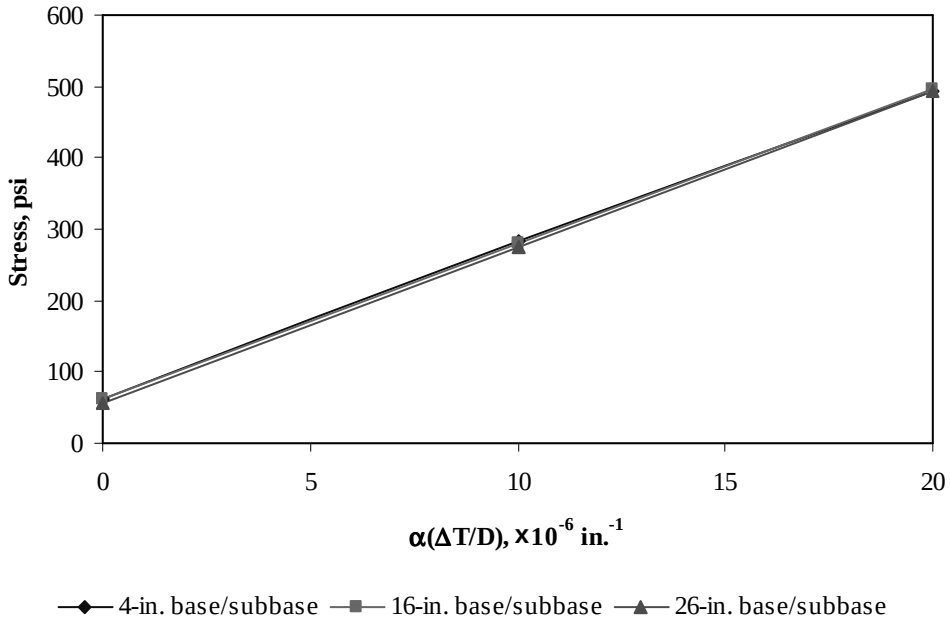


Figure F-17-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

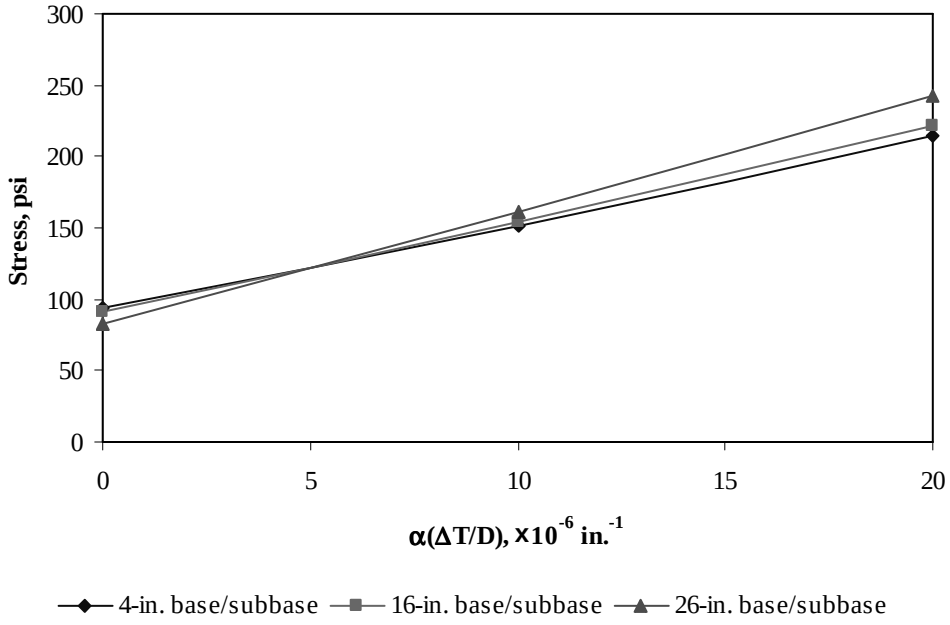


Figure F-17-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

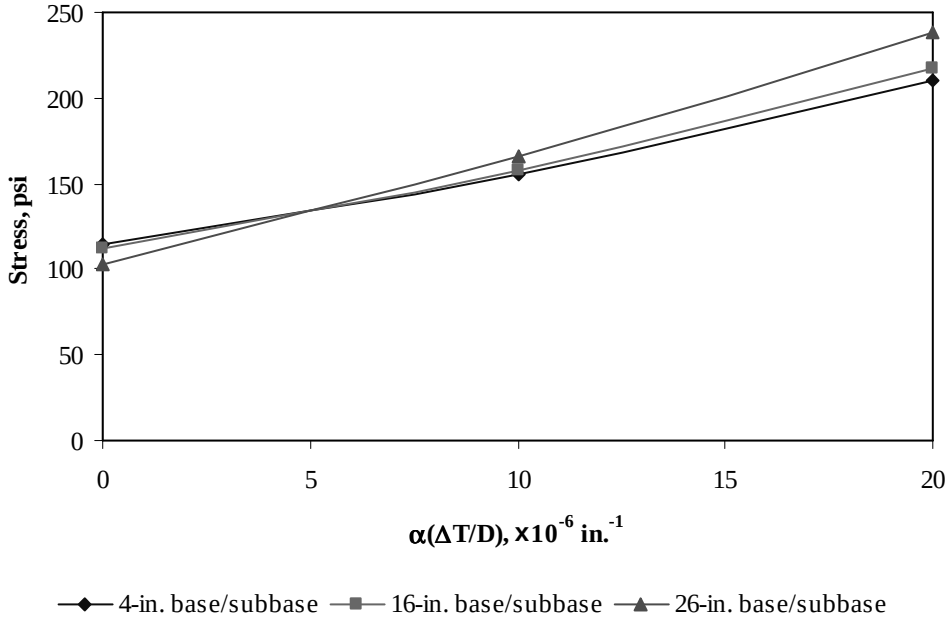


Figure F-17-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-17-43 through F-17-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

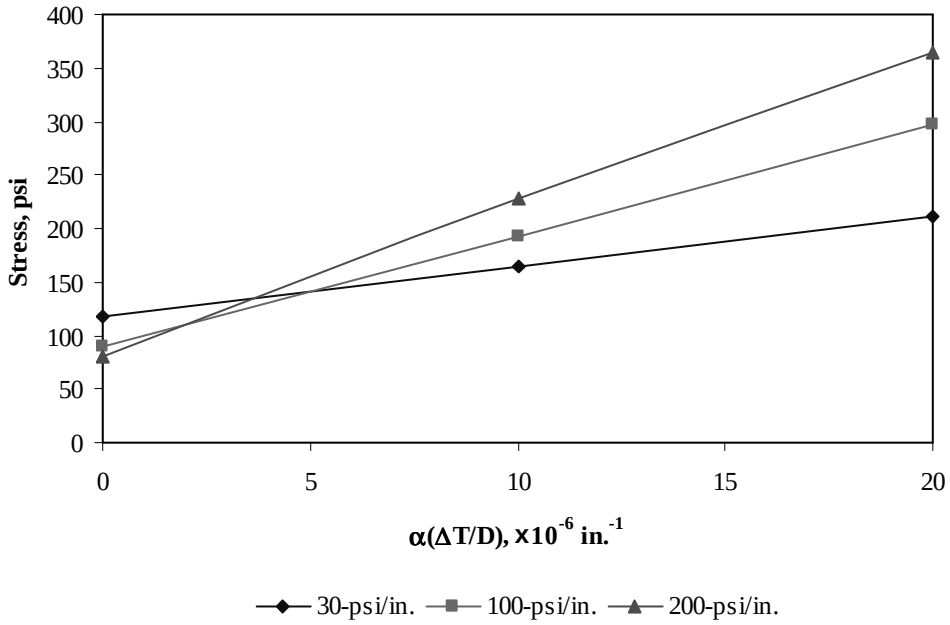


Figure F-17-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

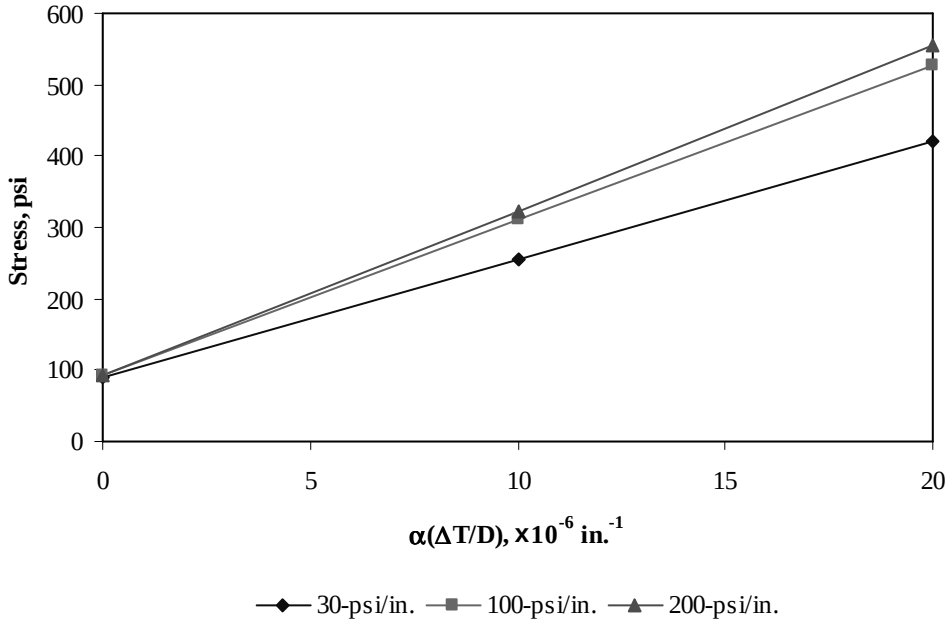


Figure F-17-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

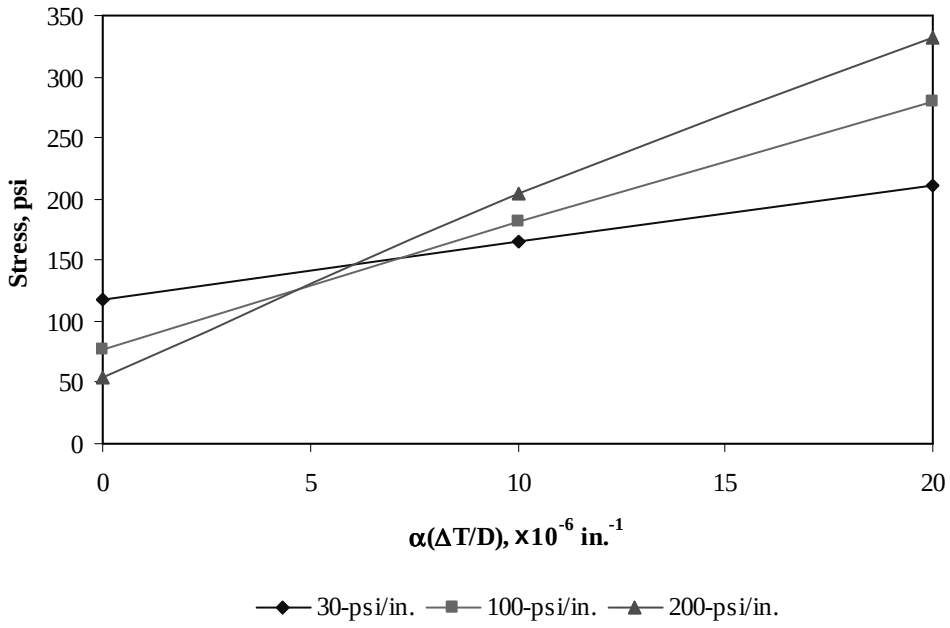


Figure F-17-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

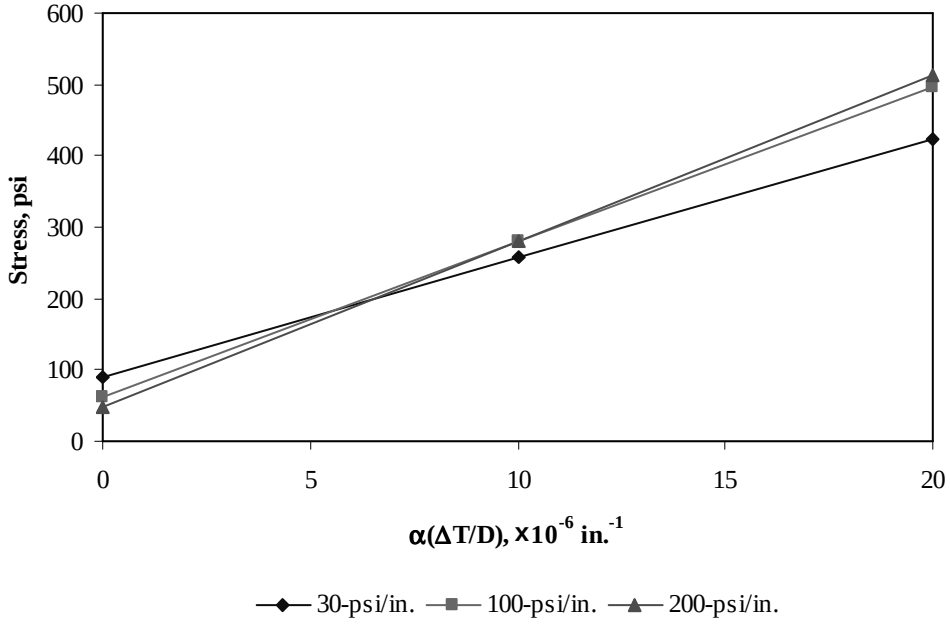


Figure F-17-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

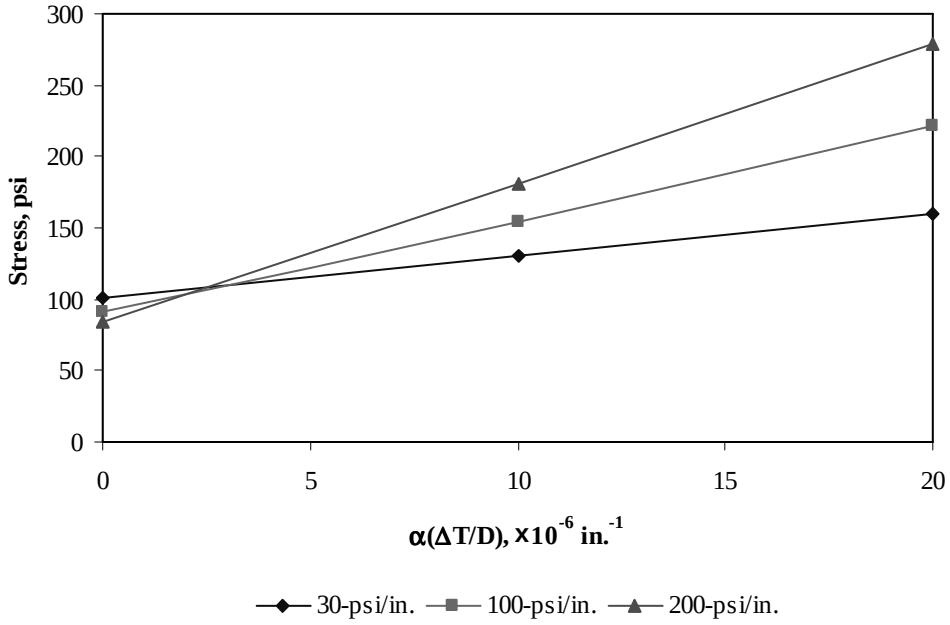


Figure F-17-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

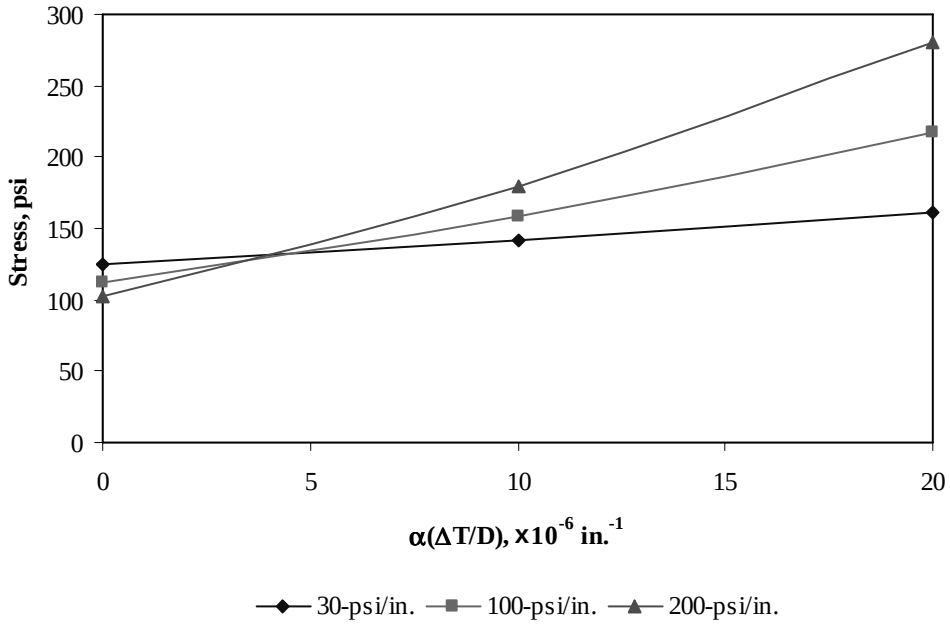


Figure F-17-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-17-49 through F-17-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

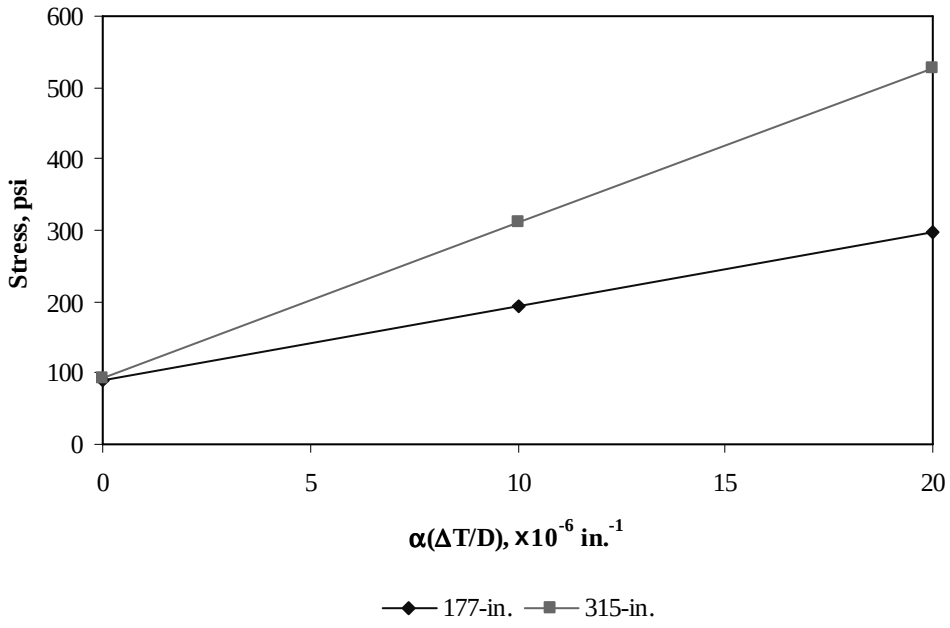


Figure F-17-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

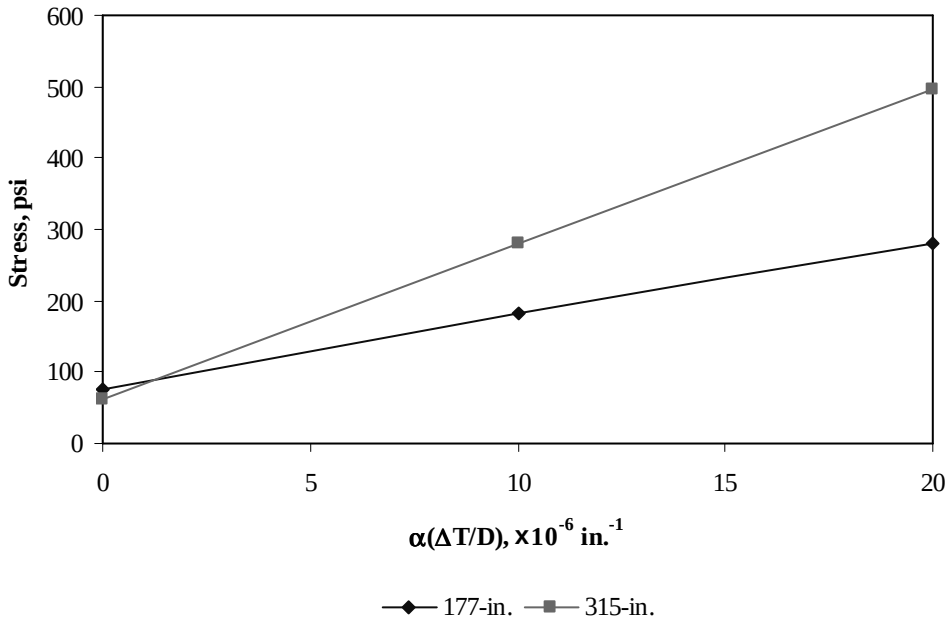


Figure F-17-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

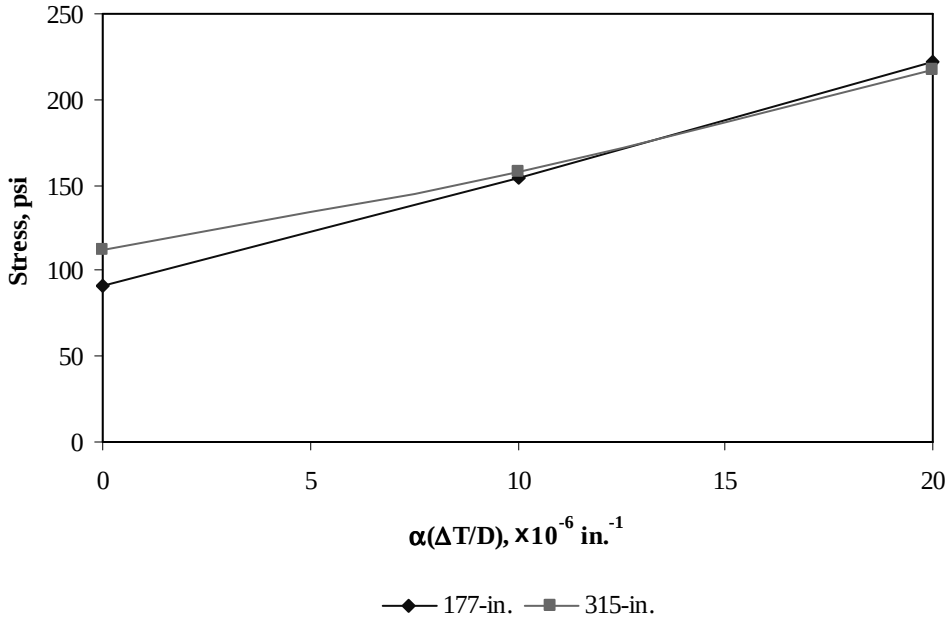
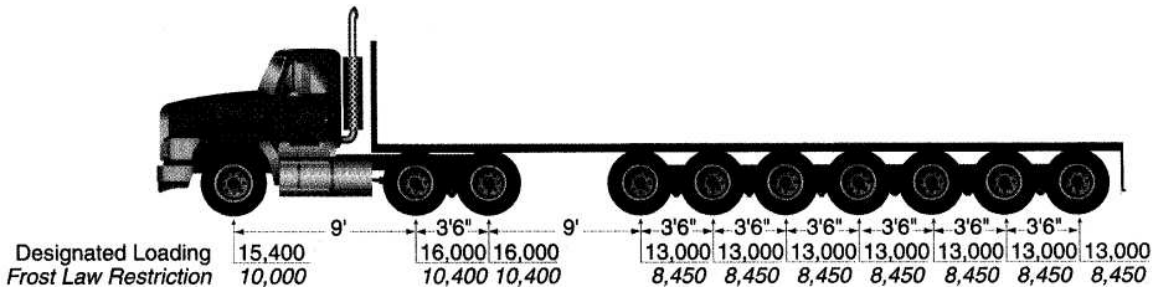


Figure F-17-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-18

Documentation of Pavement Responses for



MI-19

Figures F-18-1 through F-18-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

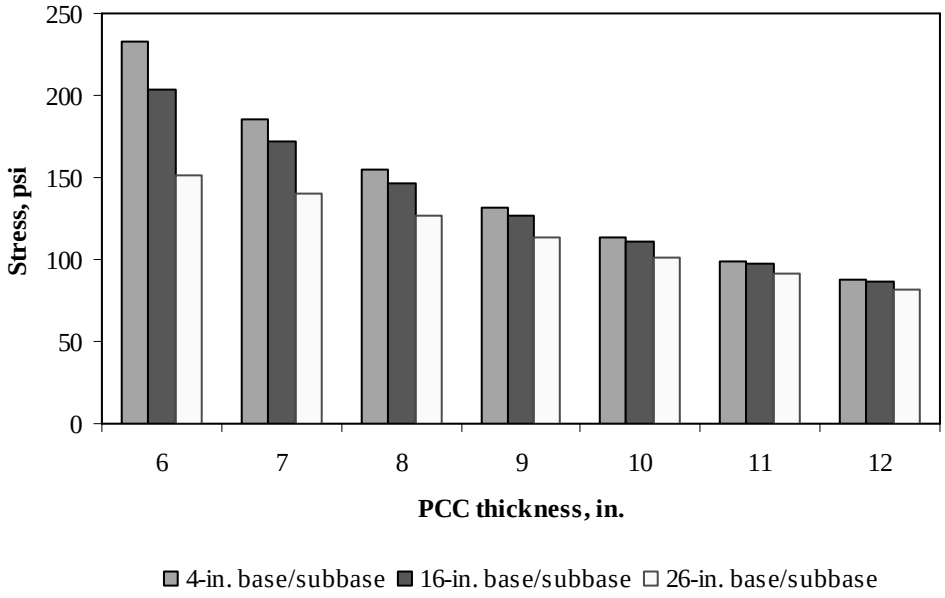


Figure F-18-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

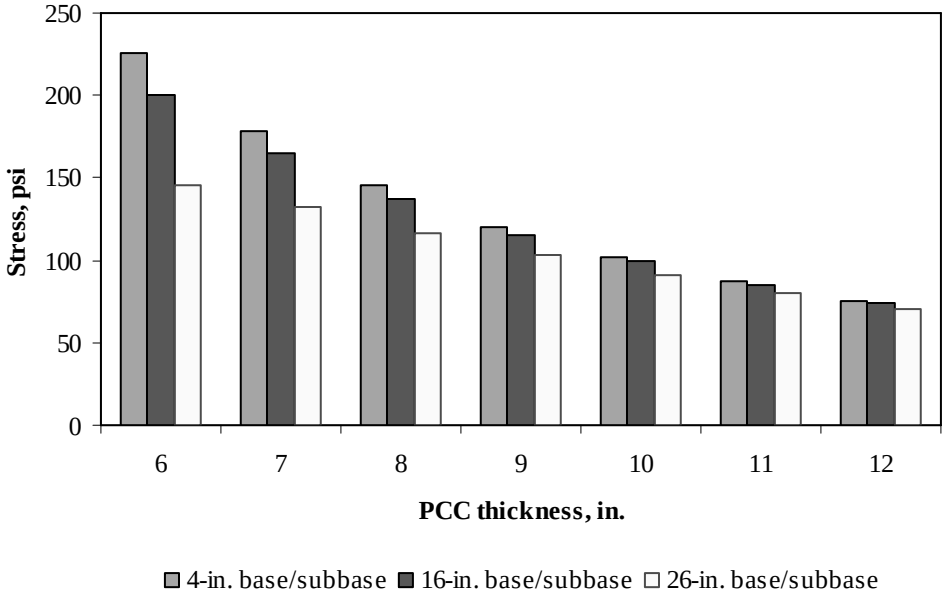


Figure F-18-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 $in.^{-1}$)

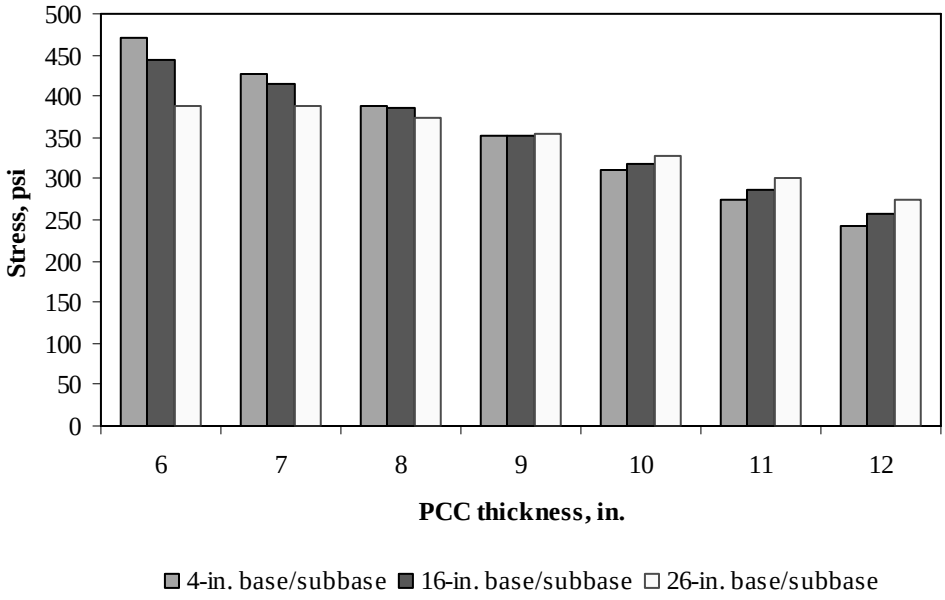


Figure F-18-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

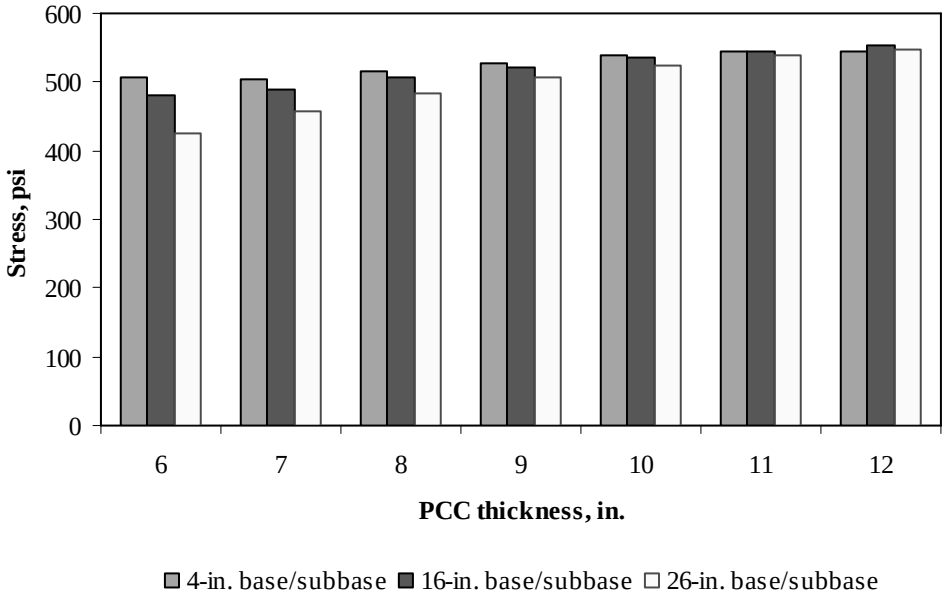


Figure F-18-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

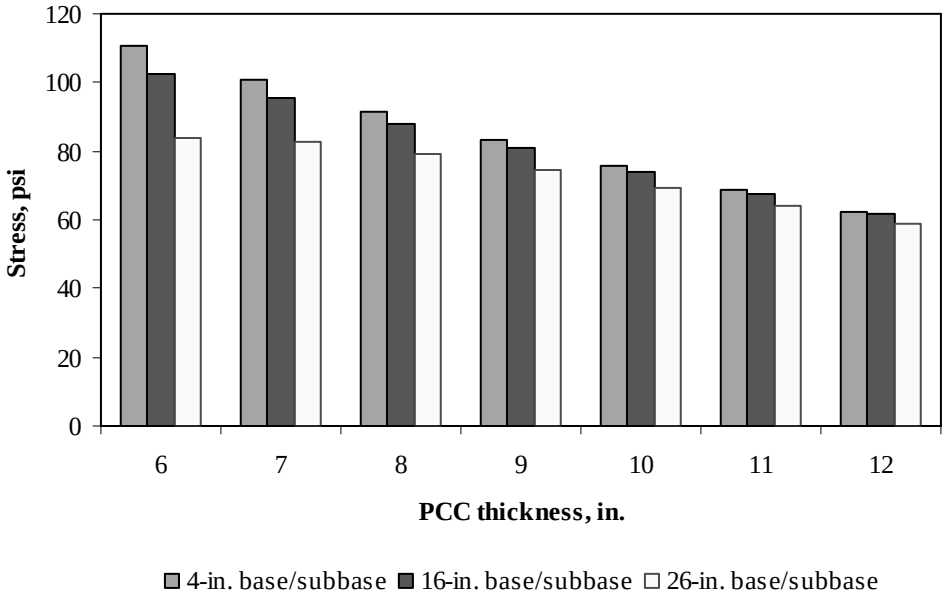


Figure F-18-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

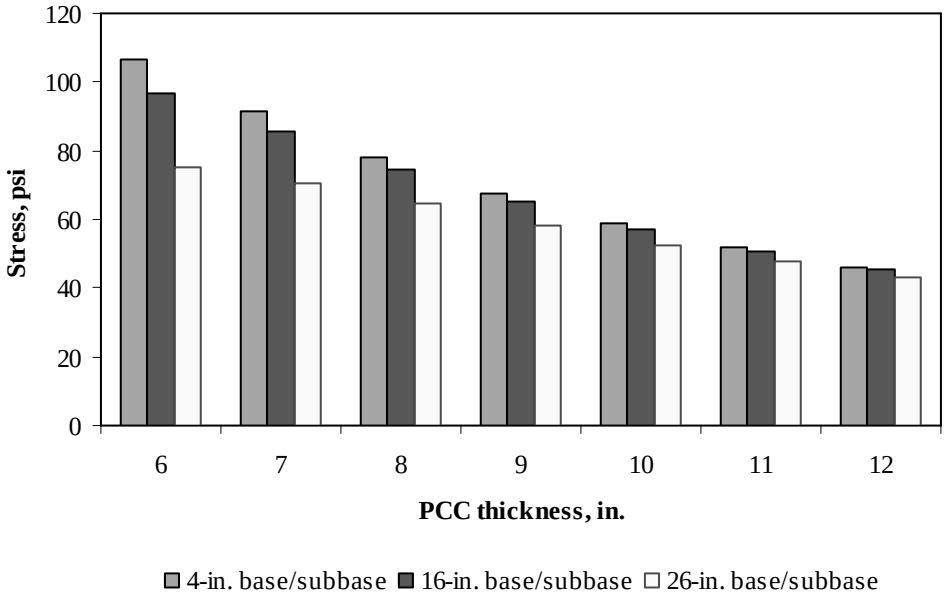


Figure F-18-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

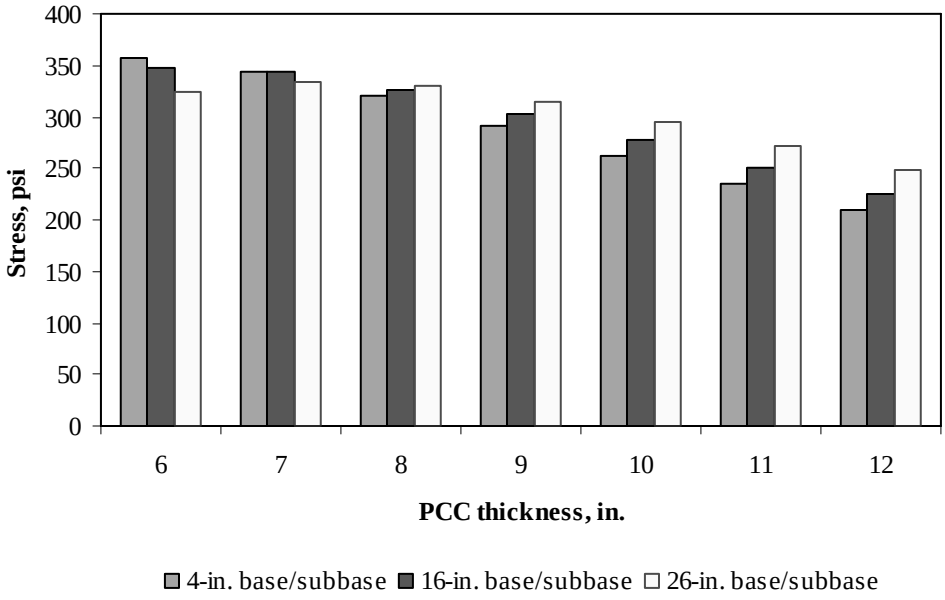


Figure F-18-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

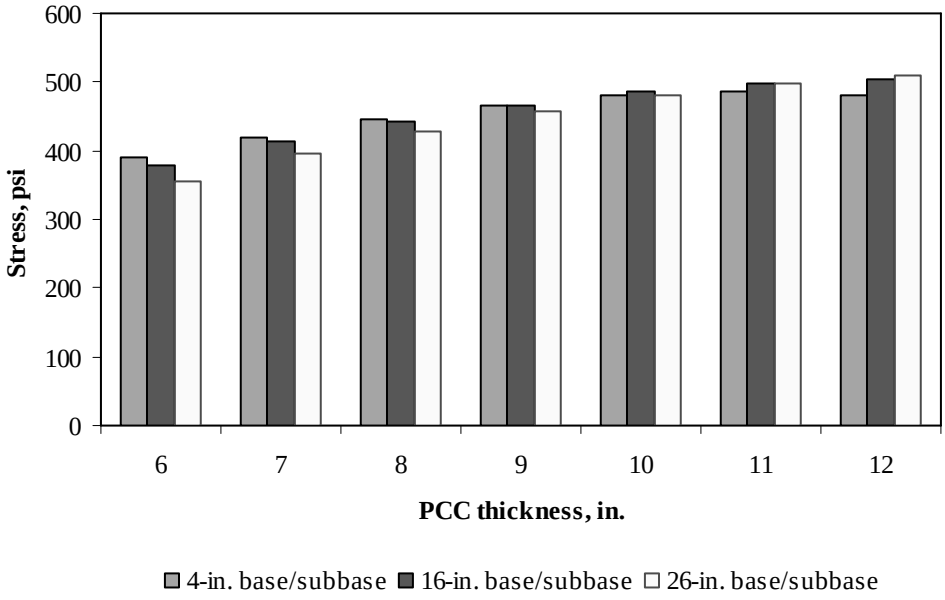


Figure F-18-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

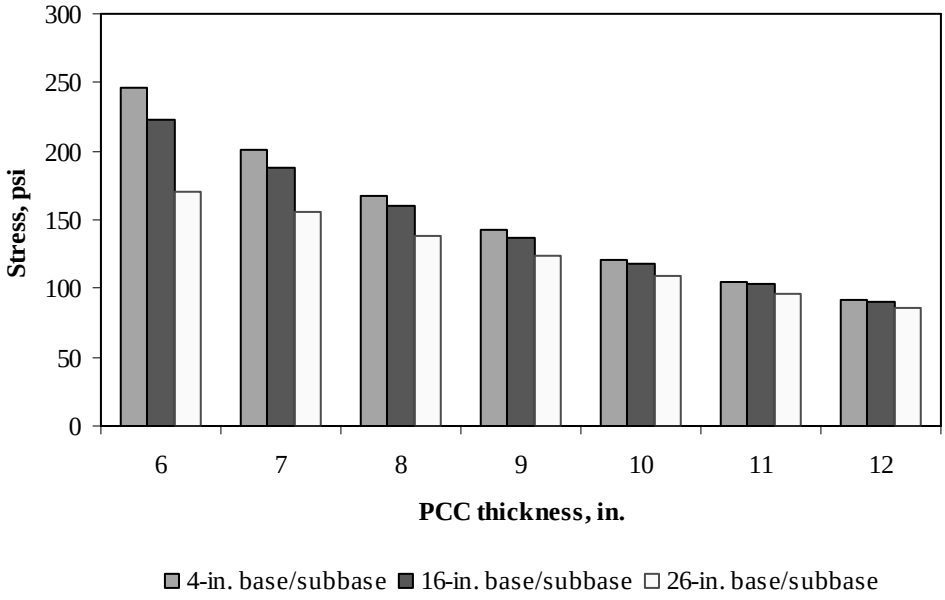


Figure F-18-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

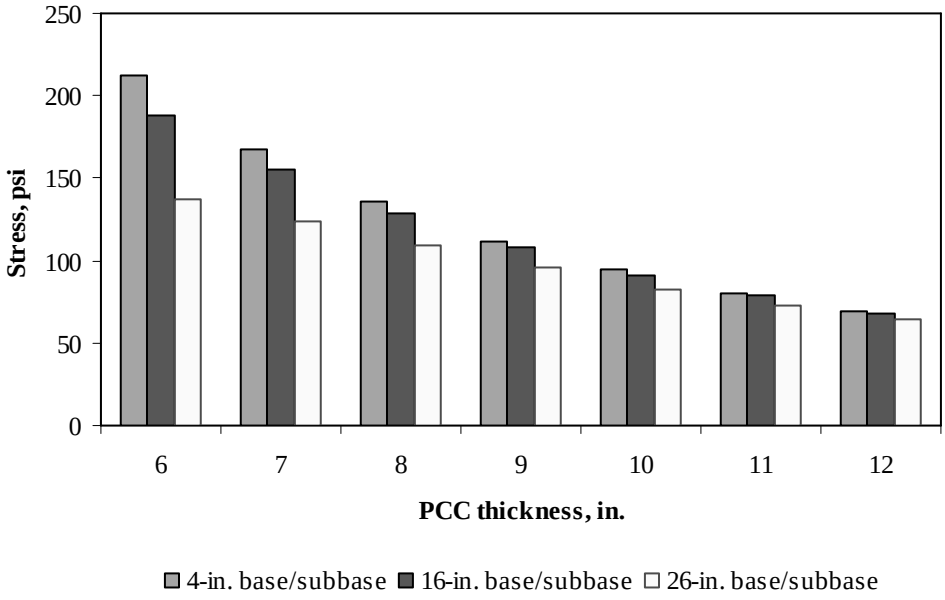


Figure F-18-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

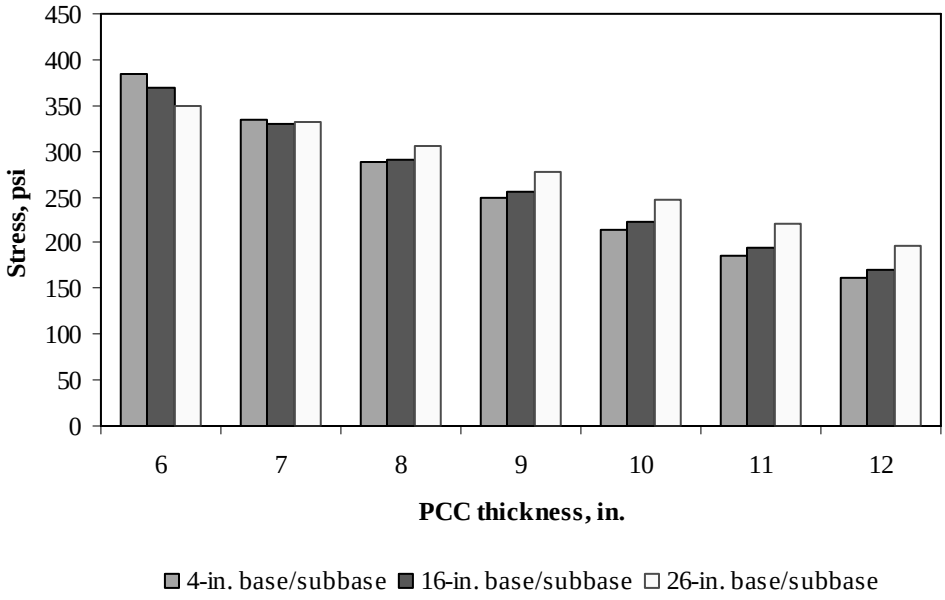


Figure F-18-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

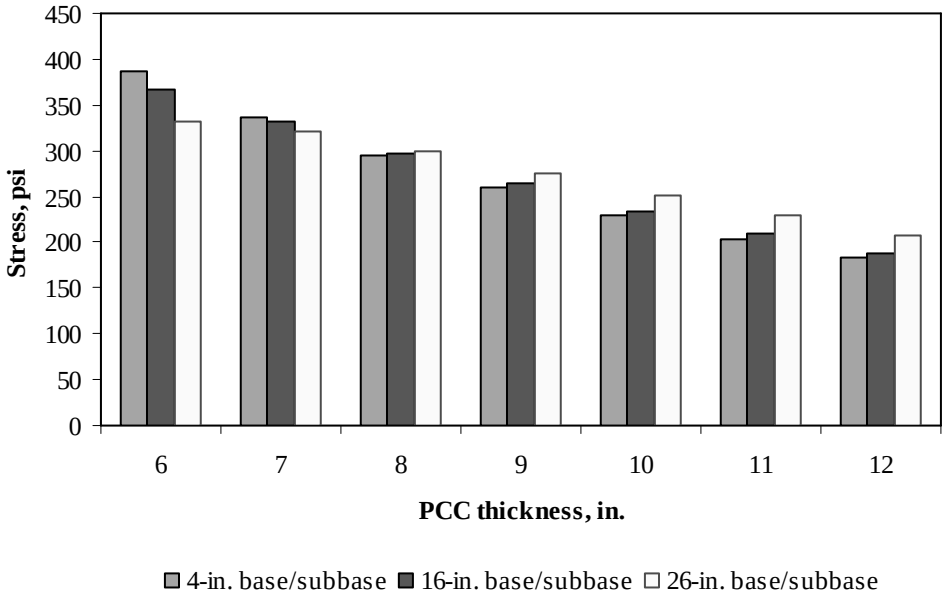


Figure F-18-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-18-13 through F-18-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

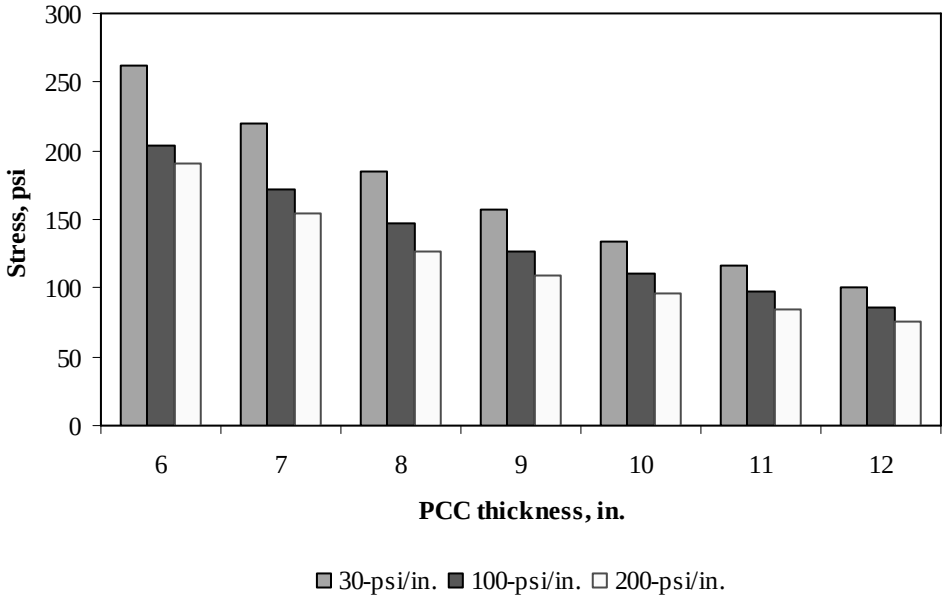


Figure F-18-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

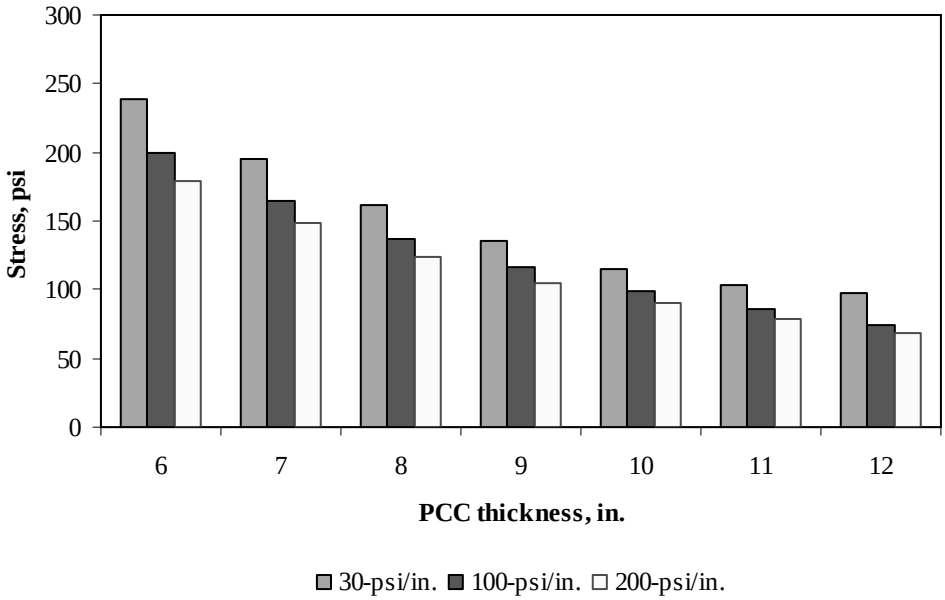


Figure F-18-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

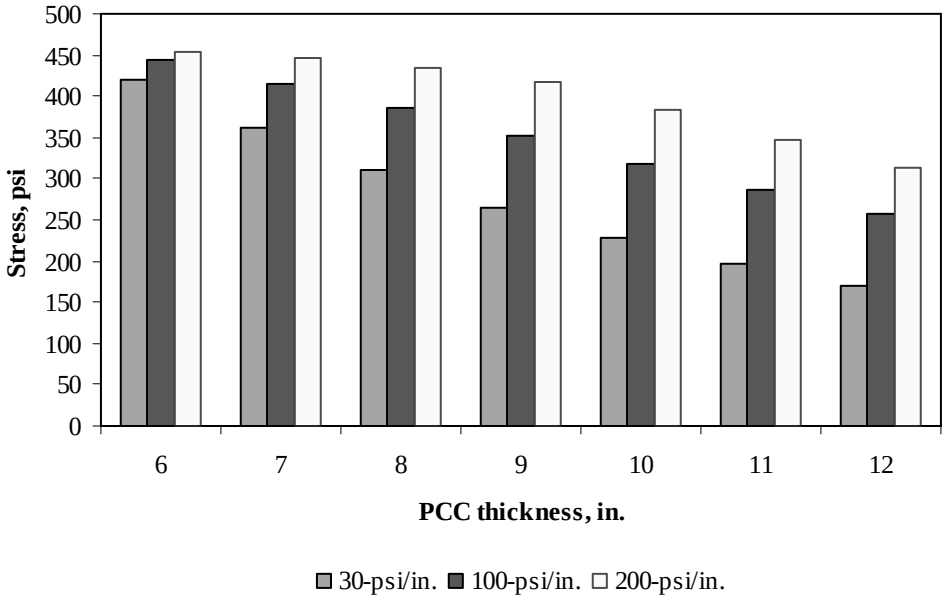


Figure F-18-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

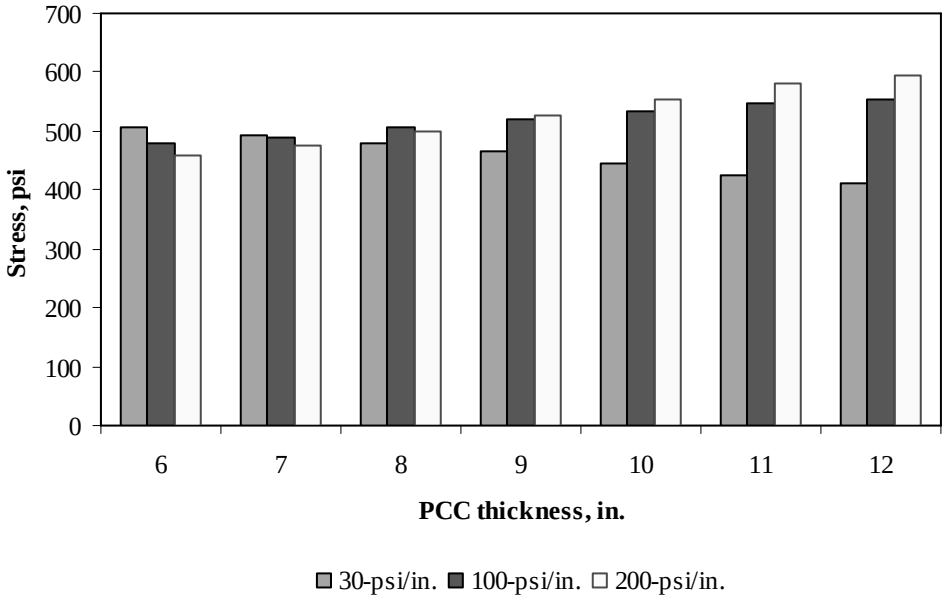


Figure F-18-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

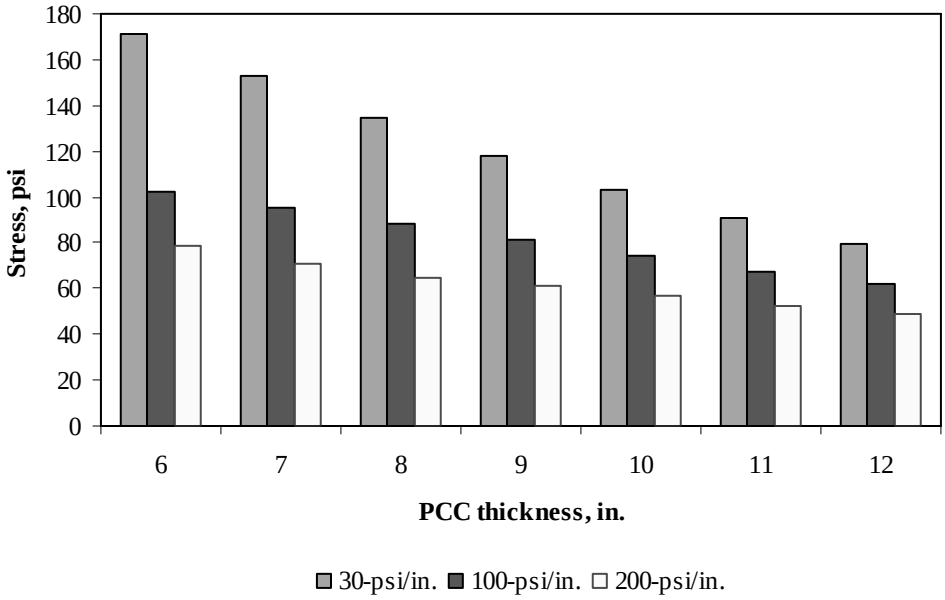


Figure F-18-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

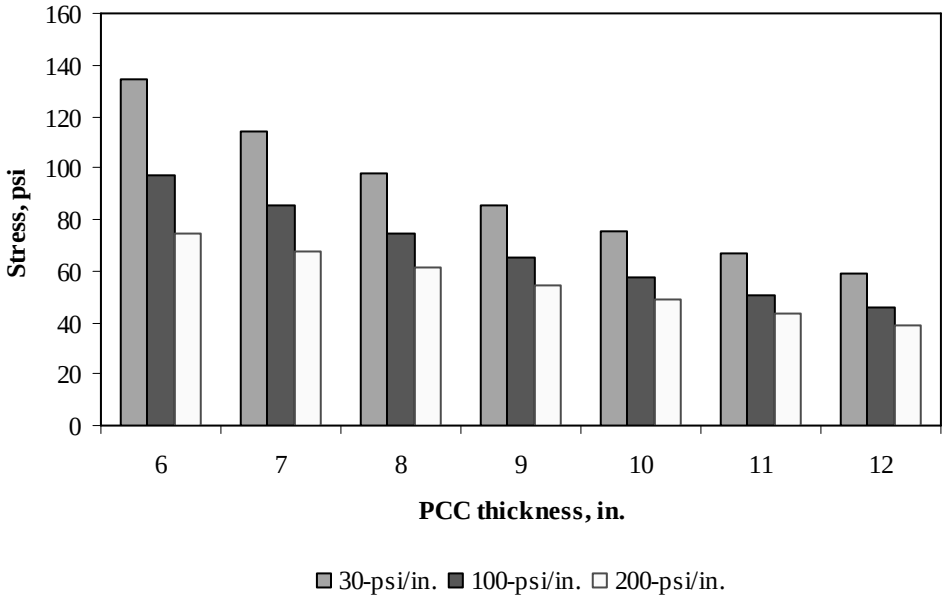


Figure F-18-18: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

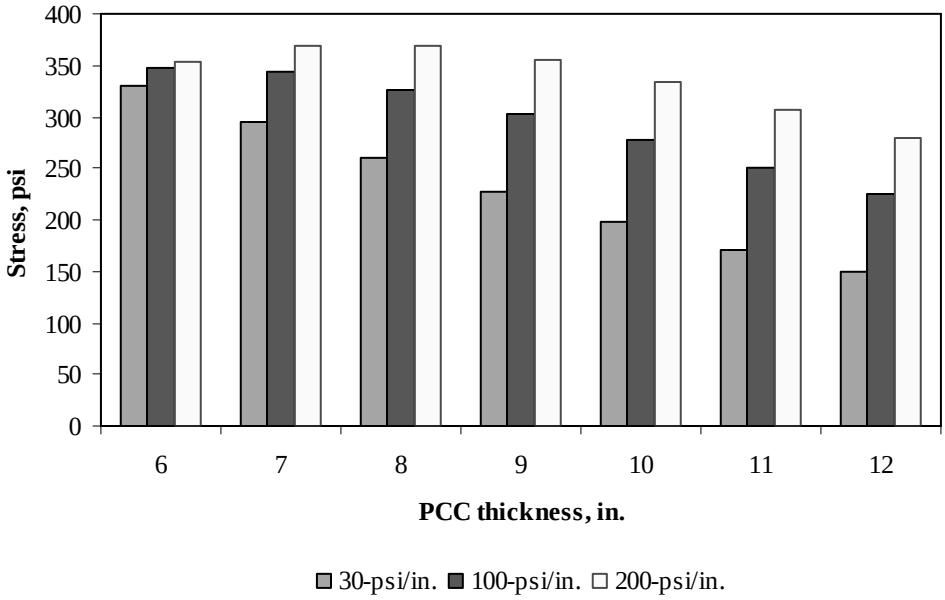


Figure F-18-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

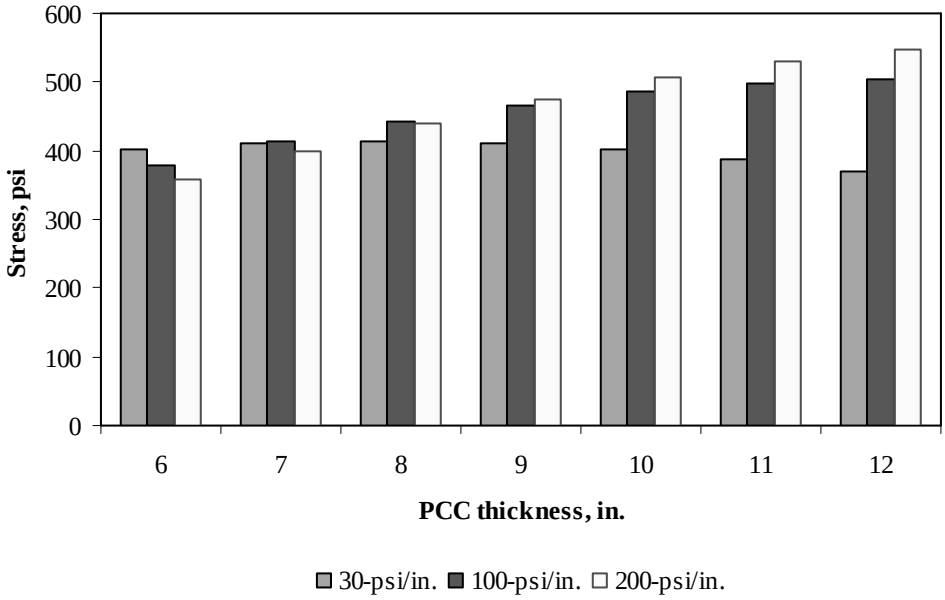


Figure F-18-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

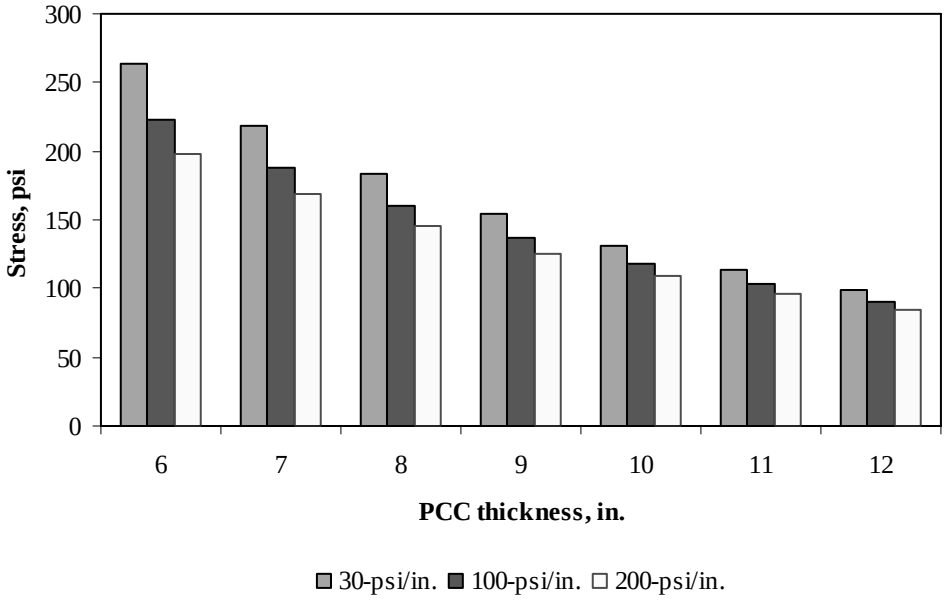


Figure F-18-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

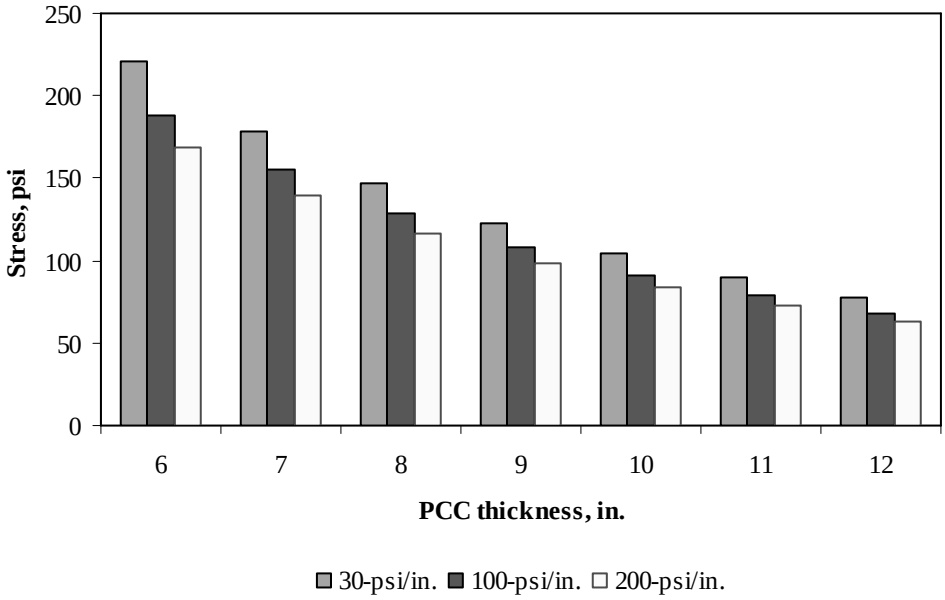


Figure F-18-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

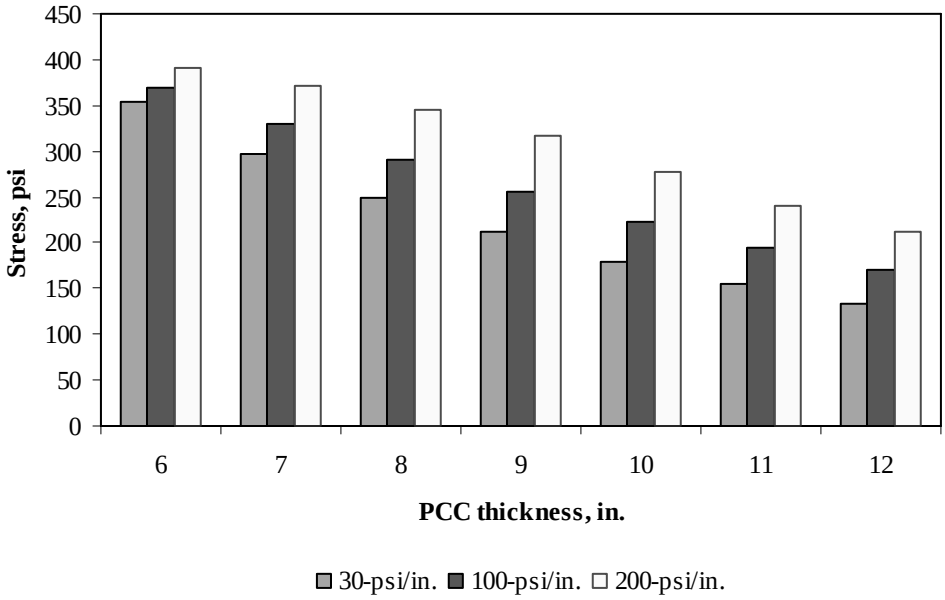


Figure F-18-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

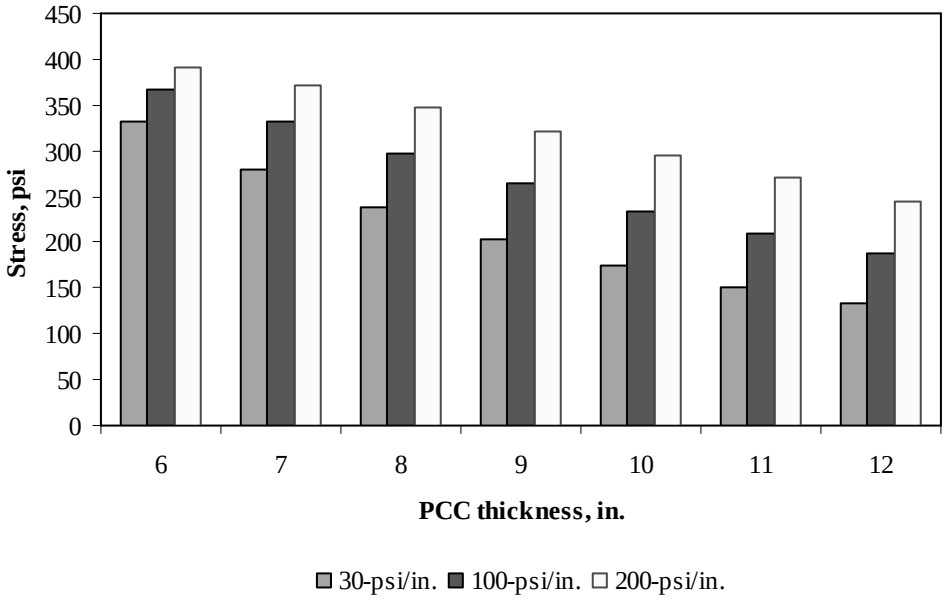


Figure F-18-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-18-25 through F-18-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

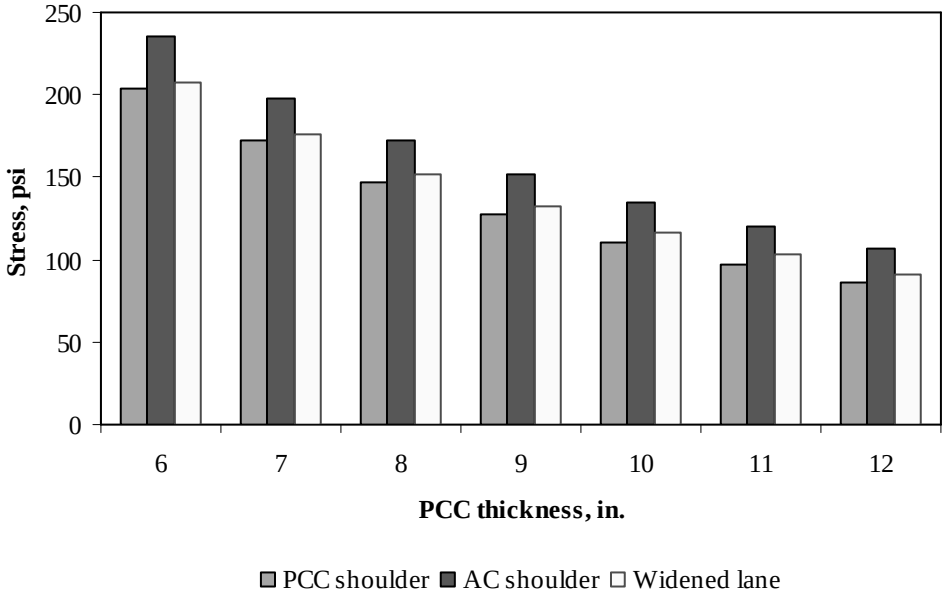


Figure F-18-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

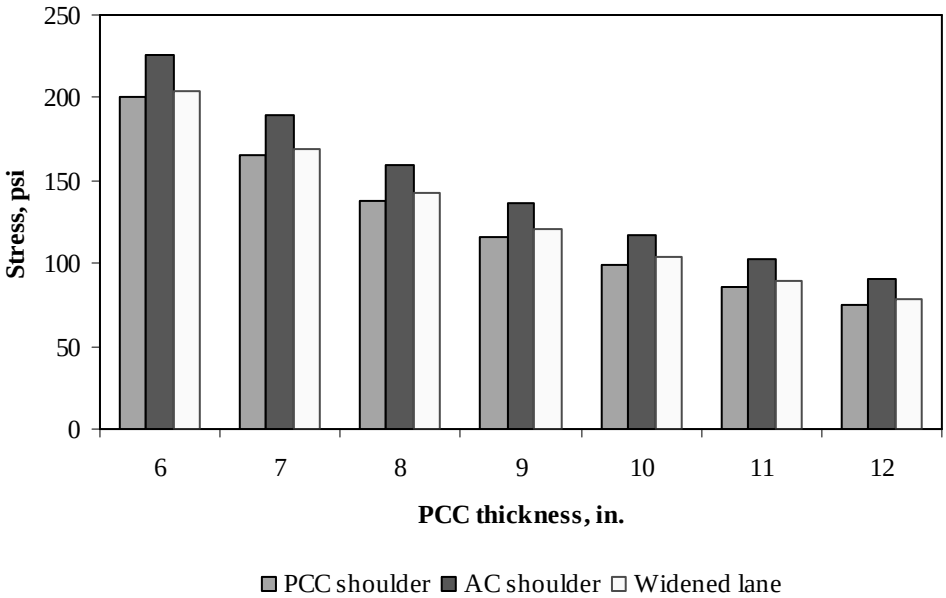


Figure F-18-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

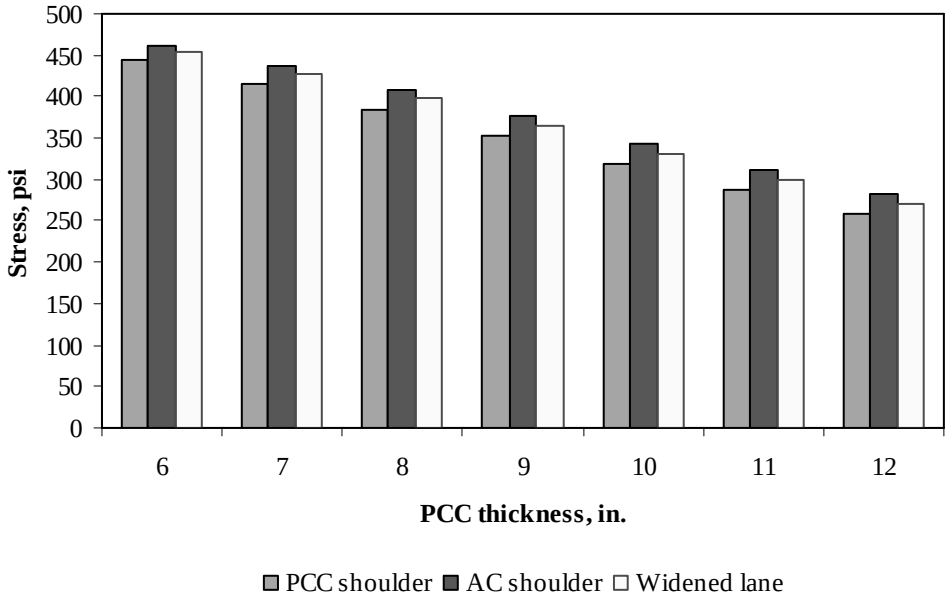


Figure F-18-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

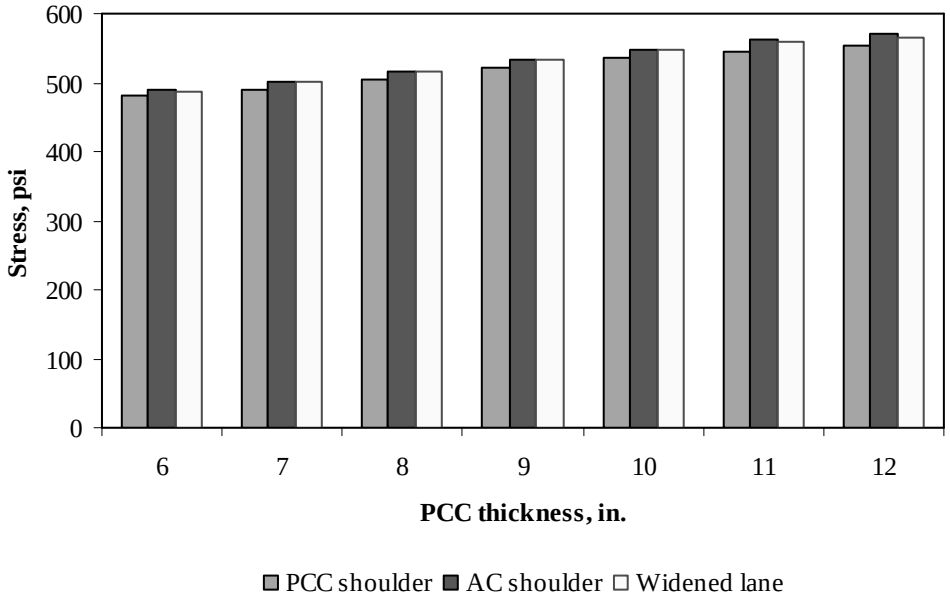


Figure F-18-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

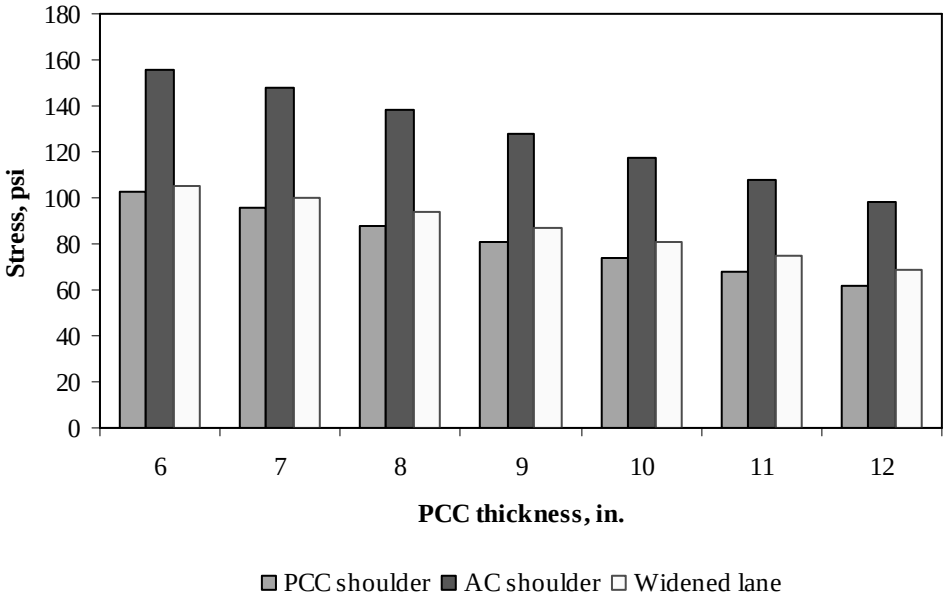


Figure F-18-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

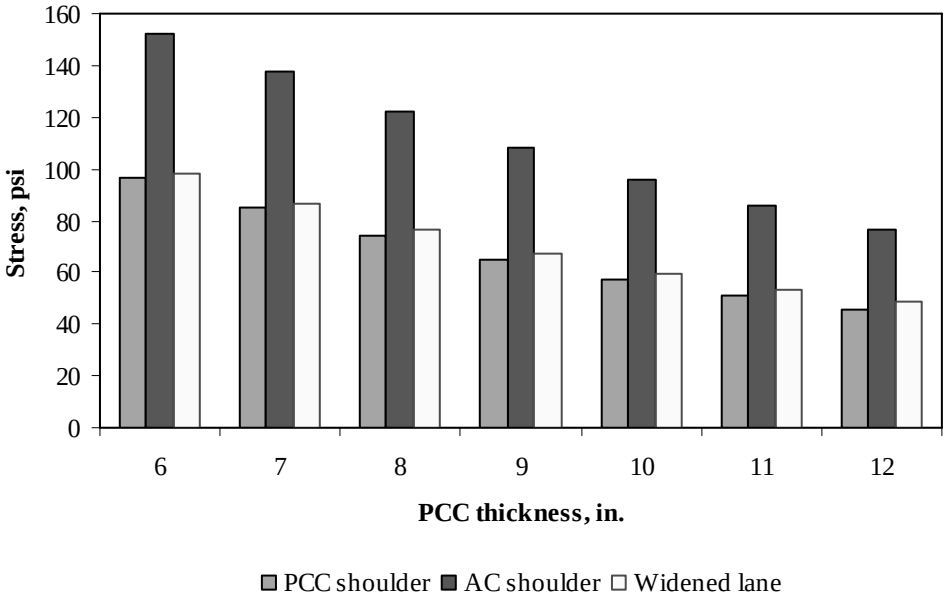


Figure F-18-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

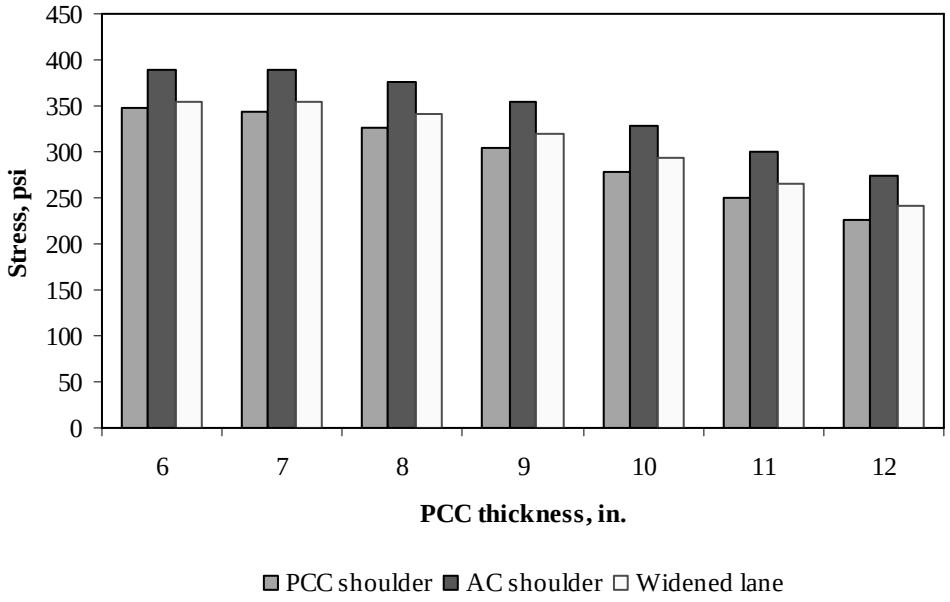


Figure F-18-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

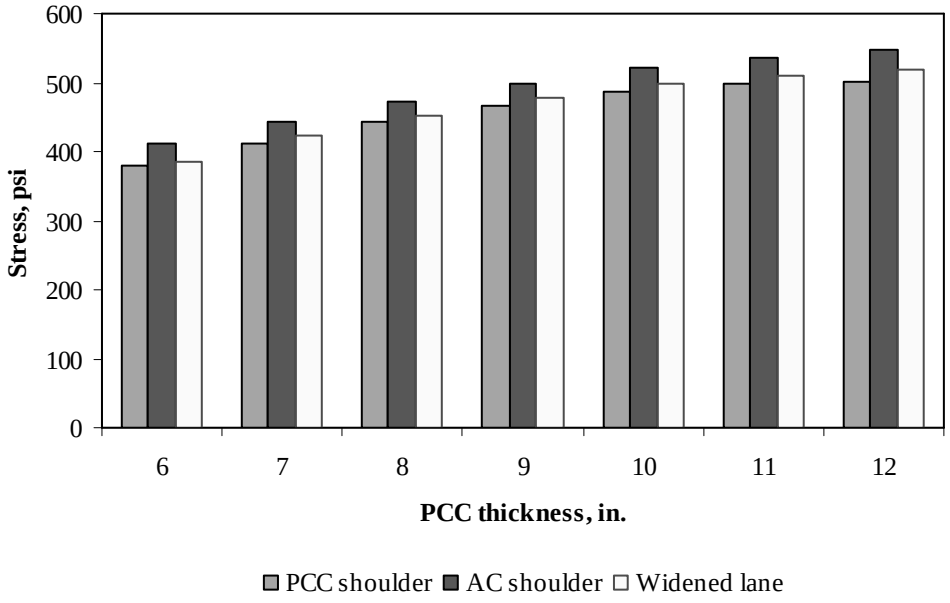


Figure F-18-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

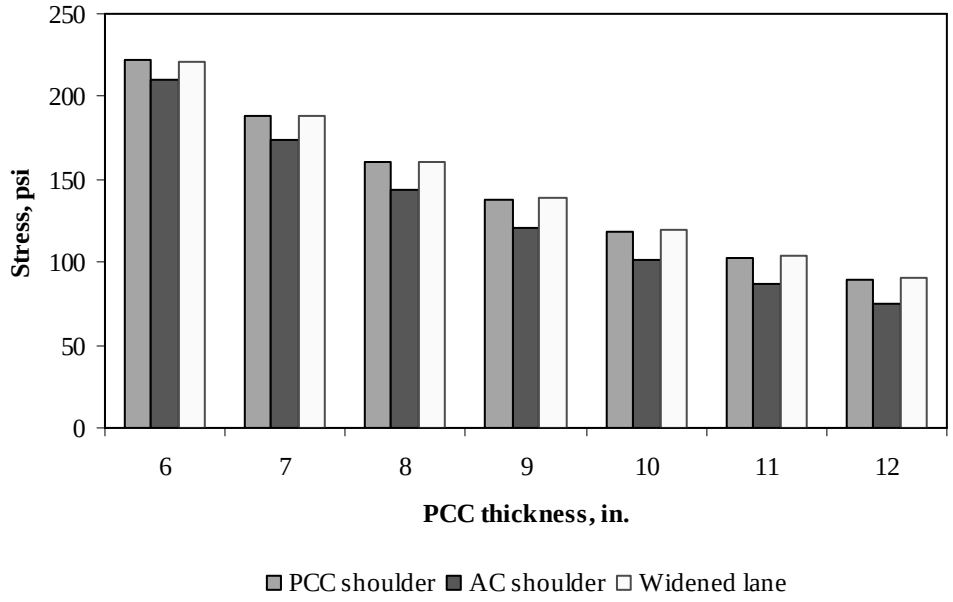


Figure F-18-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

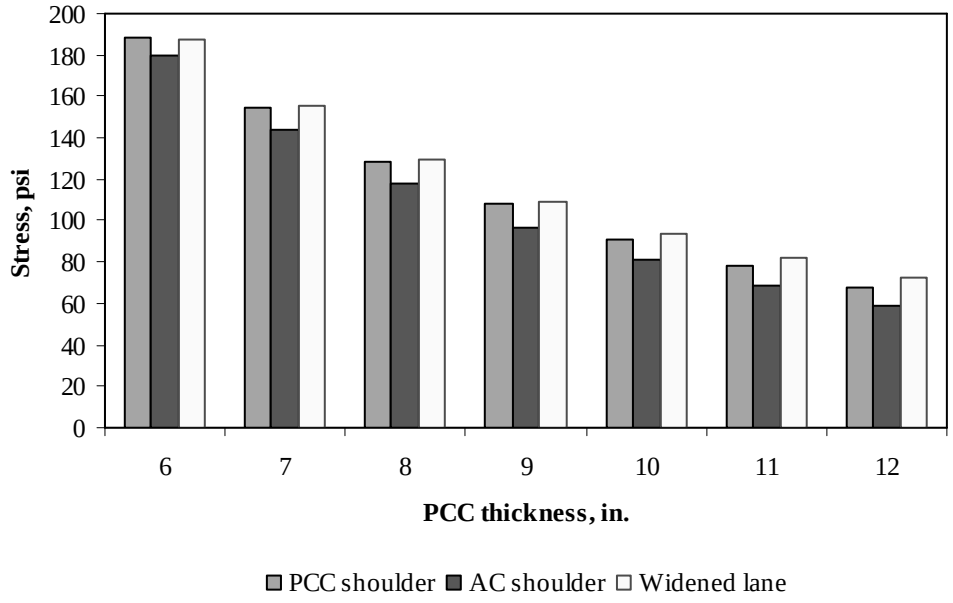


Figure F-18-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

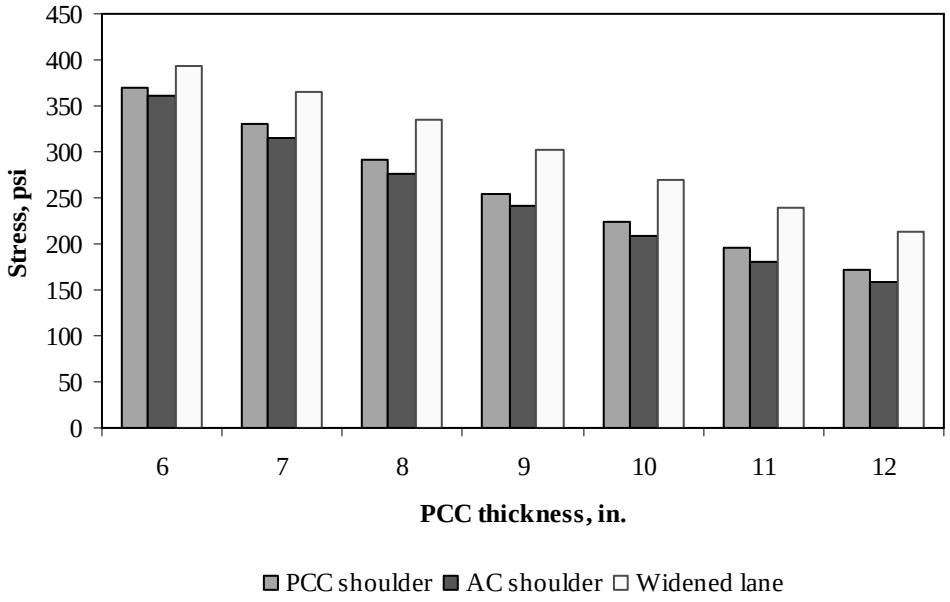


Figure F-18-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

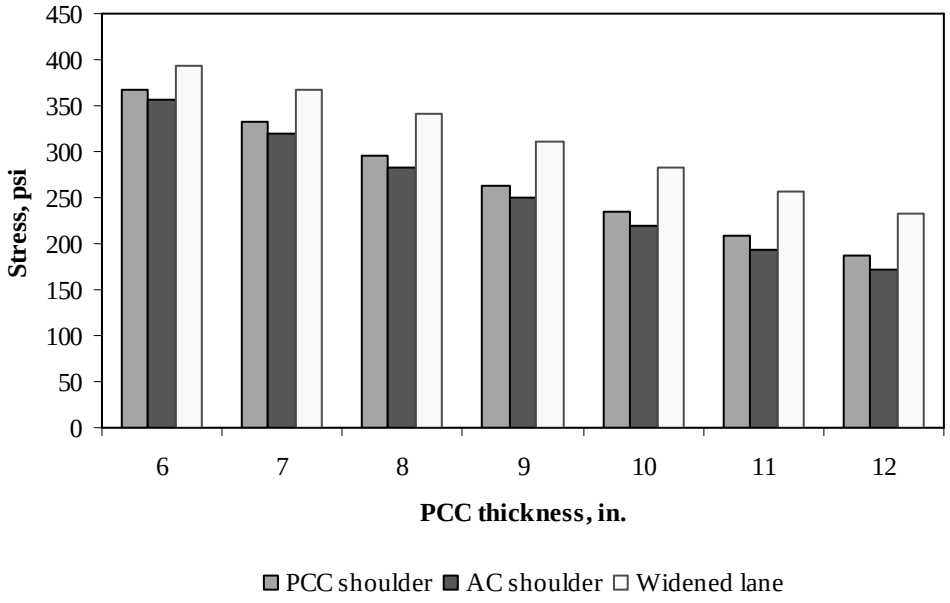


Figure F-18-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-18-37 through F-18-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

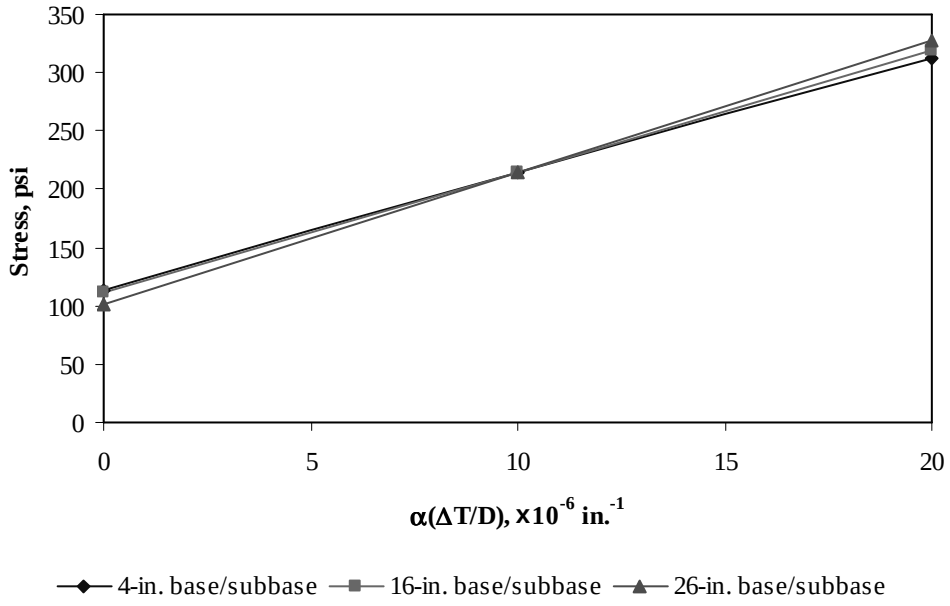


Figure F-18-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

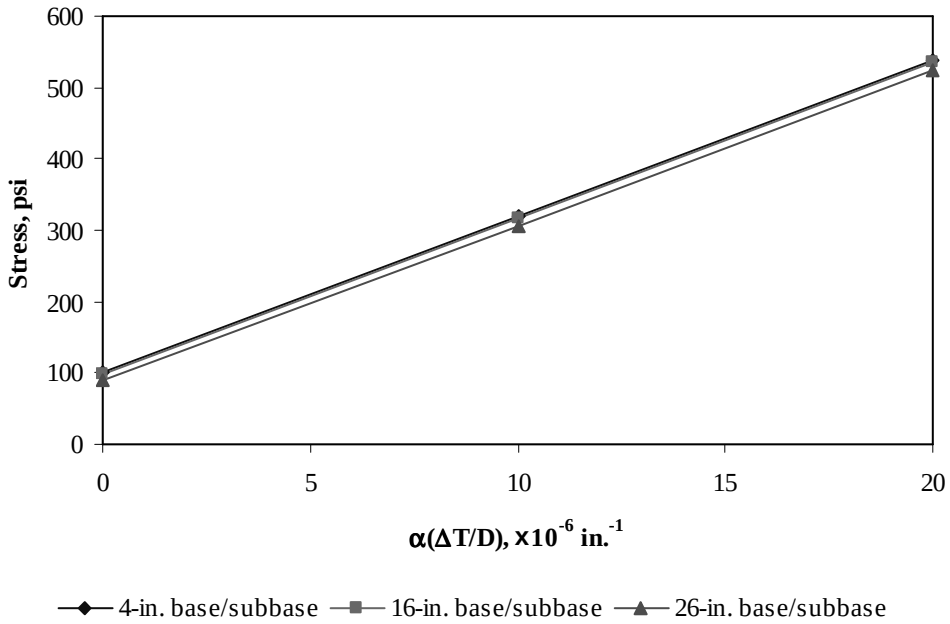


Figure F-18-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

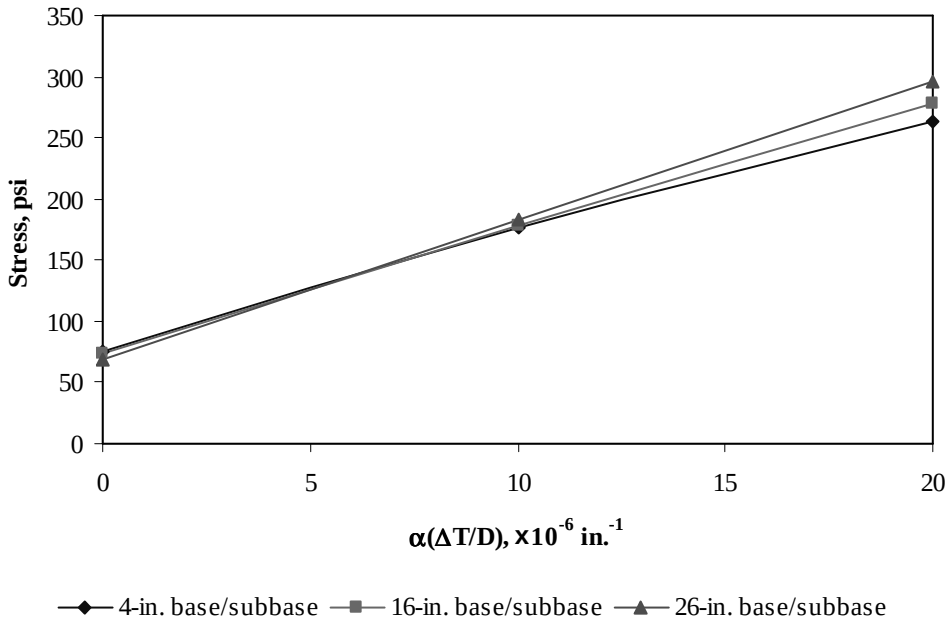


Figure F-18-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

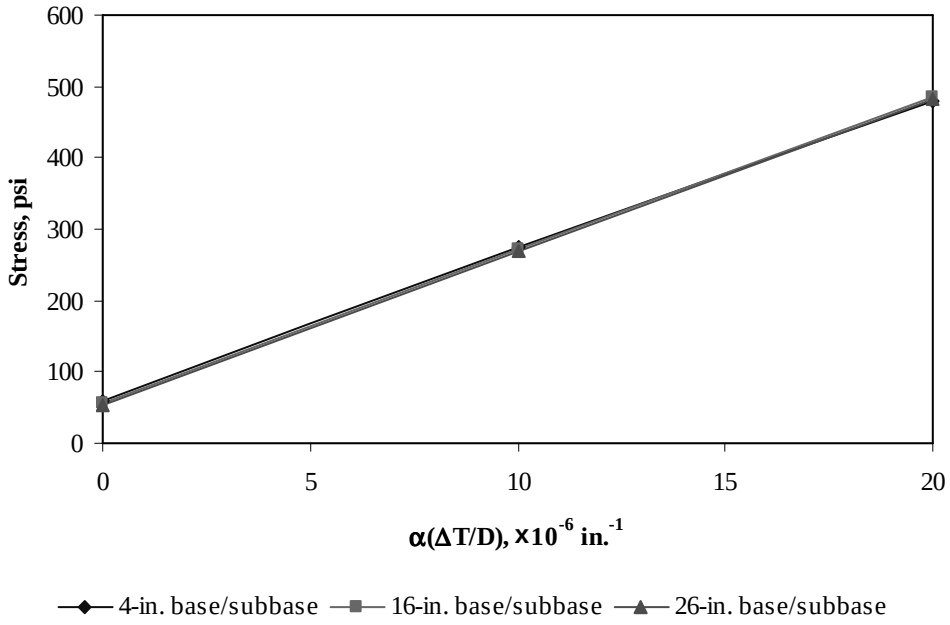


Figure F-18-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

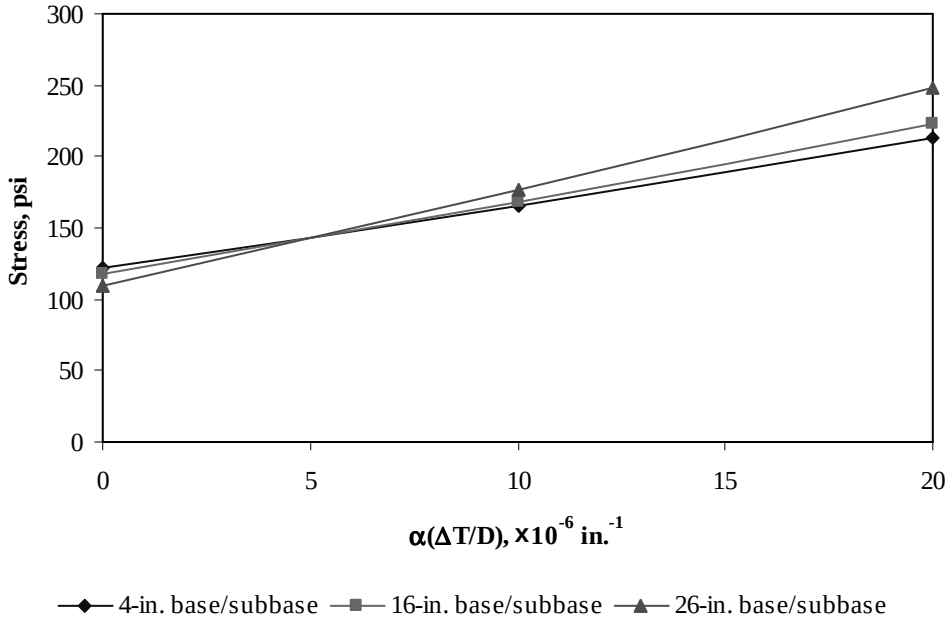


Figure F-18-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

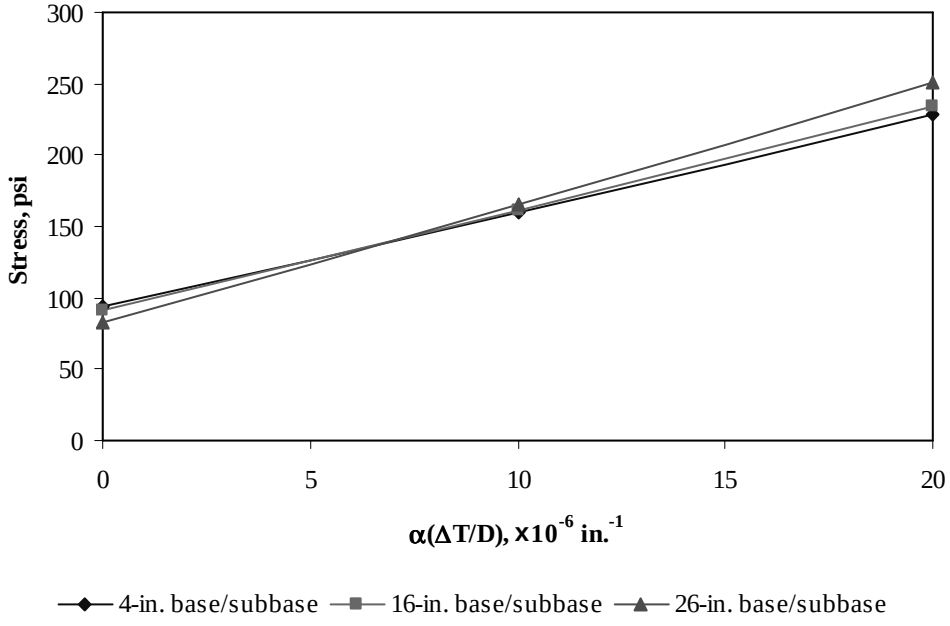


Figure F-18-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-18-43 through F-18-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

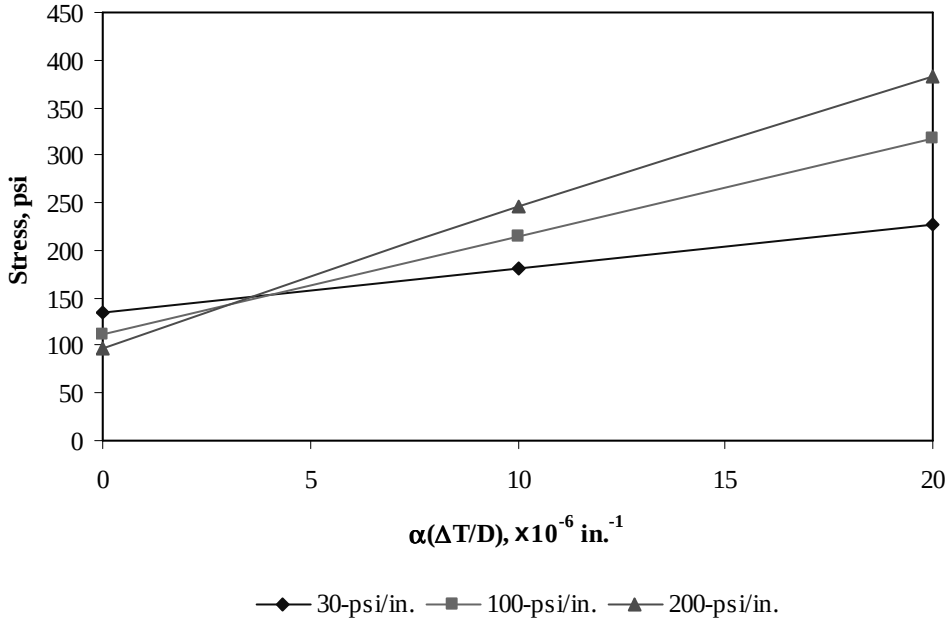


Figure F-18-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

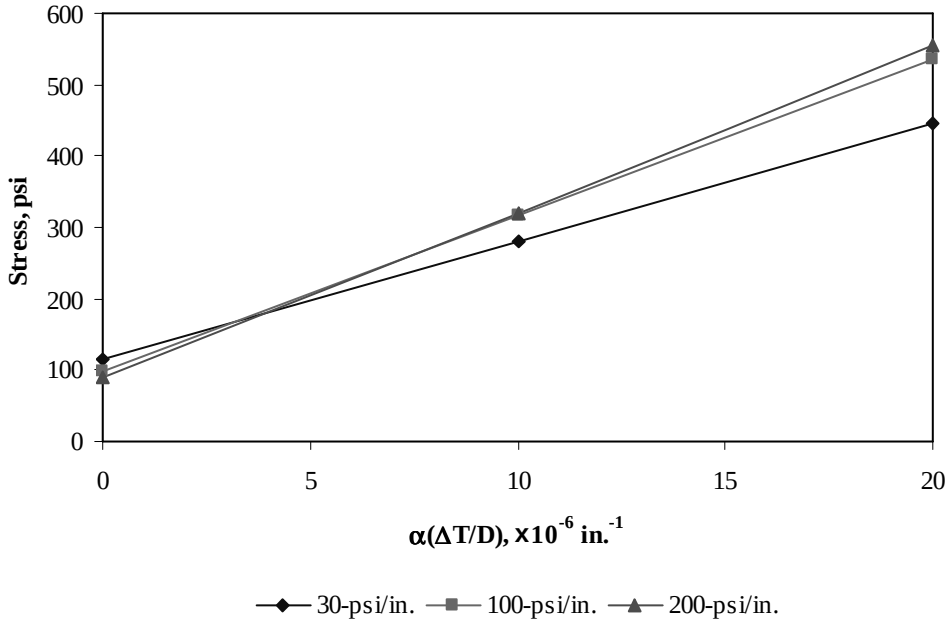


Figure F-18-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

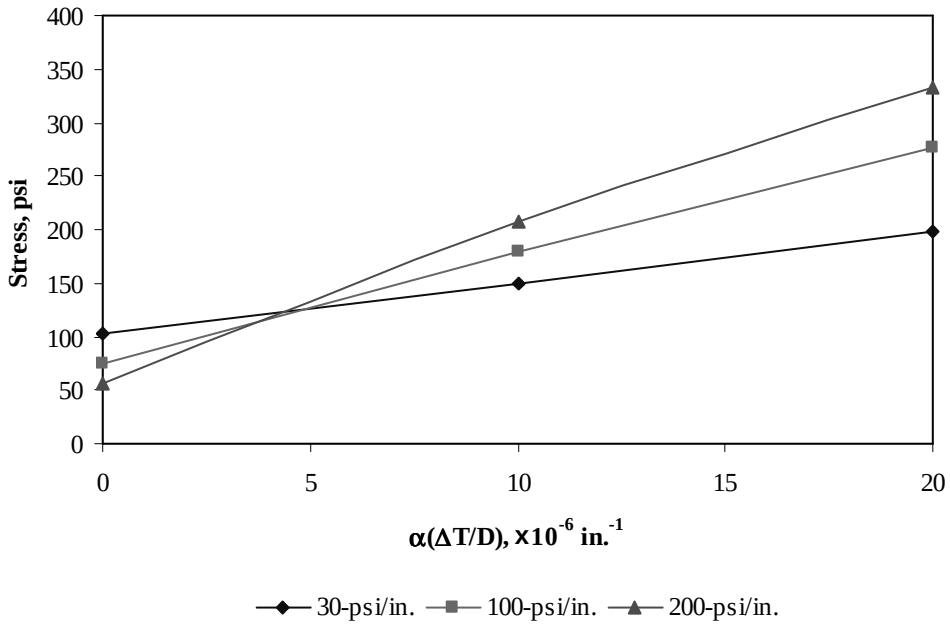


Figure F-18-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

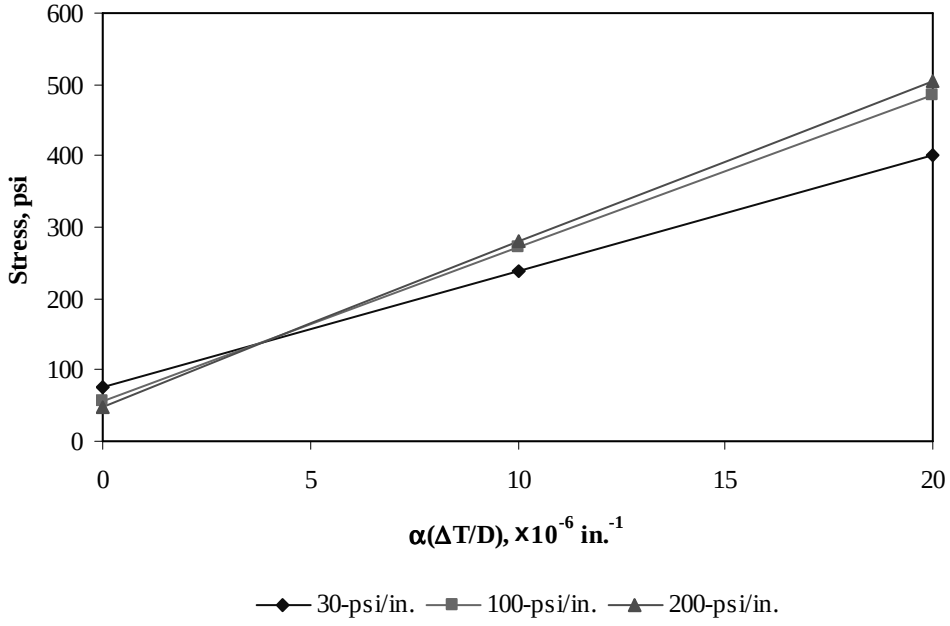


Figure F-18-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

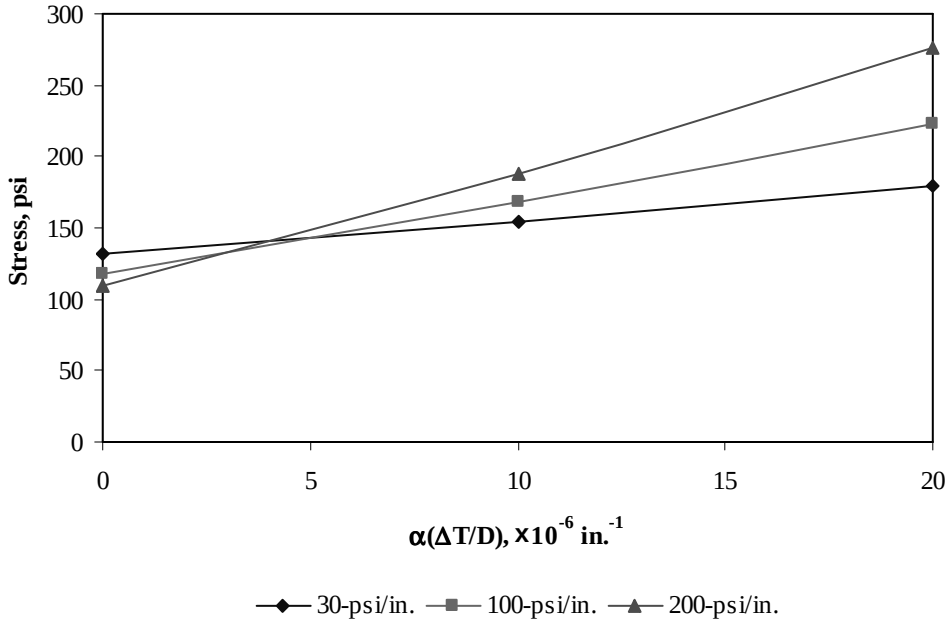


Figure F-18-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

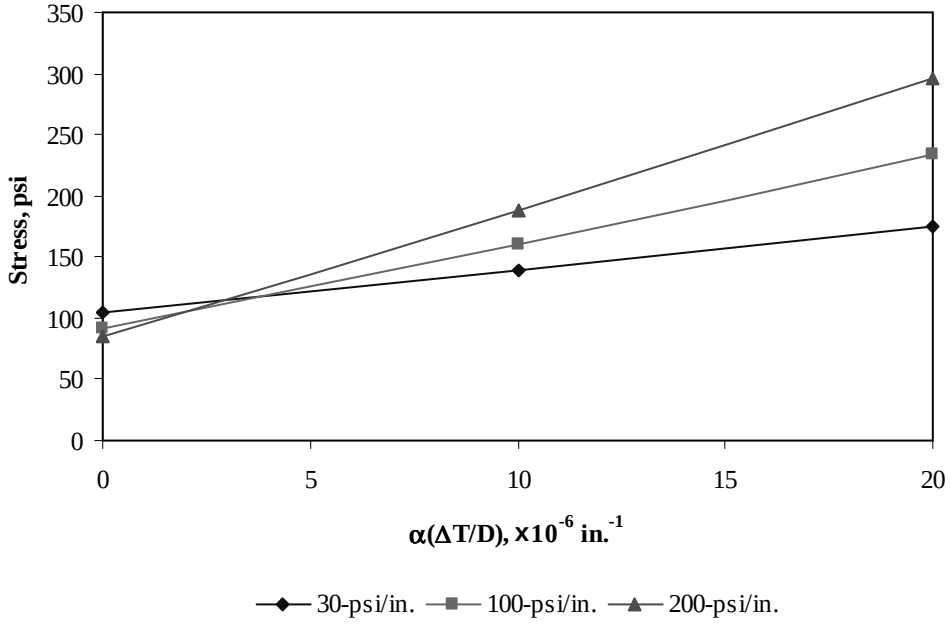


Figure F-18-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-18-49 through F-18-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

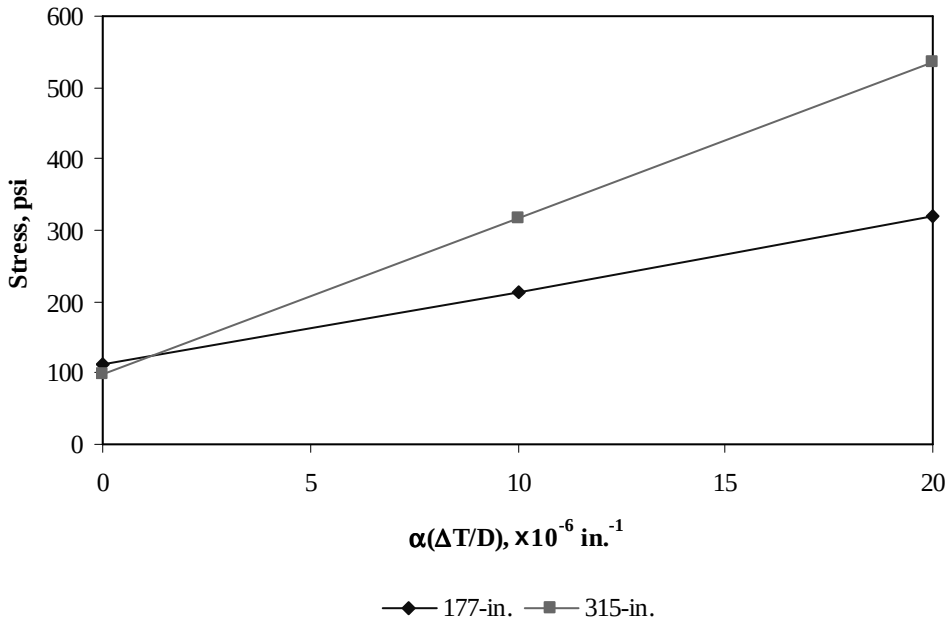


Figure F-18-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

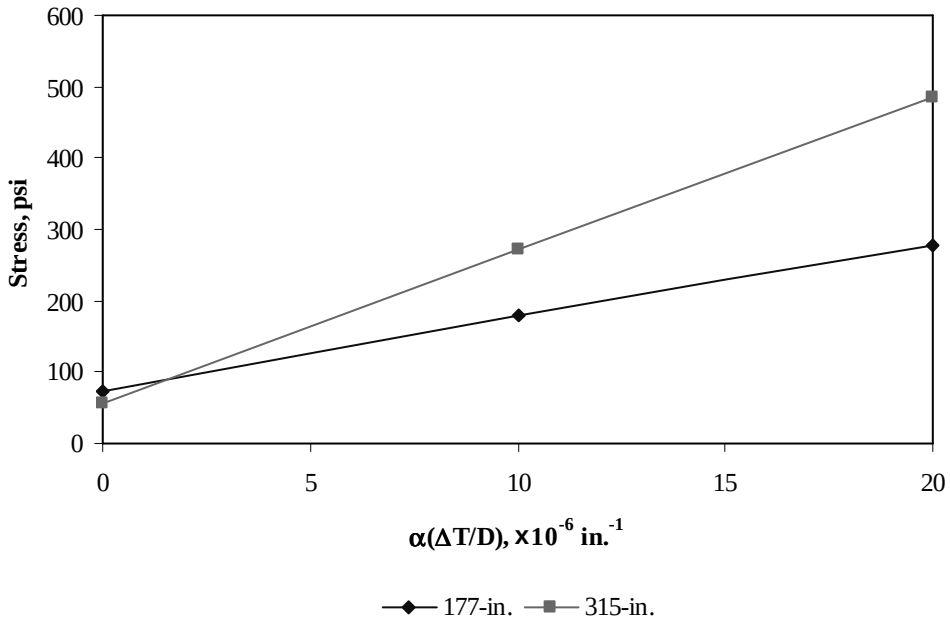


Figure F-18-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

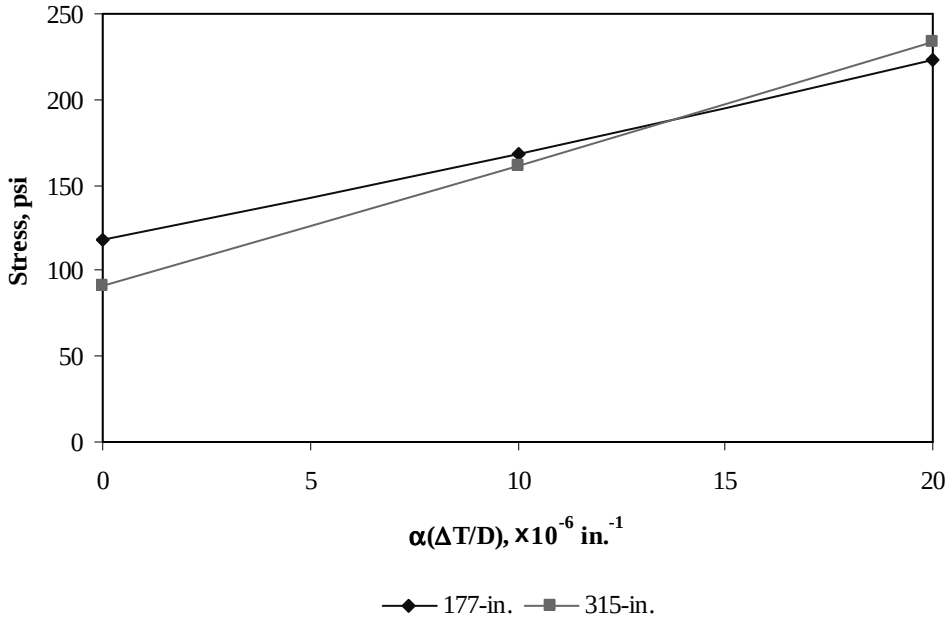
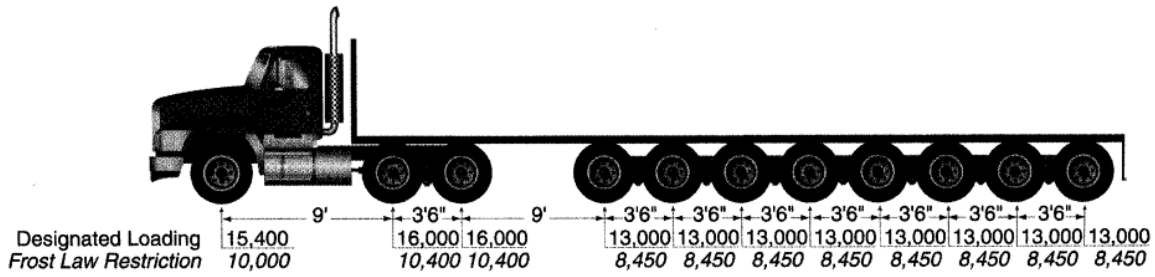


Figure F-18-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab

Sub Appendix F-19

Documentation of Pavement Responses for



MI-20

Figures F-19-1 through F-19-12 illustrate the impact of PCC thickness and base/subbase thickness on stresses (100-psi/in. modulus of subgrade reaction and PCC shoulder)

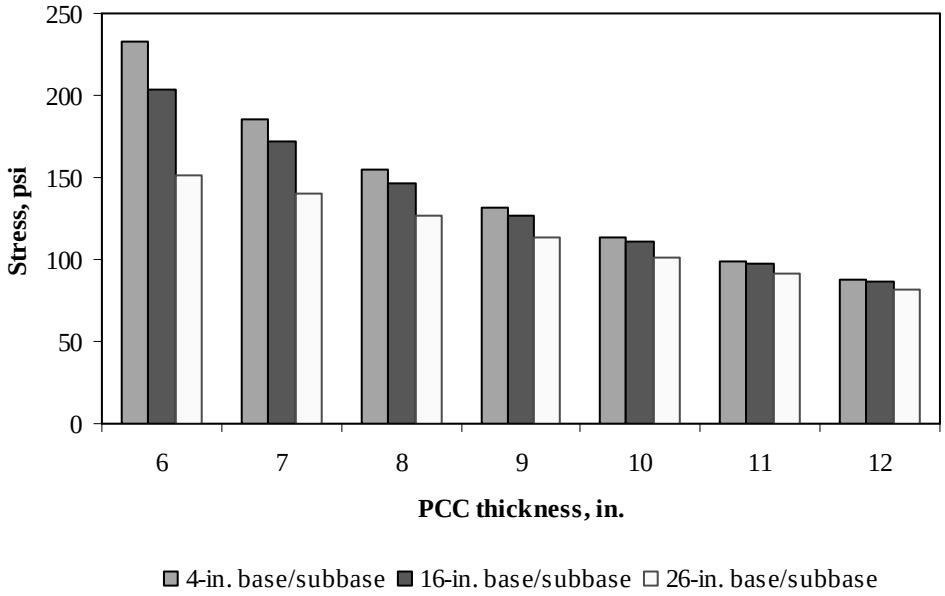


Figure F-19-1: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

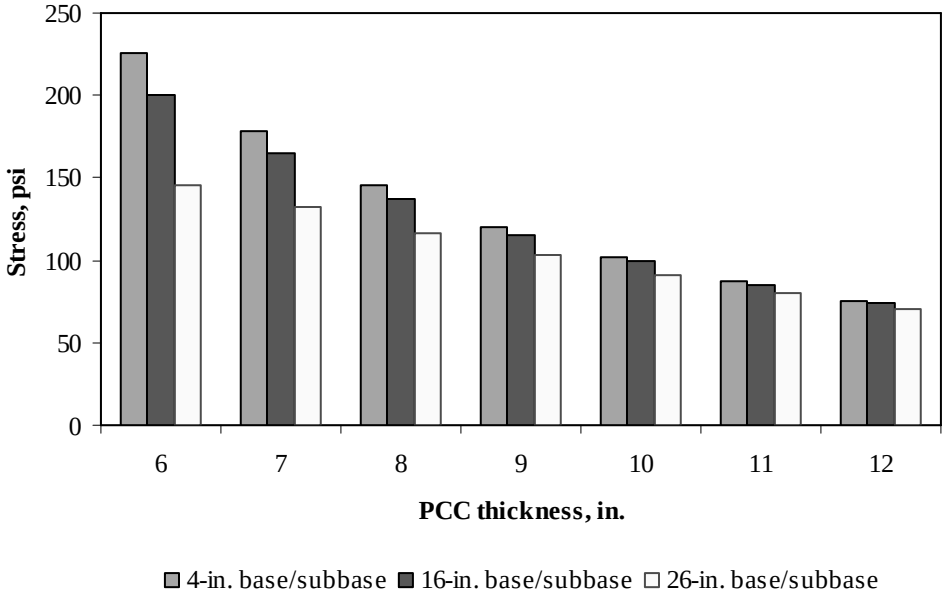


Figure F-19-2: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

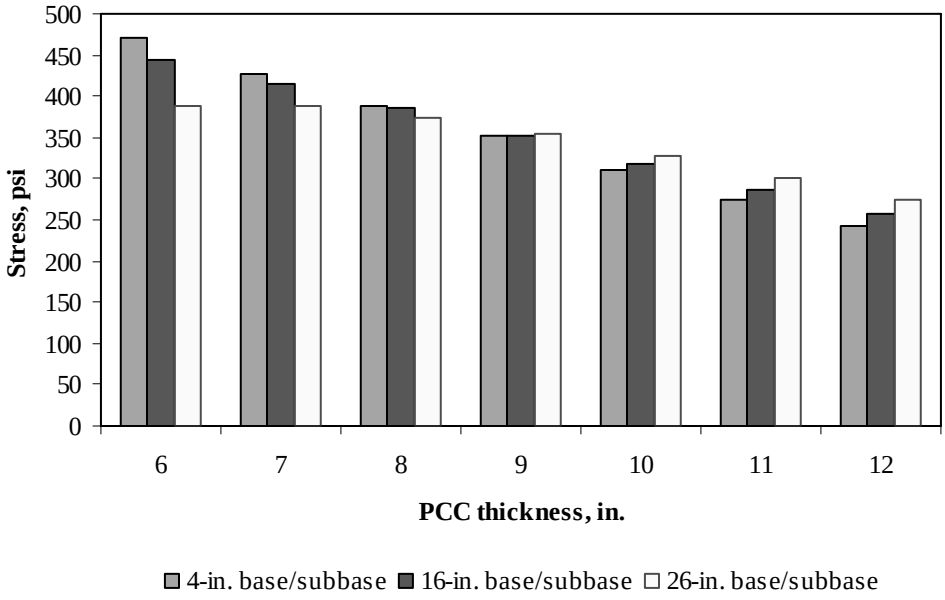


Figure F-19-3: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

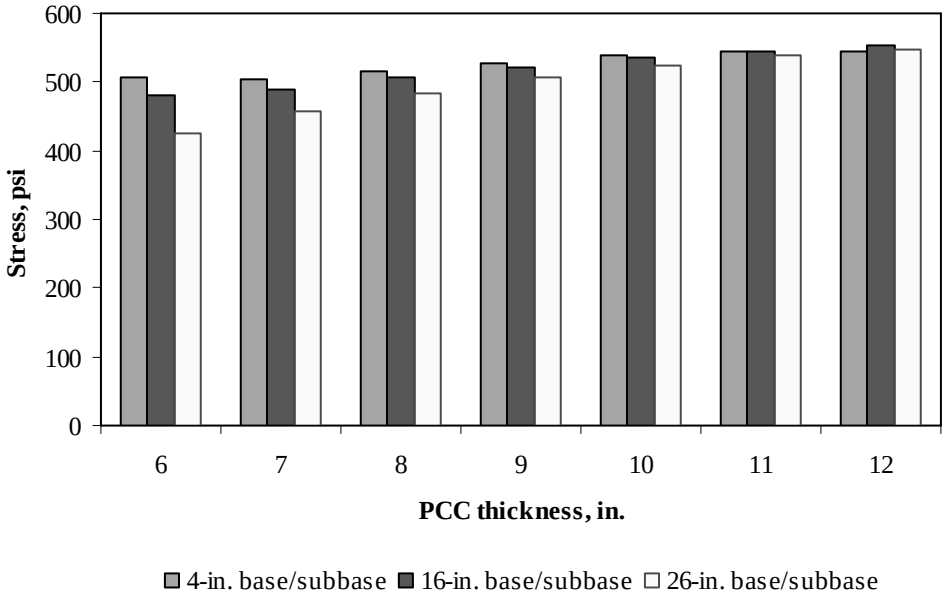


Figure F-19-4: Impact of PCC thickness and base/subbase thickness on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

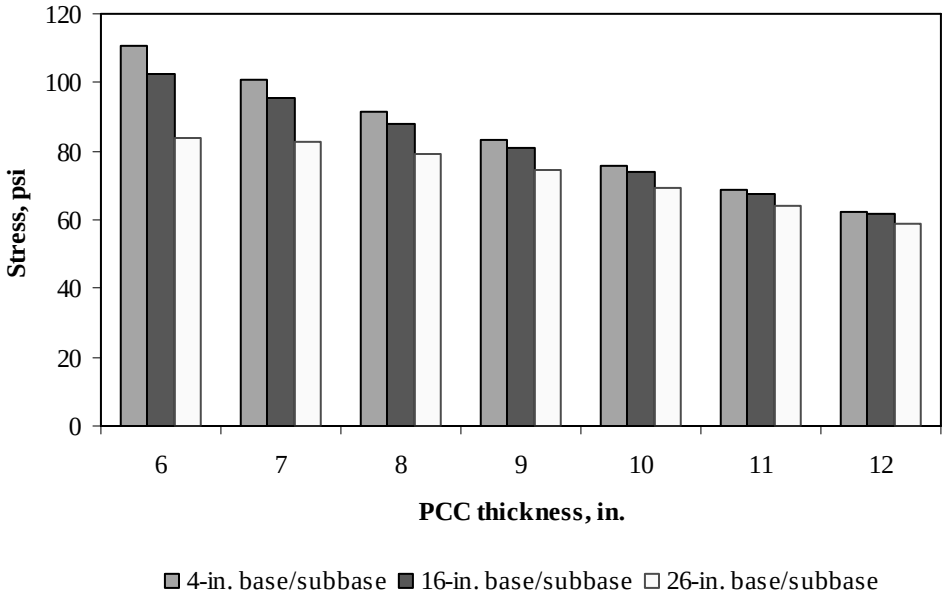


Figure F-19-5: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

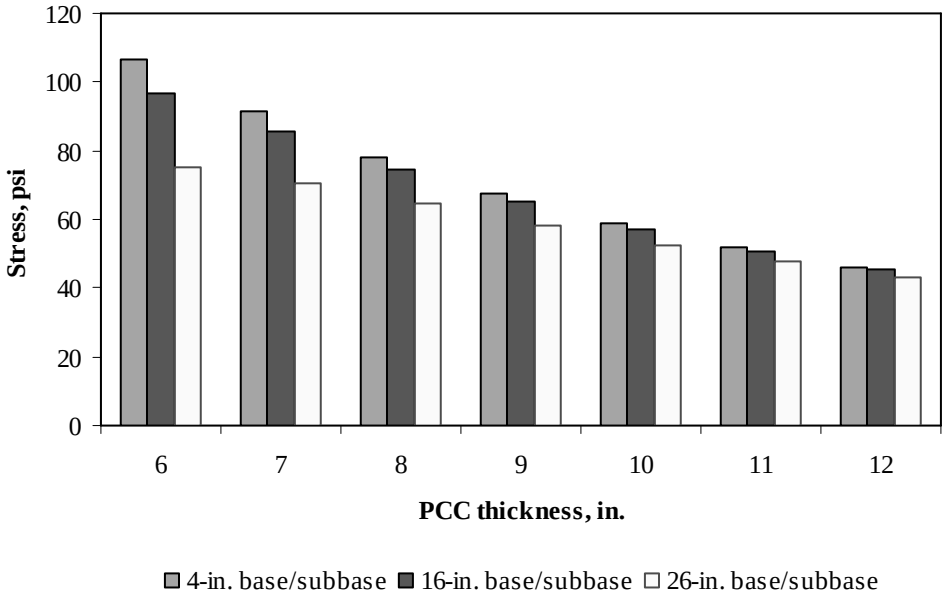


Figure F-19-6: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

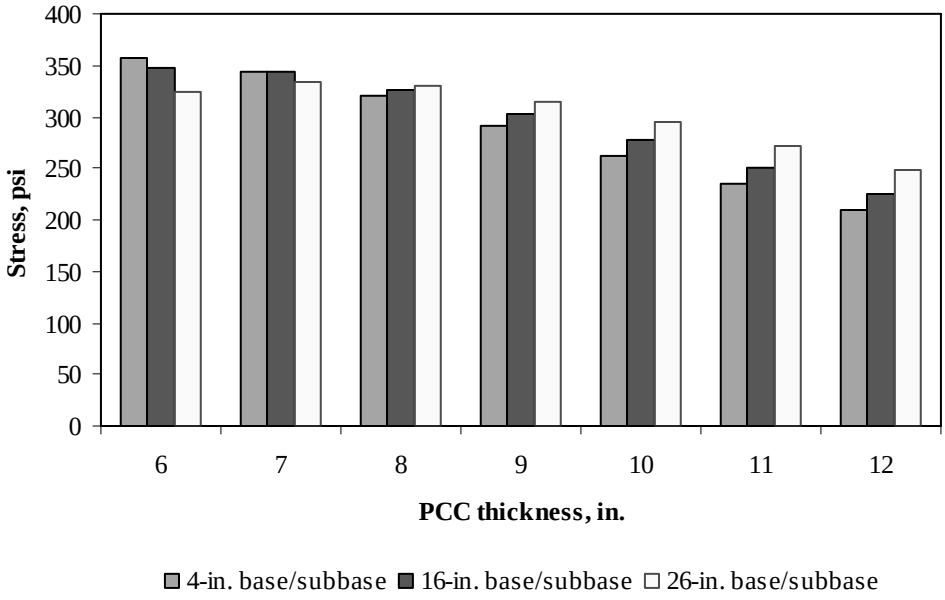


Figure F-19-7: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

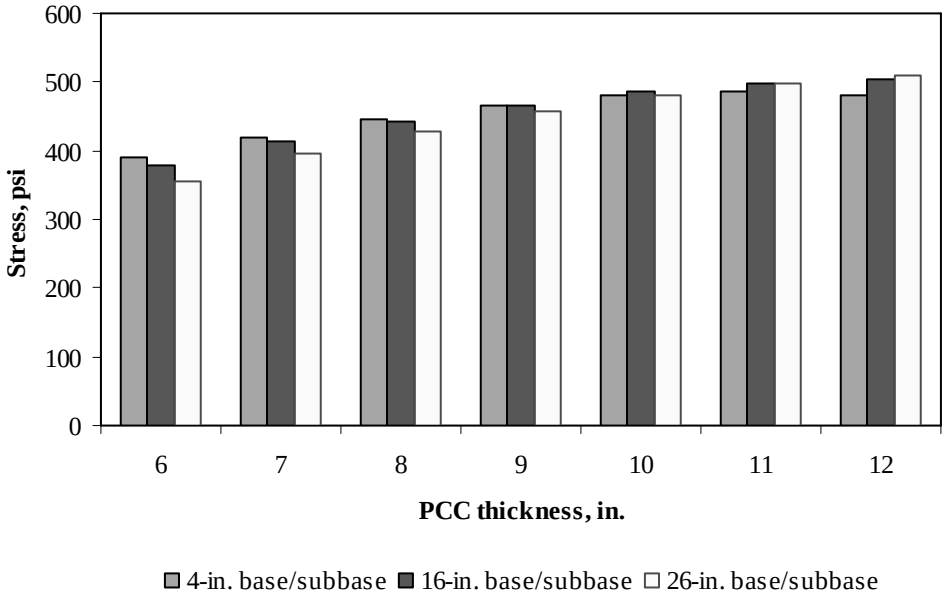


Figure F-19-8: Impact of PCC thickness and base/subbase thickness on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

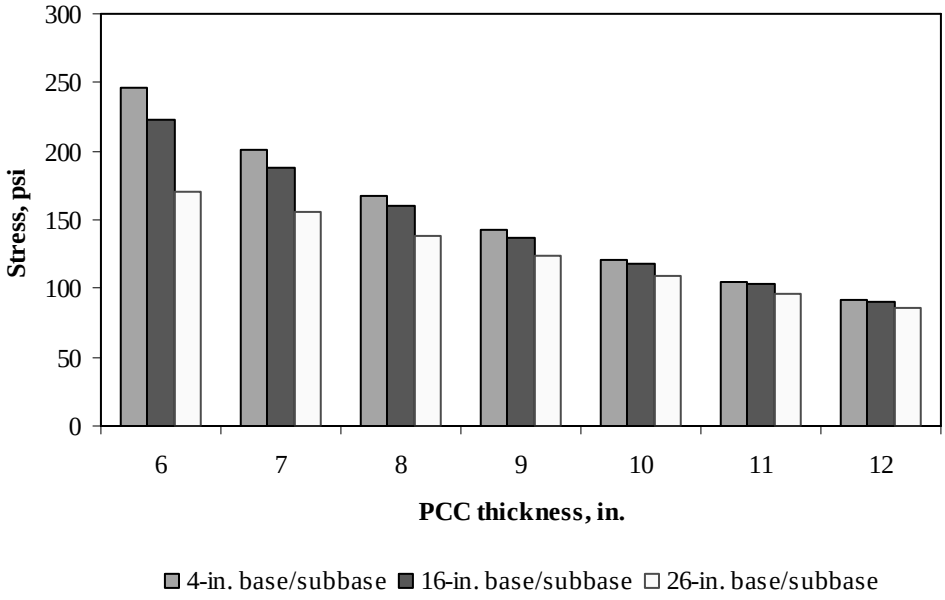


Figure F-19-9: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

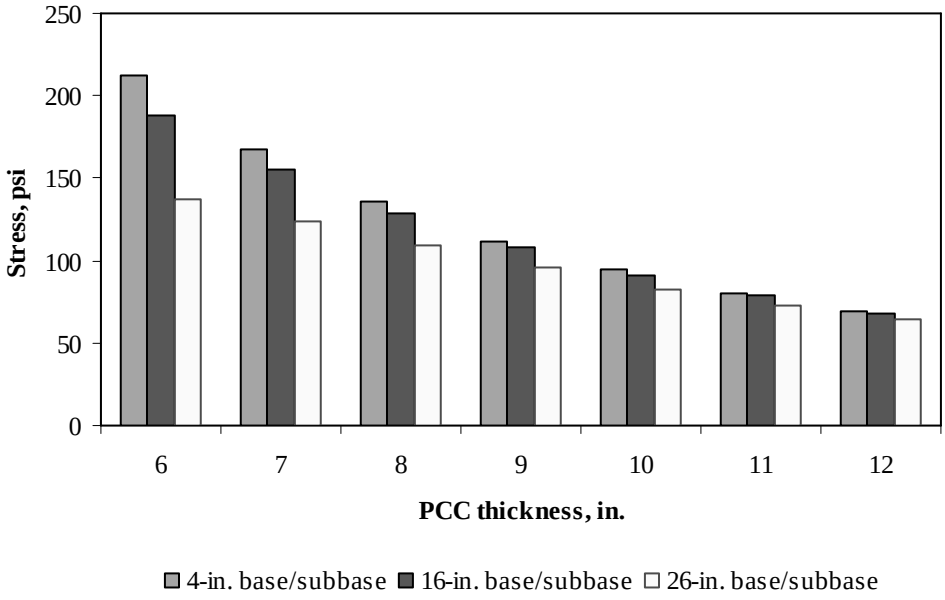


Figure F-19-10: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

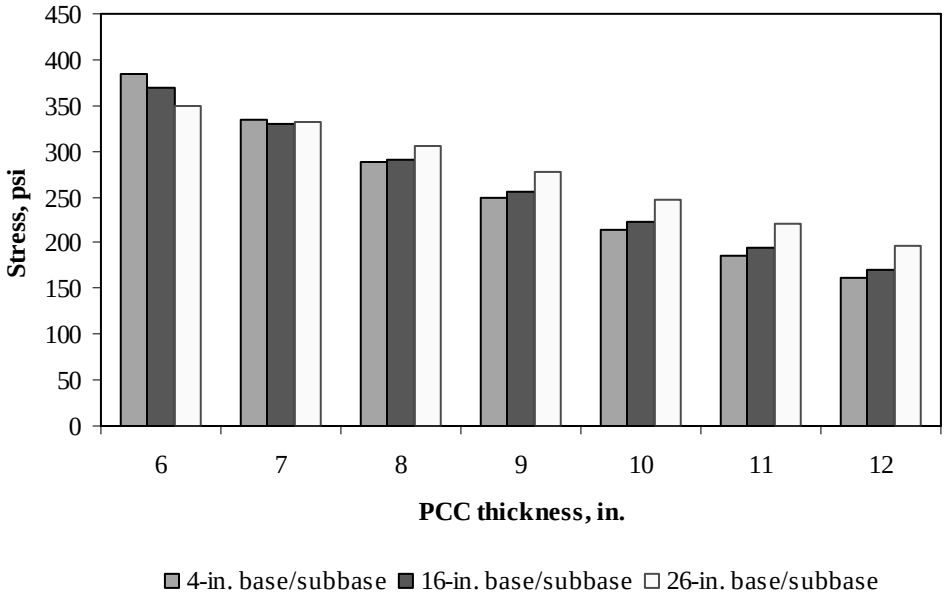


Figure F-19-11: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

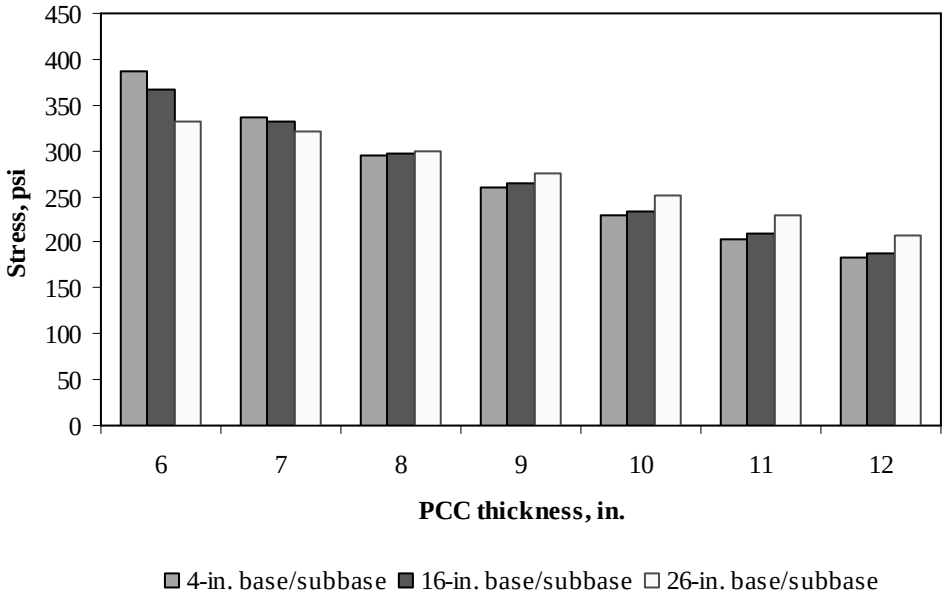


Figure F-19-12: Impact of PCC thickness and base/subbase thickness on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-19-13 through F-19-24 illustrate the impact of PCC thickness and modulus of subgrade reaction on stresses (16-in. base/subbase thickness and PCC shoulder)

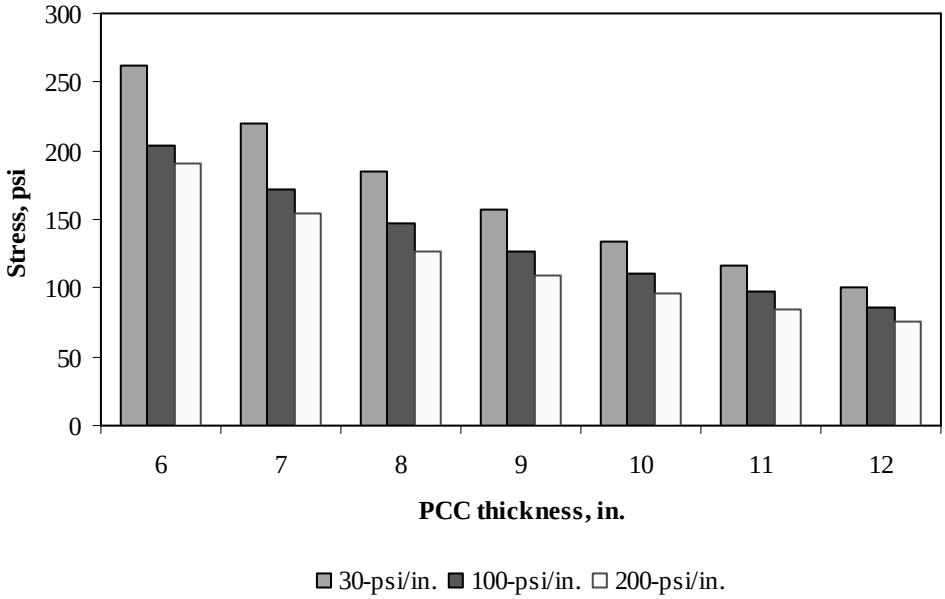


Figure F-19-13: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

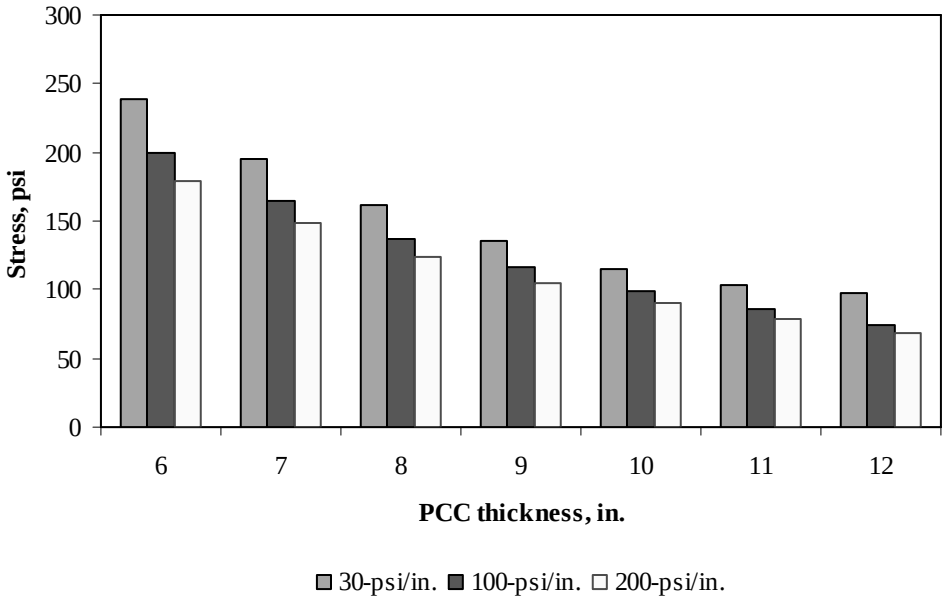


Figure F-19-14: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

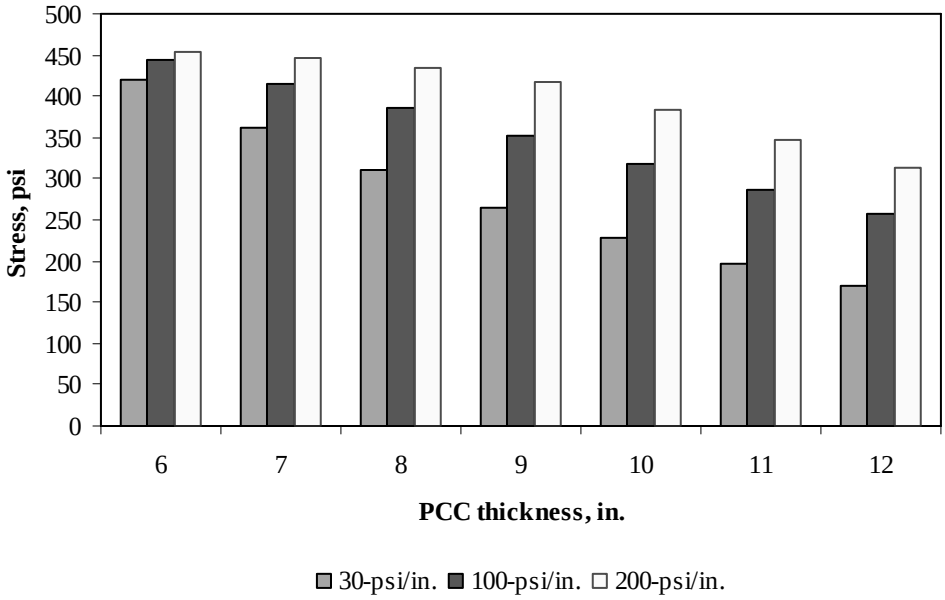


Figure F-19-15: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

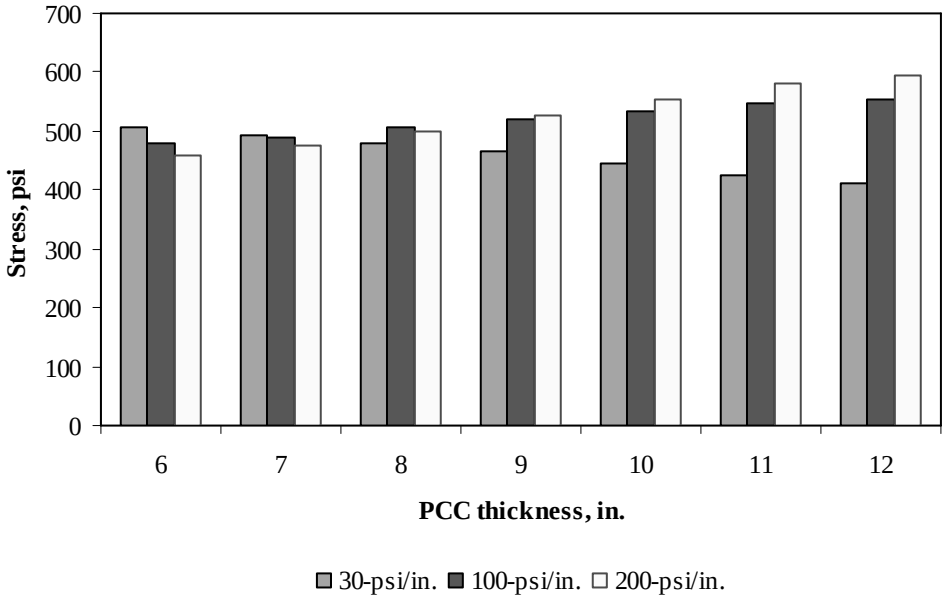


Figure F-19-16: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at bottom of the slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

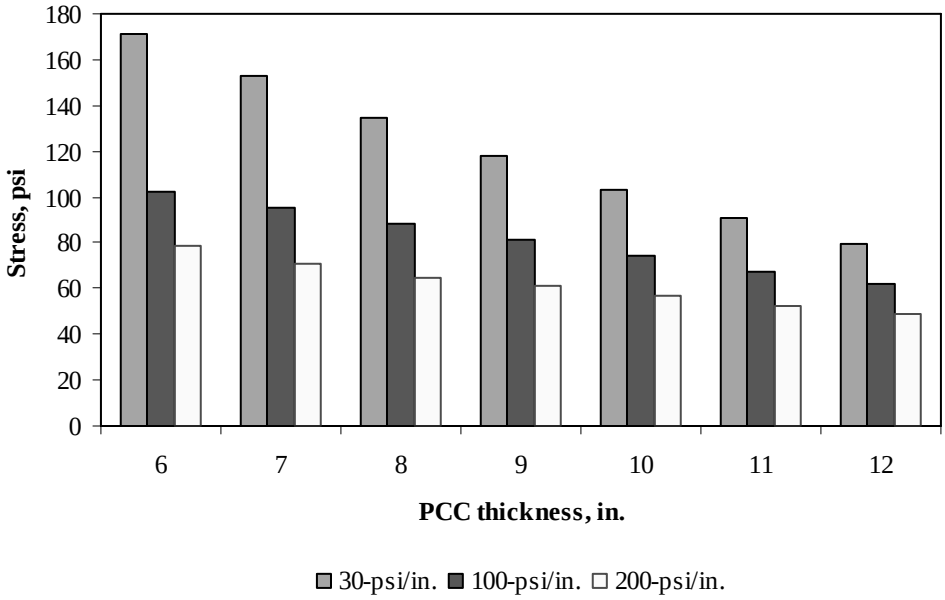


Figure F-19-17: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

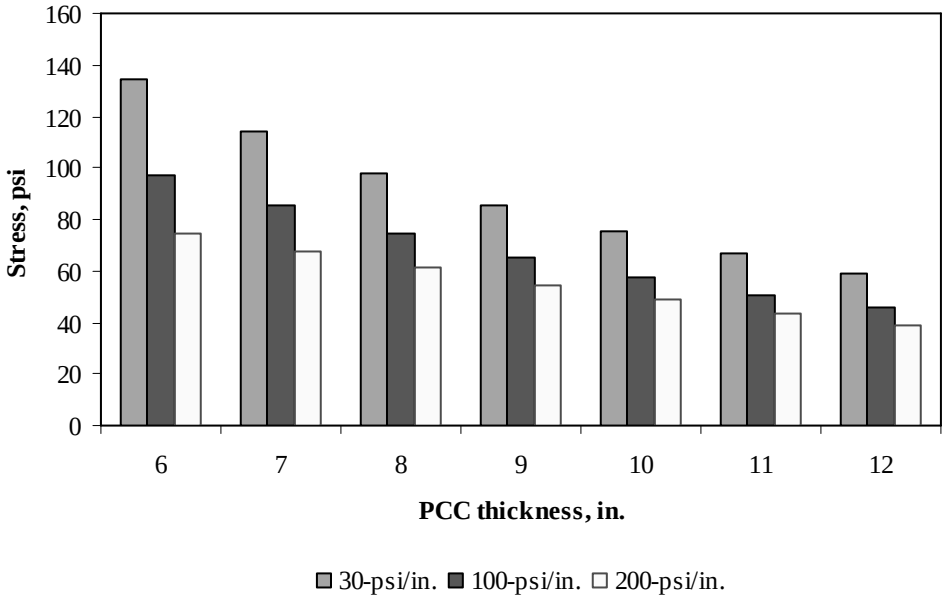


Figure F-19-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

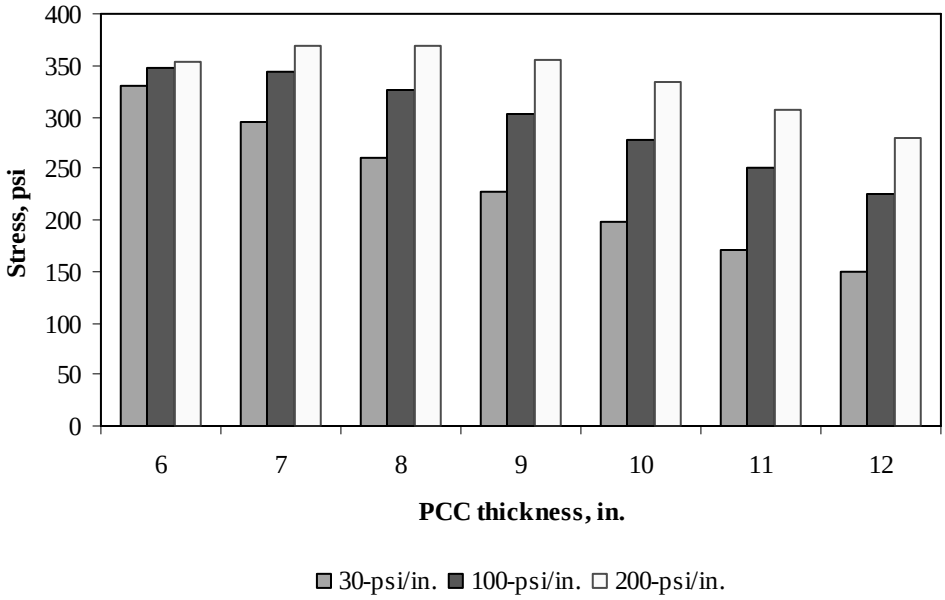


Figure F-19-19: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

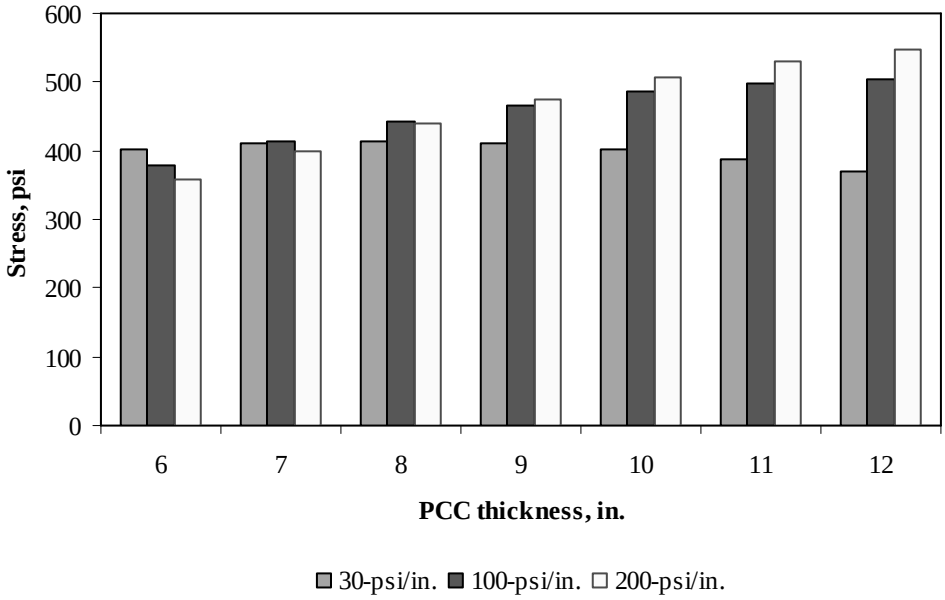


Figure F-19-20: Impact of PCC thickness and modulus of subgrade reaction on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

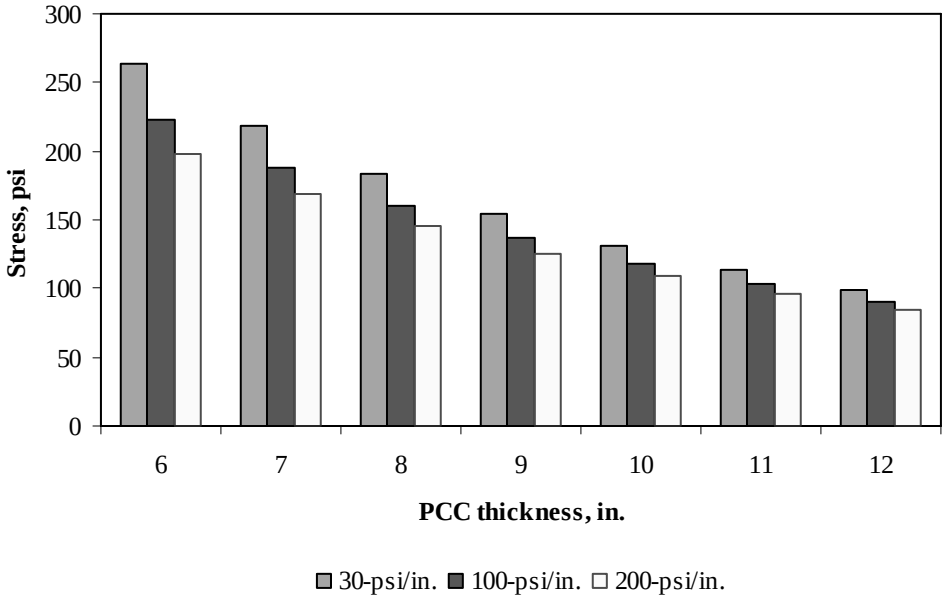


Figure F-19-21: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

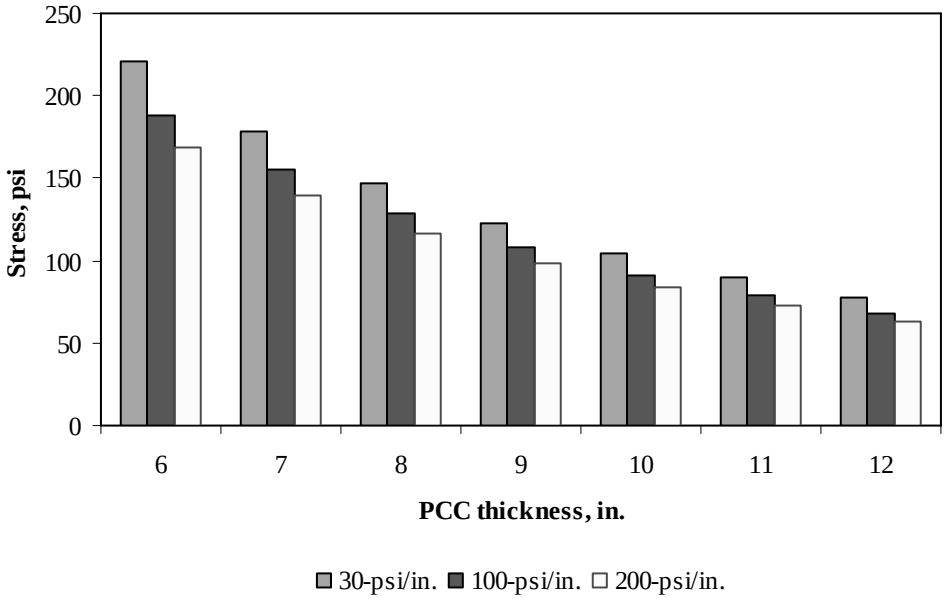


Figure F-19-22: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

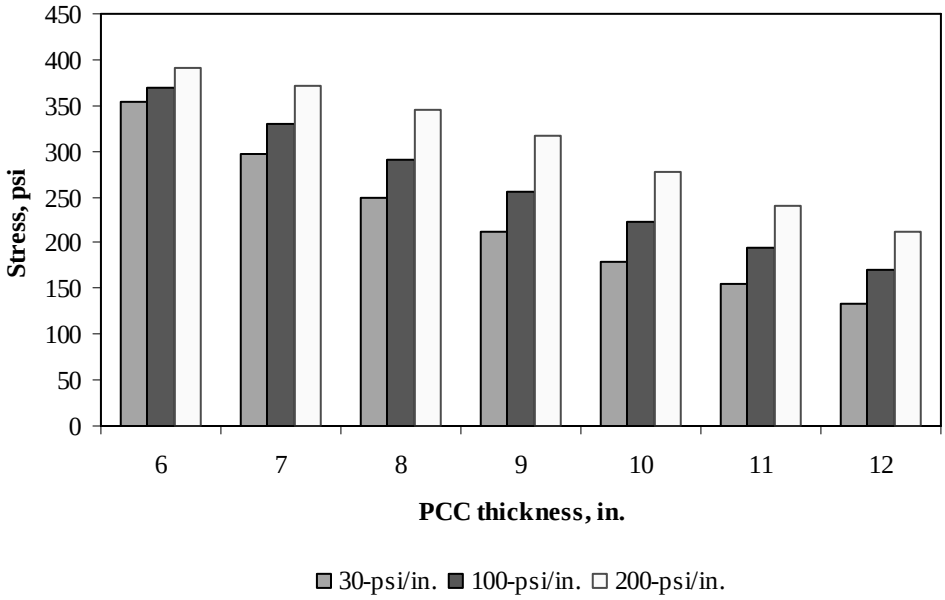


Figure F-19-23: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

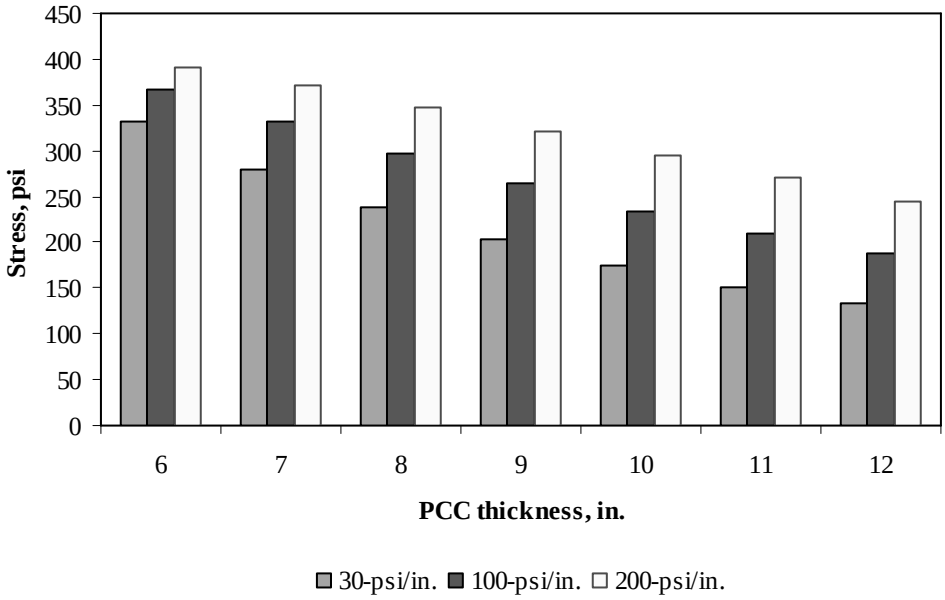


Figure F-19-24: Impact of PCC thickness and modulus of subgrade reaction on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-19-25 through F-19-36 illustrate the impact of PCC thickness and lateral support condition on stresses (16-in. base/subbase and 100-psi/in. modulus of subgrade reaction)

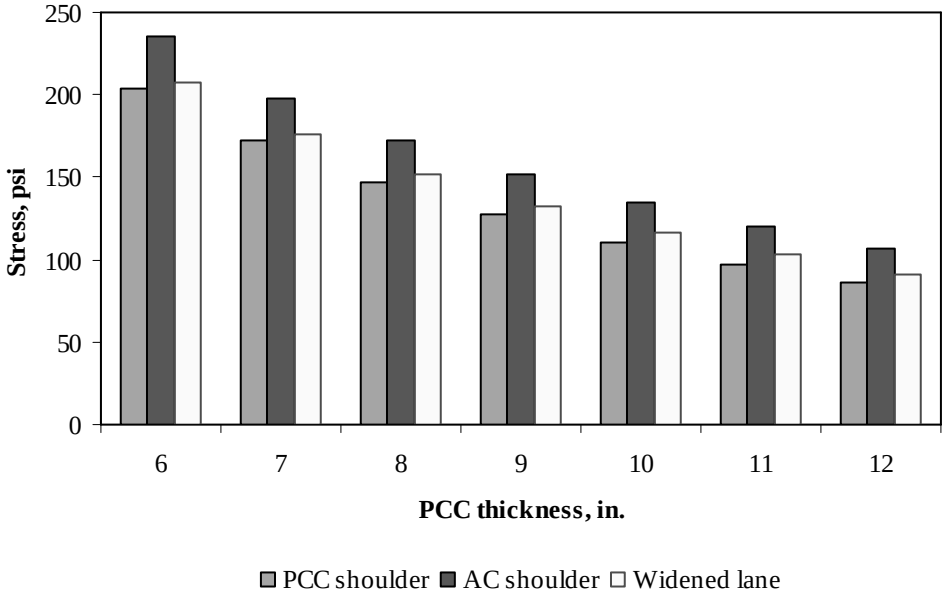


Figure F-19-25: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

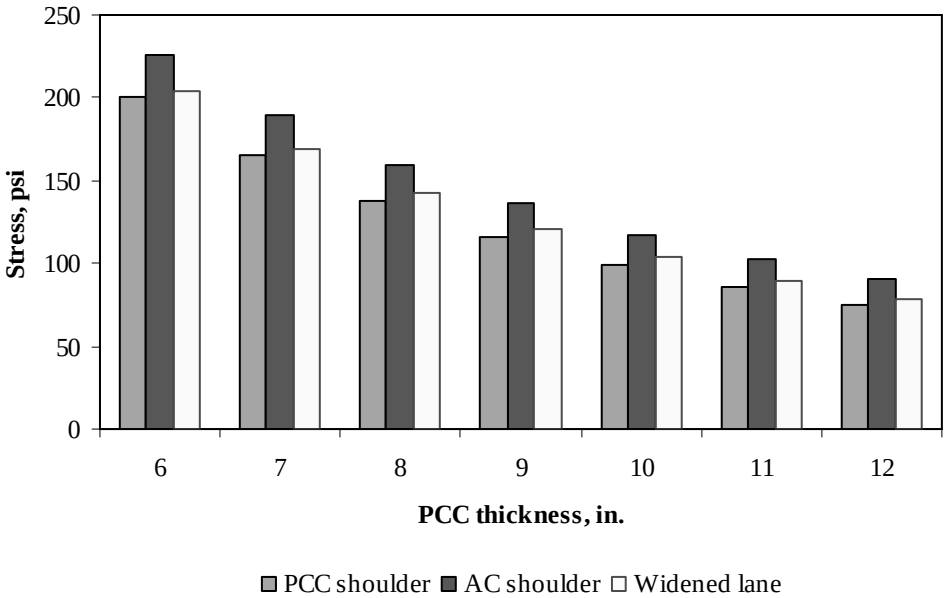


Figure F-19-26: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

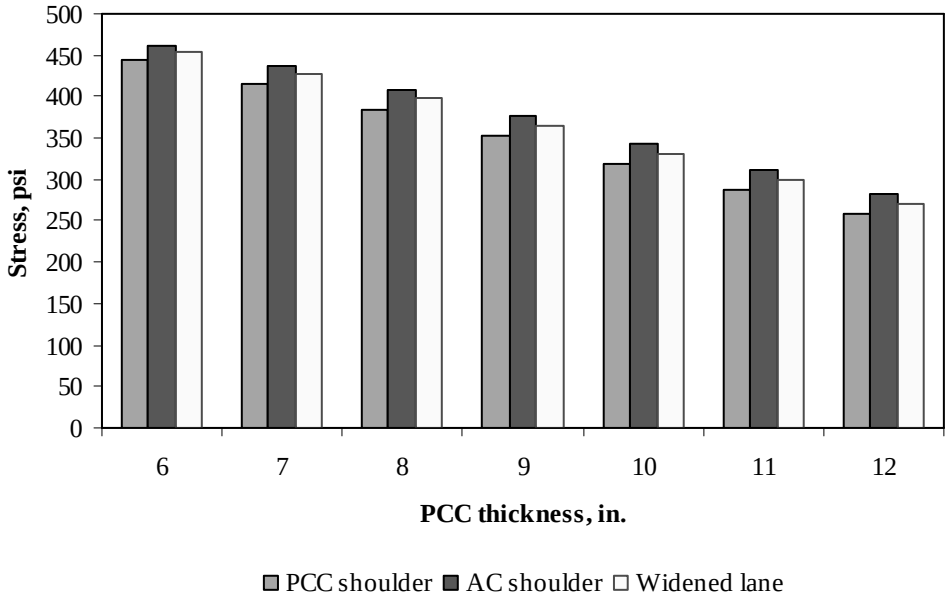


Figure F-19-27: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

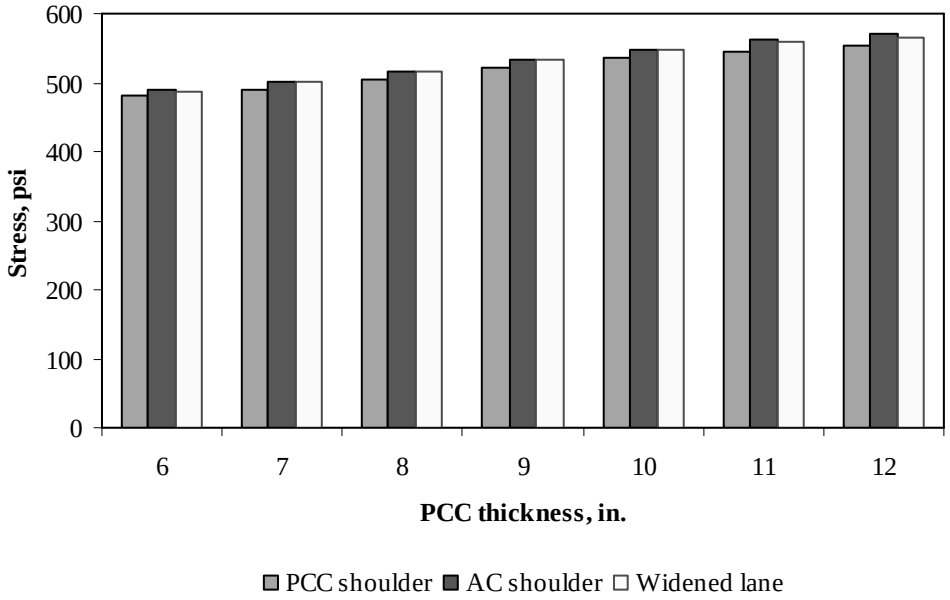


Figure F-19-28: Impact of PCC thickness and lateral support condition on longitudinal stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

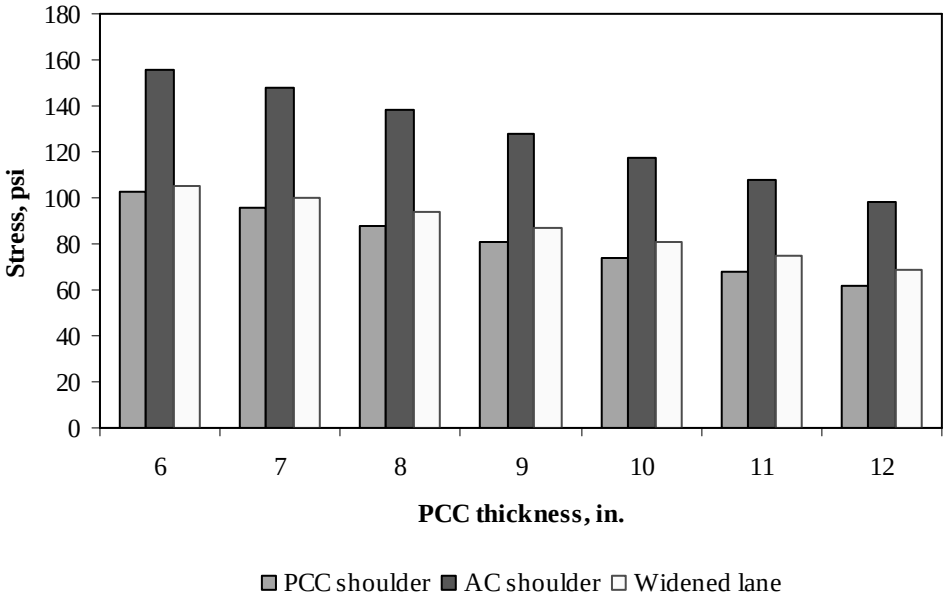


Figure F-19-29: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

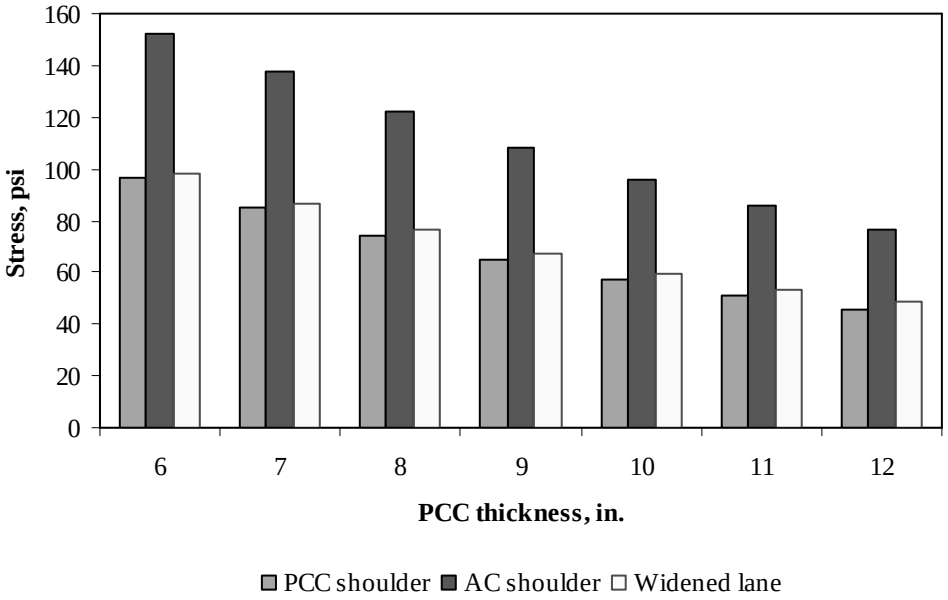


Figure F-19-30: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

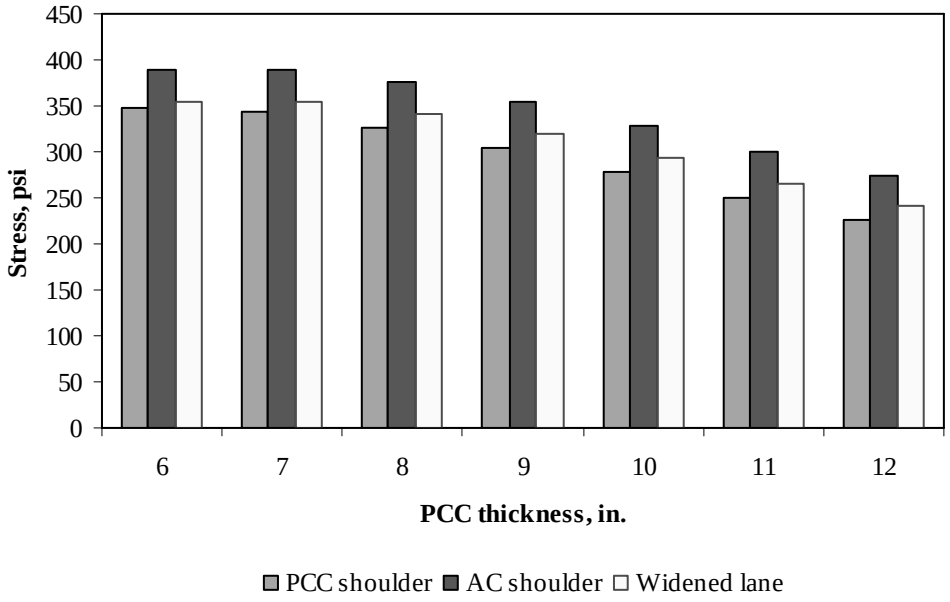


Figure F-19-31: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

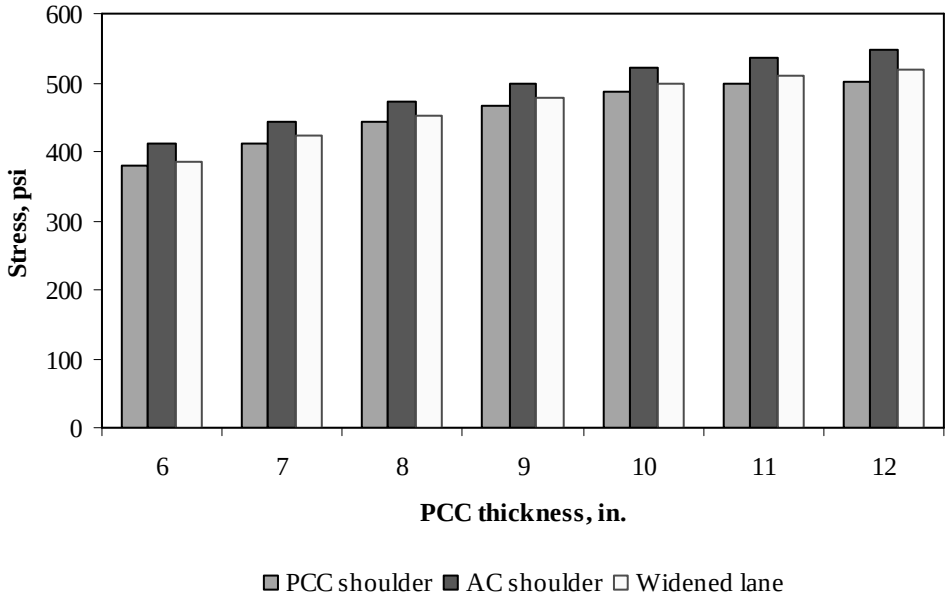


Figure F-19-32: Impact of PCC thickness and lateral support condition on longitudinal stress at top of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of -20×10^{-6} in.$^{-1}$)

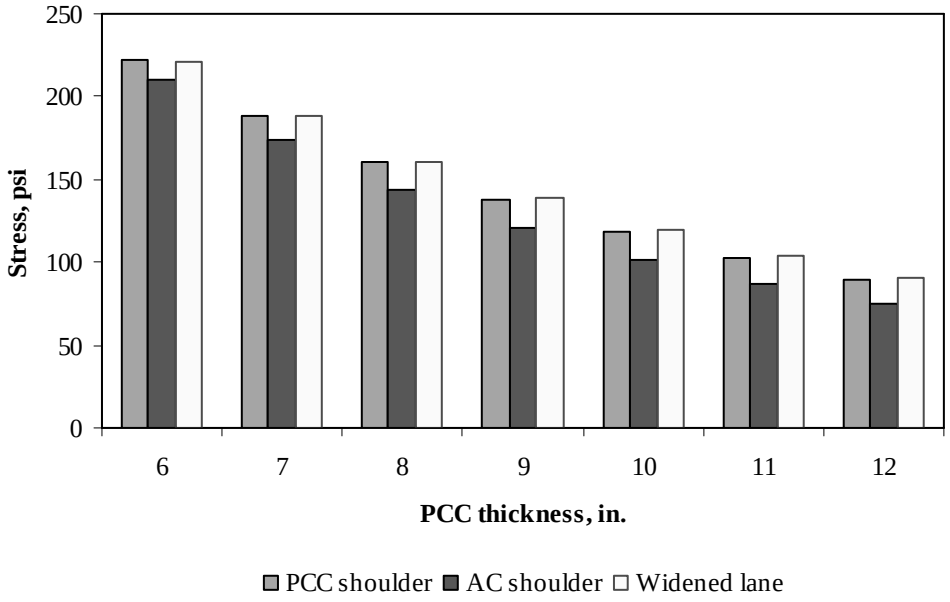


Figure F-19-33: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

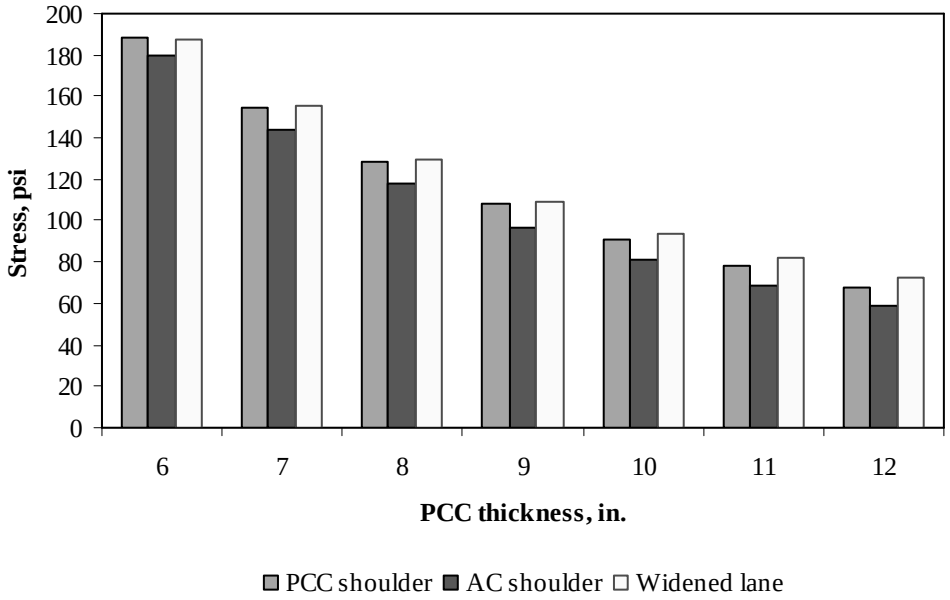


Figure F-19-34: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 0 in.$^{-1}$)

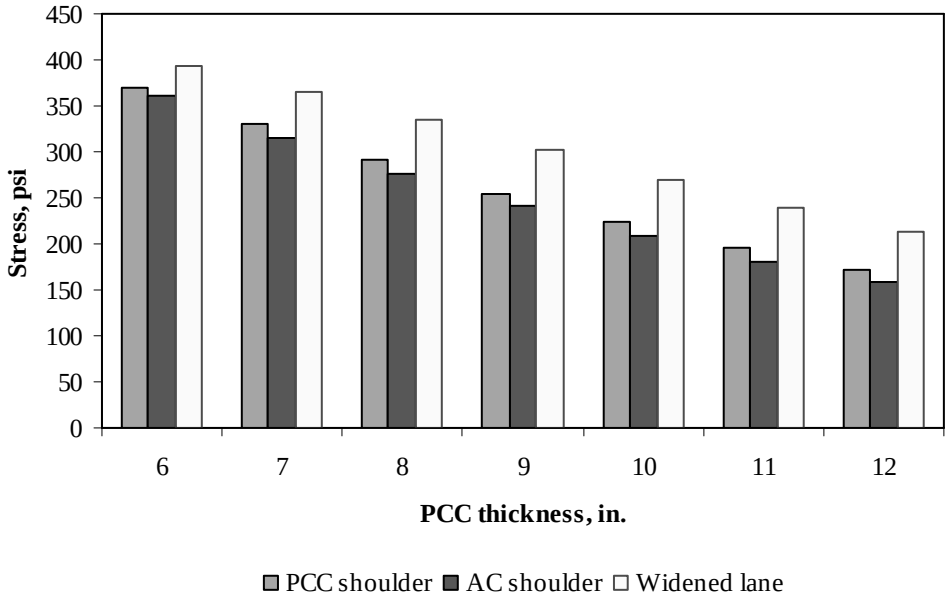


Figure F-19-35: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (177-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

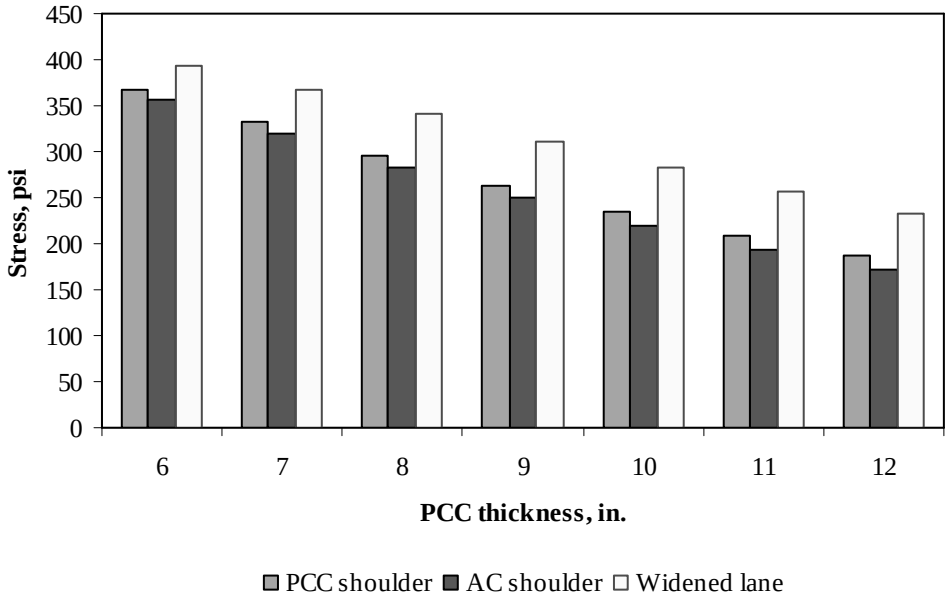


Figure F-19-36: Impact of PCC thickness and lateral support condition on transverse stress at bottom of the Slab (315-in. joint spacing and $\alpha(\Delta T/D)$ of 20×10^{-6} in.$^{-1}$)

Figures F-19-37 through F-19-42 illustrate the impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

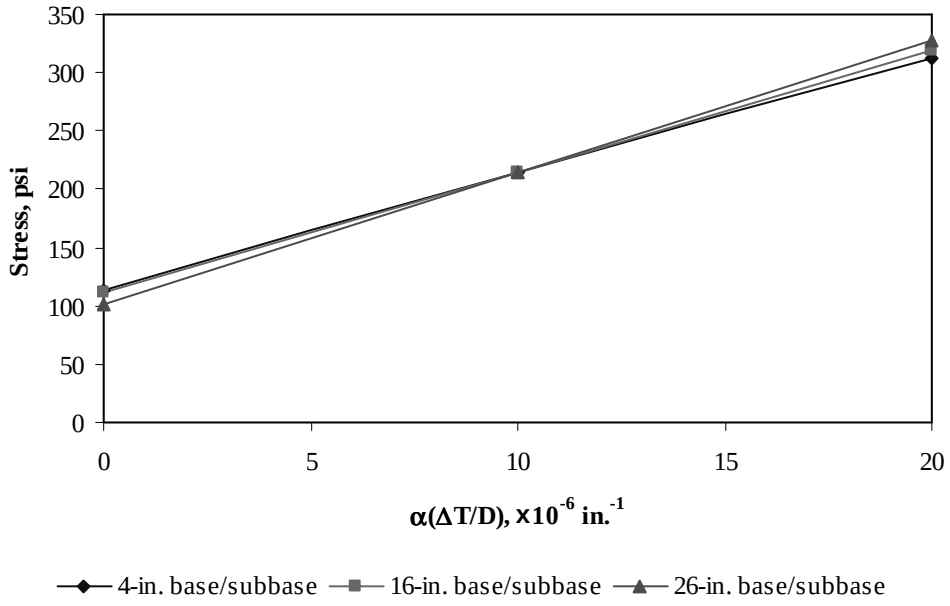


Figure F-19-37: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

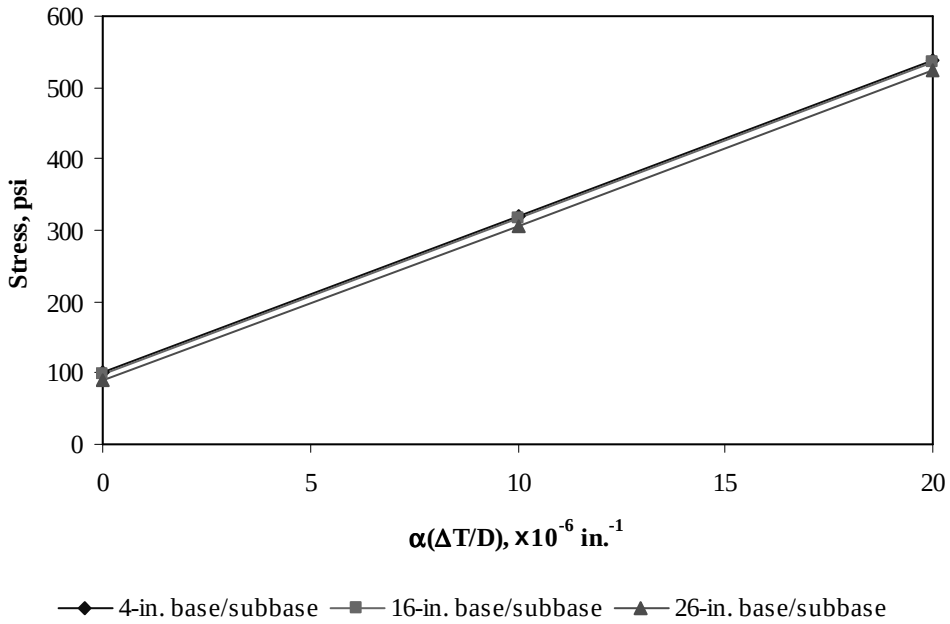


Figure F-19-38: Impact of base/subbase thickness and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

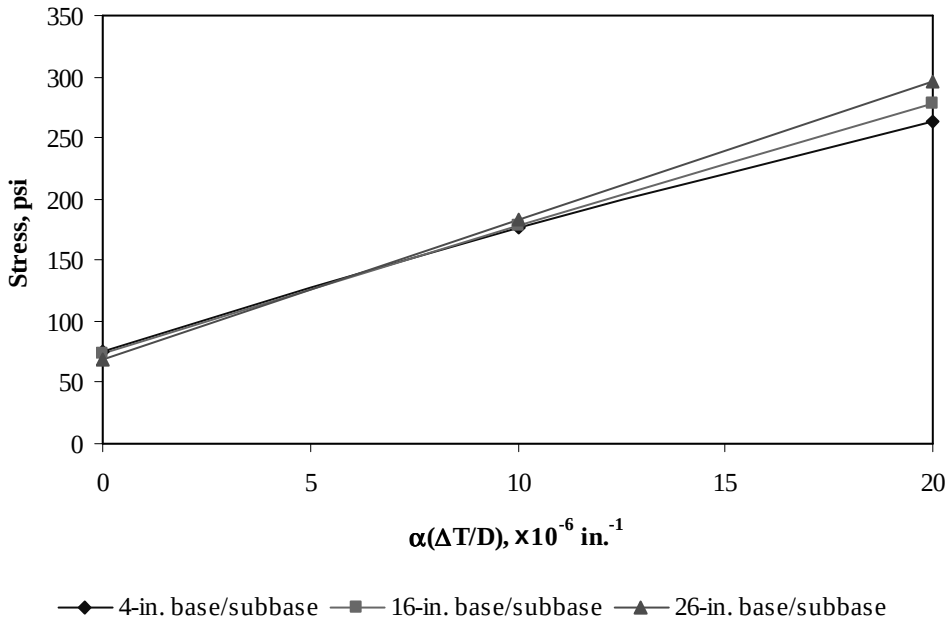


Figure F-19-39: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

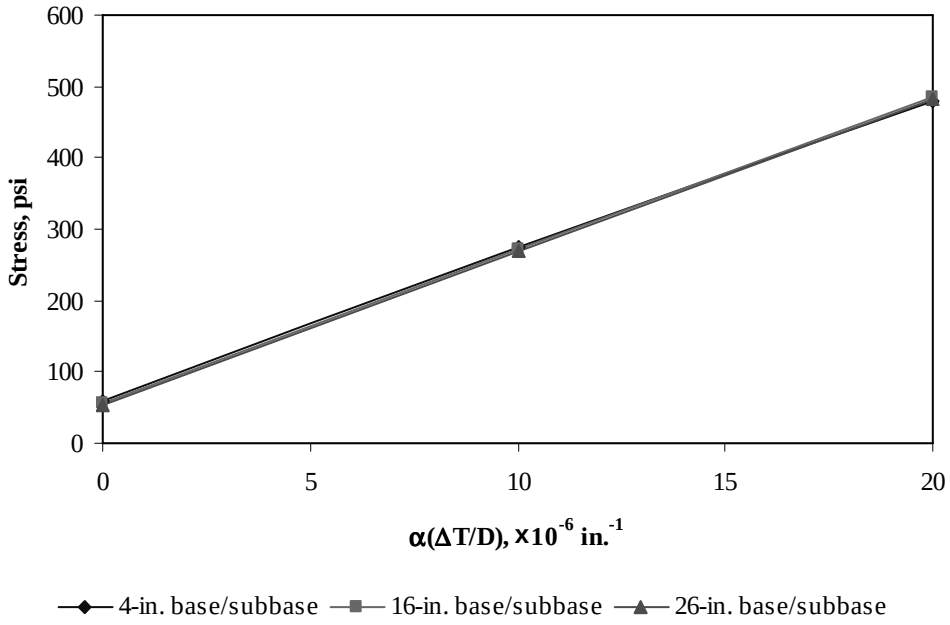


Figure F-19-40: Impact of base/subbase thickness and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

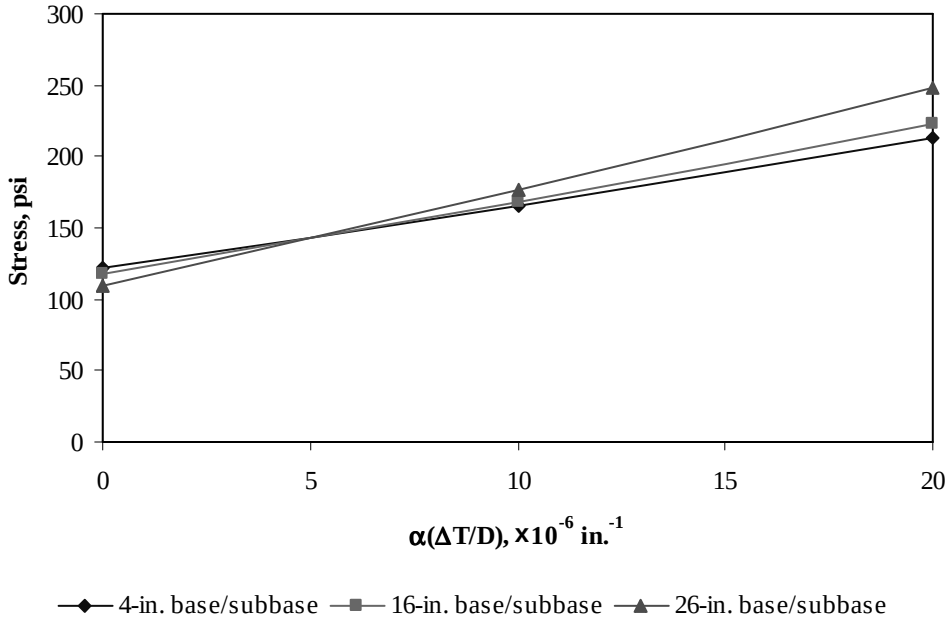


Figure F-19-41: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

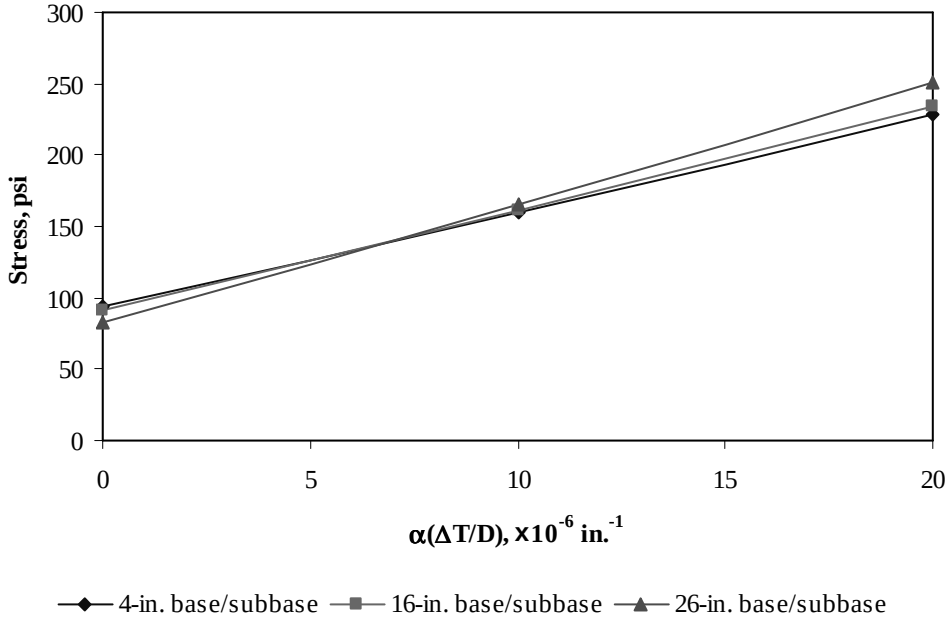


Figure F-19-42: Impact of base/subbase thickness and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-19-43 through F-19-48 illustrate the impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness and PCC shoulder)

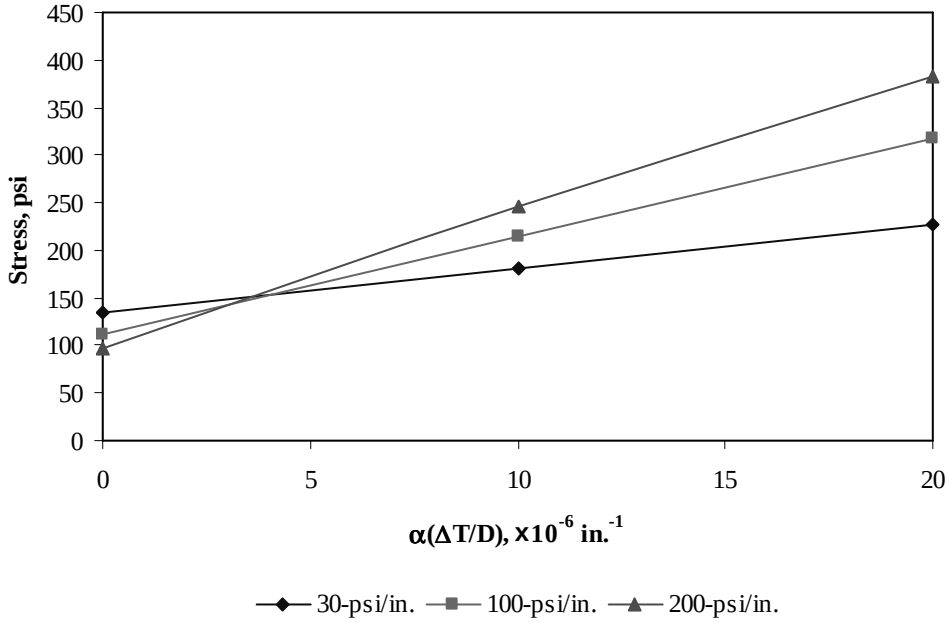


Figure F-19-43: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (177-in. joint spacing)

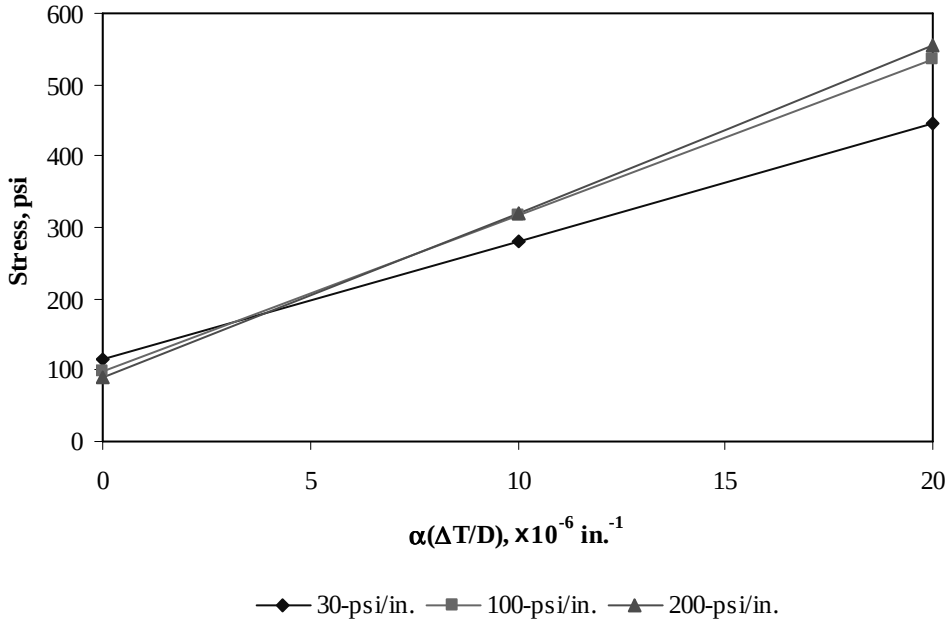


Figure F-19-44: Impact of modulus of subgrade reaction and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab (315-in. joint spacing)

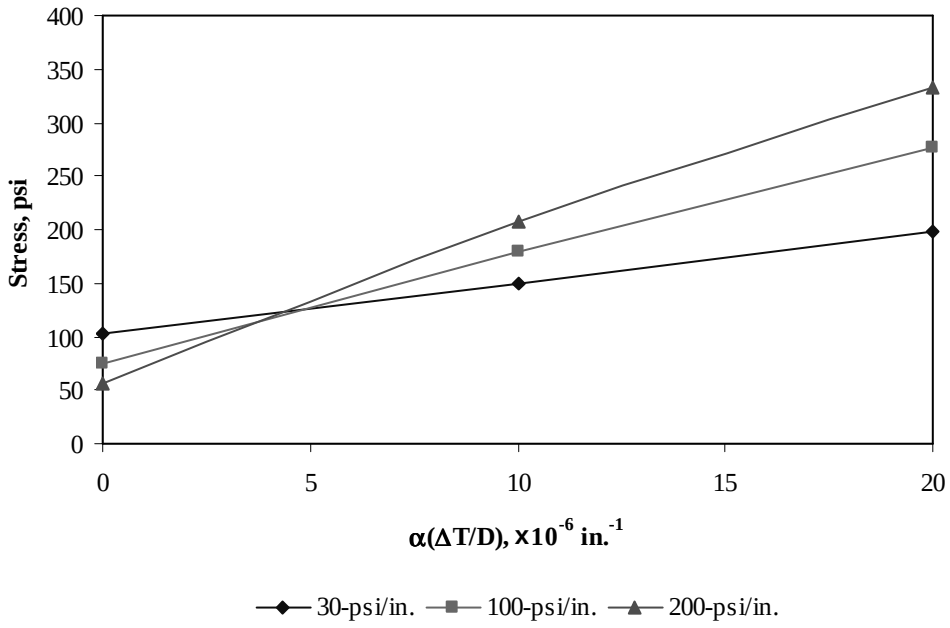


Figure F-19-45: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (177-in. joint spacing)

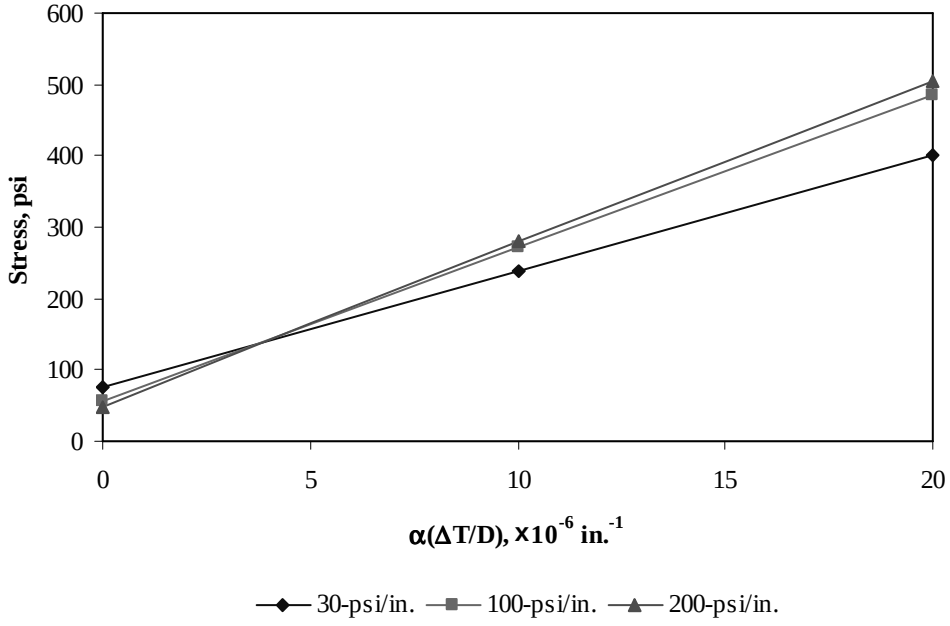


Figure F-19-46: Impact of modulus of subgrade reaction and product α(ΔT/D) on longitudinal stress at top of the slab (315-in. joint spacing)

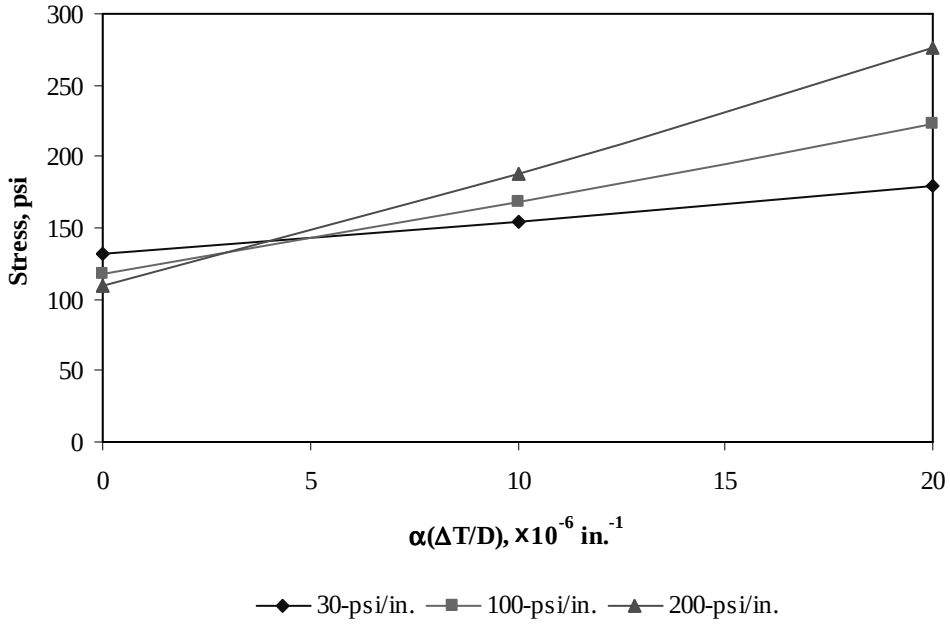


Figure F-19-47: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (177-in. joint spacing)

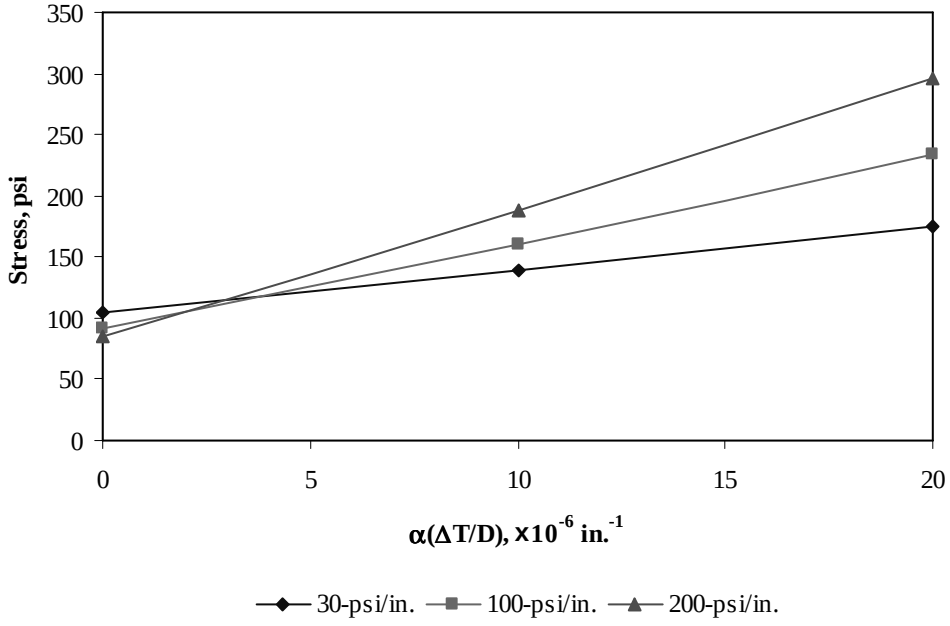


Figure F-19-48: Impact of modulus of subgrade reaction and product α(ΔT/D) on transverse stress at bottom of the slab (315-in. joint spacing)

Figures F-19-49 through F-19-51 illustrate the impact of joint spacing and product $\alpha(\Delta T/D)$ on stresses (10-in. PCC thickness, 16-in. base/subbase thickness, 100-psi/in. modulus of subgrade reaction and PCC shoulder)

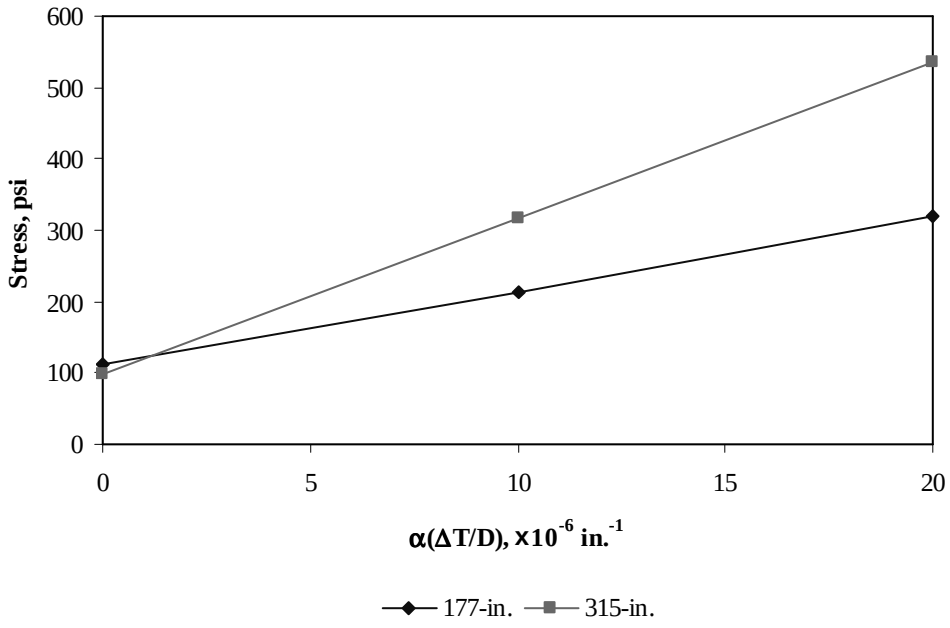


Figure F-19-49: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at bottom of the slab

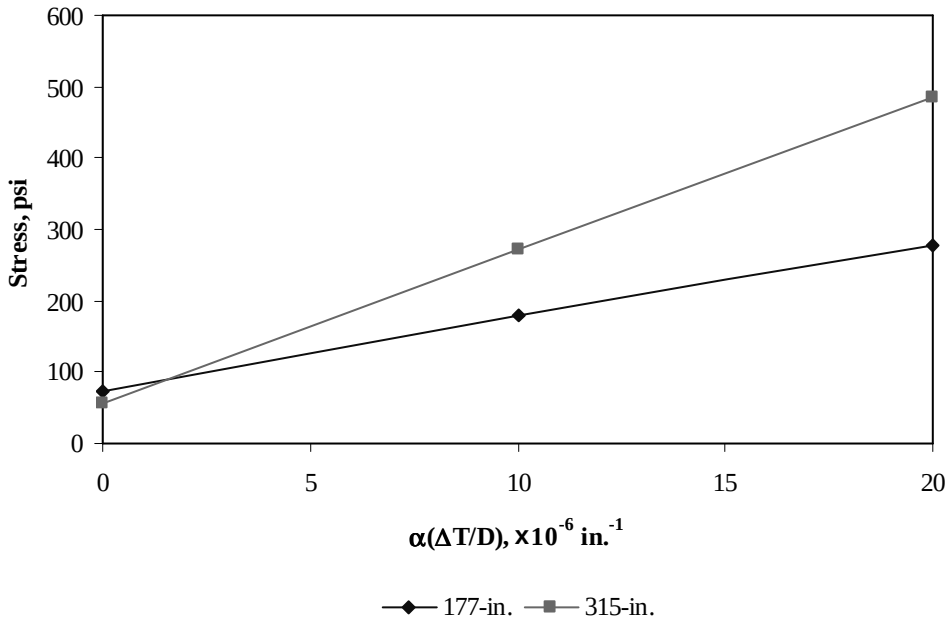


Figure F-19-50: Impact of joint spacing and product $\alpha(\Delta T/D)$ on longitudinal stress at top of the slab

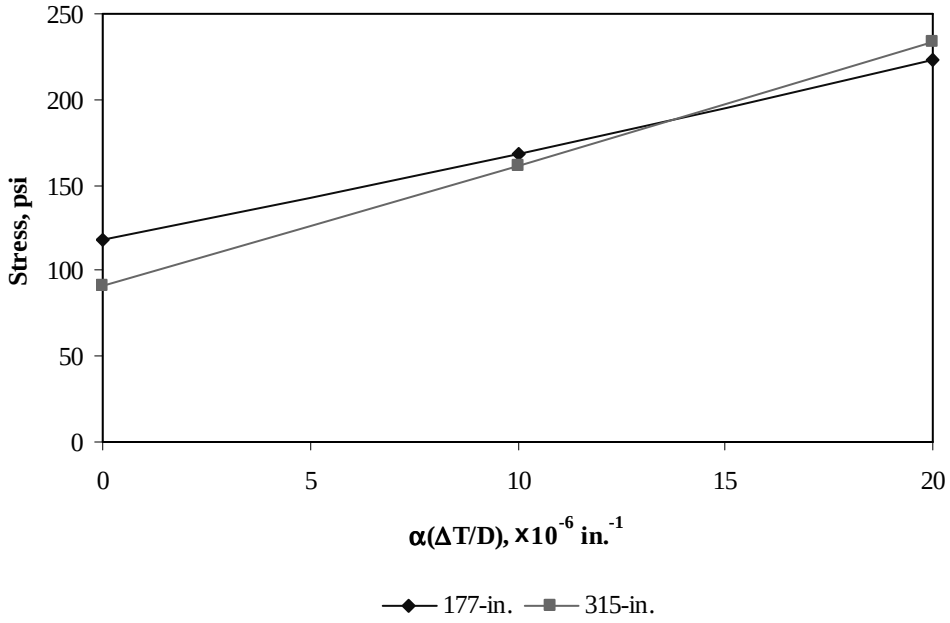


Figure F-19-51: Impact of joint spacing and product α(ΔT/D) on transverse stress at bottom of the slab