Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

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TO: District Directors of Production, District Design Engineers, District Structures and Facilities Engineers, District Maintenance Engineers, District Structures Design Engineers

FROM: Robert Robertson, State Structures Design Engineer

COPIES: Ananth Prasad, Lora Hollingsworth, Timothy Lattner, Larry Jones, Larry Sessions, Marcus Ansley, Andre Pavlov, Lex Collins, Tom Andres, Rafiq Darji, Rudy Powell, Jonathan Van Hook, Jeffrey Ger (FHWA)

SUBJECT: Temporary Design Bulletin C07-4
Clarification of Structures Design Guidelines Section 3.10.A
Limiting steel stresses in reinforced pier columns, pier caps, and bent caps

This design bulletin clarifies the use of the 24 ksi limit on mild reinforcing steel tension stresses for pier columns, pier caps, and bent caps.

REQUIREMENTS

Limit service tension stresses in longitudinal reinforcing steel for all mildly reinforced pier columns, pier caps, and bent caps under construction loading and Service III Loading to 24 ksi for Grade 60 reinforcing.

COMMENTARY

The tensile limit of 24 ksi for mild reinforcing, combined with proper distribution of reinforcement, is intended to ensure the durability of pier columns, pier caps, and bent caps by limiting crack widths for long term loads.

BACKGROUND

Pier columns and caps can have large bending moments and should be considered flexural elements that require some serviceability check against cracking. It has been the FDOT's

experience that the previous code limit was too liberal and therefore a limit of 24 ksi was introduced in the January 2006 SDG to limit cracking. The limit of 24ksi, however, produced excessively large reinforcement ratios for tall piers under wind loading. Therefore, this design memo clarifies the loading (construction and Service III) for the 24ksi requirement. The limit of 24 ksi does not eliminate cracking but rather is intended to limit crack widths to acceptable limits for long term loads.

IMPLEMENTATION

This temporary design bulletin clarifies current policy as set in the current SDG and shall be implemented immediately.

CONTACT

Tom Andres, P.E.
Assistant State Structures Design Engineer
850-414-4269

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