Florida Department of Transportation

JEB BUSH
GOVERNOR

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JOSÉ ABREU
SECRETARY

May 9, 2005

MEMORANDUM

TO: District Structures Design Engineers
(Gerard Moliere, Rod Nelson, Keith Shores, John Danielsen, Neil Kenis, Kim Saing, Jose Rodriguez, and Agnes Spielmann)
District Directors of Production
(Chris Smith, Larry Parks, Tommy Barfield, Gerry O'Reilly, Noranne Downs, Javier Rodriguez, Donald Skelton, Nancy Clements)
District Structures and Facilities Engineers
(Pepe Garcia, Keith Campbell, John Locke, Jose Quintana, Ron Meade, Frank Guyamier, Chris Toenjes)
District Directors of Operations
(Debbie Hunt, Nick Tsengas, Jimmy Rodgers, James Wolfe, Gus Pego, Jim Moulton, Jr., Bruce Seiler)

FROM: William Nickas, P.E., State Structures Design Engineer

COPIES: Freddie Simmons, Bob Greer, Jeffrey Ger (FHWA), Bill Albaugh, John Harris, Anath Prasad, Duane Brautigam, Sharon Holmes, Larry Sessions, Jack Evans, Robert Robertson, Marcus Ansley, David O'Hagan, Steve Plotkin.

SUBJECT: Temporary Design Bulletin CO5-04
Transverse Reinforcement for Compression Members - Ties

REQUIREMENTS

Add the following to Section 3.11 of the Structures Design Guidelines:

N. Detail ties in solid reinforced concrete compression members so that no longitudinal bar shall be more than 24 inches, measured along the tie, from a restrained bar. A restrained bar is one which has lateral support provided by the corner of a tie having an included angle of not more than 135 degrees. Where the column design is based on plastic hinging capability, no longitudinal bar shall be farther than 6 inches clear on each side along the tie from such a laterally supported bar and the tie reinforcement shall meet the requirements of AASHTO LRFD 5.10.11.4.1 d thru f. Where the bars located around the periphery of a circle, complete circular ties may be used if the splices in the ties are staggered. See Figure 3-20 which illustrates the placement of auxiliary ties in compression members which are not designed for plastic hinging.

COMMENTARY

This addition brings the LRFD specification back into conformity with the wording in the Standard Specifications. Although ACI requires closer restraining tie bar spacing, ACI

Commentary states, "Limited tests on full-size, axially-loaded, tied columns containing full-length bars (without splices) showed no appreciable difference between the ultimate strength of columns with full tie requirements and no ties at all."

BACKGROUND

This addition reflects and clarifies current AASHTO Subcommittee T-10 recommendations.

IMPLEMENTATION

Effective immediately on all projects at or less than 60% complete.

CONTACT

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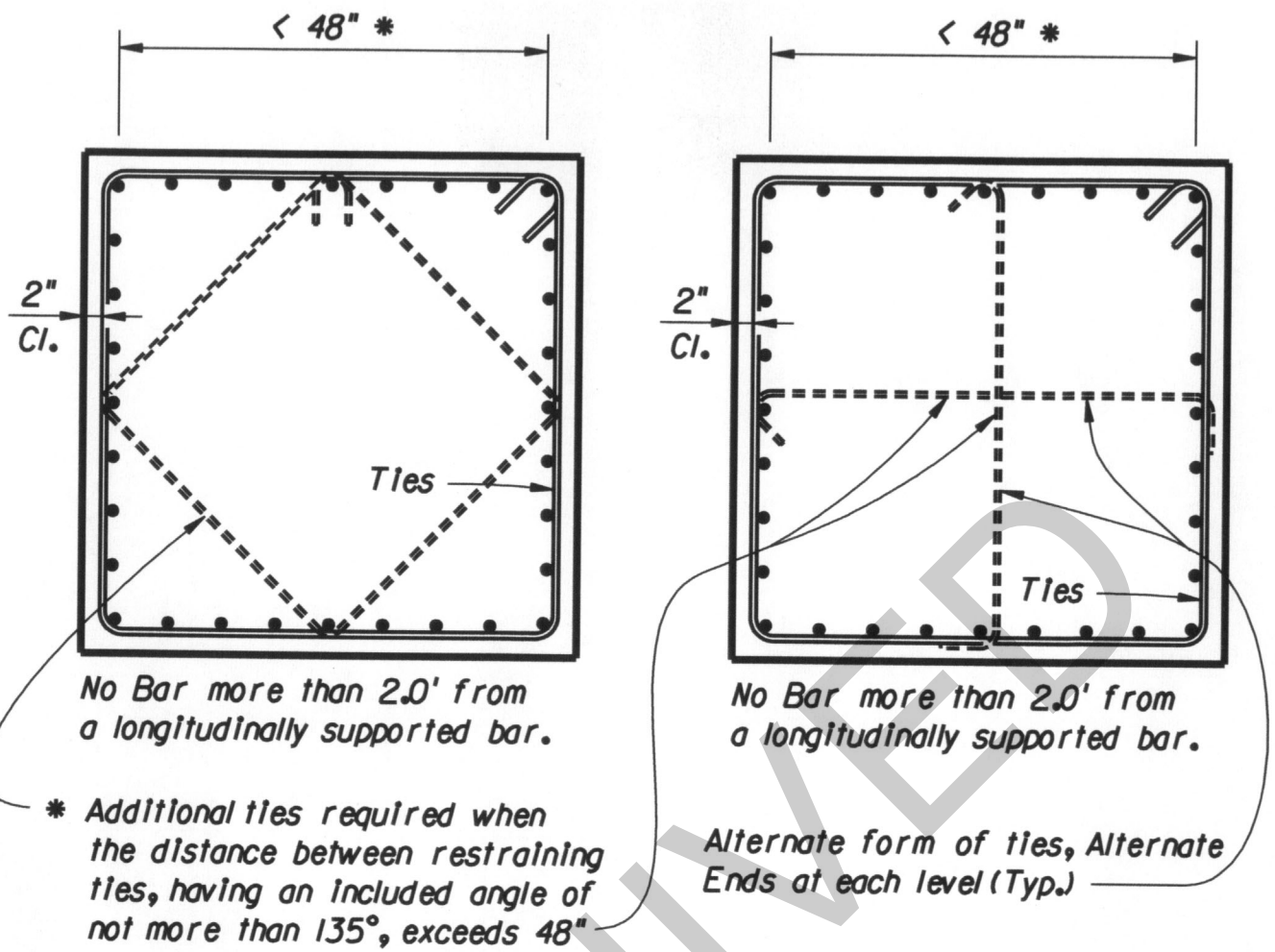
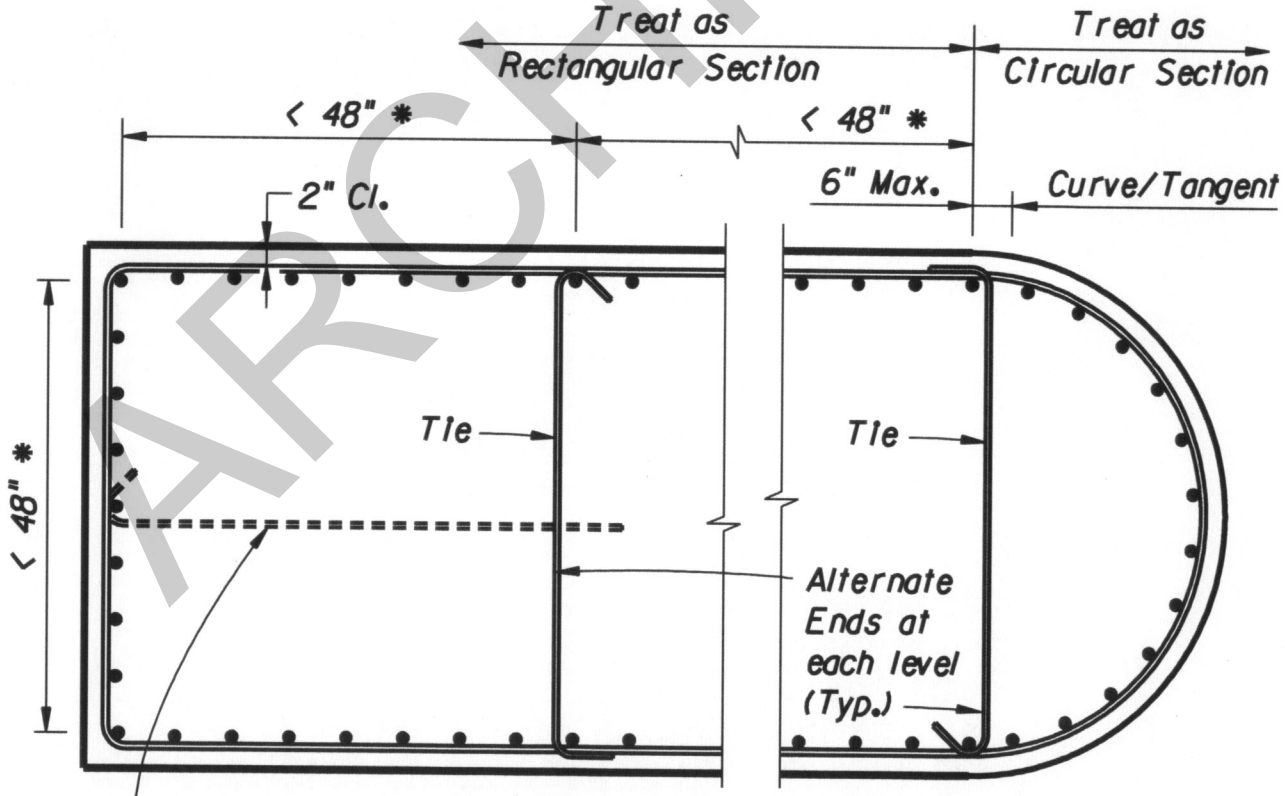
WNN/DOH


< 48" *
2" Cl.
Ties
No Bar more than 2.0' from a longitudinally supported bar.
< 48" *
2" Cl.
Ties
No Bar more than 2.0' from a longitudinally supported bar.
* Additional ties required when the distance between restraining ties, having an included angle of not more than 135°, exceeds 48"
Alternate form of ties, Alternate Ends at each level (Typ.)


Treat as Rectangular Section
Treat as Circular Section
< 48" *
< 48" *
6" Max.
Curve/Tangent
2" Cl.
< 48" *
Tie
Tie
Alternate Ends at each level (Typ.)
No Bar more than 2.0' from a longitudinally supported bar.
* Additional ties required when the distance between restraining ties, having an included angle of not more than 135°, exceeds 48"