



Florida Department of Transportation

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SECRETARY

January 15, 2010

Monica Gourdine
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 415
Proposed Specification: **4150513 Reinforcing Steel – Bar Supports.**

Dear Ms. Gourdine:

We are resubmitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were proposed by Mario Paredes of the State Materials Office to add plastic rebar spacers for typical applications and plastic rebar supports and spacers for drilled shaft applications.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to ST986RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4280.

Sincerely,

Rudy Powell, Jr., P.E.
State Specifications Engineer

RP/dt

Attachment

cc: Gregory Jones, Chief Civil Litigation
Florida Transportation Builders' Assoc.
State Construction Engineer

REINFORCING STEEL–BAR SUPPORTS.**(111-1524-1009)**

SUBARTICLE 415-5.13(Pages 438-439) is deleted and the following substituted

415-5.13 ~~Chairs and Bolsters~~Bar Supports:

415-5.13.1 General: Provide reinforcing steel bar supports manufactured in accordance with all requirements of the CRSI Manual of Standard Practice. Use ~~chairs and bolsters~~*bar supports* of adequate strength to withstand a 300 pound concentrated load *applied as directed by the State Materials Office* without permanent deformation or breakage, with the deformation under a 300 pound load being less than 5% of the support height.

Ensure that no more than 5% of the reinforcing steel bar supports exhibit unsatisfactory performance, breakage, or permanent deformation during rebar tying and/or concrete placement operations. If a bar support does not achieve this level of performance, reduce the average spacing between bar supports by 15%, or remove that product from use on the job.

Ensure that bar supports ~~both chair and bolster~~, do not move during concrete placing operations. To prevent movement, tie supports to the reinforcing steel.

When using bar supports on corrugated metal stay-in-place forms, use supports specifically designed for the form being used.

For structural elements located in extremely aggressive environments, do not use metal ~~chairs and bolsters~~*bar supports* in contact with forms or floor surfaces to support reinforcing steel.

415-5.13.2 Metal ~~Chairs and Bolsters~~Bar Supports: -For metal bar supports in contact with steel stay-in-place forms and metal bar supports in contact with boundary surfaces of concrete to be cast, provide supports constructed with molded plastic legs or plastic protected steel legs. Do not allow any portion of the bar support other than the molded plastic leg or plastic protected portion of the steel leg to be closer than 1/2 inch from the boundary surface of concrete to be cast.

Certify that all metal bar supports meet the following requirements:

(1) That they are manufactured from cold drawn steel wire in accordance with the wire sizes and geometrical dimensions shown in the CRSI Manual of Standard Practice, Chapter 3, Table II.

(2) That the plastic used for protection of the steel legs has a thickness of 3/32 inch or greater at points of contact with the form work.

Provide plastic protection by a dipping operation, by adding premolded plastic tips to the legs of the support or by molding plastic to the top wire of the support. Ensure that the plastic material used for protection of steel legs does not chip, crack, deform, or peel under ordinary job conditions. Provide molded plastic legs that have sufficient strength to carry the weight of the supported reinforcing steel in its required position without deformation and relaxation under job conditions.

415-5.13.3 Plastic ~~Chairs and Bolsters~~,Bar Supports and Spacers: Use ~~chairs, and bolsters~~*non-stackable bar supports and spacers* comprised of either reinforced or non-reinforced virgin or recycled plastic. ~~Chairs and bolsters~~*Bar supports*

shall be able to meet the concentrated load requirements of 415-5.13.1 within a working temperature range of 20 to 150°F. *Spacers shall be able to withstand a 50 pound concentrated load applied as directed by the State Materials Office without bar slippage, permanent deformation or breakage within a working temperature range of 20 to 150°F with the deformation under a 50 pound load being less than 5% of the support height. Slip-on spacers should be tested with the load applied towards the insertion opening.*

All plastic rebar supports shall ~~and~~ have a maximum water absorption rate of 0.5% *at 14 days*, as per ASTM D 570.

Protect plastic rebar ~~chairs~~ *supports* from exposure to sunlight until placed in the form. Mold plastic rebar supports in a configuration which does not restrict concrete flow and consolidation around and under the rebar support. Do not use continuous legs or rails on concrete surfaces.

Due to the wide range of applications and heights, ensure that the manufacturer additionally certifies all plastic ~~chair and/or bolster systems~~ *bar supports* for 2 inch, 3 inch, 4 inch and 4 1/2 inch heights.

Provide each individual bar support with an identification number unique to the particular model permanently marked on the surface as included in the Qualified Products List.

~~—————~~ **415-5.13.4 Plastic Bar Supports and Wheel Spacers for Drilled Shafts Applications:** *Wheel spacers shall be able to withstand a 500 pound concentrated load applied as directed by the State Materials Office without bar slippage, permanent deformation or breakage at room temperature with the deformation under a 500 pound load being less than 5% of the support height. Slip-on wheel spacers shall be tested with the load applied towards the insertion opening. The perimeter surface of the wheel spacer shall be smooth.*

Bottom bolsters shall be able to withstand a 1000 pound concentrated load without permanent deformation or breakage at room temperature with the deformation under a 1000 pound load being less than 5% of the support height.

All plastic rebar supports shall have a maximum water absorption of 0.5% at 14 days, as per ASTM D 570.

415-5.13.54 Qualified Products List: Use plastic ~~chair and bolster~~ *bar supports and spacers* ~~products~~ listed on the Department's Qualified Products List. Manufacturers seeking evaluation of products for inclusion on the Qualified Products List must submit an application in accordance with 6-1 and include certified test reports from an independent laboratory showing that the plastic ~~chair and bolster products~~ *bar supports and spacers* meet all the requirements specified herein. Plastic ~~chair and bolster products~~ *bar supports and spacers* made of recycled plastic products must meet the additional requirements of Section 972.

REINFORCING STEEL–BAR SUPPORTS.**(1-15-10)**

SUBARTICLE 415-5.13(Pages 438-439) is deleted and the following substituted

415-5.13 Bar Supports:

415-5.13.1 General: Provide reinforcing steel bar supports manufactured in accordance with all requirements of the CRSI Manual of Standard Practice. Use bar supports of adequate strength to withstand a 300 pound concentrated load applied as directed by the State Materials Office without permanent deformation or breakage, with the deformation under a 300 pound load being less than 5% of the support height.

Ensure that no more than 5% of the reinforcing steel bar supports exhibit unsatisfactory performance, breakage, or permanent deformation during rebar tying and/or concrete placement operations. If a bar support does not achieve this level of performance, reduce the average spacing between bar supports by 15%, or remove that product from use on the job.

Ensure that bar supports do not move during concrete placing operations. To prevent movement, tie supports to the reinforcing steel.

When using bar supports on corrugated metal stay-in-place forms, use supports specifically designed for the form being used.

For structural elements located in extremely aggressive environments, do not use metal bar supports in contact with forms or floor surfaces to support reinforcing steel.

415-5.13.2 Metal Bar Supports: For metal bar supports in contact with steel stay-in-place forms and metal bar supports in contact with boundary surfaces of concrete to be cast, provide supports constructed with molded plastic legs or plastic protected steel legs. Do not allow any portion of the bar support other than the molded plastic leg or plastic protected portion of the steel leg to be closer than 1/2 inch from the boundary surface of concrete to be cast.

Certify that all metal bar supports meet the following requirements:

(1) That they are manufactured from cold drawn steel wire in accordance with the wire sizes and geometrical dimensions shown in the CRSI Manual of Standard Practice, Chapter 3, Table II.

(2) That the plastic used for protection of the steel legs has a thickness of 3/32 inch or greater at points of contact with the form work.

Provide plastic protection by a dipping operation, by adding premolded plastic tips to the legs of the support or by molding plastic to the top wire of the support. Ensure that the plastic material used for protection of steel legs does not chip, crack, deform, or peel under ordinary job conditions. Provide molded plastic legs that have sufficient strength to carry the weight of the supported reinforcing steel in its required position without deformation and relaxation under job conditions.

415-5.13.3 Plastic Bar Supports and Spacers: Use non-stackable bar supports and spacers comprised of either reinforced or non-reinforced virgin or recycled plastic. Bar supports shall be able to meet the concentrated load requirements of 415-5.13.1 within a working temperature range of 20 to 150°F. Spacers shall be able to

withstand a 50 pound concentrated load applied as directed by the State Materials Office without bar slippage, permanent deformation or breakage within a working temperature range of 20 to 150°F with the deformation under a 50 pound load being less than 5% of the support height.

All plastic rebar supports shall have a maximum water absorption of 0.5% at 14 days, as per ASTM D 570.

Protect plastic rebar supports from exposure to sunlight until placed in the form. Mold plastic rebar supports in a configuration which does not restrict concrete flow and consolidation around and under the rebar support. Do not use continuous legs or rails on concrete surfaces.

Due to the wide range of applications and heights, ensure that the manufacturer additionally certifies all plastic bar supports for 2 inch, 3 inch, 4 inch and 4 1/2 inch heights.

Provide each individual bar support with an identification number unique to the particular model permanently marked on the surface as included in the Qualified Products List.

415-5.13.4 Plastic Bar Supports and Wheel Spacers for Drilled Shafts:

Wheel spacers shall be able to withstand a 500 pound concentrated load applied as directed by the State Materials Office without bar slippage, permanent deformation or breakage at room temperature with the deformation under a 500 pound load being less than 5% of the support height. The perimeter surface of the wheel spacer shall be smooth.

Bottom bolsters shall be able to withstand a 1000 pound concentrated load without permanent deformation or breakage at room temperature with the deformation under a 1000 pound load being less than 5% of the support height.

All plastic rebar supports shall have a maximum water absorption of 0.5% at 14 days, as per ASTM D 570.

415-5.13.5 Qualified Products List: Use plastic bar supports and spacers listed on the Department's Qualified Products List. Manufacturers seeking evaluation of products for inclusion on the Qualified Products List must submit an application in accordance with 6-1 and include certified test reports from an independent laboratory showing that the plastic bar supports and spacers meet all the requirements specified herein. Plastic bar supports and spacers made of recycled plastic products must meet the additional requirements of Section 972.