

4150513 REINFORCING STEEL–BAR SUPPORTS
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

David O’Hagan
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Comment: This specification specifies that the supports withstand certain loads; however, it never specifies how the loads are to be applied.

The Bar Supports and Spacers “shall be able to withstand a 50 pound concentrated load without bar slippage...” Is this load applied axially to the bar or perpendicular to the bar over the support/spacer? The drilled shaft support/spacer/bolster load application specifications are identically vague.

Response:

Emmanuel (Manny) Mañon
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Comment: In the first line, third paragraph, 415-5.13.1. Suggest the deletion of **both chair and bolster**

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 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.

Response:

Geoff Scales

Comment: (12-15-09)

This rewrite is fine, but how about addressing the fact (as raised in the last Structures Specifications Committee meeting) that 415-5.5.1, 415-5.8.1 and 415-5.9.1 etc. direct a particular type of spacer for different structural elements, with no apparent rhyme or reason. E.g., 415-5.8.1 directs that wall steel can only be spaced from the form face using 2x2" 'hog-apples'. These requirements are rarely actually enforced, but when they are they make life unnecessarily difficult.

Response:

Barry Smith
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Comment: (12-18-09)

1. Are plastic spacers and plastic wheel spacers a different type product? I know the application is different but they function fundamentally the same way. Should the terms be the same?
2. Could the “non-stacking” limitation stated on the QPL be placed into this modification?
3. Does moisture absorption need to be addressed in 415-5.13.4 as in 415-5-13.3?
4. Height references in 415-13-5.13.3 are unclear. Does this mean the sizes mentioned are required and other sizes are optional?
5. Terminology in 415-5.13.4 for the wheel spacer is unclear. Slip-on indicates solid wheels that are placed over the end of the rebar and would consequently not have a need for the concentrated load testing. A two piece wheel spacer or folding (wraparound) would need the testing done on both sides at the juncture of the two pieces. Could the designation be made using other terms like, two piece locking or split with mechanical lock, etc along with Slip-on? The two piece types will need the concentrated load test. Using terminology to differentiate the two would also be helpful to the applicant/manufacturer. Wording describing the location of the applied load for wheel spacers could also be cleared up by using the descriptions above indicating the surface juncture. The current concentrated load vector description “INSERTION OPENING” could be taken to mean the central hole and applying the load perpendicularly to the long axis of the wheel, not outward toward the juncture of the two halves.

Response:

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Comment: (1-11-09)

1. 415-5.13.1 Bar Supports. As I understand this section, ALL Bar Supports (metal, plastic, precast concrete, etc.) need to meet these requirements.
2. 415-5.13.2 Metal Bar Supports. Reference should be made in this section (similar to plastic) about meeting requirements of 415-5.13.1. Suggest adding a third item under “Certify that all metal bar supports meet the following requirements:” add “(3) That they meet the concentrated load requirements of 415-5.13.1”. Currently, FDOT is not getting a comparable metal product.
3. 415-5.13.3 Plastic Bar Supports and Spacers. I am of the opinion that the performance requirements for the spacers should be in “415-5.13.1 Bar Supports” with only specific plastic requirements in this section.

4. 415-5.13.4 Plastic Bar Supports and Wheel Spacers for Drilled Shafts. Nothing in this section says that only “plastic” can be used. Is metal allowed for Drilled Shafts? Does metal have the same performance requirements? The loads may be a little extreme but I don’t see an issue as long as any type of support (metal, plastic, precast concrete, etc.) has the same requirement.

5. 415-5.13.5 Qualified Products List. There should also be a listing of Metal Bar Supports that meet the requirements of 415-5.13.1. FDOT needs to be careful that the requirements for products performing the same function are not different.

Response:
