3300202 HOT BITUMINOUS MIXTURES - GENERAL CONSTRUCTION REQUIREMENTS
COMMENTS FROM INDUSTRY REVIEW

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Dan L. Hurtado, P.E.
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Comment: , the Engineer may elect to stop the construction operation at any time until the deficiencies[I1] are corrected

The word "deficiencies" is used elsewhere. Wording should be consistent. Should not use word "problems."

As an exception to the above, any[I2] area which the Engineer determines that the pavement will satisfactorily perform its intended function without correction[I3] may be left in place as approved by the Engineer.

The deleted language implies that defective asphalt in these areas is always acceptable.

Do not need the words "the pavement"

When the final structural course will be opened to traffic, the design speed is 55 mph or greater, and the defect is 3/8" or greater, the Engineer may require any deficiencies to be corrected within 72 hours before opening to traffic[I4].

What is the intent of this sentence? Beginning and ending the sentence with "opening / opened to traffic" is confusing.

Response: Comment: the Engineer may elect to stop the construction operation at any time until the deficiencies[I5] are corrected

When the pavement thickness is out of control, it may be caused by many factors (paver problem, operator problems, etc), therefore, the original word will be kept. If the "deficiencies" were used, it may only mean the correction of pavement defects.

As an exception to the above, any[I6] area which the Engineer determines that the pavement will satisfactorily perform its intended function without correction[I7] may be left in place as approved by the Engineer.

Agree with your comment.

When the final structural course will be opened to traffic, the design speed is 55 mph or greater, and the defect is 3/8" or greater, the Engineer may require any deficiencies to be corrected within 72 hours before opening to traffic[I8].

The whole sentence will be revised as follows:

When the final structural course is to be opened to traffic, and the design speed is 55 mph or greater, if any defect is 3/8" or greater, the Engineer may require deficiencies to be corrected within 72 hours after opening to traffic.

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John Previte
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Comments: Instead of industry review version, suggest:

330-12.4.5.3 Intermediate Layers *and Temporary Pavement*: When the design speed is 55 mph or greater and ~~,~~ the intermediate Type SP layer *or temporary pavement* ~~will~~ is to be opened to traffic, ~~and~~ if the Engineer identifies a surface irregularity that is determined to be objectionable, then straightedge and address all deficiencies in excess of 3/8 inch within 72 hours of placement in accordance with 330-12.5.

Also, instead of industry review version, suggest:

inch in accordance with 330-12.5.
When the final structural course ~~will~~ is to be opened to traffic~~,~~ and the design speed is 55 mph or greater, ~~and~~ if any ~~the~~ defect is 3/8" or greater, the Engineer may require ~~any~~ deficiencies to be corrected within 72 hours before opening to traffic.
For bicycle paths, straightedge the final Type SP

Response:
Agree with the fist comment.
For the second comment, the sentence will be revised as follows:
When the final structural course is to be opened to traffic~~,~~ and the design speed is 55 mph or greater, if any defect is 3/8" or greater, the Engineer may require deficiencies to be corrected within 72 hours after opening to traffic.

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Bruce Dietrich, P.E.
State Pavement Design Engineer
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Comments: In discussion with the SMO asphalt section, I would recommend the following:

1. In 330-9.2.4 the tolerance for open graded friction course should be +/- 15 lbs/sy instead of +/- 25 lbs/sy.

2. The new spec wording would fit better in 330-9.2.2 rather than 330-9.2.4 and the sub article heading changed to "Thickness and Spread Rate of Layers."

3. 330-12.4.5.4 The proposed wording is not clear on the intent. I would suggest it be to changed from "corrected within 72 hours **before** opening to traffic" to "corrected within 72 hours **after** opening to traffic".

Response: Agree with your comments.

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Larry Dale
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Comments: 330-2.2 Roadway subparagraph 5 Monitoring the mix - no comments 330-9.2.4 Correcting defects: I would suggest rather than the 50 lb +/- allowance for 2 1/2" or more, or for a design thickness of 2 1/2" or less of 25+/- lb, I feel a 10% maximum tolerance across the board would be more acceptable for the structural asphalt, for the open grade friction course, I would agree with the 25 lb. 330-12.4.5.3 Intermediate Layers and Temporary Pavement: I do not agree that the temporary pavement should be included. 330-4.5.4 Final Type SP Structural Layer: I do not agree with the added language for the following reason. The traveling motorists are put on notice when they enter a roadway under construction by traffic signs, message boards etc. With a mill and resurface project, it's not unusual to have drop-offs up to 1 1/2" between adjacent lanes. We have bridge approaches where we have greater than 3/8" and normally if you incur these deficiencies they are corrected prior to the placement of the friction course which I think is appropriate and frankly I don't see where this additional requirement will enhance the ride of a roadway under construction to where it would be noticed by the traveling public. What this additional language will do is add cost to contracts if this proposed language is implemented.

Response: 330-9.2.4: Don't agree with the suggestion of 10% max. tolerance across the board especially for SP-9.5. The tolerance is practically not achievable and too tight.
330-12.4.5.3 and 330-12.4.5.4: Please pay attention to "Engineer determines that the deficiencies are objectionable". Engineer will evaluate the site condition, traffic condition, etc. to make a final decision for correction, not every deficiency needs to be corrected. Basically, the idea is: No matter what type of pavement (temporary pavement, detour, bridge approaches, or intermediate layer, etc.), the ride condition of the pavement needs to meet certain standard, especially for high speed roadway,. Central Office received lots of complaints from the public regarding the rough ride in the construction zone. I do not agree with your comments.

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Bob Dion
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Comments: The next to last paragraph of 330-12.4.5.4 deals with the final SP structural course layer, ending with 'the Engineer may require any deficiencies to be corrected within 72 hours before opening to traffic. You are requiring corrections be made within 72 hours of placement on an intermediate layer, in 330-12.4.5.3, suggest you use the same time in the final layer, 'within 72 hours of placement'. You may not be able to maintain the needed number of travel lanes if a lane is not opened to traffic until deficiencies are corrected.

Response:The sentence will be revised as follows:
When the final structural course is to be opened to traffic~~,~~ and the design speed is 55 mph or greater, if any defect is 3/8" or greater, the Engineer may require deficiencies to be corrected within 72 hours after opening to traffic.

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Paul J. Barnes
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Comments: The following is a suggested revision to the proposal.

The last sentence of this section, as written in the proposal, provides several specific areas and then opens it up to any area the Engineer agrees to. In order to simplify, the following is suggested. My suggested changes are in red below.

330-9.2.4 Correcting Defects: Before starting any rolling, check the surface; correct any irregularities; remove all drippings, fat sandy accumulations from the screed, and fat spots from any source; and replace them with satisfactory material. Do not skin patch. When correcting a depression while the mixture is hot, scarify the surface and add fresh mixture.
When the deficiency of the average spread rate measured in accordance with 330-2.2 exceeds the following maximum spread rate tolerance, address the deficient area in accordance with 330-12.5, ***unless otherwise directed by the Engineer****.*

(1) For pavement of a design thickness of 2-1/2 inches or more: +/- 50 lbs/sy.
(2) For pavement of a design thickness of less than 2-1/2 inches: +/- 25 lbs/sy.
(3) For open grade friction course: +/- 25 lbs/sy.

If the Engineer determines the pavement will satisfactorily perform its intended function without correction, the deficient area may be left in place.

Response:
Agree.

330-9.2.4 Correcting Defects: Before starting any rolling, check the surface; correct any irregularities; remove all drippings, fat sandy accumulations from the screed, and fat spots from any source; and replace them with satisfactory material. Do not skin patch. When correcting a depression while the mixture is hot, scarify the surface and add fresh mixture.

330-9.2.4 Correcting Defects: Before starting any rolling, check the surface; correct any irregularities; remove all drippings, fat sandy accumulations from the screed, and fat spots from any source; and replace them with satisfactory material. Do not skin patch. When correcting a depression while the mixture is hot, scarify the surface and add fresh mixture.

When the deficiency of the average spread rate for the total course pavement thickness *measured in accordance with 330-2.2 exceeds the following maximum spread rate tolerance, address the deficient area in accordance with 330-12.5* unless otherwise directed by the Engineer.

1. Structural Course (non-friction)
   (1) For pavement of a design thickness of 2-1/2 inches or more: +/- 50 lbs/sy.
   (2) For pavement of a design thickness of less than 2-1/2 inches: +/- 25 lbs/sy.
2. Friction course
   (1)*For open grade friction course: +/-* 15 *lbs/sy.*
   (2)For dense grade friction course: *+/-* 15 *lbs/sy.*

If *the Engineer determines that the pavement will satisfactorily perform its intended function without correction, the* defect area *may be left in place*.

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Conrad Campbell
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Comments: Question/Comment #1 According to the proposed 330-9.2.4 Correcting Defects corrective action is necessary when the design thickness tolerances are exceeded. For #1 and #2 of the three scenarios listed, is the design thickness supposed to be the single lift/layer thickness or is it the total thickness of all layers/lifts to be placed minus any open graded friction course? Question/Comment #2 If this is a single lift/layer thickness, the tolerances are too wide – 50lbs/sy is 20% of a 2 ½" lift. Under #2 25 lbs/sy would allow a ¼" tolerance for a lift as thin as 1". If this is intended to be a single lift/layer thickness, I suggest these tolerances coincide with the single lift/layer tolerances given in 330-2.2, which is 5%. Question/Comment #3 The same applies for OGFC – a ¼" tolerance for a lift that is only ¾" thick is too much. Question/Comment #4 If the over/under tolerances given in 330-9.2.4 are for the total thickness of all layers/lifts to be placed – it will be very difficult to calculate and track these overall thicknesses on a daily basis. Spreadrates are to be monitored during each day's production and different lifts/layers overlap. Calculating this would require an excessive amount of time and effort. Question/Comment #5 I suggest making 330-9.2.4 consistent with 330-2.2. By this I mean the tolerances set forth in 330-2.2 (+/- 5%) should be the same as the tolerances in 330-9.2.4. I suggest this for the following reasons: 1. There is no remedy for when the target spread rate is between the tolerances listed in 330-2.2 and 330-9.2.4. This appears to be an oversight. 2. The tolerances in 330-9.2.4 are too excessive. 3. If the design thicknesses listed in 330-9.2.4 are the total thickness of all layers/lifts to be placed, this specification is very difficult to comply with since making the necessary calculations would require an excessive amount of time and effort.

Response: The section will be revised as follows:

330-9.2.4 Correcting Defects: Before starting any rolling, check the surface; correct any irregularities; remove all drippings, fat sandy accumulations from the screed, and fat spots from any source; and replace them with satisfactory material. Do not skin patch. When correcting a depression while the mixture is hot, scarify the surface and add fresh mixture.

When the deficiency of the average spread rate for the total course pavement thickness *measured in accordance with 330-2.2 exceeds the following maximum spread rate tolerance, address the deficient area in accordance with 330-12.5.*

3. Structural Course (non-friction)

(3) For pavement of a design thickness of 2-1/2 inches or more: +/- 50 lbs/sy.

(4) For pavement of a design thickness of less than 2-1/2 inches: +/- 25 lbs/sy.

4. Friction course

(1)*For open grade friction course: +/- 15 lbs/sy.*

(2)For dense grade friction course: *+/- 25 lbs/sy.*

As an exception to the above, pavement outside the main roadway area (acceleration and deceleration lanes, crossovers, intersections) or any area which the Engineer determines that the pavement will satisfactorily perform its intended function without correction, the pavement may be left in place as approved by the Engineer.

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Ken Zinck
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Comments: Comments by Tonii Brush and john Burnette of District 5 Construction in Caps: 330-2.2 Minimum Process Control Testing Requirements: If the Contractor fails to maintain an average spread rate within the acceptable tolerance (+/- 5% of the target spread rate) for two consecutive SPREAD CHECKS (OR TEN CONSECUTIVE TRUCKS), When the deficiency of the average spread rate measured in accordance with 330-2.2 exceeds the following maximum spread rate tolerance, address the deficient area in accordance with 330-12.5. (1) For pavement of a design thickness of 2-1/2 inches or more: +/- 50 lbs/sy OF THE TARGET SPREAD RATE. (2) For pavement of a design thickness of less than 2-1/2 inches: +/- 25 lbs/sy OF THE TARGET SPREAD RATE. (3) For open grade friction course: +/- 25 lbs/sy OF THE TARGET SPREAD RATE.

Response: see the revised section listed in the above response.

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Robert Lopes
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Comments: 3300202 330-2.2 "If the Contractor fails to maintain an average spread rate within the acceptable tolerance (+/- 5% of the target spread rate) for two consecutive days the Engineer may elect to stop the construction operation at any time until the problem is resolved" 1. To make the spec more conisistent and fair in usage I would recomend using tonnage as the measurement, perhaps 4000 tons, instead of two consecutive days, since some days can see over 8000 tons and some days only see 30 tons placed. 330-9.2.4 "(1) For pavement of a design thickness of 2-1/2 inches or more: +/- 50 lbs/sy. (2) For pavement of a design thickness of less than 2-1/2 inches: +/- 25 lbs/sy. (3) For open grade friction course: +/- 25 lbs/sy. As an exception to the above, pavement outside the main roadway area (acceleration and deceleration lanes, crossovers, intersections) or any area which the Engineer determines that the pavement will satisfactorily perform its intended function without correction, the pavement may be left in place as approved by the Engineer." 1. Perhaps use the word Lift Thickness in place of design thickness, design thickness could be inturpreted as the thickness of the entire pavement system and may be a little confusing. Lift thickness is more clear & harded to dispute. 2. +/- 25 on FC-5 may be to much since FC-5 uses 1/2 inch stones allowing the contractor to to place the material at 1/2" will leave some locations with only a single layer of stone or less, perhaps +25/-10 would be better.

Response:

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Bill Sears
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Comments: Correcting Defects: For open graded friction course, you are giving +/- 25 lbs/sy. If FC 5 is normally 73 lbs/sy in South Florida, we must accept 48 lbs/sy (73 - 25 = 48). If FC 5 is placed at 48 lbs/sy, we will be experiencing pulling and tearing of the mat as the screed drags. Suggest placing the limit at 15% for all design thicknesses rather than 50 or 25 lbs/sy.

Response: Agree, the tolerance for FC-5 will be revised to + /- 15 lbs/sy .

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Christopher NeSmith
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Comments: 4 include three different scenarios. I would like to discuss all three; however, this comment refers to the third scenario. The requirement for FC-5 is too great. FC-5 is more sensitive to thickness than structural mix; however, this is a greater percent deviation allowed than the requirement for a 1.5" structural mix. The deviation requiring removal of FC-5 should be much less than 25 pounds. For example, for a limestone mix that has a target spread of 73 #/SY: at 24 below the target (acceptable the way proposed spec is written), the mix would be placed at 49#/sy which is less than 1/2". This is significant because there is aggregate in the mix that is 1/2". I believe the spread that would need to require removal needs to be closer to 60 #/SY for a mix such as this. I think using a percentage (such as 20% from target spread) would be better for FC-5 or use a smaller tolerance such as 15#/sy from the target.

Response: Agree with the comment.

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Chris Papastratis
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Comments: District 4 agrees with proposed specification revision. Proposed 330-9.2.4 requires “Engineer” to make a decision and again we agree. But, we recommend that CPAM clarify who decides and how approval is handled. Our preference would be for Project Administrator to initiate a Disposition of Defective Material (DDM) form, and have DCE and DMRE signatures in order to document decision process. If you would like to discuss further, please contact me or Mayur Patel (772-489-8510). Thank you.

Response: The CPAM will be revised accordingly when the proposed specification change is approved.

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Joe Meier
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Comments: We have reviewed the proposed specification changes and request some adjustments to clarify the FDOT's intent for field implementation.

1. Please reference the last paragraph of 330-2.2 wherein it states "*When the deficiency…address the deficient area in accordance with 330-12.5*."
   - By reference to 330-12.5, the only options available are to mill/remove and replace or pay reduction. If the deficiency is a low yield, then removal and replacement may be appropriate, or may not be if the area is a shoulder, etc. Further, if the deficiency is due to high yield, then it is ridiculous to expect the area be removed or pay reduction be applied. We recommend the language be revised to refer to 330-9.2.4 wherein an exception is allowed giving the Engineer discretion to leave in place.

     Proposed adjustment: "*When the deficiency of the average spread rate exceeds the maximum spread rate tolerance as specified in 330-9.2.4, address the deficient area in accordance with ~~330-12.5~~ 330-9.2.4.*"

2. In paragraph 330-12.4.5.3 the reference is added to include temporary pavement. We understand the intent of this added provision, however, we have some concerns with this simple addition of temporary pavement without further clarification.
   - In our experience the temporary pavement is often placed in varying widths and often times is placed less than a paver width. Temporary pavement placed less than 10 feet wide needs to be excluded from straight-edge consideration.
   - The temporary pavement is often not continuous through a project and traffic typically drives over temporary and existing and back and forth, etc. This situation is more pronounced when the temporary pavement is placed at a cross-slope different than that of the existing roadway, such as when an existing shoulder is incorporated into the MOT shift. The joints between existing pavement and the temporary need to be excluded from straight-edge consideration.
   - The requirement that the deficiency be corrected within 72 hours of placement should not apply to the evaluation of temporary pavement. Most times temporary pavement is placed in phases, long before traffic is actually switched onto that pavement, and a 72 hour requirement does not make sense if traffic is not yet on the temporary pavement.

3. The paragraph added to 330-12.4.5.4 notes "*deficiencies to be corrected within 72 hours before opening to traffic*." We assume that is supposed to be "***after*** *opening to traffic*".

Response: 1. Agree.

2. All the cases including MOT, site conditions, the traffic condition, etc. will be evaluated by the Engineer and he(she) has the authority to determine if correction is needed or not.

3. Agree.

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