

**OPSS.PROV 350 - CONSTRUCTION SPECIFICATION FOR  
CONCRETE PAVEMENT AND CONCRETE BASE**

Comments received by TCP			
Comment ID	Organization	Comment	Response
318	Brennan Paving & Construction Ltd.	In section 350.07.10, if the contractor elects to exercise the diamond grinding option to improve smoothness, the depth of the dowel bars at the transverse joints will be different after diamond grinding. Can the MTO adjust the specifications in a way that would make it possible for contractors to exercise the diamond grinding option without subjecting themselves to additional penalties and repairs for the depth of the dowel bars? For example, if the MTO can clarify a timeline in the contract for performing the MPI testing, the contractor can schedule the grinding operation accordingly. Alternatively, the MTO may adjust the dowel bar tolerances in a manner that would not penalize the contractor if diamond grinding is performed prior to the MPI testing.	Tolerances are provided for the depth of the dowels, and a pay factor of 1.0 is given if the percent within limits (PWL) is 90 or greater. This tolerance is, in part, to account for changes in the depth of the dowels due to correction of surface smoothness deficiencies.
319	Individual	1) 350.05.03 Concrete - Quote from Specification: .. the maximum allowable proportion by mass of the total cementing material for slag is 30%.	1) This requirement has not changed in this update to the specification. Contract test results show that RCP requirements can be met consistently with concrete

	<p>Comment: Specifying a maximum allowable amount of slag limits the ability of the producer to optimize the concrete properties and carbon footprint. It may also hinder the ability of obtaining the RCP requirements noted in this specification.</p> <p>2) 350.06.03 Diamond Grinding - Quote from Specification: When a diamond grinder is used, it shall be power-driven, self-propelled equipment specifically designed to grind and texture concrete surfaces. It shall be equipped with a grinding head with at least 50 diamond blades per 300 mm of shaft. The grinding head shall be at least 0.9 m wide. The grinder shall have the capability to adjust the depth, slope, and cross-fall to ensure that concrete is removed to the desired dimensions and uniformly feathered and textured across the width and length of the repair area.</p> <p>Comment: Wording recommended from IGGA: Grinding shall be performed using diamond blades mounted on a self-propelled machine designed for grinding and texturing pavement. The grinding equipment shall be at a minimum 15,909 pounds including the grinding head, and of a size that will grind a strip at least 0.91 metre wide. The effective wheelbase of the machine shall be no less than 3.66 metre. The effective wheelbase is defined as the distance from the front wheel</p>	<p>containing SCMs in the specified range. With higher levels of SCMs the risk of scaling is increased.</p> <p>2) Thanks for the comment, noted.</p> <p>3) Agree, a change has been made to the specification to state that all floats shall be made of magnesium.</p> <p>4) The intent is not that wet burlap be applied where curing compound has been applied, only where there is no curing compound. Agree, this could be clarified. A change has been made to the specification to state the following:</p> <p><i>When there is an interruption in placing concrete greater than 20 minutes, the surface of the concrete <u>where curing has not been applied, and concrete placed ahead of the concrete paving equipment shall be covered with wet burlap.</u></i></p> <p>5) Nothing in the specification precludes the contractor from following those guidelines regarding the spacing for different vibrators.</p> <p>6) The contractor is free to use any documents they wish in the development of the hot and cold weather temperature control plans.</p> <p>7) Joint cut-outs are done infrequently, to verify the MIT scan results.</p> <p>8) Management of excess material is specified in OPSS 180. Suggestions related to this specification should be brought to MTO's Environmental Policy Office (EPO).</p>
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		<p>face of previously placed concrete. The vibrators shall not come in contact with the base, subbase, underlying material, forms, tie bars, dowel bars or load transfer devices.          Comment: Should note the spacing on the vibrator's insertion will depend on the size and type of vibrator.</p> <p>6) 350.07.08.01 Cold Weather Protection – General          Comment: CSA A23.1 gives guidance on cold and hot weather concreting.</p> <p>7) 350.07.14.01 Joint Cut Out Procedure          Comment: Why do the destructive investigation when the MIT scan process could be used to inspect the orientation and location of the dowels?</p> <p>8) 350.07.18 Management of Excess Material - Quote from Specification: Management of excess material shall be according to the Contract Documents          Comment: Contaminated soils can be remediated in-place reducing excess soil and minimizing the projects carbon footprint. In-place stabilization also eliminates the potential hazard of hauling the contaminated material to another site.</p>	
325	Individual	The revision of the terms "horizontal alignment" and "vertical alignment" to "horizontal misalignment" and "vertical misalignment" to match the language in	The specification is specifying alignment requirements, not misalignment requirements. There may not be misalignment and we don't want to use two terms to refer to the same requirement.

		ASTM standard E3013 should be considered.	
326	Individual	<p>MPI testing should be completed prior final texturing and sealing of joints. These activities may impact the accuracy of the MPI results.</p> <p>MPI testing should also be performed prior to commencing shouldering operations, where possible. The slab thickness should be measurable at each tested joint to verify slab thickness dimension, where staging and other construction factors allow.</p>	The timing of testing depends on a number of factors and may be carried out prior to or after final texturing, sealing of joints, and shouldering operations.
327	Individual	The resumption of the old requirement of a 300-500m trial section for the demonstration of acceptable dowel bar position and alignment should be considered. Recent experience has demonstrated the practice of constructing a trial section permits contractors to fine-tune their dowel bar and/or concrete placement procedures prior to starting production paving. This benefits all parties and would help ensure a quality final product.	The contractor is free to do quality control testing using their own MIT scanner to ensure acceptable dowel position and alignment and the contractor can propose to do a joint-cut out to verify their QC measurements if they deem this necessary.
328	Individual	Consideration of other corrective measures, in addition to full-depth repairs, should be given, where technically appropriate, in circumstances where dowel bars with rejectable position and/or alignment are identified. The appropriate measures should be selected in consultation with the contractor, the contract administrator and MTO staff.	As specified in the general conditions, the contractor is free to propose alternative remediation measures, subject to approval by the Owner.

<p>329</p>	<p>ORBA (in consultation with CO and CAC)</p>	<p>Please find below, ORBA's comments in consultation(s) with Concrete Ontario and Cement Association of Canada, which may/or may not have been submitted individually:</p> <p>1)350.05.03 Concrete - Quote from Specification: .. the maximum allowable proportion by mass of the total cementing material for slag is 30%.</p> <p>Comment: Specifying a maximum allowable amount of slag limits the ability of the producer to optimize the concrete properties and carbon footprint. It may also hinder the ability of obtaining the RCP requirements noted in this specification.</p> <p>Comment: The max. 30% slag requirement is a hindrance in achieving the RCP requirements outlined in 350.08.03.04.03 Rapid Chloride Permeability.</p> <p>Comment: This is counterproductive and blends prescriptive and performance requirements.</p> <p>Comment: While the minimum design strength exceeds CSA A23.1 requirements for concrete pavements, a class of exposure is not indicated. Recommendation is to include Class C-2 exposure (I.e. 35MPa Class C-2) which is in line with all current OPSS.MUNI specs.</p>	<p>1) Some of these comments were submitted individually, please see response above to comment 319.</p> <p>MTO uses OPSS specifications to specify concrete for ministry infrastructure. MTO does not specify CSA A23.1 exposure classes which cover a wide range of types of concrete construction, including many components with a less severe exposure environment, shorter service life, and which are less critical such as patios and pool decks.</p> <p>2) This comment was submitted individually, please see response above to comment 319.</p> <p>3) This comment was submitted individually, please see response above to comment 319.</p> <p>4) This comment was submitted individually, please see response above to comment 319.</p> <p>5) This comment was submitted individually, please see response above to comment 319.</p> <p>6) This comment was submitted individually, please see response above to comment 319.</p> <p>7) This comment was submitted individually, please see response above to comment 319.</p> <p>8) This comment was submitted individually, please see response above to comment 319.</p>
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		<p>such as curing compound, poly and wet burlap as options for this clause.</p> <p>5) 350.07.04 Consolidation Quote from Specification: Concrete shall be thoroughly consolidated against and along the face of all forms and into the face of previously placed concrete. The vibrators shall not come in contact with the base, subbase, underlying material, forms, tie bars, dowel bars or load transfer devices. Comment: Should note the spacing on the vibrator's insertion will depend on the size and type of vibrator.</p> <p>6) 350.07.08.01 Cold Weather Protection – General Comment: CSA A23.1 gives guidance on cold and hot weather concreting.</p> <p>7) 350.07.14.01 Joint Cut Out Procedure Comment: Why do the destructive investigation when the MIT scan process could be used to inspect the orientation and location of the dowels?</p> <p>8) 350.07.18 Management of Excess Material Quote from Specification: Management of excess material shall be according to the Contract Documents Comment: Contaminated soils can be remediated in-place reducing excess soil and minimizing the projects carbon footprint. In-place stabilization also</p>	
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<p>312</p>		<p><b>350.05.03 Concrete</b>          The max. 30% slag requirement is a hindrance in achieving the RCP requirements outlined in <b>350.08.03.04.03 Rapid Chloride Permeability</b>. This is counterproductive and blends prescriptive and performance requirements.</p> <p>While the minimum design strength exceeds CSA A23.1 requirements for concrete pavements, a class of exposure is not indicated. Recommendation is to include <b>Class C-2 exposure</b> (i.e. 35MPa Class C-2) which is in line with all current OPSS.MUNI specs.</p> <p><b>350.07.03.01 General</b>  <i>When there is an interruption in placing concrete greater than 20 minutes, the surface of the concrete <b>shall be covered with wet burlap</b>.</i>          Since concrete pavements are typically cured with curing compound, is the wet burlap being applied on top of the curing compound? If the concrete pavement is already cured using curing compound, is there even a need to put wet burlap on top? In addition, the burlap needs to be presoaked for 24 hours, meaning it would have to be available at all times on site in case there is an interruption.          Recommendation is to include alternative</p>	<p>These comments duplicate comment 329 and 312, please see responses above to those comments.</p>

		protection methods such as curing compound, poly and wet burlap as options for this clause.	
313		<p><b>366.05.04 Concrete</b></p> <p>b) The minimum 28-Day concrete compressive strength shall be <b>30 MPa</b>. This is not consistent with OPSS.PROV 350 requirements of 35 MPa. Both should include Class C-2 exposure as well.</p>	<p>This comment relates to OPSS 366 and OPSS 350. Agree, the same 28-day strength should be specified for both new construction and repairs. A change has been made to OPSS 366 to increase the minimum 28-day compressive strength from 30 to 35 MPa to be consistent with OPSS 350 strength requirements.</p> <p>Please see response above to comment 329, regarding exposure classes.</p>

Comments received by email			
Number	Organization	Comment	Response