

Administration and Inspection Activities for Sealing or Resealing of Joints and Cracks in Concrete Pavement and Concrete Base

(As Specified in OPSS 369)

369.01 SCOPE

This CAIS covers the construction administration and inspection requirements for ~~S~~sealing ~~or~~and ~~R~~resealing of ~~j~~oints and ~~c~~cracks up to 25 mm in width in ~~C~~concrete ~~P~~pavement and ~~C~~concrete ~~B~~base as specified in OPSS 369, ~~November 2008~~April 2023.

369.02 REFERENCES

This CAIS refers to the following standards, specifications, or publications:

Ontario Provincial Standard Specifications, Construction:

OPSS 350 Concrete Pavement and Concrete Base

OPSS 366 Repairing Concrete Pavement and Concrete Base

OPSS 369 Sealing ~~and~~or Resealing of Joints and Cracks in Concrete Pavement and Concrete Base

OPSS 929 Abrasive Blast Cleaning - Concrete Construction

Ontario Provincial Standard Specifications, Material:

OPSS 1212 Hot Poured Rubberized Asphalt Joint Sealing Compound

OPSS 1350 Concrete - Materials and Construction

Construction Administration and Inspection Specifications (CAIS):

CAIS 350 Concrete Pavement and Concrete Base

CAIS 366 Repairing Concrete Pavement and Concrete Base

CAIS 929 Abrasive Blast Cleaning – Concrete Construction

CAIS 1212 Hot Poured Rubberized Asphalt Joint Sealing Compound

CAIS 1350 Concrete – Materials and Construction

369.03 DEFINITIONS

For the purpose of this CAIS, the definitions shall be as specified in OPSS 369.

369.04 DESIGN AND SUBMISSION REQUIREMENTS

369.04.01 Submission Requirements

369.04.01.01 Joint Sealing Compound

Administrative Activities:

<u>1</u>	<u>:</u>	<u>Check that the joint sealing compound product information is received prior to the joint sealing operations.</u>	<u>:</u>
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369.05 MATERIALS

369.05.01 Backer Rods

Inspection Activities:

1	M	Check compliance of material as specified for hot poured rubberized asphalt joint sealing compound and backer rods.	100%
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369.05.02 Joint Sealing Compound

Inspection Activities:

<u>1</u>	<u>M</u>	<u>Check compliance of material as specified for hot poured rubberized asphalt joint sealing compound as specified in OPSS 1212. Check that the joint sealing compound used is acceptable for the application, according to the Categorical Use Description of MTO Designated Sources for Materials (DSM) list # 3.20.45 Joint Sealant, Rubberized Asphalt, Hot Poured.</u>	<u>100%</u>
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369.06 EQUIPMENT

369.06.01 Air Compressor

Inspection Activities:

1	M	Check that equipment <u>air compressor</u> to be used meets the equipment requirements <u>specified</u> .	100%
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369.06.02 Heating and Mixing Kettle for Joint Sealing Compound

Inspection Activities:

<u>1</u>	<u>M</u>	<u>Check that heating and mixing kettle for joint sealing compound to be used meets the requirements specified.</u>	<u>100%</u>
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369.06.03 Hot Compressed Air Lance

Inspection Activities:

<u>1</u>	<u>M</u>	<u>Check that hot compressed Air Lance to be used meets the requirements specified.</u>	<u>100%</u>
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369.06.04 Sawcutting Equipment

Inspection Activities:

<u>1</u>	<u>M</u>	<u>Check that sawcutting equipment to be used meets the requirements specified.</u>	<u>100%</u>
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369.06.05 Thermometer

Inspection Activities:

<u>1</u>	<u>M</u>	<u>Check that the thermometer to be used meets the requirements specified.</u>	<u>100%</u>
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369.07 CONSTRUCTION

369.07.01 General

Inspection Activities:

<u>1</u>	<u>-</u>	<u>Identify and record the joints and cracks requiring to be sealed or resealed according to the Contract Documents and specified in the field.</u>	<u>100%</u>
<u>2</u>	<u>-</u>	<u>Determine the repair method if cracks or joints exceeding the maximum repair width in consultation with MTO regional Engineering-Geotechnical Office and regional Quality Assurance Office.</u>	<u>100%</u>

369.07.02 Operational Constraints

Inspection Activities:

<u>4</u>	<u>-</u>	<u>Identify and record the joints and cracks requiring to be filled sealed or resealed according to the contract documents and specified in the field.</u>	<u>100%</u>
<u>2</u>	<u>-</u>	<u>Determine the repair method if cracks and joints exceeding the maximum repair width.</u>	<u>100%</u>
<u>31</u>	<u>M</u>	<u>Check that no sealantcracks isare installed until sealed after all grinding, milling or grooving and milling operations are completed. Joints can be sealed prior to or after grinding, milling or grooving operations.</u>	<u>100%</u>

<u>42</u>	-	For new concrete, check that <u>sealant joint sealing compound</u> is not placed until concrete has cured for <u>the specified a minimum specified-number of days-requirement</u> .	100%
<u>53</u>	M	<u>Check that joint sealing compound is not placed when the ambient air temperature or pavement surface temperature are less than the specified temperature.</u>	<u>100%</u>
<u>64</u>	M	<u>Check that all joints and cracks are sealed within the specified time period after completion of water flushing.</u>	<u>100%</u>
<u>557</u>	-	Check that cracks and joints are kept in a dry condition for <u>a-the</u> minimum specified period prior to <u>sealant joint sealing compound</u> installation.	25%
<u>66</u>	M	Check that sealant is not placed when the ambient air temperature and pavement surface temperature are less than specified temperature.	100%
<u>876</u>	-	<u>For newly constructed joints, check that the joints are sealed within the same calendar year in which they are constructed.</u>	<u>50%</u>
<u>987</u>	-	<u>For crack and joint resealing, check that the cracks and joints are resealed within the same calendar year in which the existing sealant is removed.</u>	<u>50%</u>

369.07.03 Removal of Existing Sealant and Seals

Inspection Activities:

1	-	Check that all existing sealant <u>-and</u> seals, <u>bond breaker tapes, and backer rods</u> are removed without damaging the adjacent joint or crack faces.	50%
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369.07.04 Sawcutting

369.07.04.01 Reservoir

Inspection Activities:

1	-	<u>For resealing joints or cracks with a reservoir cut, -Checkcheck that saw cutting equipment is used to create a reservoir with the dimension specified, and that routers are not used, for cutting existing joints when it is required.</u>	50%
2	-	For resealing cracks or joints, if the existing reservoir meets the specified requirement and is determined to be acceptable, saw-cutting is not required but abrasive blast cleaning is required. <u>Check that the cleaning is according to the Joint or Crack Cleaning clause.</u>	100%
3	-	Check the shape factor is 1H:1V for hot poured rubberized <u>joint sealing compoundsealant</u> .	50%
<u>4</u>	-	<u>When sawcutting existing cracks and joints, Check that the least amount of concrete is removed to meet the specified requirements-as specified.</u>	<u>50%</u>

369.07.0504.02 Cutting New Longitudinal and Transverse Joints

Inspection Activities:

1	-	Check that saw-cutting equipment is used for creating the new joints, <u>and that routers shall</u> are not be used. <u>Note: For new joint cutting, there shall be no reservoir cut and no backer rod.</u>	100%
<u>2</u>	-	<u>Record the timing of initial sawcutting operations including the starting time for transverse joints, the starting time for longitudinal joints and time of completion.</u>	<u>100%</u>
<u>3</u>	-	<u>Check that sawcutting has not caused any ravelling or damaging of the concrete surface.</u>	<u>25%</u>
<u>234</u>	-	Check that saw-cutting of the new joints meets the specified-dimension <u>specified in the Contract Documents.</u> requirements, <u>tie-Tie</u> bars or dowel bars shall not be cut. <u>Record any observed effluent that contains evidence of tie bars or dowel bars being sawcut.</u>	<u>40025</u> %

369.07.0605 Joint or Crack Cleaning of Joints

Inspection Activities:

1	M	Check that joints <u>and cracks</u> are being cleaned <u>at a minimum, at each of the specified times.</u> immediately after saw cutting operations and after final texturing. Cleaning joints consists of flushing the joints with water in one direction. All debris should be removed from the joints.	100%
<u>23</u>	<u>M</u>	<u>Check that joints and cracks are water flushed in one direction to remove slurry, effluent and debris.</u>	<u>100%</u>
<u>43</u>	<u>M</u>	<u>Check that all slurry, effluent and debris are removed from the joints and cracks at random locations. Use an instrument that can reach to the bottom of the sawcut to determine if any slurry, effluent or debris is present. If slurry, effluent and debris are found, direct the Contractor to clean.</u>	<u>100%</u>
<u>54</u>	<u>M</u>	<u>Immediately prior to sealing operation, Check that all new or existing joint and crack faces are abrasive blast cleaned according to OPSS 929, and then blown clean and dried using a hot compressed air lance prior to the sealing operation.</u> <u>Additional administrative and inspection activities shall be according to CAIS 929.</u>	<u>100%</u>

<u>65</u>	<u>M</u>	<u>For resealing joints and cracks, Check that all existing joint sealing compound is removed. Check that the joints and cracks are free of slurry, effluent and debris.</u>	<u>100%</u>
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Administrative Activities:

<u>12</u>	<u>M</u>	<u>If additional methods of cleaning are required, review and notify the Contractor of approval of the proposed method.</u>	<u>100%</u>
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369.07.07 — Abrasive Blast Cleaning of Joints and Cracks

Inspection Activities:

<u>1</u>	<u>M</u>	<u>Check that joint and crack faces are abrasive blast cleaned immediately prior to sealing operations.</u> <u>• Administered according to CAIS 929.</u>	<u>100%</u>
<u>2</u>	<u>M</u>	<u>Check that joint and crack and adjacent pavement surface is then be blown clean and dried using a hot air lance.</u>	<u>50%</u>

369.07.0068 Backer Rod Installation

Inspection Activities:

<u>1</u>	<u>M</u>	<u>Backer rod installation is required when a reservoir cut is used. Check that backer rod is installed immediately and uniformly after cleaning and drying of the joints and cracks and before sealant joint sealing compound installation.</u>	<u>100%</u>
<u>2</u>	<u>-</u>	<u>Check that backer rod meets the specified size, shape factor, and handling and is installed as specified requirement.</u>	<u>100%</u>
<u>3</u>	<u>M</u>	<u>Check that the backer rod is inserted uniformly to the required depth to achieve the require shape factor</u>	<u>100%</u>

369.07.097 Sealant Joint Sealing Compound Installation

369.07.07.01 General

Inspection Activities:

<u>1</u>	<u>:</u>	<u>Check that transverse joints and cracks are filled prior to longitudinal joints and cracks.</u>	<u>50%</u>
<u>2</u>	<u>:</u>	<u>Check that joint sealing compound is installed according to the manufacturer's recommendations and the specified requirements as specified.</u>	<u>50%</u>

369.07.07.02 Joint Sealing Compound Preparation and Installation

Administrative Activities:

1	-	Check that <u>notification is received 24 hours prior to the charging of the empty kettle with joint sealing compound</u> the timing of charging of the kettle with joint sealing compound is received within the specified time.	100% :
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Inspection Activities:

<u>1</u>	:	<u>Check that the kettle is empty prior to initial charging with the joint sealing compound.</u>	<u>100%</u> %
<u>2</u>	:	<u>Check that the joint sealing compound is slowly melted with constant agitation until it is in a lump-free, free-flowing state, and within the application temperature range recommended by the manufacture for application. Record the temperature of the joint sealing compound.</u>	<u>25%</u>
<u>3</u>	M	Check that joints and cracks are cleaned and <u>drydried</u> prior to <u>placement of joint sealing compound</u> .	100%
<u>2</u>	-	Check that transverse joints and cracks are filled prior to longitudinal joints and cracks.	50%
<u>3</u>	-	Check that sealant is installed according to the manufacturer's recommendations and the specified placement requirement.	50%
<u>4</u>	:	<u>Check that the joint sealing compound is placed in the joint and crack as specified.</u>	<u>50%</u>
<u>5</u>	M	Upon cooling, check that the <u>sealant joint sealing compound</u> installation meets the specified sealant recess depth requirements. If it is below the required recess depth, check the additional <u>joint sealing compound sealant</u> is placed within <u>at</u> the specified timeline and placement requirement.	100%
<u>6</u>		<u>Check that the joint sealing compound is fully adhered to the concrete on both sides of the joint or crack.</u>	<u>25%</u>
<u>7</u>	:	<u>Check that joint sealing compound, damaged by construction traffic or by the contractor's operations (if any), is removed and replaced.</u>	<u>100%</u>
<u>8</u>	-	Check that any spilled and excess sealant <u>joint sealing compound materials</u> ins the joint and cracks are removed immediately, and the pavement surface is cleaned.	100%
<u>6</u>	-	Check that damaged sealant by construction traffic or by the contractor's operations (if any) is removed and replaced.	100%
<u>9</u>	:	<u>Check that unused heated joint sealing compound is not used on subsequent days.</u>	<u>50%</u>

369.07.08 Materials Sampling and Testing

369.07.08.01 Sampling of Hot Poured Rubberized Joint Sealing Compound

Inspection Activities:

<u>1</u>	<u>:</u>	<u>Check with the regional Quality Assurance Office whether samples of the joint sealing compound are required. If required, Check and witness sampling, handling, storage, labelling, packaging, and delivery of samples for testing as specified. Check that the joint sealing compound is sampled from the heating kettle.</u>	<u>100%</u>
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369.07.08.02 Coring for Cleaning and Sealing Inspection

Inspection Activities:

<u>1</u>	<u>:</u>	<u>After sealing operations are complete, Check with the regional Quality Assurance Office determine if whether cores may be required should to should be taken at joint or crack locations to evaluate the acceptability of the joint or crack cleaning and/or sealing. Upon request, Check and witness that the cores isare taken as specified. Additional core may be requested as necessary.</u>	<u>100%</u>
<u>2</u>	<u>:</u>	<u>If the core samples show that the joint or crack cleaning or sealing and/or seaof the joints or cracks is not acceptableing are not met, direct the Contractor additional to collect additional cores, in consultation with the regional Quality Assurance Office may be requested as necessary.</u> <u>Determine the extent and locations of the improperly cleaned and/or improperly sealed joints or cracks.</u>	<u>100%</u>
<u>32</u>	<u>:</u>	<u>Check that each sample hole is filled as specified. Additional administrative and inspection activities shall be according to CAIS 1350.</u>	<u>100%</u>

369.07.09 Management of Excess Material

Inspection Activities:

<u>1</u>	<u>:</u>	<u>Check that excess materials are managed as specified.</u>	<u>25%</u>
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369.08 QUALITY ASSURANCE

369.08.01 Acceptance of Hot Poured Rubberized Joint Sealing Compound

Administrative Activities:

<u>1</u>	<u>:</u>	<u>When hot poured rubberized joint sealing compound is tested, Check and Review the test results as specified in OPSS 1212.</u> <u>Additional administrative and inspection activities shall be according to CAIS 1212.</u>	<u>:</u>
<u>2</u>	<u>:</u>	<u>Notify the Contractor of unacceptable hot poured rubberized joint sealing compound.</u>	<u>:</u>

Inspection Activities:

<u>4</u>	<u>-</u>	<u>Upon request, the Contractor will provide a sample of the sealant for testing during the process of sealant installation. Check and witness sampling, handling, storage, packing and delivery of samples for testing as specified in OPSS 369 and OPSS 1212.</u>	<u>100%</u>
<u>1</u>	<u>:</u>	<u>Check that all unacceptable joint sealing compound is removed and replaced.</u>	<u>100%</u> <u>:</u>
<u>2</u>	<u>-</u>	<u>Check for defects or damage when the sealant installation is completed.</u>	<u>100%</u>

369.08.02 Acceptance of Cleaning and Sealing

Administrative Activities:

<u>1</u>	<u>:</u>	<u>Notify the Contractor of any areas of rejected work due to unacceptable cleaning and/or sealing of the joints or cracks.</u>	<u>:</u>
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Inspection Activities:

<u>1</u>	<u>:</u>	<u>During and after sealing operations, Check the joints and cracks, including any cores taken at joint or crack locations, to evaluate the acceptability of the joint and crack cleaning and sealing.</u>	<u>100%</u>
<u>2</u>	<u>:</u>	<u>Identify the rejected joints or cracks.</u>	<u>100%</u>
<u>3</u>	<u>:</u>	<u>Check that the joint sealing compound for all rejected work is removed and replaced.</u>	<u>100%</u>

369.09 MEASUREMENT FOR PAYMENT

Administrative Activities:

1	-	Measurement for payment shall be as specified.	-
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369.10 BASIS FOR PAYMENT

Administrative Activities:

1	-	Basis for payment shall be as specified.	-
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WARRANT: Always with OPSS 369, Construction Specification for Sealing or Resealing of Joints and Cracks in Concrete Pavement and Base.