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## **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 sealing and resealing of joints and cracks up to 25 mm in width in concrete pavement and concrete base as specified in OPSS 369, 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 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:

1	-	Check that the joint sealing compound product information is received prior to the joint sealing operations.	-
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**369.05 MATERIALS**

**369.05.01 Backer Rods**

Inspection Activities:

1	M	Check compliance of material as specified for backer rods.	100%
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**369.05.02 Joint Sealing Compound**

Inspection Activities:

1	M	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.	100%
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**369.06 EQUIPMENT**

**369.06.01 Air Compressor**

Inspection Activities:

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

Inspection Activities:

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

Inspection Activities:

1	M	Check that hot compressed air lance to be used meets the requirements specified.	100%
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**369.06.04 Sawcutting Equipment**

Inspection Activities:

1	M	Check that sawcutting equipment to be used meets the requirements specified.	100%
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**369.06.05 Thermometer**

Inspection Activities:

1	M	Check that the thermometer to be used meets the requirements specified.	100%
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**369.07 CONSTRUCTION**

**369.07.01 General**

Inspection Activities:

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

**369.07.02 Operational Constraints**

Inspection Activities:

1	M	Check that cracks are sealed after all grinding, milling or grooving operations are completed. Joints can be sealed prior to or after grinding, milling or grooving operations.	100%
2	-	For new concrete, check that joint sealing compound is not placed until concrete has cured for the specified minimum number of days.	100%
3	M	Check that joint sealing compound is not placed when the ambient air temperature or pavement surface temperature are less than the specified temperature.	100%
4	M	Check that all joints and cracks are sealed within the specified time period after completion of water flushing.	100%
5	-	Check that cracks and joints are kept in a dry condition for the minimum specified period prior to joint sealing compound installation.	25%
6	-	For newly constructed joints, check that the joints are sealed within the same calendar year in which they are constructed.	50%

7	-	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.	50%
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**369.07.03 Removal of Existing Sealant and Seals**

Inspection Activities:

1	-	Check that all existing sealant, seals, bond breaker tapes, and backer rods 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	-	For resealing joints or cracks with a reservoir cut, check that sawcutting equipment is used to create a reservoir with the dimension specified, and that routers are not used.	50%
2	-	For resealing cracks or joints, if the existing reservoir meets the specified requirement and is determined to be acceptable, sawcutting is not required but cleaning is required. Check that the cleaning is according to the Joint or Crack Cleaning clause.	100%
3	-	Check the shape factor is 1H:1V for hot poured rubberized joint sealing compound.	50%
4	-	When sawcutting existing cracks and joints, Check that the least amount of concrete is removed as specified.	50%

**369.07.04.02 New Longitudinal and Transverse Joints**

Inspection Activities:

1	-	Check that sawcutting equipment is used for creating the new joints, and that routers are not used.	100%
2	-	Record the timing of initial sawcutting operations including the starting time for transverse joints, the starting time for longitudinal joints and time of completion.	100%
3	-	Check that sawcutting has not caused any ravelling or damaging of the concrete surface.	25%
4	-	Check that sawcutting of the new joints meets the dimension specified in the Contract Documents. Tie bars or dowel bars shall not be cut. Record any observed effluent that contains evidence of tie bars or dowel bars being sawcut.	25%

### 369.07.05 Joint or Crack Cleaning

Inspection Activities:

1	M	Check that joints and cracks are being cleaned at a minimum, at each of the specified times.	100%
2	M	Check that joints and cracks are water flushed in one direction to remove slurry, effluent and debris.	100%
3	M	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.	10%
4	M	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. Additional administrative and inspection activities shall be according to CAIS 929.	100%
5	M	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.	100%

Administrative Activities:

1	M	If additional methods of cleaning are required, review and notify the Contractor of approval of the proposed method.	100%
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### 369.07.06 Backer Rod Installation

Inspection Activities:

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

### 369.07.07 Joint Sealing Compound Installation

#### 369.07.07.01 General

Inspection Activities:

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

**369.07.07.02 Joint Sealing Compound Preparation and Installation**

Administrative Activities:

1	-	Check that notification is received 24 hours prior to the charging of the empty kettle with joint sealing compound.	-
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Inspection Activities:

1	-	Check that the kettle is empty prior to initial charging with the joint sealing compound.	100%
2	-	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.	25%
3	M	Check that joints and cracks are clean and dry prior to placement of joint sealing compound.	100%
4	-	Check that the joint sealing compound is placed in the joint and crack as specified.	50%
5	M	Upon cooling, check that the joint sealing compound installation meets the specified recess depth requirements. If it is below the required recess depth, check the additional joint sealing compound is placed within the specified timeline and placement requirement.	100%
6		Check that the joint sealing compound is fully adhered to the concrete on both sides of the joint or crack.	25%
7	-	Check that joint sealing compound, damaged by construction traffic or by the contractor's operations (if any), is removed and replaced.	100%
8	-	Check that any spilled and excess joint sealing compound is removed immediately, and the pavement surface is cleaned.	100%
9	-	Check that unused heated joint sealing compound is not used on subsequent days.	50%

**369.07.08 Materials Sampling and Testing**

**369.07.08.01 Sampling of Hot Poured Rubberized Joint Sealing Compound**

Inspection Activities:

1	-	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.	100%
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**369.07.08.02 Coring for Cleaning and Sealing Inspection**

Inspection Activities:

1	-	After sealing operations are complete, Check with the regional Quality Assurance Office whether cores should be taken at joint or crack locations to evaluate the acceptability of the joint or crack cleaning and/or sealing. If required, Check and Witness that the cores are taken as specified.	100%
2	-	If the core samples show that the cleaning or sealing of the joints or cracks is not acceptable, direct the Contractor to collect additional cores, in consultation with the regional Quality Assurance Office.  Determine the extent and locations of the improperly cleaned and/or improperly sealed joints or cracks.	100%
3	-	Check that each sample hole is filled as specified. Additional administrative and inspection activities shall be according to CAIS 1350.	100%

**369.07.09 Management of Excess Material**

Inspection Activities:

1	-	Check that excess materials are managed as specified.	25%
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**369.08 QUALITY ASSURANCE**

**369.08.01 Acceptance of Hot Poured Rubberized Joint Sealing Compound**

Administrative Activities:

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

Inspection Activities:

1	-	Check that all unacceptable joint sealing compound is removed and replaced.	100%
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**369.08.02 Acceptance of Cleaning and Sealing**

Administrative Activities:

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

1	-	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.	100%
2	-	Identify the rejected joints or cracks.	100%
3	-	Check that the joint sealing compound for all rejected work is removed and replaced.	100%

**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.