CONSTRUCTION SPECIFICATION FOR DECK JOINT ASSEMBLIES, PREFORMED SEALS, JOINT FILLERS, JOINT SEALS, JOINT SEALING COMPOUNDS, AND WATERSTOPS - STRUCTURES

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920.01 SCOPE

This specification covers the installation and modification of deck joint assemblies and the placing of preformed seals, joint fillers, joint seals, joint sealing compounds, and waterstops.

920.01.01 Specification Significance and Use

This specification has been developed for use in provincial- and municipal-oriented Contracts. The administration, testing, and payment policies, procedures, and practices reflected in this specification correspond to those used by many municipalities and the Ontario Ministry of Transportation.

Use of this specification or any other specification shall be according to the Contract Documents.

920.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

920.02 REFERENCES

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

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

Ontario Provincial Standard Specifications, Construction

OPSS 501	Compacting
OPSS 904	Concrete Structures
OPSS 914	Waterproofing Bridge Decks with Hot Applied Asphalt Membrane
OPSS 922	The Installation of Bearings
OPSS 929	Abrasive Blast Cleaning - Concrete Construction

Ontario Provincial Standard Specifications, Material

OPSS 1010	Aggregates - Base, Subbase, Select Subgrade, and Backfill Material
OPSS 1204	Polyvinyl Chloride Waterstops
OPSS 1210	Deck Joint Assemblies
OPSS 1212	Hot Poured Rubberized Asphalt Joint Sealing Compound
OPSS 1302	Water
OPSS 1308	Joint Filler In Concrete
OPSS 1350	Concrete - Materials and Production

ASTM International

C 494M-99a	Standard Specification for Chemical Admixtures for Concrete
C 1017M-98	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
D 1056-00	Standard Specification for Flexible Cellular Materials, Sponge or Expanded Rubber

920.03 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Armouring Angle means as defined in OPSS 1210.

Bearing means as defined in OPSS 922.

Block-out means a cavity created to permit the installation of deck joint assemblies.

Elastomer means as defined in OPSS 1210.

Engineer means a professional engineer licensed by the Professional Engineers Ontario to practice in the Province of Ontario.

Joint Seal means ethyl vinyl acetate foam.

Joint Sealing Compound means a hot applied material, that is not preformed, used to seal a joint.

Nosing Angle means as defined in OPSS 1210.

Preformed Seal means as defined in OPSS 1210.

Product Drawings means drawings prepared by the manufacturer that have been approved by the Owner for use with the product.

Trial Installation means an installation designated by the Owner for the purpose of proving the performance of a particular joint system.

Upturn means an upward vertical change in direction of the seal at the gutter lines.

920.04 DESIGN AND SUBMISSION REQUIREMENTS

920.04.01 Design Requirements

920.04.01.02 Deck Joint Assembly Working Drawings

920.04.01.02.01 Drawing Content

The deck joint assembly Working Drawings shall clearly indicate the following:

a) Material properties.

b) Dimensions.

c) Connection attachments.

d) Injection hose system components and name of approved injection company.

e) Shop, field, and stage construction splices.

f) Fasteners and accessories.

g) Installation details.

h) Individual alpha-numeric identification number for each stage of installation.

i) Handling procedures including lifting points.

j) Manufacturer's recommended installation procedure for achieving the required bolt tension specified in the Contract Documents.

The deck joint assembly Working Drawings shall be according to the Contract Documents and product drawings and shall bear the seal and signature of an Engineer with 5 years experience in either or both of the fabrication or installation of expansion joints certifying conformance with the Contract Documents and product drawings.

920.04.01.02.01.01 Deck Joint Assembly Modification

In addition to the requirements of the previous clause, where a deck joint assembly is to be placed over an existing joint, the deck joint assembly Working Drawings shall show all connection details between the new and the existing deck joint assemblies.

920.04.02 Submission Requirements

920.04.02.01 Notice of Manufacturer

The Contractor shall notify the Contract Administrator, in writing, of the name and address of the manufacturer of the deck joint assembly within 30 Days of the Contract award.

920.04.02.02 Submissions of Drawings

Five sets of the deck joint assembly Working Drawings and 2 copies of the product drawings shall be submitted to the Contract Administrator 3 weeks prior to fabrication.

920.04.02.02.01 Return of Submissions

Two copies of the deck joint assembly Working Drawings to be returned shall be marked as one of the following:

a) Stamped with the wording that allows for permission to construct.

In this case, work can commence on receipt of the drawing by the Contractor. A copy of these drawings shall be available at the site prior to and during construction.

b) Stamped with the wording that allows for permission to construct as noted.

In this case, work can start on receipt of the drawings by the Contractor. The drawings shall be updated as noted and shall have a stamp affixed that is signed by an Engineer stating the drawings have been revised according to the noted comments. A copy of the stamped updated drawings shall be available at the site prior to and during construction.

c) Showing only required changes.

In this case, the drawings shall be updated as required and the submission process repeated.

920.04.02.03 Manufacturer’s Installation Procedures

Two copies of the manufacturer's recommended installation procedures for the deck joint assemblies and data sheets shall be submitted to the Contract Administrator, 7 Days prior to the application of the hot applied joint sealing compound and trial installations of the deck joint assembly.

920.04.02.04 Cold Weather Protection for Epoxy Injection

One week prior to the commencement of epoxy injection of the deck joint assembly in cold weather, a description of the method to be used to control the concrete temperature shall be submitted to the Contract Administrator. The submission shall be accompanied by samples of insulation when requested by the Contract Administrator. The description shall contain the following information:

a) Weather conditions for which the description applies.

b) Type of insulation, R value, and number of layers to be used.

c) Description of housing and heating.

d) Method of protection employed to effectively maintain the concrete temperature above 5 °C in the expansion joint blockout during the injection and continuously for a period of 48 hours after epoxy injection.

920.04.02.05 Field Dimensions

Prior to the commencement of fabrication of the deck joint assembly, the Contractor shall submit drawings to the Contract Administrator indicating the actual dimensions at the existing deck joint assembly locations.

920.05 MATERIALS

920.05.01 Preformed Seals

Preformed seals shall be according to OPSS 1210.

920.05.02 Joint Fillers

Joint fillers shall be according to OPSS 1308.

920.05.03 Joint Seals and Joint Sealing Compounds

Joint seals shall be according to ASTM D 1056 for ethyl vinyl acetate foam. The top surface of the ethyl vinyl acetate foam shall be embossed with the manufacturer's name and product identification.

Joint sealing compounds shall be according to OPSS 1212.

920.05.04 Lubricant

The lubricant shall be water soluble, non-adhesive, and non-staining. Lubricants used between the steel components and preformed seals shall not be deleterious to the joint materials or the surrounding concrete.

920.05.05 Deck Joint Assemblies

Deck joint assemblies shall be according to OPSS 1210.

920.05.06 Concrete

Concrete in which the deck joint assemblies are embedded shall be according to OPSS 1350 with a nominal minimum 28-Day compressive strength of 30 MPa, except as amended below:

a) The nominal maximum size of coarse aggregate for concrete shall be 13.2 mm.

b) Superplasticized concrete shall be used in expansion joints with cross slopes of 4% or less.

The Contractor shall supply a certificate from the manufacturer of the superplasticizer verifying that the superplasticizer meets the following requirements:

i. Is according to ASTM C 494M and C 1017M.
ii. Contains no chlorides.
iii. Is compatible with the cementing materials and all other materials in the concrete.

c) The concrete shall have an initial slump of 40 mm $\pm$ 20 mm. This slump shall be increased when required by the addition of the superplasticizer at the site according to the written instructions of the superplasticizer manufacturer. After the addition of the superplasticizer, the air content shall be 8.0% $\pm$ 1.5% and the slump shall be 150 mm $\pm$ 30 mm.

920.05.07 Bonding Agent

Bonding agent shall be according to OPSS 904.

920.05.08 Granular Materials

Granular A shall be according to OPSS 1010.

920.05.09 Antiseize Compound

Antiseize compound shall be according to OPSS 1210.

920.05.10 Water

Water shall be according to OPSS 1302.

920.05.11 Waterstops

Waterstops shall be according to OPSS 1204.

920.07 CONSTRUCTION

920.07.01 Installation of Deck Joint Assemblies

920.07.01.01 General

Concrete work is part of this item and except as specified herein shall be according to OPSS 904.

Deck joint assemblies shall be installed according to the stamped deck joint assembly Working Drawings.

Any damage to the corrosion protection system, including surface areas of field welds, shall be repaired with two coats of brush applied zinc rich coating applied according to the coating manufacturer's recommendations.

The threaded portion of the bolts and the underside of bolt heads shall be liberally coated with an antiseize compound immediately prior to installation.

The bolts that have been fully tensioned and require removal after final installation shall not be reused to fasten the clamping bars.

For modular expansion joint installation, the Contractor shall inform the joint manufacturer 7 Days prior to the joint installation, so that the manufacturer's representative is present on site during the installation to advise on the proper installation procedure.

920.07.01.01.01 Traffic Restrictions

Traffic, including construction traffic, shall not be permitted on any part of each stage of the deck joint assembly until all of the following conditions are met:

a) Concrete has cured for 7 Days.

b) Concrete has attained a minimum compressive strength of 25 Mpa.

c) Epoxy injection has been completed.

d) Epoxy has cured for a minimum of 24 hours.

e) For cold weather, epoxy has cured for 48 hours after epoxy injection or the curing time as specified in the manufacturer's data sheet.

f) For Type A joints, the clamping bars have been installed.

920.07.01.02 Protection

The deck joint assembly shall be lifted by nylon slings placed at the lifting points indicated on the stamped deck joint assembly Working Drawings.

During storage, the deck joint assembly shall be protected from dirt and deleterious materials, and stored so that distortion cannot occur. The deck joint assembly shall be supported on wood blocking spaced a maximum of 2 m apart.

920.07.01.03 Splicing

The location and number of field and stage construction splices and method of splicing of metal components shall be as detailed on the stamped deck joint assembly Working Drawings. For new construction, when the length of the expansion joint is greater than 15 m and a splice is required, a splice shall be located at a lane demarcation line near the centre line of the structure.

The preformed seal shall be continuous with no splices.

920.07.01.04 Placing

The deck joint assemblies shall be placed after the asphalt paving operation has been completed.

A block-out shall be formed for the deck joint assembly during concrete construction of the deck, ballast wall, and barrier wall. When new barrier walls are to be constructed, bulkheads shall be used to form block-outs in the barrier wall for the deck joint assemblies. The dimensions of the block-out in the barrier wall shall not be greater than those of the block-out in the deck and ballast wall, except for the modular joints in structures. The removal of existing concrete required to prepare the block-out shall be carried out prior to the paving operation.

Prior to filling the block-out, the expansion joint gap shall be plugged. The method used to plug the gap shall accommodate the anticipated movement and retain the fill material in the block-out during the period of traffic maintenance. The block-out shall be filled to the top of the deck prior to asphalt paving with granular A compacted according to OPSS 501.

When traffic is to be maintained over the block-out prior to asphalt paving, the granular A shall be capped with 50 mm of bituminous cold mix or hot mix. The top surface of the bituminous mix shall be maintained smooth and level with adjacent concrete and shall not ravel.

The limits of the block-out shall be accurately marked to be visible after paving. The paving operation shall be continuous over the area, which includes the deck, approach slabs, and 20 m beyond the end of each approach slab. Transverse joints in the asphalt pavement shall not be permitted.

Except when traffic is to be maintained over the unfinished joint, all material used to fill the block-out shall be removed within 5 Working Days after the block-out material is placed. The new asphalt pavement shall be sawcut full depth at the limits of the block-out. The asphalt from the block-out areas shall be removed and temporary wood angles with a minimum thickness of 19 mm shall be placed to protect the sawcut asphalt edges for the full depth of asphalt. Asphalt residue shall be cleaned from the reinforcing bars. All the material used to plug the expansion gap and to fill the block-out shall then be removed to the depth of the bearing seat.

Prior to placing the reinforcing steel, the concrete faces of the block-out shall be abrasive blast cleaned according to OPSS 929. After completion of this work, the deck joint assembly shall be placed in the block-out 3 mm below the elevation of asphalt pavement and in the position specified in the deck joint assembly Working Drawings.

Immediately prior to placing the concrete in the block-out, the top setting devices shall be adjusted to give the specified setting width required by the stamped deck joint assembly Working Drawings. The setting devices shall then be tightened and the deck joint assembly secured at the correct width, line, and grade by welding the loop anchors and stud anchors to the reinforcing bars. The location of these welds shall be at least 100 mm below the top of the end dams and the spacing shall be at approximately 500 mm centres.

Abrasive blast cleaned areas shall have the concrete placed in the block-out within 48 hours of being cleaned or shall be reblasted. Abrasive blast cleaned concrete surfaces shall receive a bonding agent immediately prior to placing concrete. Concrete shall be placed and consolidated to minimize voids under the deck joint assembly and shall be hand finished with a wood float. All steel surfaces that are to be in contact with the preformed seal shall be protected during placing of concrete.

After concrete construction, the exposed faces of the structural steel shapes shall be cleaned to remove any concrete and deleterious material. The setting devices shall be flame cut at the gap between two to four hours after the concrete placement.

The setting device bolt holes for all nosing angles, as well as for the armouring angles of the joints shall be drilled to a depth of 20 mm, air blast cleaned, and immediately filled with epoxy.

After installation of the deck joint assemblies, the Contractor shall sawcut a 20 mm wide groove for the full depth of asphalt adjacent to each steel nosing angle. If the previously sawcut face is undamaged and within 5 mm of the specified location, the Contractor may elect to form the groove. The grooves shall be cleaned, dried, and filled with hot poured rubberized joint sealing compound according to OPSS 914.

When an expansion joint system is specified in the Contract Documents with an approved elastomeric concrete, the mixing, placing, and curing requirements of elastomeric concrete shall be according to the manufacturer’s specifications.

920.07.01.05 Epoxy Injection

920.07.01.05.01 General

Epoxy shall be injected into the injection hose system once concrete in the expansion joint blockouts has been in place for a minimum of 7 Days and has a minimum compressive strength of 25 MPa.

The epoxy shall be kept at a temperature of 20 °C $\pm$ 5 °C prior to its use.

920.07.01.05.02 Injection Method

Only the supplier of the expansion joint system or their approved agent shall inject the epoxy used in the injection hose system.

Epoxy shall be mixed and pressure injected according to the manufacturer's specifications.

Injection shall start at the fitting at one end of a two-metre section of hose to initially fill the hose and continue until the epoxy emits at the other fitting of the same section. Injection shall then alternate at both fittings of the same section until the epoxy emits from the voids in the concrete or at the interface between the steel angles and concrete or both. The injection ports shall then be plugged.

The above procedure shall be repeated in each section of hose until the full length of the expansion joint system has been filled with epoxy. The top surface of the blockout shall be thoroughly cleaned to remove any excess epoxy prior to hardening.

After the epoxy has set, all adapters and injection plugs shall be removed and the plugholes filled with epoxy.

The deck joint assembly shall be checked for voids remaining under the angles. Holes shall be drilled in angles when voids are detected and voids and bolt holes shall be filled with epoxy.

920.07.01.05.03 Cold Weather Epoxy Injection Requirements

Epoxy injection shall not be performed in cold weather conditions without protection when the ambient air temperature is below 5 °C or is likely to fall below 5 °C within 48 hours immediately following the epoxy injection.

When the epoxy injection is to be performed under cold weather conditions, the temperature of the concrete in the expansion joint blockout shall be a minimum of 5 °C prior to the commencement of the injection. The temperature shall be maintained at a minimum of 5 °C for a period of 48 hours after injection or the curing time as specified in the manufacturer's data sheet.

920.07.02 Modification of Deck Joint Assemblies

920.07.02.01 General

The requirements of the Installation of Deck Joint Assemblies subsection apply to the Modification of Deck Joint Assemblies subsection.

Prior to installation of a new deck joint assembly and new reinforcing bars, the existing reinforcing steel, structural steel, and existing concrete against which new concrete is to be placed shall be abrasive blast cleaned according to OPSS 929.

When a new joint assembly is to be welded to existing hardware, the surface of the existing hardware that is to be in contact with the new joint assembly shall be abrasive blast cleaned according to OPSS 929.

920.07.02.02 Drilling and Preparation of Holes

The edge of drilled holes shall not be permitted within 50 mm of a concrete edge.

Holes for dowels or anchor bolts embedded in non-shrink grout shall be core drilled, flushed out with water, and air blast cleaned immediately after drilling. Immediately prior to placing non-shrink grout, the hole shall be predampened for one hour with no free water in the hole.

Holes for dowels or anchor bolts embedded in epoxy shall be impact drilled. The holes shall be cleaned of all deleterious material by air blasting and shall be dry when the epoxy is placed.

Mixing and placing procedures shall be according to the epoxy manufacturer's recommendations.

920.07.03 Repair of Existing Deck Joints

Repair of existing deck joint assemblies shall be according to the Installation of Deck Joint Assemblies and the Modification of Deck Joint Assemblies subsections and as specified in the Contract Documents.

920.07.04 Field Installation of Preformed Seals and Bolted Components

Preformed seals shall be installed in one continuous piece. Seals shall not be bent more than 30 degrees at any one location. The preformed seals and bolted components shall be installed according to the stamped deck joint assembly Working Drawings.

920.07.05 Placing Joint Fillers and Waterstops

Joint fillers and waterstops shall be firmly fixed in position before any concrete is placed so that their final position in the concrete remains as shown in the Contract Documents and are true to line and grade.

Field splicing of waterstops shall be by heat fusion.

920.07.06 Placing Joint Seals and Joint Sealing Compounds

920.07.06.01 Preparation of Joint

Concrete at all joints shall be sound; clean; dry; and free of all dust, debris, and deleterious material.

The joint face shall be true to line so that the joint seal shall bear on the joint face fully and uniformly.

920.07.06.02 Placing Joint Seals

Gaps forming longitudinal joints between structures shall be sealed with a joint seal made of ethyl vinyl acetate foam installed with the laminations horizontal.

Prior to installation of the joint seal, the joint recess shall be abrasive blast cleaned and air blasted according to OPSS 929 to remove laitance and deleterious material.

Adhesive shall be applied liberally to both vertical sides of the joint seal and to both vertical faces of the joint recess. Excess adhesive shall be removed immediately.

The joint seal shall be installed so that it remains below the level of the concrete surface when fully compressed.

The joint seals shall not be field spliced.

920.07.06.03 Placing Hot Poured Rubberized Asphalt Joint Sealing Compounds

Hot poured rubberized asphalt joint sealing compound shall be installed according to OPSS 914, except that the temperature of the air and the materials that are to be in contact with the sealing compound shall be 2 °C or greater at the time of installation.

920.07.07 Trial Installations

For designated trial installations, only deck joint assemblies pre-approved for trial installation by the Owner shall be used. The installation procedures shall be according to the manufacturer's detailed instructions, the Contract Documents, and applicable parts of this specification.

920.07.08 Quality Control

920.07.08.01 Water Test

The air, concrete, and deck joint assembly temperature shall be 2 °C or higher at time of testing.

After the epoxy has set and prior to acceptance, the joint shall be water tested over its entire length when there are no upturns. When there are upturns, the joint shall be tested between the gutter lines. The water shall be continuously ponded for a minimum of one hour, maintaining a minimum depth of 25 mm along the tested length and a minimum depth of 100 mm above the deck joint assembly at the gutter lines. For superelevated decks, only the lower gutter line requires the testing at a depth of 100 mm. The width shall extend 50 mm beyond the concrete dams on both sides of the deck joint assembly. When the staging of traffic is required, the joint shall be tested in overlapping sections.

Leakage of water through the deck joint assembly during this test, including the interface between the preformed seal and the seal retainers, concrete to steel interfaces, and the concrete construction joints, shall constitute failure of the deck joint assembly.

If such failure occurs, the deck joint assembly shall be repaired or replaced and the water test repeated. The method of repair shall be submitted in writing to the Contract Administrator for review prior to commencement of repair work.

Leakage at an elastomeric concrete to steel interface and at an elastomeric concrete to concrete interface, shall require replacement of the elastomeric concrete joint system and the water test repeated.

The water test and any related corrective work shall be completed prior to any seasonal shutdowns. When this is not feasible, a proposal detailing an alternative solution shall be submitted to the Contractor Administrator for approval.

920.07.09 Corrective Work for Initial Acceptance

At the Contractor’s expense, all defects identified in the Criteria for Initial Acceptance of the Deck Joint Assembly subsection shall be repaired according to the requirements of this specification and to the satisfaction of the Contract Administrator.

920.07.10 Performance Warranty

920.07.10.01 General

The Contractor shall warrant that the deck joint assemblies have been fabricated and installed according to the specifications and shall be free from deficiency for a period of 2 years from the date of the issuance of the Certificate of Substantial Performance.

The warranty shall expire when both of the following occur:

a) The two-year warranty period has elapsed.

b) There are no deficiencies or all deficiencies have been corrected to the satisfaction of the Owner.

When time is required beyond the 2 years for the Contractor to correct any defects, the warranty shall continue until repair or replacement has been completed to the satisfaction of the Owner.

920.07.10.02 Warranty Evaluation

Two months prior to the expiry of the two-year warranty, the Owner shall evaluate the deck joint assembly according to the requirements of the Criteria for Final Acceptance of Deck Joint Assemblies clause. The Owner shall notify the Contractor of the time and date of the inspection. The Contractor shall be present during this inspection.

The Owner shall notify the Contractor of all defects that require corrective work according to the Criteria for Final Acceptance of Deck Joint Assemblies clause.

When there are deficiencies, the deck joint assembly and its installation shall not be accepted until appropriate corrective work has taken place to the satisfaction of the Owner.

920.07.10.03 Final Acceptance

Two weeks prior to the commencement of corrective work of the deck joint assembly, a description of the method to be used for corrective work shall be submitted to the Owner for review and approval. The submission shall be accompanied by a report indicating the cause of each defect.

The Contractor shall repair all defects according to the requirements of this specification and the approved proposal to the satisfaction of the Owner. If the deck joint assembly has to be replaced, its successor shall be an equivalent approved joint. All costs including labour, Equipment, Material, and traffic control shall be at the expense of the Contractor.

All corrective work shall be done within three months of the inspection, unless prevented by seasonal shutdown, in which case, the work shall be done during the first 5 weeks of the following construction season. The Contractor shall provide a minimum of three days notice to the Owner prior to carrying out any corrective work.

920.07.11 Management of Excess Material

Management of excess material shall be according to the Contract Documents.

920.08 QUALITY ASSURANCE

920.08.01 Sampling and Testing

Random sampling and testing shall be performed.

920.08.02 Preformed Seal Sample

A sample shall be taken from the extra length of preformed seal supplied for each joint delivered to the Working Area for testing according to Table 1 in OPSS 1210.

920.08.03 Criteria for Initial Acceptance of Deck Joint Assembly

On completion of the deck joint assembly installation, the Contract Administrator shall inspect for the following deficiencies:

a) Defective seals.

b) Cracks wider than 0.3 mm and voids in concrete end dams.

c) Defective coating.

d) Seal not completely held in retainer.

e) Bolt torque not as specified on the stamped deck joint assembly Working Drawing.

f) Defective, loose, or missing structural components and welds.

g) Leakage at interfaces determined according to the Water Test clause.

h) A line parallel to the centreline of the structure joining the tops of all steel components of the deck joint assembly that deviates from a line parallel to the pavement profile between nosing angles by more than 3 mm, at any location along the length of the expansion joint.

i) For modular joints, at any location along the length of the deck joint assembly, the relative difference in the opening between the steel retainers exceeds the narrowest width by 6 mm. This dimension shall be measured at the level of the road surface, perpendicular to the centreline of the expansion joint, and at the inner faces of the retainers.

j) Any portion of the deck joint assembly is extending above the finished road surface.

920.08.04 Criteria for Final Acceptance of Deck Joint Assemblies

The deck joint assembly shall be inspected by the Owner and shall be accepted, provided the deficiencies listed below do not exist:

a) Defective seals as a result of material deficiencies.

b) Defective coating of components as a result of coating application or material deficiencies.

c) Seal not completely held in retainer.

d) Loose bolts.

e) Defective, loose, or missing structural components and welds.

f) Delaminated or spalled concrete or both.

920.10 BASIS OF PAYMENT

920.10.01 Deck Joint Assemblies, Installation - Item
Deck Joint Assemblies, Modification - Item

Payment at the Contract price for the above tender items shall be full compensation for all labour, Equipment, and Material to do the work.

920.10.02 Repair of Existing Deck Joints - Item

Payment at the Contract price for the above tender item shall be full compensation for all labour, Equipment, and Material to do the work.

When the repairs are not specified in the Contract Documents, payment for the cost of repairing existing deck joints and of repairing concrete prior to the installation of deck joint assemblies or preformed seals shall be administered as Extra Work.

920.10.03 Preformed Seals, Joint Fillers, Joint Seals, Joint Sealing Compounds, and Waterstops

Payment for the tender items in which preformed seals, joint fillers, joint seals, joint sealing compounds, and waterstops are placed shall include full compensation for all labour, Equipment, and Material to do the work of placing these materials.

Appendix 920-A, November 2023
FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS

Note: This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

Designer Action/Considerations

The following shall be specified in the Contract Documents:

- Deck joint assembly working drawing and bolt tension. (920.04.01.02.01)

- Modification of deck joint assembly. (920.04.01.02.01.01)

- Placement of deck joint assembly. (920.07.01.04)

- Repair of existing deck joint assemblies. (920.07.03)

- Location, line, and grade for installing preformed seals and bolted components. (920.07.05)

- Trial installations of deck joint assemblies. (920.07.07)

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

Related Ontario Provincial Standard Drawings

OPSD 3950.100 Joints, Concrete Expansion and Construction, On Structure