SECTION 32 14 13.16
PAVING SLABS ON AGGREGATE BED FOR ROOF PLAZA DECKS
(1995 MasterFormat Section 02784)

Note: This guide specification for Canada is for paving slabs used as ballast and/or paving on pedestrian plaza roof deck applications with a free draining aggregate setting bed and no joint materials. Slabs installed with this method are not recommended for vehicular traffic. Slabs larger than 300 mm x 300 mm should be placed on pedestals. The text must be edited to suit specific project requirements. This Section includes the term "Architect." Edit this term as necessary to identify the design professional in the General Conditions of the Contract.

PART 1 GENERAL

1.01 SUMMARY
- A. Section Includes:
  1. Paving slabs.
  2. Bedding material.
  3. [Drainage mat].
  4. [Cleaning and Sealing].
- B. Related Work.
  1. Section [ ] - Membrane roofing.
  2. Section [ ] - Roof drains.
  3. Section [ ] - Roof accessories.
  4. Section [ ] - Roof and Deck Insulation.
  5. Section [ ] - Sheet Metal Flashing and Trim.

Note: Pavements should be designed in consultation with a qualified civil engineer, in accordance with established pavement design procedures and in accordance with the ICPI Tech Spec technical bulletins. Use the current year reference.

1.02 REFERENCES
- A. Canadian Standards Association (CSA)
  1. A231.1, Precast Concrete Paving Slabs.
  2. CSA-A23.2A, Sieve Analysis of Fine and Coarse Aggregates.
- B. American Society for Testing and Materials (ASTM).
  1. C 979, Standard Specification for Pigments for Integrally Coloured Concrete.
  2. D 448, Standard Classification of Sizes of Aggregate for Road and Bridge Construction.
- C. Interlocking Concrete Pavement Institute (ICPI)
  1. Tech Spec technical bulletins

1.03 SUBMITTALS
- A. Shop drawings: Indicate perimeter conditions, relationship to adjoining materials and assemblies, expansion and control joints, paving slab [layout,] [patterns,] [colour, arrangement,] installation [and setting] details.
- B. Sieve analysis per CSA A23.2A for the bedding materials.
- C. [Drainage mat sample.]
- D. Paving slabs
  1. [Four] representative full-size samples of each slab type, thickness, colour, finish. Select samples to indicate the extremes of colour and texture expected in the finished installation.
  2. Accepted samples become the standard of acceptance for the work of this Section.
  3. Laboratory test reports certifying compliance of the paving slabs with CSA A231.1.
  3. Manufacturer's catalog literature and material safety data sheets for the safe handling of the specified materials and products.

1.04 QUALITY ASSURANCE
- A. Paving Subcontractor Qualifications:
  1. Utilize an installer having successfully completed concrete paving slab

installation
similar in design, material, and extent indicated on this project.
2. Utilize an installer holding a current certificate from the Interlocking Concrete Pavement Institute Concrete Paver Installer Certification program.

B. Regulatory Requirements and Approvals: [Specify applicable licensing, bonding or other requirements of regulatory agencies.].

C. Mock-Ups:
1. Install a 2 x 2 m paving slab area.
2. Use this area to determine surcharge of the bedding layer, joint sizes, lines, laying pattern(s), colour(s), and texture of the job.
3. This area will be used as the standard by which the work will be judged.
4. Subject to acceptance by owner, mock-up may be retained as part of finished work.
5. If mock-up is not retained, remove and properly dispose of mock-up.

1.05 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirement Section.

B. Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers packaging with identification labels intact.
1. Coordinate delivery and paving schedule to minimize interference with normal use of buildings adjacent to paving.
2. Deliver concrete paving slabs to the site in steel banded, plastic banded or plastic wrapped packaging capable of transfer by forklift or clamp lift.
3. Unload slabs at job site in such a manner that no damage occurs to the product.

D. Storage and Protection: Store materials protected such that they are kept free from mud, dirt, and other foreign materials. [Store concrete paving slab cleaners and sealers per manufacturer's instructions.]
1. Cover bedding sand and joint sand with waterproof covering if needed to prevent exposure to rainfall or removal by wind. Secure the covering in place.

1.06 PROJECT/SITE CONDITIONS

A. Environmental Requirements:
1. Do not install aggregate bedding materials or slabs during heavy rain or snowfall.
2. Do not install frozen aggregate.
3. Do not install concrete slabs on frozen or saturated aggregate bedding materials.

1.07 MAINTENANCE

A. Extra Materials: Provide [Specify area] [Specify percentage.] additional material for use by owner for maintenance and repair.

B. Slabs shall be from the same production run as installed materials.

PART 2 PRODUCTS

2.01 CONCRETE PAVING SLABS

A. Manufacturer: **BROOKLIN CONCRETE PRODUCTS CORP**
1. Contact: 6760 Baldwin St, PO Box 370
Brooklin, ON L1M 1B5 Canada
1-800-655-3430

B. Concrete paving slabs:
1. Slab type: **Hydraulically Pressed Slabs**
a. Material Standard: Comply with material standards in CSA A231.1.16
b. 4.5 MPa average flexural strength. Freeze-thaw scaling testing requirements shall be waived for applications not exposed to freezing

conditions.

c. Colour [and finish]: [Specify colour.] [Specify finish].
d. Size: [Specify mm] x [Specify mm] x [Specify mm] thick.
e. Manufactured in a plant where paving products are produced according to designated CSA requirements in this specification.

2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

2.03 BEDDING MATERIAL

A. Bedding material

a. Washed, clean, non-plastic, washed and free from deleterious or foreign matter, manufactured from crushed rock. Do not use gravel.
b. Conforming to the grading requirements for ASTM No. 89 per ASTM D 448 and as noted in Table 1 below. Sieve according to CSA A23.2A.

Table 1
ASTM No. 89 Grading Requirements for Bedding Material

Sieve Size	Percent Passing
12.5 mm	100
9.5 mm	90 to 100
4.75 mm	20 to 55
2.36 mm	5 to 30
1.18 mm	0 to 10
0.300 mm	0 to 5
0.075 mm	0 to 1

2.3 GEOTEXTILE

A. [_____] or approved substitute.

Note: Drainage mat is optional. Edit as required.

2.04 DRAINAGE MAT

A. [_____] or approved substitute.

PART 3 EXECUTION

Note: The elevations and surface tolerance of the roof deck determine the final surface elevations of concrete slabs. The paving slab installation contractor cannot correct deficiencies in elevations of the base surface with additional bedding sand or by other means. Therefore, the surface elevations of the base should be checked and accepted by the General Contractor or designated party, with written certification to the paving subcontractor, prior to placing bedding materials.

3.01 EXAMINATION

A. Acceptance of Site Verification of Conditions:

1. General Contractor shall inspect, accept and certify in writing to the slab installation subcontractor that roof conditions meet specifications for the following items prior to installation of concrete paving slabs.
   a. Verify that geotextiles, if applicable, have been placed according to drawings and specifications.
   b. Verify that roof deck materials, thickness, surface tolerances and elevations conform to specified requirements.
   c. Provide written test results for roof deck materials to the Owner, General Contractor and paving slab installation subcontractor.
   d. Verify location, type, and elevations of edge restraints, drains, drain holes, and inlets.
2. Do not proceed with installation of bedding materials until roof conditions are

corrected by the General Contractor or designated subcontractor.

3.02 PREPARATION

A. Verify that all surfaces, membrane(s), protection board, insulation, drains, are free from dirt, oil, grease or any deleterious substances and debris which may prevent installation, drainage, and stability of the paving slab installation.
B. Verify that roof has a minimum of 2% slope to drains.
C. Do not begin paving work until such conditions have been corrected [to the Architect's satisfaction] and are ready to receive geotextile, [drainage mat,] bedding materials and paving slabs.

3.03 INSTALLATION

Note: Use the following paragraphs include drainage mat. Edit as required.

A A. Spread, join, and trim drainage mat according to manufacturer's recommendations.
B. Spread geotextile and turn up at sides of installation against parapets and protrusions in the roof. Overlap geotextile and drainage mat downslope a minimum of [30 cm] [as indicated on the drawings].
C. Spread and screed bedding material a minimum of 25 mm thick. Do not disturb.
D. Compact bedding material without damaging the [drainage mat,] geotextile or waterproof membrane. Maintain an even surface.
E. Install paving slabs on compacted bedding material in the locations, [layout and pattern] indicated on the drawings. Maintain consistent joint widths of [3 mm].
F. Fit slabs tightly against parapets, walls, and protrusions in the roof. Cut paving slabs with a masonry saw to fit in these areas. Cut slabs without damage to exposed faces and edges. Cut units should be no smaller than [1/2] of a whole slab.
G. Remove excess sand from surface.

3.04 FIELD QUALITY CONTROL

A. Check final surface elevations for conformance to drawings.
B. Lippage: Maximum 3 mm height variation between adjacent paving slabs.

Note: Cleaning and sealing may be required for some applications. See ICPI Tech Spec 5, Cleaning and Sealing Interlocking Concrete Pavements *for guidance on when to clean and seal the slab surfaces. Delete article below if cleaners and sealers are not applied.*

3.05 [CLEANING] [SEALING]

A. [Clean] [Seal] concrete paving slabs in accordance with the manufacturer's written recommendations.

3.05 PROTECTION

A. After work in this section is complete, the General Contractor shall be responsible for protecting work from damage due to subsequent construction activity on the site.

END OF SECTION