Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Bonifacio Drive, Port Area, Manila

BAGONG PILIPINAS

097.13 DPWH
05.21.2025

MAY 20 2025

DEPARTMENT ORDER)
)
NO. 91)
Series of 2025)

SUBJECT: DPWH Standard Specification for Item 311(8) – One (1)-Day Portland Cement Concrete Pavement

5/21/2025

In line with the continuing efforts to upgrade construction technology through the adoption of successful research studies, this Department Order has approved the use of One-Day Portland Cement Concrete Pavement, subject to the specifications attached hereto.

A Certificate of Product Accreditation (CPA) has been issued by this Department authorizing its use in various DPWH infrastructure projects. Possession of such shall not be imposed as a requirement for suppliers. Any one-day concrete product that complies with the attached Standard Specification shall be considered acceptable. Implementing Offices are required to ensure strict compliance with this Standard Specification through regular monitoring and quality testing to verify adherence.

This Standard Specification shall form part of Item 311, Portland Cement Concrete Pavement of the DPWH Standard Specifications for Highways, Bridges and Airports, Volume II, 2012 Edition, and is now included in the Project and Contract Management Application (PCMA).

This Order supersedes Department Order No. 235, Series of 2016, Standard Specification on the Use of SF-CRETE Concrete Technology for One-Day Portland Cement Concrete Pavement) and shall take effect immediately.

MANUEL M. BONOAN
Secretary

Department of Public Works and Highways
Office of the Secretary
WIN5U02150

Encl.: (1) DPWH Standard Specification on the Use of One-day Portland Cement Concrete Pavement
(2) Certificate of Product Accreditation

14.1 JDV/AGC

DPWH Standard Specification for
Item 311(8) – One (1) - Day Portland Cement Concrete Pavement

311(8).1 Description

This Item shall consist of the construction of pavement made of one-day Portland Cement Concrete on a prepared base, with or without reinforcement, in accordance with this Specification and in conformity with lines, grades, thickness and typical cross-section shown on the Plans.

311(8).2 Material Requirements

311(8).2.1 Cement

Portland cement Type I and blended hydraulic cement Type IP shall be used and shall conform to the applicable requirements of Item 700, Hydraulic Cement. Different brands or the same brands from different mills shall not be mixed nor be used alternately unless the design mix is approved by the Engineer. Trial mixes shall be done and that the mixes meet the concrete strength requirements, the AASHTO/ASTM provisions pertinent to the use of Portland cement Type I and Portland Pozzolan Type IP shall be adopted.

Samples of cement shall be obtained in accordance with AASHTO R 71, Standard Practice for Sampling and Amount of Testing of Hydraulic Cement.

311(8).2.2 Fine Aggregate

Fine aggregates shall conform to the applicable requirements of Item 703, Aggregates.

311(8).2.3 Coarse Aggregate

Coarse aggregates shall conform to the applicable requirements of Item 703, Aggregates.

311(8).2.4 Water

Water shall conform to the applicable requirements of 714, Water.

311(8).2.5 Reinforcing Steel

Reinforcing steel shall conform to the applicable requirements of Item 710, Reinforcing Steel and Wire Rope.

311(8).2.6 Joint Filler

Joint Filler shall conform to the requirements of Item 311, Portland Cement Concrete Pavement.

311(8).2.7 Wire Mesh

Joint Filler shall conform to the requirements of Item 311, Portland Cement Concrete Pavement

311(8).2.8 Chemical Admixtures

Chemical admixture shall conform to the applicable requirements of ASTM C494M, Standard Specifications for Chemical Admixtures for Concrete or ASTM C1017M, Standard Specifications for Chemical Admixtures for Use in Producing Flowing Concrete.

To optimize the attainment of the required strength within twenty-four (24) hours following the final concrete placement, the use of a chemical admixture conforming to the requirements of ASTM C494 Type F or Type G is recommended. A combination of these types, and other types of admixtures meeting the specified ASTM standards, may be utilized, provided that the trial mix satisfies the concrete strength requirements.

311(8).2.9 Curing Materials

Curing materials shall conform to the requirements of Item 311.

311(8).2.10 Storage of Cement and Aggregate

Storage of Cement and Aggregate shall conform to the requirements of Item 311.

311(8).2.11 Proportioning, Consistency and Strength of Concrete

The Contractor shall prepare the design mix based on the absolute volume method as outlined in the American Concrete Institute (ACI) Standard 211.1, Selecting Proportions for Normal-Density and High-Density Concrete – Guide.

A minimum of 400 kg of cement per cubic meter of concrete with 0.40 water-cement ratio is recommended to meet the minimum strength requirements. The Engineer shall determine the appropriate proportion of cement, water, aggregates and admixtures through trial mixes and laboratory testing of the proposed design mix. The resulting concrete mix shall have a slump of 100 to 150 mm, vibrated with at least (2) vibrators simultaneously used or a slump flow between 400 to 600 mm, which will require minimum vibration. Slump shall be determined using ASTM C143M, Standard Test Method for Slump of Hydraulic-Cement Concrete, or ASTM C1611, Standard Test Method for Slump Flow of Self-Consolidating Concrete. The concrete shall have a flexural strength of not less than 3.8 MPa when tested by the third-point method or 4.5 MPa when tested by the mid-point method in accordance with ASTM C78, Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading) and ASTM C293, Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading), respectively. This specified flexural strength shall be achieved within a maximum of twenty-four (24) hours after completion of concrete pouring.

The mix design shall be submitted to the Engineer for approval and shall be accompanied by certified test data from an approved laboratory demonstrating the adequacy of the mix design. A change in the source of materials during the progress of work may necessitate a new design mix.

311(8).3 Construction Requirements

311(8).3.1 Quality Control of Concrete

Quality control of Concrete shall conform to the applicable requirements of Item 311. When the concrete does not meet the target initial slump upon arrival at the site, it can be adjusted using the water-reducing and plasticizing admixture conforming to ASTM C494M. The maximum quantity of admixture to be added should follow the Manufacturer's recommendation to gain the target slump.

311(8).3.2 Equipment

Equipment shall conform to the applicable requirements of Item 311.

311(8).3.3 Preparation of Grade

Preparation of Grade shall conform to the requirements of Item 311.

311(8).3.4 Setting Forms

Setting Forms shall conform to the requirements of Item 311.

311(8).3.5 Conditioning of Subgrade or Base Course

Conditioning of Subgrade or Base Course shall conform to the requirements of Item 311.

311(8).3.6 Handling, Measuring and Batching Materials

Handling, Measuring and Batching Materials shall conform to the applicable requirements of Item 311.

311(8).3.7 Mixing Concrete

Mixing Concrete shall conform to the applicable requirements of Item 311.

311(8).3.8 Limitation of Mixing

Limitation of Mixing shall conform to the applicable requirements of Item 311.

311(8).3.9 Placing Concrete

Placing Concrete shall conform to the applicable requirements of Item 311. However, unloading of concrete shall be done within one (1) hour upon arrival of trucks on site. Placing of concrete should be completed within five (5) hours from the time of batching.

311(8).3.10 Test Specimens

Test Specimens shall conform to the requirements of Item 311.

311(8).3.11 Strike-off of Concrete and Placement of Reinforcement

Strike-off Concrete and Placement of Reinforcement shall conform to the requirements of Item 311.

311(8).3.12 Joints

Joints shall conform to the applicable requirements of Item 311. However, saw cutting of high-early strength concrete shall be done once the concrete has attained sufficient strength and hardness so that the bond between the mortar and aggregates will not be disturbed, which is typically between six (6) to ten (10) hours upon completion of pour.

311(8).3.13 Final Strike-off (Consolidation and Finishing)

Final Strike-off (Consolidation and Finishing) shall conform to the requirements of Item 311.

311(8).3.14 Surface Test

Surface Test shall conform to the applicable requirements of Item 311.

311(8).3.15 Curing

Curing shall conform to the applicable requirements of Item 311. However, curing time shall be within 24 hours or when the concrete has achieved sufficient strength to be opened to traffic.

311(8).3.16 Removal of Forms

Removal of forms shall conform to the applicable requirements of Item 311. Forms for concrete shall remain in place undisturbed for up to twenty-four (24) hours after concrete pouring or if the concrete has achieved sufficient strength to satisfy saw-cutting requirement, whichever is earlier.

311(8).3.17 Sealing Joints

Sealing Joints shall conform to the applicable requirements of Item 311.

311(8).3.18 Protection of Pavement

Protection of Pavement shall conform to the applicable requirements of Item 311.

311(8).3.19 Acceptance of Concrete

Acceptance of Concrete shall conform to the applicable requirements of Item 311.

311(8).3.20 Opening to Traffic

The Engineer will decide when the pavement may be opened to traffic. The road will not be opened to traffic until test specimens molded and cured in accordance with ASTM C31,

Standard Practice for Making and Curing Concrete Test Specimens in the Field have attained the minimum requirements in Subsection 311(8).2.11 hereof.

If such tests are not conducted prior to the specified age the pavement shall not be opened to traffic until 24 hours after the concrete was placed. Before opening to traffic the pavement shall be cleaned and joint sealing completed.

311(8).3.21 Tolerance in Pavement Thickness

Tolerance in Pavement Thickness shall conform to the applicable requirements of Item 311.

311(8).4. Method of Measurement

The area to be paid for under this Item shall be the number of square meters (m^2) of one-day concrete placed and accepted in the completed pavement. The width for measurements will be the width from outside edge to outside edge of the completed pavement as placed in accordance with the Plans or as otherwise required by the Engineer in writing. The length will be measured horizontally along the center line of each roadway or ramp. Any curb and gutter placed shall not be included in the area of concrete pavement measured

311(8).5. Basis of Payment

The accepted quantity, measured as prescribed in Section 4, Method of Measurement, shall be paid for at the contract unit price for One (1)-Day Portland Cement Concrete Pavement which price and payment shall be full compensation for furnishing all materials, for mixing, placing, finishing all concrete, for furnishing and placing all joints materials, for sawing weakened plane joints, for placing of reinforcements, for facilitating and controlling traffic, and for furnishing all labor, equipment, tools and incidentals necessary to complete the Item.

Payment shall be made under:

Pay Item Number	Description	Unit of Measurement
311 (8)a1	One-Day Portland Cement Concrete Pavement, 0.20 m thick, (Unreinforced)	Square Meter
311 (8)a2	One-Day Portland Cement Concrete Pavement 0.23 m thick, (Unreinforced)	Square Meter
311 (8)a3	One-Day Portland Cement Concrete Pavement 0.25 m thick, (Unreinforced)	Square Meter
311 (8)a4	One-Day Portland Cement Concrete Pavement 0.28 m thick, (Unreinforced)	Square Meter
311 (8)a5	One-Day Portland Cement Concrete Pavement 0.30 m thick, (Unreinforced)	Square Meter

Pay Item Number	Description	Unit of Measurement
311 (8)a6	One-Day Portland Cement Concrete Pavement 0.33 m thick, (Unreinforced)	Square Meter
311 (8)a7	One-Day Portland Cement Concrete Pavement 0.35 m thick, (Unreinforced)	Square Meter
311 (8)a8	One-Day Portland Cement Concrete Pavement 0.38 m thick, (Unreinforced)	Square Meter
311 (8)b1	One-Day Portland Cement Concrete Pavement 0.20 m thick, (Reinforced)	Square Meter
311 (8)b2	One-Day Portland Cement Concrete Pavement 0.23 m thick, (Reinforced)	Square Meter
311 (8)b3	One-Day Portland Cement Concrete Pavement 0.25 m thick, (Reinforced)	Square Meter
311 (8)b4	One-Day Portland Cement Concrete Pavement 0.28 m thick, (Reinforced)	Square Meter
311 (8)b5	One-Day Portland Cement Concrete Pavement 0.30 m thick, (Reinforced)	Square Meter
311 (8)b6	One-Day Portland Cement Concrete Pavement 0.33 m thick, (Reinforced)	Square Meter
311 (8)b7	One-Day Portland Cement Concrete Pavement 0.35 m thick, (Reinforced)	Square Meter
311 (8)b8	One-Day Portland Cement Concrete Pavement 0.38 m thick, (Reinforced)	Square Meter

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CENTRAL OFFICE
Manila

BAGONG PILIPINAS

CERTIFICATE OF PRODUCT ACCREDITATION

This is to certify that

One (1)-Day Portland Cement Concrete Pavement

Supplied by

Holcim Philippines, Inc.
7/F Two World Square McKinley Hill, Fort Bonifacio,
Taguig City

is duly accredited for use in DPWH infrastructure projects subject to its specifications pursuant to the provisions of Department Order No. 189, Series of 2002.

Accreditation Number	:	**0012**
Date Issued	:	**April 22, 2025**

ADOR G. CANLAS, CESO IV
Undersecretary for Technical Services and
Information Management Service