Code of Practice for Precast Concrete Construction 2016

The Buildings Department (BD) has set up a Technical Committee (TC) to, among others, collect and consider the views and feedback from the building industry arising from the use of the Code of Practice for Precast Concrete Construction 2016 (The Code). Taking into account the advice of the TC, the following amendments to The Code have been promulgated and uploaded to BD website www.bd.gov.hk:

(a) Appendix A – November 2020; and

(b) Appendix B – June 2026.

(HO Chun-hung)
Building Authority

Ref. : BD GR/1-50/79 (VI)

First issue June 2026 (AD/NB2)

Appendix A
(PNAP APP-174)

Amendments to the Code of Practice for Precast Concrete Construction 2016

(November 2020)

Legends:

Amended

Deleted

(11/2020)

Amendments to the Code of Practice for Precast Concrete Construction 2016

Item	Current version	Amendments
1. Clause 2.4.3 paragraph 2	In respect of concrete cover requirements for protection against fire, the Code of Practice for Fire Safety in Buildings should be followed, whereas for protection against corrosion, the requirements under the Building (Construction) Regulations should be adopted.	In respect of concrete cover requirements for protection against fire, the Code of Practice for Fire Safety in Buildings should be followed, whereas for protection against corrosion, the requirements under the Code of Practice for Structural Use of Concrete 2013 should be adopted.
2. Clause 2.4.4.1	General To achieve durability, connections should be properly filled with suitable material to prevent corrosion, cracking or spalling of concrete.	General To achieve durability, connections should be properly filled with suitable material to prevent corrosion, cracking, spalling of concrete or water seepage.
3. Clause 2.6.1	General For the requirements on the use of materials, the Building (Construction) Regulations should be followed. The material properties used for design should be obtained from the Code of Practice for Structural Use of Concrete.	General For the requirements on the use of materials, the Building (Construction) Regulations and the Code of Practice for Structural Use of Concrete 2013 should be followed. The material properties used for design should be obtained from the Code of Practice for Structural Use of Concrete 2013.

4. Clause 2.6.2.1	*Alkali-silica reaction* Aggregates containing silica minerals are susceptible to attack by alkalis (Na_2O and K_2O) from the cement or other sources. Alkali-silica reaction causes cracking and reduces the strength of concrete. Effective means of reducing the risk of alkali aggregate reaction include: • control on the amount of cement used in the concrete mix; • use of a low alkali cement; • use of an appropriate cement replacement such as pulverised fuel ash (pfa); and • the reactive alkali content of concrete expressed as the equivalent sodium oxide per cubic metre should not exceed 3.0 kg. The concrete supplier should submit to the authorized person or registered structural engineer a mix design and Hong Kong Laboratory Accreditation Scheme (HOKLAS) endorsed test certificates giving calculations and test results demonstrating that the mix complies with the above limitation on reactive alkali content.	*Alkali-silica reaction* Aggregates containing silica minerals are susceptible to attack by alkalis (Na_2O and K_2O) from the cement or other sources. Alkali-silica reaction causes cracking and reduces the strength of concrete. Effective means of reducing the risk of alkali aggregate reaction include: • control on the amount of cement used in the concrete mix; • use of a low alkali cement; • use of an appropriate cement replacement such as pulverised fuel ash (pfa); • the reactive alkali content of concrete expressed as the equivalent sodium oxide per cubic metre should not exceed 3.0 kg; • seeking expert advice before alkali reactive aggregates are used; • use of non-reactive aggregate in accordance with CS1; or • reducing the access of moisture, i.e. restricting the amount of water ingress from the environment. The concrete supplier should submit to the authorized person or registered structural engineer a mix design and Hong Kong Laboratory Accreditation Scheme (HOKLAS) endorsed test certificates giving calculations and test results demonstrating that the mix complies with the above limitation on reactive alkali content.

5. Footnote of Figure A6 under Appendix A	WALL TO WALL HORIZONTAL CONNECTION (CAPABLE OF FUNCTIONING AS SHEAR WALL) (FIGURE A6)	WALL TO WALL HORIZONTAL CONNECTION (CAPABLE OF FUNCTIONING AS SHEAR WALL) (FIGURE A6) Note : The connection detail is extracted from a technical paper in the Journal of Southeast University (Natural Science Edition) (東南大學學報(自然科學版) published in May 2013. Permission to reproduce the diagram showing the connection detail is granted by the author of the paper.

Appendix B
(PNAP APP-174)

Amendments to the Code of Practice for Precast Concrete Construction 2016

(June 2026)

Legends:

New/Amended

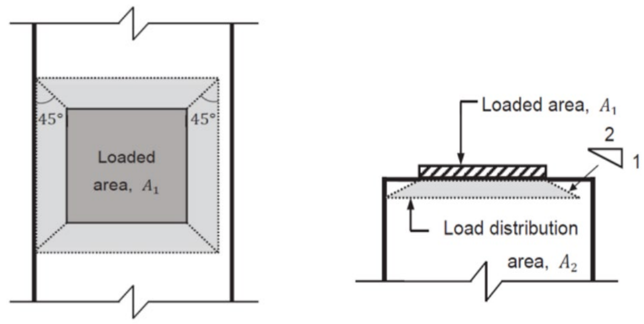
Deleted

(6/2026)

Amendments to the Code of Practice for Precast Concrete Construction 2016

Item	Current version	2026 Amendments
1. LIST OF TABLES	Table 2.7 - Values of tan α_f for concrete connections Table 2.8 - Design ultimate horizontal shear stresses at interface	Table 2.7 - Values of tan α_f for concrete connections Table 2.7a - Testing procedures with specific requirements for completed panel joints and window joints Table 2.8 - Design ultimate horizontal shear stresses at interface
2. LIST OF FIGURES	Figure 2.5 – Schematic arrangement of allowance for bearing Figure 2.6 – Back-up materials and bond breakers in movement joints	Figure 2.5a – Load distribution area and loaded area for determining the confinement modification factor Figure 2.5 – Schematic arrangement of allowance for bearing Figure 2.6 – Back-up materials and bond breakers in movement joints
3. Clause 1.3 SYMBOLS	For the purposes of this Code of Practice, the following symbols apply: G_k characteristic dead load Q_k characteristic imposed load f_{cu} characteristic strength of concrete f_y characteristic strength of reinforcement Other symbols are defined in the text where they occur.	For the purposes of this Code of Practice, the following symbols apply: G_k characteristic dead load Q_k characteristic imposed load f_{cu} characteristic strength of concrete f_y characteristic strength of reinforcement f_{cb} design ultimate bearing strength based on the weaker of the two bearing surfaces Other symbols are defined in the text where they occur.

Item	Current version	2026 Amendments
4. Clause 2.7.9.4	**2.7.9.4 Design ultimate bearing stress** The design ultimate bearing stress is based on the weaker of the two bearing surfaces and is calculated as follows: • $0.4f_{cu}$ for dry bearing on the concrete; • $0.6f_{cu}$ for bedded bearing on concrete; or • $0.8f_{cu}$ for contact face of a steel bearing plate cast into a member or support, with each dimension not exceeding 40% of the corresponding concrete dimension. An intermediate value of bearing stress between dry and bedded bearings may be used for flexible bedding.	**2.7.9.4 Design ultimate bearing stress** The design ultimate bearing strength based on the weaker of the two bearing surfaces, f_{cb} should be calculated as follows: f_{cb} = $0.27mf_{cu}$ for dry bearing on concrete f_{cb} = $0.40mf_{cu}$ for bedded bearing on concrete f_{cb} = $0.80mf_{cu}$ for contact face of a steel bearing plate cast into a member or support, with each dimension not exceeding 40% of the corresponding concrete dimension. where m is the confinement modification factor taken as $\sqrt{\frac{A_2}{A_1}} \leq 2$, A_1 is loaded area, A_2 is load distribution area (see Figure 2.5a). An intermediate value of bearing stress between dry and bedded bearings may be used for flexible bedding.

Item	Current version	2026 Amendments
		 Plan View Side View Figure 2.5a – Load distribution area and loaded area for determining the confinement modification factor
5. Clause 2.8.2.8	**2.8.2.8 Testing** Precast panels often include cast in window frames, and the window assemblies are commonly subjected to tests for the infiltration of air and water. To test the potential joint performance, consideration may be given to incorporating panel to panel joints in the window test assembly. The most effective test, as it encompasses site workmanship, and also can encompass a large number of joints, is inspection of the completed panel joints for damp or leakage after heavy rain at site. In the absence of heavy rain, specific joints can be tested by spraying them with water. The hose should deliver water as a spray, not a solid jet, and the water should be directed horizontally, not upward (see clause 4.3.1 for water-tightness testing of façade panels).	**2.8.2.8 Testing** Precast panels often include cast in window frames, and the window assemblies are commonly subjected to tests for dampness or leakage. To test the potential joint performance, consideration may be given to incorporating panel to panel joints in the window test assembly. On-site field test of the completed joints between precast panels and in-situ elements, completed panels and installed windows for dampness or leakage is considered the most realistic and effective performance test to ensure the water-tightness of the completed panel joints and window joints, and such test is widely adopted in the construction industry. The testing procedures should follow AAMA 501.2 as per Table 2.7a.

<table>
<tr><th>Item</th><th>Current version</th><th>2026 Amendments</th></tr>
<tr><td></td><td></td><td>Table 2.7a – Testing procedures with specific requirements for completed panel joints and window joints
<table>
<tr><td>Item</td><td>Requirements</td></tr>
<tr><td>Testing samples</td><td>100%</td></tr>
<tr><td>Pressure at the nozzle</td><td>205 to 240kPa</td></tr>
<tr><td>Hose diameter</td><td>19mm</td></tr>
<tr><td>Duration</td><td>5 mins in every 1.5m joint length by slowly moving nozzle over the test section</td></tr>
<tr><td>Distance of nozzle from test section</td><td>305mm +/- 25mm</td></tr>
<tr><td>Failure criterion</td><td>Dampness or leakage appears on interior surfaces during the test or within two hours after completion of the test</td></tr>
<tr><td>Failed to meet the requirements</td><td>Remedy all such failed joints and retest all remedied joints until all joints meet the specified criteria.</td></tr>
</table></td></tr>
<tr><td>6. Annex A REFERENCES</td><td></td><td>A1 REFERENCED STANDARDS
<table>
<tr><td>AAMA 501.1</td><td>Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure</td></tr>
<tr><td>AAMA 501.2</td><td>Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems</td></tr>
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Item	Current version	2026 Amendments	
		AAMA 501.3	Field Check of Water and Air Leakage Through Installed Exterior Windows, Curtain Walls, and Doors by Uniform Air Pressure Difference
		ASTM C719-14	Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)
		ASTM C794-15	Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
		ASTM C920-14a	Standard Specification for Elastomeric Joint Sealants
		ASTM C1087-00 (2006)	Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems
		ASTM E283-04(2012)	Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
		ASTM E330-14	Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference

Item	Current version	2026 Amendments	
		ASTM E331-00(2016)	Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
		ASTM E547-00(2016)	Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference
		ANSI Z97.1-2009	Glazing Materials Used in Buildings – Safety Performance Specifications and Methods of Test
		BS 6213:2000+ A1:2010	Selection of Construction Sealants – Guide