STRUCTURES DESIGN MANUAL FOR HIGHWAYS AND RAILWAYS

2013 Edition

AMENDMENT NO. 3/2025

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Highways Department
The Government of the Hong Kong Special Administrative Region

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INTRODUCTION

The "Structures Design Manual for Highways and Railways – 2013 Edition" (SDM) published by the Government of the Hong Kong Special Administrative Region sets out standards and provides guidance for the design of highway and railway structures in Hong Kong. In 2025, Highways Department reviewed the requirements for crack control for reinforced concrete bridges and the wind peak velocity pressures for design of walkway covers, sign gantries and noise barriers/enclosures. Following the review, amendments to Chapters 3, 5, 12 and Appendix F of the SDM are proposed.

As an environmentally friendly measure, amendments to the SDM will no longer be prepared in form of replacement pages. Continuously updated version of the SDM is available in the departmental website for viewing and downloading.

AMENDMENT DETAILS

The following amendments are made :-

1. CHAPTER 3 ACTIONS

3.4 WIND ACTIONS

(a) Clause 3.4.1 General

Add the following after sub-clause (5):

(6) In general, for the design of walkway covers, sign gantries and noise barriers/enclosures, adoption of simplified procedure according to Clauses 3.4.2.1(3) and 3.4.2.1(4) to determine the peak velocity pressure q_p shall suffice.

Replace the numbering of sub-clause "(6)" **with** "(7)" **and** "(7)" **with** "(8)".

(b) Clause 3.4.2.1 Peak Velocity Pressure for Wind Leading Combinations

Replace sub-clause (3) with the following:

(3) For structures with design working life of 50 years as specified in Clause 2.2(2), i.e. walkway covers, sign gantries and noise barriers/enclosures which are supported at-grade, the peak velocity pressure q_p shall be obtained from Table 3.8a. No further adjustment for degree of exposure as defined in Table 3.8 shall be made.

Table 3.8a – Peak Velocity Pressure for Walkway Covers, Sign Gantries and Noise Barriers/Enclosures

Height above ground level (m)	Peak Velocity Pressure q_p (kN/m^2)
≤ 4	1.54
> 4 – 8	1.72
>8 – 12	1.84
>12 – 16	1.92

Where the structure is located at an orography significant site as defined in Clause 4.3.3 of BS EN 1991-1-4 and Clause NA.2.13 of the UK NA to BS EN 1991-1-4, the peak velocity pressure q_p obtained from Table 3.8a shall be multiplied by a topographical factor $c_o(z)$ in accordance with Annex A.3 of BS EN 1991-1-4 and Clause NA.2.17 of the UK NA to BS EN 1991-1-4.

For height other than the range given in Table 3.8a, the designer shall consult the Chief Highways Engineer/Bridges and Structures for advice.

Replace "can be reduced by 20% as mentioned in Clause 3.4.2.1 (3)" **with** "shall be obtained from Table 3.7 or Table 3.8, with a reduction of 20% (i.e. ranging from 2.0kN/m^2 for sheltered location to 3.0 kN/m^2 for exposed location)" **in the first sentence of sub-clause (4)**.

Delete sub-clause (5) in whole.

2. CHAPTER 5 DESIGN OF CONCRETE BRIDGES

(c) Clause 5.5.1 General

Replace "shall be designed so that the sum of the calculated crack width under the Crack Width Verification Combination specified in Clause 3.2.2 and the thermal crack width calculated" **with** "shall be designed so that the calculated crack width under the Crack Width Verification Combination specified in Clause 3.2.2, or the thermal crack width calculated" **in the first sentence of sub-clause 5.5.1(1).**

(d) Clause 5.5.2 Early Thermal Movement

Delete "less the crack width resulting from flexure" **at the end of sub-clause**

5.5.2(9).

3. CHAPTER 12 FOOTBRIDGES, SUBWAYS AND WALKWAY COVERS

(e) Section 12.17 WALKWAY COVERS

Replace sub-clause (2)(a)(i) with the following:

(a) Wind actions

(i) The peak velocity pressure q_p shall be obtained in accordance with Clause 3.4.2.1(3).

4. APPENDIX F

(f) F.5 ASSESSMENT OF WIND LOADING AND WIND TUNNEL TESTS

Delete the second paragraph under this clause in whole.