Building and Construction Authority

An MND Statutory Board

Our ref : APPBCA-2024-13

02 Sep 2024

To: Building Owners, Developers, Engineers, Builders and Facility Managers

For enquiries, please contact:
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https://www2.bca.gov.sg/feedback/

PERIODIC STRUCTURAL INSPECTION FOR CIVIL ENGINEERING STRUCTURES

Civil engineering structures[1], particularly those submerged in marine environment, are susceptible to accelerated deterioration if they are inadequately maintained. It is crucial for owners and responsible parties to carry out regular inspections and promptly address any issues through targeted rectification and strengthening to safeguard the structural integrity of these structures.

2 To ensure adequate maintenance of civil engineering structures, owners will be required to carry out periodic structural inspections ("PSI") at 5-yearly intervals. PSI Notices will be issued to the respective owners for the civil engineering structures listed in Table 1 below.

Table 1 – Types of civil engineering structures subjected to PSI

Types of civil engineering structures*	Starting date of PSI Notices issuance
Jetties, docks, wharves	From December 2024
Bridges, underpasses, floating structures	From March 2025

*Note: Structures such as culverts, sewers, drains and retaining walls are currently exempted from PSI

3 Professional Engineers (PEs) appointed for the PSI of such civil engineering structures should adhere to the requirements outlined in the 'PSI Guidelines for Structural Engineers', which can be downloaded from BCA's website at https://www1.bca.gov.sg/regulatory-info/building-control/periodic-structural-inspection. Please refer to the appended Annex A for updates made to the Guidelines regarding the inspection of civil engineering structures.

4 Owners are reminded that routine inspections, adequate maintenance and timely repairs are essential to minimise the need for sudden major repair works. Ultimately, owners bear the primary responsibility to ensure adequate maintenance of their buildings, including civil engineering structures, regardless of the PSI requirement.

[1] Examples of civil engineering structures are jetty, dock, wharf, bridge, underpass, floating structure, culvert, sewer, drain and retaining wall.

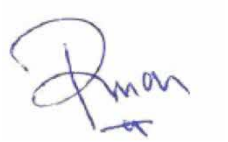
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Clarification

5 Please bring the contents of this circular to the attention of your members. For more information, you may refer to the Frequently Asked Questions (FAQs), which can be downloaded at https://www1.bca.gov.sg/regulatory-info/building-control/periodic-structural-inspection. Should you need any clarification, please submit your enquiry through BCA's Online Feedback Form at https://www2.bca.gov.sg/feedback or call us at 1800 342 5222.

Yours faithfully



ER. PUNITHAN SHANMUGAM
DIRECTOR
BUILDING RESILIENCE GROUP
BUILDING AND CONSTRUCTION AUTHORITY
for COMMISSIONER OF BUILDING CONTROL

ANNEX A: DETAIL OF UPDATES TO PSI GUIDELINES FOR STRUCTURAL ENGINEERS

No	Item	Updates to PSI Guidelines for Structural Engineers
1	**Para 4 Coverage of Visual Inspection**	4.7. PSI at 5-yearly intervals is required for the following civil engineering structures: jetties, docks, wharves, bridges, underpasses and floating structures. When conducting PSI for the building, the structural engineer should also inspect the surrounding structures within the building premise and include their assessment in their report.
2	**ANNEX E – Guidelines for structural inspection for civil engineering structures**	Civil engineering structures being exposed to the elements, especially those submerged in marine environment, are susceptible to accelerated deterioration if they are inadequately maintained. To enable building owners to carry out timely intervention in the form of targeted rectification and strengthening to safeguard the structural integrity of civil engineering structures, building owners of jetties, bridges, underpasses and floating structures will be required to carry out regular PSI. During inspections of submerged civil engineering structures, the structural engineer should comply with the following requirements: 1) Identify any deviation from intended use, misuse and/or abuse arising from increased mooring or berthing forces from anchoring vessels and ships, heavy lifting equipment or machinery loads, etc. 2) For submerged piles, identify changes to the seabed depth caused by erosion or dredging works that can result in the pile embedment depth to reduce, thus affecting the geotechnical capacity of the pile and the overall stability of the structure it is supporting. 3) All structures both above and below water should be visually inspected with the assistance of divers or Remote Operated Vehicles (ROV) to check for signs of structural defect, deformation, and deterioration. Removal of accumulated marine growth on the surface of structures would be necessary to establish the condition of the structures. 4) For steel members (e.g. steel piles) exposed to marine environment, the rate of corrosion should be examined carefully to check for signs of weakening of the structural integrity of the members due to the reduction in steel thickness. Thickness measurements of steel members at various sections (e.g. top, middle, and bottom of the piles) would be necessary to ensure the rate of corrosion is within the allowable corrosion allowance in relation to the design allowance. 5) Based on the structural condition, the structural engineer should propose any rectifications and strengthening works that may be necessary to ensure safety of the civil engineering structures.