

Date: 22 Mar 2024

To: See Distribution List

Dear Sir/Madam,

ADVISORY ON DESIGN FOR MAINTAINABILITY SUBMISSIONS

Who should know

Developers, Building Owners, Architects, Engineers, Facilities Management (FM) Companies, Managing Agents (MA), Environmental Sustainability Design (ESD) Consultants, Builders, Mechanical & Electrical (M&E) Contractors, and Air-Conditioning Equipment Suppliers.

Objective

This circular reminds the industry on the requirements regarding Design for Maintainability (DfM) submissions for Green Mark 2021 (GM: 2021) – Maintainability (Mt) Section and the Code for Environmental Sustainability (ES) of Buildings, 4th Ed¹.

Background

2 DfM is a key pillar under the refreshed Built Environment (BE) Industry Transformation Map (see **Annex A** for details). It is the first step of an effective, sustainable maintenance programme linking maintenance outcomes to the design process to facilitate, among others, cost-effective and labour efficient maintenance regimes throughout the life of a facility.

3 DfM is key part of GM: 2021 – Mt Section and the Code for ES of Buildings, 4th Ed. Today, attaining the Mt Badge² is a condition **(i)** in Government Land Sales (GLS) Programme, **(ii)** for projects under the BE Transformation GFA Incentive Scheme, and **(iii)** for new public sector projects through GreenGov.SG. Additionally, under the said Code, provision of adequate maintenance access to cooling systems is mandatory for all new buildings, as well as newly installed cooling-related equipment in new M&E space for existing buildings undergoing major retrofitting.

Façade Access in GM:2021 – Mt Section

4 **Ensuring 100% façade access coverage is a prerequisite to attain the Mt Badge.** From recent submissions, we observed that some projects – particularly residential developments – aiming for the Mt Badge did not have the necessary information for façade access in their GM submission. **Project teams, therefore, needed more time to fulfil the requirements for issuance of the GM Letter of Award (LOA).**

¹ Applicable to projects with first Planning Permission submission to URA on or after 01 Dec 2021. The code can be accessed here: <https://go.gov.sg/esreq-for-nd>

² Demonstrating exemplary performance in DfM by scoring at least 10 of the available 15 GM points in the Mt Section and meeting the relevant prerequisites therein.

5 We would like to remind the industry that all applicable prerequisites in the Mt Section must be met to attain the Mt Badge. Particularly on façade access, it is important that **project teams engage with the relevant parties at planning and design stage to map out the façade access strategies comprehensively and prepare the necessary drawings for the purposes of GM submissions.**

Maintenance access in Code for ES of Buildings

6 Under the Building Control (Environmental Sustainability) Regulations 2008 and as stated in the Code for ES of Buildings, 4th Ed.'s NRB06 Maintenance of Building Cooling System Performance section, all new non-residential buildings with GFA of 5,000m² or more must ensure adequate maintenance access space to their cooling systems. These comprise chillers, chilled water / condenser water pumps, cooling towers, and air handling units.

7 From recent submissions, we observed that some projects did not provide for such maintenance space adequately, primarily because it was not designed for. As such, the **project teams needed more time to meet the requirements of the Temporary Occupation Permit (TOP). We would like to remind industry to design for adequate maintenance access to building cooling systems according to the said Code.**

8 Specifically, for cooling towers, we would like to share acceptable alternative solutions in the provision of maintenance platforms (see **Annex B** for details).

Circulation

9 Please share this circular with your colleagues and industry partners. We hope that industry practitioners will consider the relevant DfM requirements upstream to facilitate timely issuance of LOAs and TOPs. If you need any clarifications, please contact the following officers:

Name	Email
Ar. Lai Junhong	LAI_Junhong@bca.gov.sg
Er. Leow Yock Keng	LEOW_Yock_Keng@bca.gov.sg

Yours faithfully,



Mr. ANG KIAN SENG
GROUP DIRECTOR
ENVIRONMENTAL SUSTAINABILITY GROUP
BUILDING CONSTRUCTION AUTHORITY

Annex A

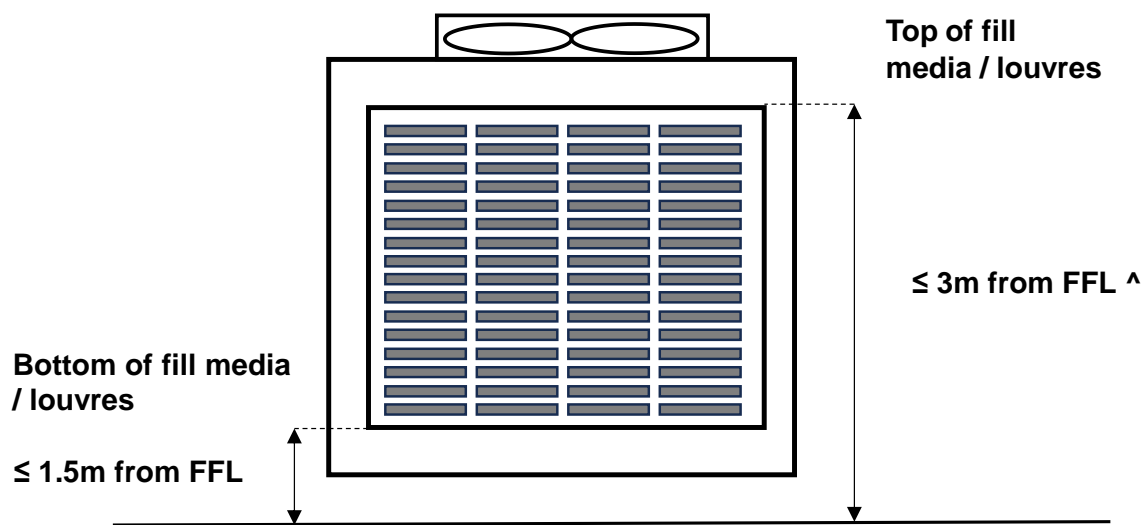
- The refreshed Built Environment Industry Transformation Map (BE ITM) was launched in September 2022. More information can be found at <https://www1.bca.gov.sg/about-us/news-and-publications/media-releases/2022/09/06/built-environment-industry-transformation-map-to-facilitate-integration-and-collaborative-breakthrough-across-the-entire-value-chain>

Annex B

- Scenarios where maintenance platforms may **not** be required for cooling towers.

Scenario A – Low level cooling towers that meet the following conditions:

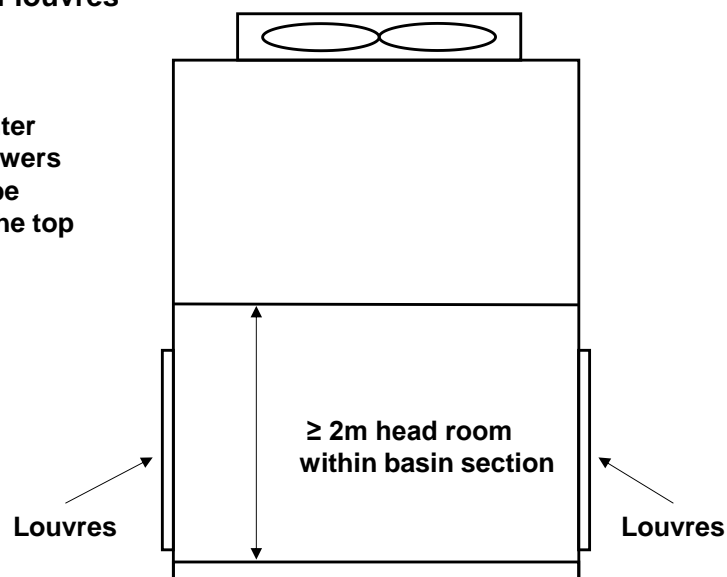
- Bottom of fill media / louvres not exceeding 1.5m from finished floor level, and
- Top of fill media / louvres not exceeding 3m from finished floor level



[^]This allows for the top of fill media/ louvres to be effectively maintained while on FFL or on maintenance platform.

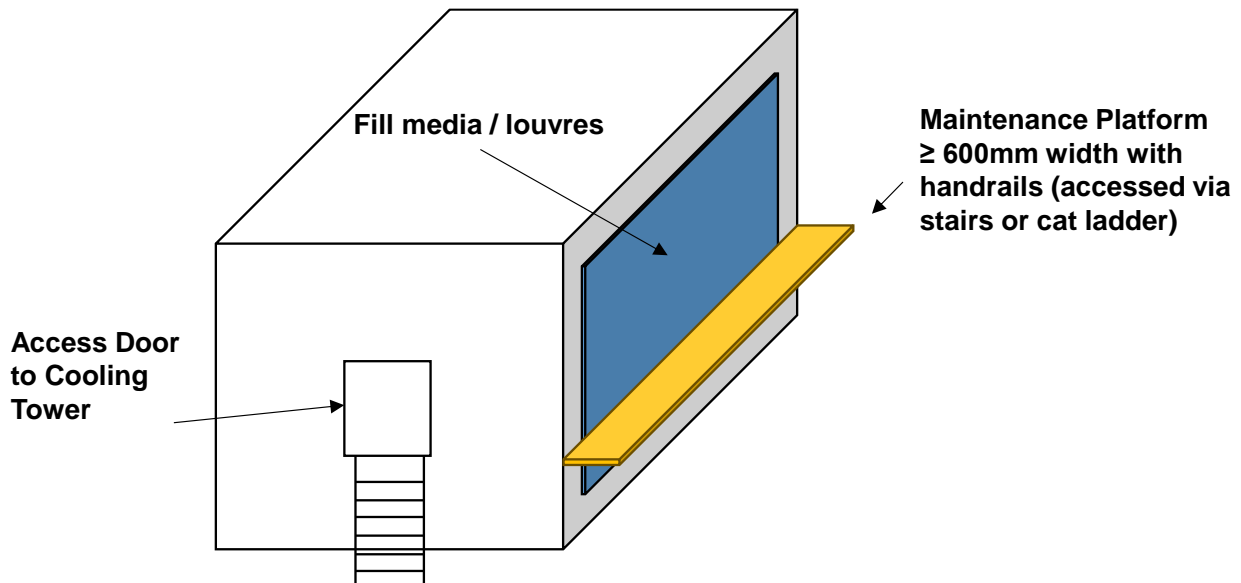
Scenario B – Counter flow cooling towers with at least 2m clear head room in the basin section for maintenance of louvres

Note: For counter flow cooling towers fill media can be cleaned from the top

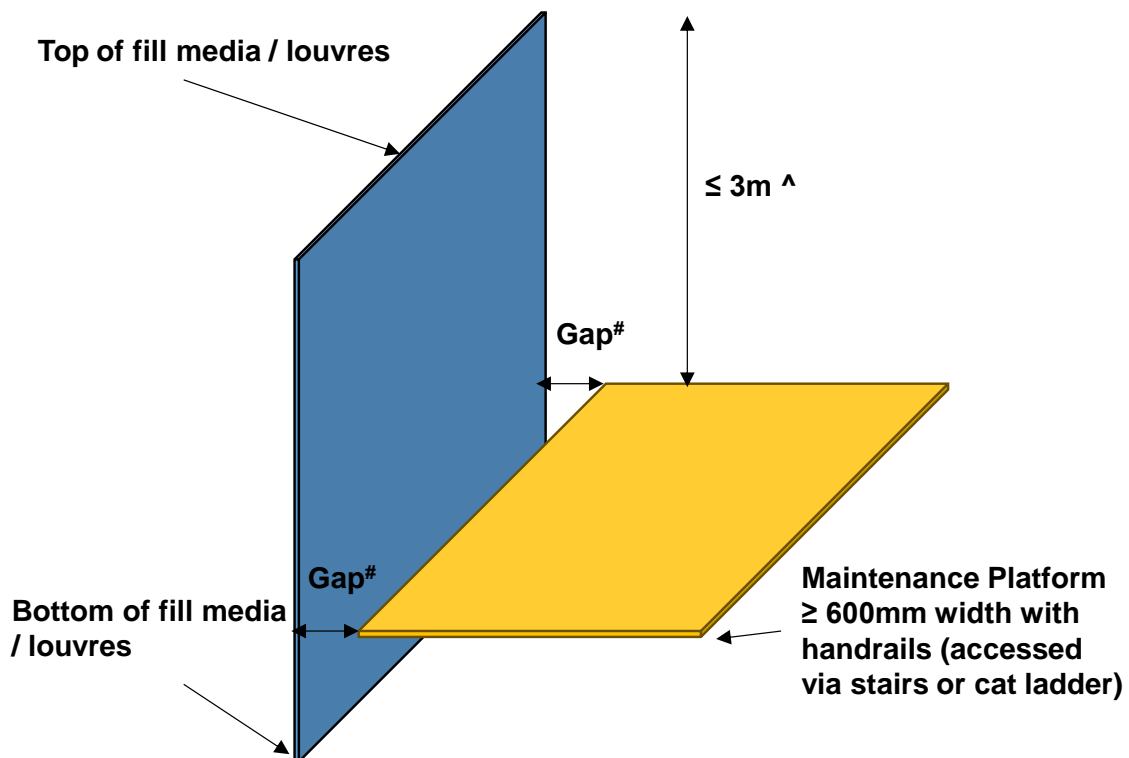


- Acceptable solutions for installation of cooling tower maintenance platforms

a) Provision of (i) maintenance platforms only on the sides where the fill media / louvres are located and (ii) cat ladder to the access door.



b) Installation of maintenance platforms above the bottom of fill media / louvres and with gaps.



#In cases where the maintenance platform is raised, the gap allows effective inspection of the water basin and maintenance of the fill media / louvres. Designers and installers must ensure that sufficient gap space is provided to effectively maintain the bottom of fill media/ louvres.

\wedge This allows for the top of fill media/ louvres to be effectively maintained while on FFL or on the maintenance platform.

Note: All graphics are for illustration purpose only.

DISTRIBUTION (via e-mail):

President
Institution of Engineers, Singapore (IES)
70, Bukit Tinggi Road, Singapore 289758

President
Association of Consulting Engineers, Singapore (ACES)
18, Sin Ming Lane #06-01, Midview City, Singapore 573960

President
Real Estate Developers' Association of Singapore (REDAS)
190 Clemenceau Avenue #07-01, Singapore Shopping Centre, Singapore 239924

President
Singapore Institute of Architects (SIA)
79 Neil Road, Singapore 088904

President
Professional Engineers Board, Singapore (PEB)
52 Jurong Gateway Road #07-03, Singapore 608550

President
Board of Architects (BOA)
5 Maxwell Road, 1st Storey Tower Block, MND Complex, Singapore 069110

President
Singapore International Facility Management Association (SIFMA)
200 Braddell Road, #01-03 Block H, BCA Braddell Campus, Singapore 579700

President
Association of Property & Facility Managers (APFM)
110 Middle Road, #09-00 Chiat Hong Building

President
Singapore Green Building Council (SGBC)
Block H, Level 2, BCA Braddell Campus, 200 Braddell Road, Singapore 579700

Chairman
Sustainable Energy Association of Singapore (SEAS)
180 Kitchener Road, #06-10 City Square Mall, Singapore 208539

President
Singapore Institute of Building Limited (SIBL)
No. 9 Ah Hood Road, #02-04, Singapore 329975

Divisional Director
Occupational Safety and Health Division
Ministry of Manpower

Director
Building and Infrastructure
Defence Science & Technology Agency

Deputy Chief Executive Officer (Building)
Housing & Development Board

Group Director
Facilities & Estates Management
JTC Corporation

Divisional Director
Infrastructure and Facility Services Division
Ministry of Education

Group Director
Joint Operations and Technology Group
National Environment Agency

Director
Building & Estates Management
People's Association

Deputy Chief Executive Officer
Sentosa Development Corporation
33 Allenbrooke Road, Sentosa
Singapore 099981

Managing Director
Health Infrastructure Project
MOH Holdings Pte Ltd

All CORENET e-Info subscribers