

Our Ref: APPBCA-2016-09

Building Plan & Management Group

10 October 2016

See Distribution List

Dear Sir/Madam

(A)IMPLEMENTATION DATE FOR NEW SS 530:2014 – CODE OF PRACTICE FOR ENERGY EFFICIENCY STANDARD FOR BUILDING SERVICES AND EQUIPMENT AND NEW SS 553:2016 – CODE OF PRACTICE FOR AIR-CONDITIONING AND MECHANICAL VENTILATION IN BUILDINGS

(B)NEW REQUIREMENT IN THE APPROVED DOCUMENT ON AIR FILTRATION STANDARDS AS STIPULATED IN NEW SS 553:2016 AND ADVISORY FOR EXISTING BUILDINGS TO RETROFIT AIR DISTRIBUTION SYSTEMS TO MEET AIR FILTRATION STANDARDS

This circular is to:

- a) Advise the industry the implementation date for:
 - a. SS 530:2014– Code of Practice for Energy Efficiency Standard for Building Services and Equipment and
 - b. SS 553:2016 – Code of practice for Air-conditioning and Mechanical Ventilation in buildings

- b) Inform the industry of the new requirement in the Approved Document on air filtration standards as stipulated in SS 553:2016 and encourage the industry to retrofit air distribution systems of existing buildings to meet air filtration standards



(A) IMPLEMENTATION DATE FOR NEW SS 530:2014 – CODE OF PRACTICE FOR ENERGY EFFICIENCY STANDARD FOR BUILDING SERVICES AND EQUIPMENT AND NEW SS 553:2016 – CODE OF PRACTICE FOR AIR-CONDITIONING AND MECHANICAL VENTILATION IN BUILDINGS

- **CURRENT REQUIREMENTS**

Approved Document

2 Currently, the (i) efficiency of air-conditioning system¹, (ii) maximum artificial lighting power budget and (iii) switching control for artificial lighting, in building works, have to comply with requirements under SS 530 - Code of Practice for Energy Efficiency Standard for Building Services and Equipment. Building works are also required to meet the ventilation requirements set out under the SS 553 - Code of Practice for Air-Conditioning and Mechanical Ventilation in Buildings.

Building Control (Environmental Sustainability) Regulations 2008

3 Further, building works that are required to meet the minimum Green Mark Score under the abovementioned regulations, are required to comply with the Code for Environmental Sustainability of Buildings. The Code makes references to SS 530 and SS 553 in the computation of Green Mark Score.

- **REVISIONS TO SS 530 AND SS 553**

4 To keep abreast of international standards, SPRING Singapore has revised SS 530:2006 to SS 530:2014 and SS 553:2009 to SS 553:2016.

5 The latest versions of SS 530 and SS 553 will apply to all projects under the Approved Document and Building Control (Environmental Sustainability) Regulations 2008. **The changes will take effect on projects whose first set of plans is submitted to the Commissioner of Building Control for approval on or after 1 April 2017.**

(B) NEW REQUIREMENT IN THE APPROVED DOCUMENT ON AIR FILTRATION STANDARDS AS STIPULATED IN NEW SS 553:2016 AND ADVISORY FOR EXISTING BUILDINGS TO RETROFIT AIR DISTRIBUTION SYSTEMS TO MEET AIR FILTRATION STANDARDS

- **SCOPE OF NEW REQUIREMENT**

6 Under the revised SS 553:2016, launched by SPRING Singapore in August 2016, Section 7.5 – Air filtration, the Minimum Efficiency Reporting Value (MERV) for cleaning the air in all air-handling units and fan coil units shall be equivalent to MERV 6 or better, and MERV 14 when the outdoor pollution level is in the unhealthy range in accordance with MOH's guidelines.

7 To mitigate infiltration of fine haze particles into buildings when haze returns and exceeds unhealthy levels for an extended period of time, the

¹ Air-conditioning system with cooling capacity exceeding 30 kW only.

acceptable solution specified in the Approved Document, Section G would be expanded to include a new requirement – air-conditioning systems for ventilation of non-residential buildings shall need to comply with the Minimum Efficiency Rating Value (MERV) for cleaning of air given in the SS 553:2016. This is in addition to the requirement on ventilation rates.

- **CHANGES TO THE APPROVED DOCUMENT**

8 The amendment to the Approved Document, Section G – Ventilation, as shown in Annex A will be effective **from 1 April 2017**.

9 This new requirement on air filtration standard will apply only to new erection of non-residential projects where the first set of plans is submitted to the Commissioner of Building Control for approval **on or after 1 April 2017**.

- **OWNERS OF EXISTING BUILDINGS ARE ADVISED TO RETROFIT AIR DISTRIBUTION SYSTEMS**

10 Owners of existing buildings are encouraged to retrofit the air distribution systems to meet the air filtration recommendations in SS553:2016. Adopting the air filtration recommendations helps a building to be protected from the adverse impact of poor outdoor air quality during periods of heavy haze, thus alleviating tenants' concern and minimising disruption to business activities.

11 Please refer to Annex B on the good practices that may be considered in the design and installation of the air distribution systems of air conditioning and mechanical ventilation systems in buildings.

FOR CLARIFICATION

12 We would appreciate it if you could convey the contents of this circular to the members of your organisation. For clarification, you may call our Hotline at 1800-221-9001 or email to bca_enquiry@bca.gov.sg.

Yours faithfully



DARREN LIM
DIRECTOR
BUILDING PLAN & MANAGEMENT GROUP
for COMMISSIONER OF BUILDING CONTROL

ANNEX A

Proposed Amendment to the Approved Document – Section G Ventilation

G.3 ACCEPTABLE SOLUTION

G.3.1 The requirement in paragraph G.2.1 is deemed to be satisfied if –

- (a) natural ventilation that complies with paragraphs G.3.2.1 and G.3.2.2; or
- (b) mechanical ventilation that complies with the ventilation rates given in SS 553 - Code of Practice for Air-Conditioning and Mechanical Ventilation in Buildings; or
- (c) air-conditioning system that complies with –

(for new erections of non-residential buildings)

- (i) the ventilation rates in SS 553 - Code of Practice for Air-Conditioning and Mechanical Ventilation in Buildings; and
- (ii) the Minimum Efficiency Reporting Value (MERV) for cleaning the air given in SS 553 - Code of Practice for Air-Conditioning and Mechanical Ventilation in Buildings

(for all other types of building works)

the ventilation rates in SS 553 - Code of Practice for Air-Conditioning and Mechanical Ventilation in Buildings,

is provided.

ANNEX B

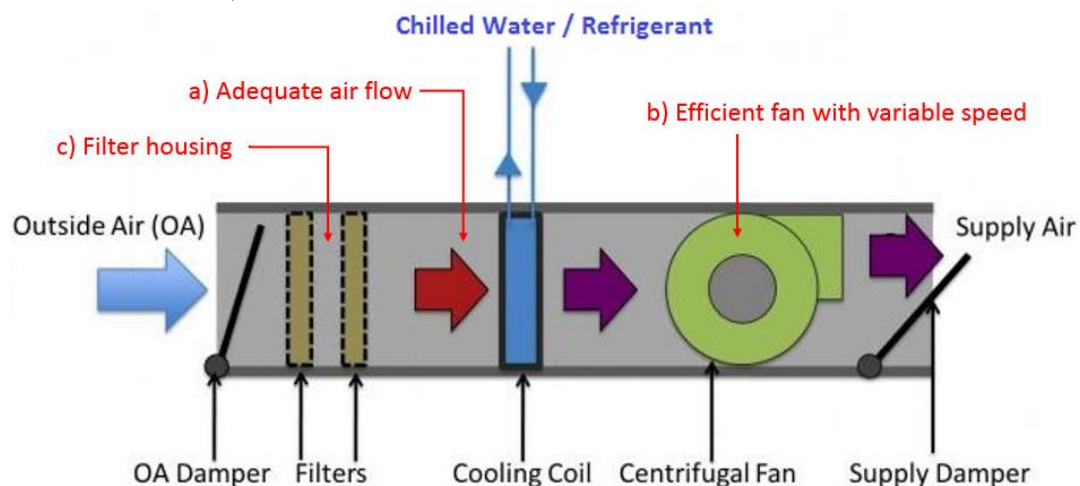
Recommended good practices for the design and installation of air distribution systems

BCA recommends that as a good practice, the industry should consider the following when retrofitting the air distribution system to meet the air filtration recommendations in SS 553:2016:

- a. The fan static should be sufficient to sustain the required air flow rate in the event that a MERV-14 filter is deployed. The fan motor may thus need to be upsized.
- b. Fan motor should be run efficiently. When a MERV-6 filter is used, the fan speed should be modulated with a variable speed drive (VSD) or other means to reduce energy consumption.
- c. Provision of air filter housing or slot to accommodate the chosen filter and space to facilitate equipment maintenance and filter replacement.

Building owners may want to consider engaging the service of a Professional Engineer (Mechanical) for the design of the ACMV system.

The corresponding considerations are indicated in the depiction of an AHU/FCU below,



+ MERV (Minimum Efficiency Reporting Value) is a measurement scale designed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) to rate the effectiveness of air filters. The MERV rating ranges from 1 to 16, with a higher MERV rating corresponding to a greater percentage of particles captured on each pass.

DISTRIBUTION (via e-mail):

President
Singapore Green Building Council (SGBC)
#06-05 King's Centre, 390 Havelock Road,
Singapore 169662
enquiry@sgbc.sg

President
Institution of Engineers, Singapore (IES)
70 Bukit Tinggi Road
Singapore 289758
ies@iesnet.org.sg

President
Real Estate Developers' Association of Singapore (REDAS)
190 Clemenceau Avenue #07-01
Singapore Shopping Centre
Singapore 239924
enquiry@redas.com

President
Singapore Contractors Association Limited (SCAL)
Construction House
1 Bukit Merah Lane 2
Singapore 159760
enquiry@scal.com.sg

President
Singapore Institute of Architects (SIA)
79 Neil Road
Singapore 088904
info@sia.org.sg

President
Singapore Institute of Building Limited (SIBL)
70 Palmer Road #03-09C
Palmer House
Singapore 079427
josephine@sibl.com.sg

President
Singapore Institute of Surveyors & Valuers (SISV)
110 Middle Road #09-00
Chiat Hong Building
Singapore 188968
sisv.info@sisv.org.sg

President
Society of Project Management (SPM)
MacPherson Road P.O. Box 1083
Singapore 913412
sprojm@yahoo.com

President
Board of Architects (BOA)
5 Maxwell Road 1st storey
Tower Block MND Complex
Singapore 069110
boarch@singnet.com.sg

President
Professional Engineers Board, Singapore (PEB)
52 Jurong Gateway Road #07-03
Singapore 608550
registrar@peb.gov.sg

President
Singapore Lift & Escalator Contractors & Manufacturers Association
(SLECMA)
5, Shenton Way #11-01
UIC Building
Singapore 068808
bstan@ctlclaw.com

President
Singapore Hotel Association
17 Cantonment Road
Singapore 089740.
secretariat@sha.org.sg

Chairman
The Association of Shopping Centres (Singapore)
91 Tanglin Road #03-01
Tanglin Place
Singapore 247918
info@orchardroad.sg

President
Singapore Structural Steel Society (SSSS)
1 Liang Seah Street #02-11/12
Liang Seah Place
Singapore 189022
secretariat@ssss.org.sg

Director of Infrastructure
Infrastructure And Facility Services Division
Ministry of Education HQ (Ghim Moh)
285 Ghim Moh Road Blk C Level 3
Singapore 279622
eng_wee_tong@moe.gov.sg

Deputy Chief Executive Officer (Building)
Housing & Development Board (HDB)
480 Lorong 6 Toa Payoh
HDB Hub
Singapore 310480
fong_chun_wah@hdb.gov.sg

Deputy Chief Executive
Infrastructure & Development
Land Transport Authority (LTA)
1 Hampshire Road Block 8 Level
Singapore 219428
chua_chong_kheng@lta.gov.sg

Director
Technical Services Division
JTC Corporation (JTC)
8 Jurong Town Hall Road
The JTC Summit
Singapore 609434
koh_chwee@jtc.gov.sg

Senior Director (Building & Estates Management)
People's Association (PA)
9 King George's Avenue
Singapore 208581
foo_soon_leng@pa.gov.sg

Director
Best Sourcing Department
Public Utilities Board (PUB)
40 Scotts Road #18-01
Environment Building
Singapore 228231
koh_boon_aik@pub.gov.sg

Chief Planner
Urban Redevelopment Authority (URA)
45 Maxwell Road
The URA Centre
Singapore 069118
lim_eng_hwee@ura.gov.sg

President
Singapore Institute of Planners (SIP)
93 Toa Payoh Central #05-01
Singapore 319194
info@sip.org.sg

Director
Building and Infrastructure
Defence Science & Technology Agency
71 Science Park Drive
Singapore 118253
ong_yew_hing@dsta.gov.sg

Head (Fire Safety and Building Control)
Building and Infrastructure
Defence Science & Technology Agency
1 Depot Road
Defence Technology Tower A
Singapore 109679
hahmeng@dsta.gov.sg

Manager (Architectural Plans)
Building and Infrastructure
Defence Science & Technology Agency
1 Depot Road
Defence Technology Tower A
Singapore 109679
lhaikong@dsta.gov.sg

Deputy Chief Executive Officer
Sentosa Development Corporation
33 Allenbrooke Road, Sentosa
Singapore 099981
agencies_circulars@sentosa.com.sg

Chief
Health Infrastructure Project
MOH Holdings Pte Ltd
1 Maritime Square #11-25
HarbourFront Centre
Singapore 099253
bengthong.koh@mohh.com.sg

President
Association of Consulting Engineers Singapore
Thomson Road Post Office
PO Box 034
Singapore 915702
secretariat@aces.org.sg

President
Association of Property & Facility Managers (APFM)
110 Middle Road
#09-00 Chiat Hong Building
Singapore 188968
secretariat@apfm.mygbiz.com

President
International Facility Management Association (IFMA)
Killiney Road Post Office
PO Box 2104
Singapore 912352
contact@ifmasingapore.org

President
Institution of Facilities Management (IFM)
Kent Ridge Post Office
Yusof Ishak House (NUS)
Kent Ridge PO Box 1058
Singapore 119260
bekkh@singnet.com.sg

President
Association of Management Corporations in Singapore (AMCIS)
115A Commonwealth Drive
#01-03
Singapore 149596
mcst_help@amcis.org.sg

President
Sustainable Energy Association of Singapore (SEAS)
1 Cleantech Loop
#02-16 Cleantech One
Singapore 637141
info@seas.org.sg

Chief(Sports Facilities)
Singapore Sports Council (SSC)
230 Stadium Boulevard
Singapore 397799
kenneth_hui@ssc.gov.sg

All CORENET e-Info subscribers