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CIRCULAR TO PROFESSIONAL INSTITUTES

GUIDELINES TO ENCOURAGE MORE INNOVATIVE AND BETTER DESIGN OF ROOFTOPS.

- A. RELAXATION OF THE GROSS FLOOR AREA (GFA) EXEMPTION GUIDELINES FOR ROOFTOP COVERS**
- B. SCREENING OF MECHANICAL & ELECTRICAL SERVICES AND CAR PARKS, ON ROOFS AND BUILDING FACADES WITHIN THE CENTRAL AREA**

Objective of Guideline

To encourage more innovation and creativity in roof design as well as the screening of unsightly M&E services on buildings.

Effective date

With effect from 6 September 2004

Who should know

Architects, engineers, developers

Background

- 1 One of the two key topics discussed at POWER III was on how we can enhance the skyline of our sky to make Singapore a distinctive city. The roofscape is one of the elements that contributes to a city's memorable skyline. Hence, besides the screening of unsightly air-conditioning cooling units and water tanks at the roof tops, it is desirable to have varied and well articulated roof forms.
- 2 Currently, the covered space under a full roof housing mechanical and electrical (M&E) services is exempted from GFA if the roof cover satisfies the following criteria:
 - a. it must be non-load bearing and rest on the springing line; and
 - b. it must house the M&E and other service equipment.
- 3 The intention was to encourage developers to provide a full roof cover to screen off unsightly rooftop services rather than using trellises or leaving their flat roofs uncovered in many parts.

Details

A. RELAXATION OF THE GROSS FLOOR AREA (GFA) EXEMPTION GUIDELINES FOR ROOFTOP COVERS

- 4 In response to feedback received at POWER III and to encourage more innovation and creativity in roof design, we are pleased to announce the relaxation of the existing guidelines as well as the introduction of new incentives for activity-generating uses at the rooftop.

Revised rooftop cover guidelines

For all developments

- 5 The conditions for the current GFA exemption for rooftop cover are relaxed as follows:
- a. To lift the springing line and full roof cover controls
 - b. To exempt the entire covered roof area including any sealed dead space, as well as residual (non-usable space) and resultant shadow areas under the roof¹ from GFA computation; (see diagram [Appendix 1](#)):
- 6 At locations where URA has other concerns on urban design, we would assess individual roof proposals considering whether the design is sensitive to and would complement the existing environment. These areas include
- a. Infill sites in Conservation areas; and
 - b. Developments within the vicinity of height sensitive areas, such as the areas around the Singapore Botanic Gardens.
- 7 The new guidelines will not be applicable to the following:
- a. Conservation buildings
 - b. Areas with urban design guidelines for roof forms, such as Tanjong Rhu and Singapore River
 - c. Landed housing area, sites designated for Residential use at 1.4 GPR, and developments sharing a common boundary with these areas.

¹ Roof covers are to be non load-bearing.

- 8 With the relaxation of the guidelines, all applications would still be subject to the technical height controls, if any, for the site.

New Guidelines for activity-generating uses

For commercial and hotel developments that make use of the rooftop cover guidelines

- 9 Currently, rooftops are mostly used for M&E services and are seldom used for other activities. To complement the objective to encourage good roof design, some activity-generating uses such as food & beverage outlets (restaurants, pubs and lounges) at the rooftops are encouraged for commercial and hotel buildings. Hence, we would like to introduce the following new guidelines to facilitate good roof design with activity-generating uses for commercial and hotel developments:
- a. To allow the transfer of the rooftop M&E services from the roof to one of the top three floors directly below the roof (see [Appendix 2](#)). M&E services that are required to remain on the rooftop to serve the activity-generating uses, such as lift motor rooms, should be neatly integrated with the roof design;
 - b. To exempt from GFA computation the covered M&E areas up to one floor only. The activity generating uses at the rooftop would constitute as GFA;
 - c. For commercial and hotel developments that share common boundaries with residential developments, no activity generating uses will be allowed at the rooftops;
 - d. For commercial and hotel developments that are in close proximity to residential developments, such as across the road, such activity generating uses at the rooftops will be evaluated on a case by case basis.
- 10 These guidelines will supersede the 1997 guidelines for rooftop cover.

B. SCREENING OF MECHANICAL & ELECTRICAL SERVICES AND CAR PARKS, ON ROOFS AND BUILDING FACADES WITHIN THE CENTRAL AREA

- 11 URA is also pleased to release a set of guidelines on the above services screening requirements. Applicants are encouraged to consider the location of the services and integrate them within the overall building design.
- 12 The guidelines are applicable for all new erections, reconstruction works, as well as cladding and roofing works within the Central Area.

- 13 All rooftop mechanical and electrical services, such as air-condensing (A/C) units, water tanks, lift motor rooms, etc., shall be well integrated within the building envelope and visually screened from the top and all sides. See [Appendix 3](#).
- 14 For developments served by multiple independent mechanical and electrical services, such as A/C units for high-rise residential developments and home offices, all mechanical and electrical services on the external building facades shall be neatly mounted and visually well-screened.

Performance requirements for different screening examples

- 15 The types of screening that can comply with the performance requirements could include trellises, louvres and perforated panels.
- 16 The requirements for the following examples of screening are:
 - a. Trellis/ Louvres
The spacing of trellises, louvres or other similar types of construction used for screening shall be equal or less than the depth of its individual members. The screening elements shall be orientated to cut off views of the services from the street level and surrounding buildings. See details [A and B in Appendix 3](#).
 - b. Perforated Panels
The porosity (i.e. percentage of void-to-solid) of the perforated panels shall be equal or less than 25% and the size of openings should not exceed 30mm in diameter. See [Appendix 4](#).
- 17 Applicants are free to propose alternative screening types as long as they meet the performance requirements of effective visual screening from the street level and the surrounding developments. Samples and/or images illustrating the effectiveness of the screening are to be submitted to URA for our evaluation.

Car Parks

- 18 For all new erections and reconstruction works in the Central Area, except residential developments in Newton and River Valley planning areas, the performance guidelines for the screening of above grade car parking levels are:
 - a. The façade design of all proposed car parking levels above grade shall be considered as part of the overall architectural treatment of the development;
 - b. The direct light from car headlamps, when the cars are in the parked position, shall be visually well-screened from the surrounding developments. This could be achieved, for example, by screening the facade wall at the car parking levels up to the height of the parapet;

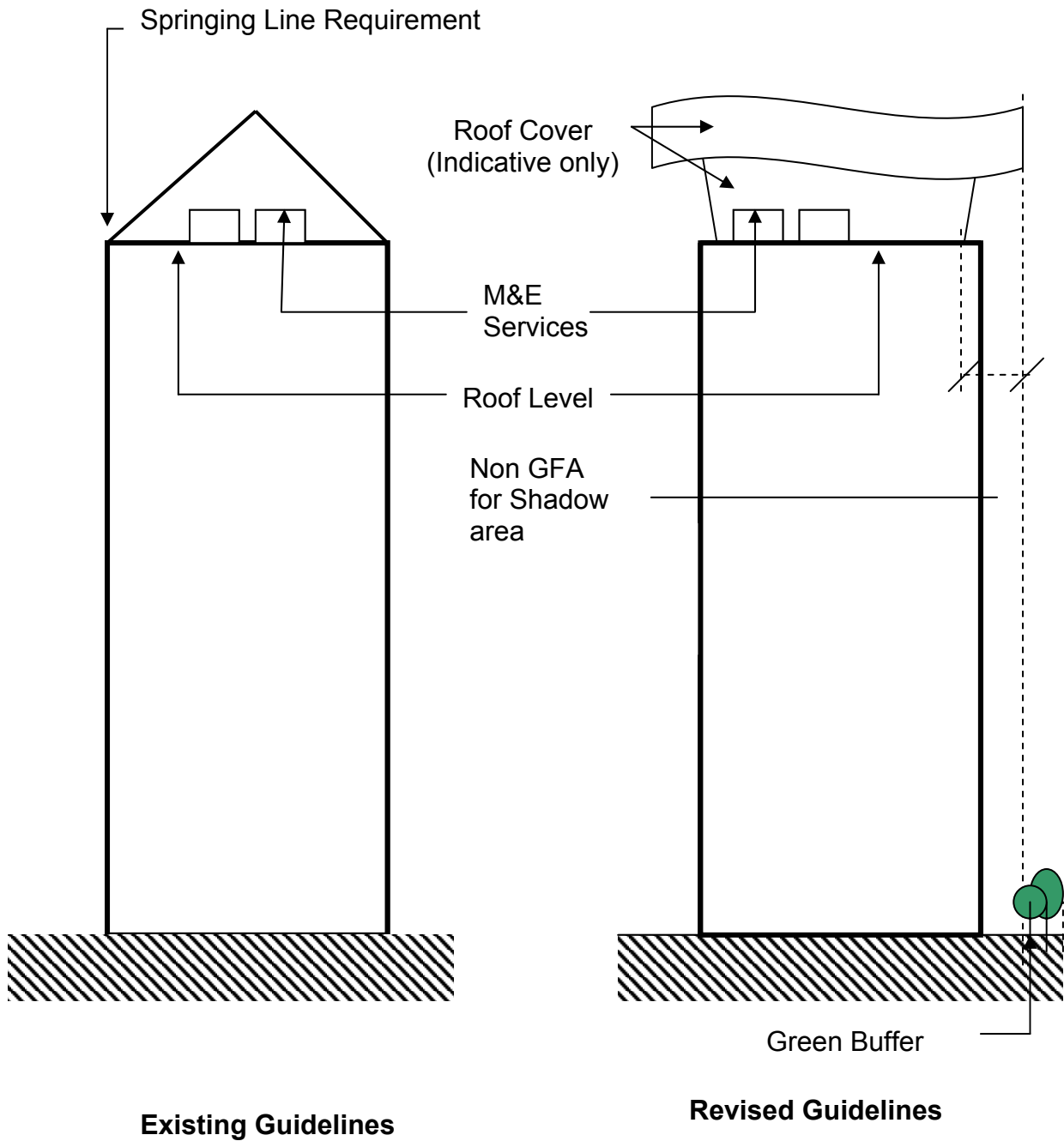
- c. The services located at the ceiling, near the periphery of the car parking levels, shall be visually well screened from the street level and the surrounding developments; and
- d. Roof top car parks shall also be visually well-screened from the top according to the performance guidelines as stated in paragraphs 15, 16 and 17.

Submission Requirements

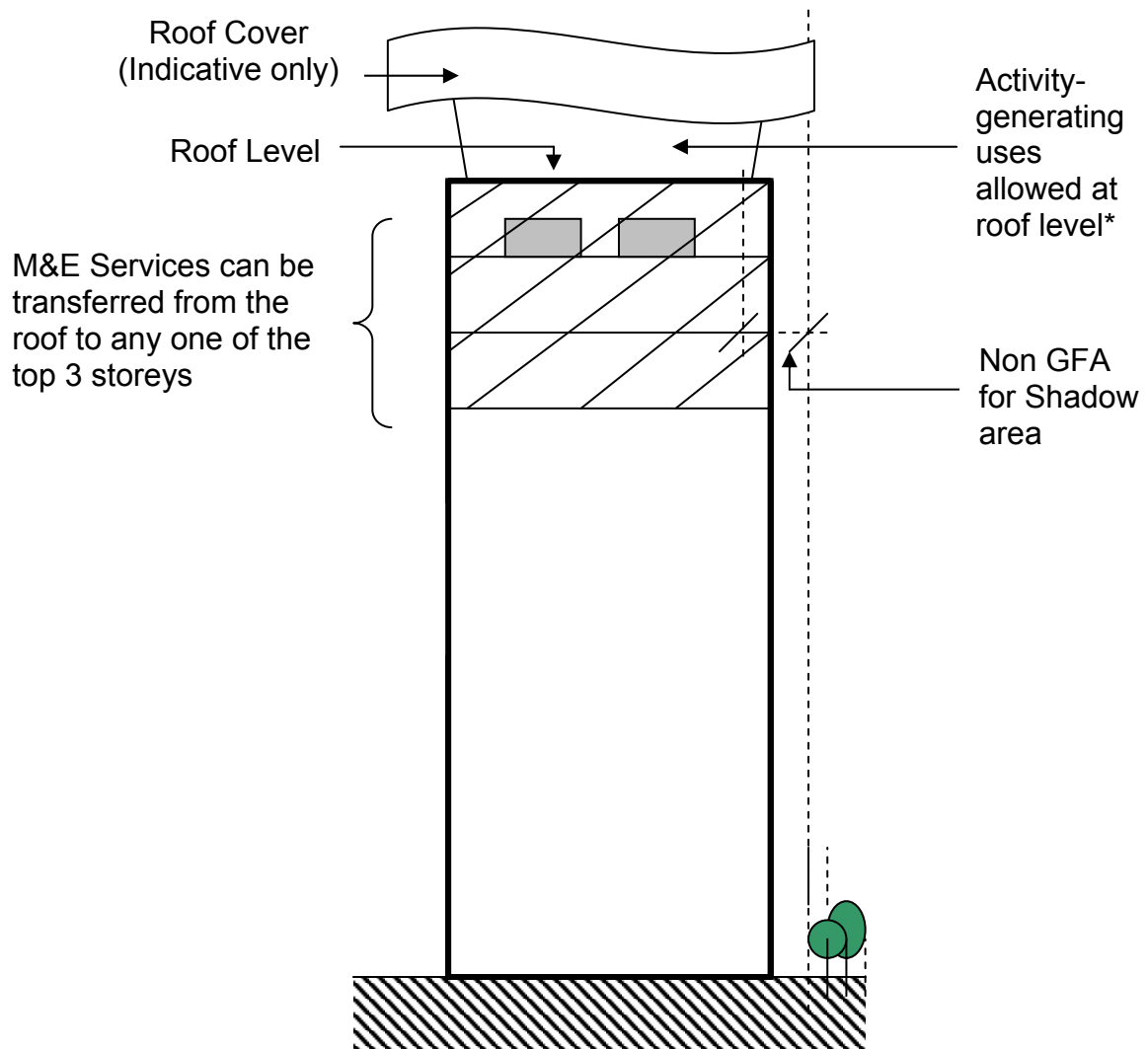
- 19 Details of the design, layout and material used for the screening of services shall be clearly annotated in the submission drawings to comply with the above guidelines.
- 20 I would appreciate it if you could convey the contents of this circular to the relevant members of your organisation. If you or your members have any queries concerning this circular, please do not hesitate to call Exec Architect Michael Leong at Tel: 6321 8117, Exec Architect Christina Goh at Tel: 6321 8118, or our DCD Customer Service Hotline at Tel: 6223 4811 or e-mail us at URA_CSO@ura.gov.sg. We would be pleased to answer queries on this, and any other development control matter. For your information, the past circulars to the professional institutes are available from our website <http://www.ura.gov.sg>.
- 21 Thank you.

FOO CHEE SEE
DIRECTOR (DEVELOPMENT CONTROL)
For CHIEF EXECUTIVE OFFICER
URBAN REDEVELOPMENT AUTHORITY

RELAXATION OF 1997 ROOFTOP COVER GUIDELINES

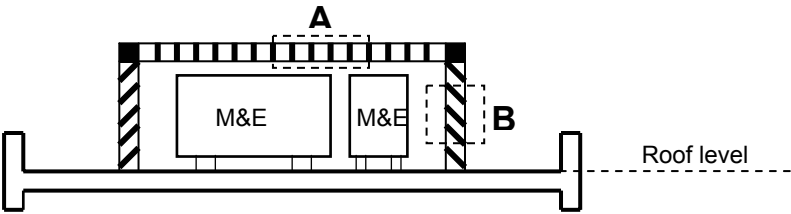


TRANSFER OF THE M&E SERVICES FROM THE ROOFTOP TO ONE OF THE TOP 3 FLOORS FOR COMMERCIAL AND HOTEL DEVELOPMENTS

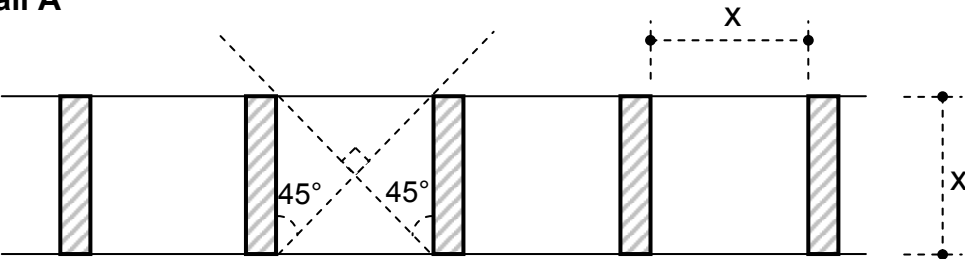


* Subject to Master Plan GPR Control

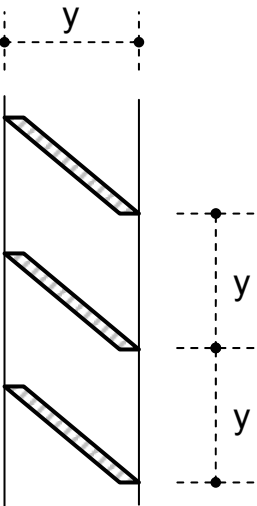
SCREENING OF M&E SERVICES ON THE ROOFTOP
- An example using trellises / louvres



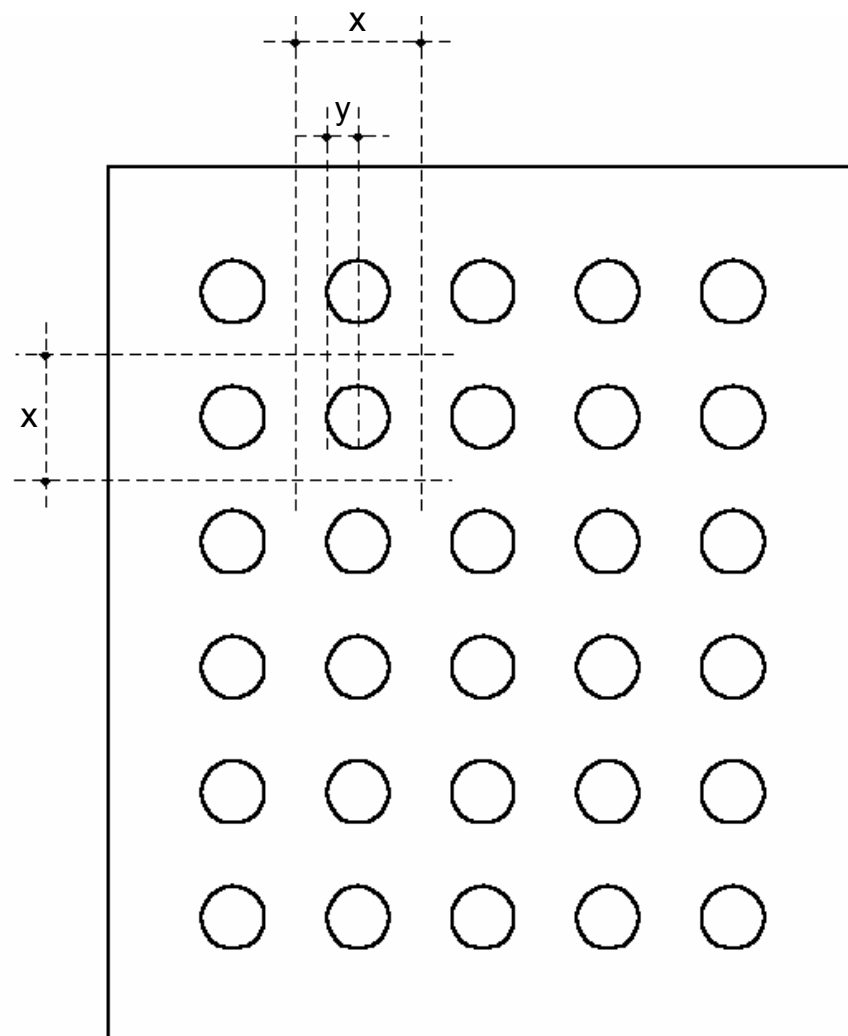
Detail A



Detail B



EXAMPLE OF SCREENING USING PERFORATED PANELS
- Elevational Detail



Porosity (assuming round openings) = Area of opening / Area of solid
 $= \pi(y)^2 / (x)^2$
 $\leq \underline{25\%}$

Maximum diameter of opening $\leq \underline{30\text{mm}}$