

## **Building Design to Foster a Quality and Sustainable Built Environment**

There has been rising public concern over the quality and sustainability of the built environment, including issues regarding building bulk and height, air ventilation, greening and energy efficiency in buildings. In 2009, the Council for Sustainable Development launched a public engagement process entitled “Building Design to Foster a Quality and Sustainable Built Environment” in collaboration with the Government. The exercise has pointed to a need for putting in place a package of new measures to foster a quality and sustainable built environment. This practice note sets out a package of measures, covering the following major elements, to promote a quality and sustainable built environment:

- (a) sustainable building design guidelines (SBD Guidelines) on building separation, building set back and site coverage of greenery;
- (b) gross floor area (GFA) concessions; and
- (c) energy efficiency of buildings.

### **Sustainable Building Design Guidelines**

2. The Buildings Department (BD) has commissioned a consultancy study on “Building Design that Supports Sustainable Urban Living Space in Hong Kong”. Based on the study, a set of SBD Guidelines has been developed to promote building separation, building set back and site coverage of greenery as promulgated in the Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) APP-152.

3. To enhance the quality and sustainability of the built environment, the Building Authority (BA) will take account of the compliance with the SBD Guidelines as promulgated in the PNAP APP-152, where applicable, as a pre-requisite in exempting or disregarding green / amenity features and non-mandatory / non-essential plant rooms and services from GFA and/or site coverage calculations (GFA concessions) in new building developments. Such green / amenity features and non-mandatory / non-essential plant rooms and services and the relevant practice notes promulgating the criteria and requirements for granting GFA concessions are summarised in Appendix A.

### **Overall Cap on GFA Concessions**

4. To contain the effect on the building bulk while allowing flexibility in the design for incorporating desirable green / amenity features and non-mandatory / non-essential plant rooms and services, an overall cap will be imposed on the total amount of GFA concessions for these features, except those features described in paragraph 5 below. This cap is set at 10 % of the total GFA of the development. If a development comprises both domestic and non-domestic buildings or in the case of a composite building, GFA concessions for features serving the domestic part or the non-domestic part of the development will be calculated separately such that GFA concessions for each part will be capped at 10%, based on the total GFA of the respective part of the development. Features that are subject to this overall cap of GFA concessions are listed in the table at Appendix A.

5. GFA concessions for the following features, which may have to satisfy their own individual acceptance criteria, will not be subject to the overall cap:

- (a) Mandatory features and essential plant rooms such as refuse storage chamber, telecommunications and broadcasting rooms;
- (b) Communal podium gardens and sky gardens that improve permeability of a development to its neighbourhood;
- (c) Floor space used solely for parking motor vehicles and loading and unloading of motor vehicles which is separately controlled given its significant impact on building bulk and height and the relevant transport, planning and environmental policies;
- (d) Voids in front of cinemas or in shopping arcades, etc. with operational needs in non-domestic developments;
- (e) Bonus GFA and / or GFA exemptions relating to dedication for public passage or surrender for road widening and building set back in accordance with the SBD Guidelines; and
- (f) Hotel concessions granted under regulation 23A of the Building (Planning) Regulations.

### **Pre-requisites for Granting GFA Concessions**

6. To promote sustainable building designs and energy efficient features in new developments, compliance with the following requirements will be pre-requisites for the granting of GFA concessions for all green / amenity features and non-mandatory / non-essential plant rooms and services provided in a proposed development as described in Appendix A:

- (a) Compliance with the SBD Guidelines on building separation, building set back and site coverage of greenery in PNAP APP-152, where applicable;
- (b) For domestic or composite development, compliance with the requirements of PNAP APP-156 on Design and Construction Requirements for Energy Efficiency of Residential Buildings, where applicable;
- (c) Submission of the official letter issued by the Hong Kong Green Building Council (HKGBC) acknowledging the satisfactory completion of project registration application for BEAM Plus certification;
- (d) Submission of a letter by the developer or owner undertaking to submit to the BD the following documents:
  - (i) Result of the Provisional Assessment under the BEAM Plus certification conferred / issued by the HKGBC to be submitted prior to the application for consent to commence the building works shown on the approved plans (consent);
  - (ii) Information on the estimated energy performance / consumption for the common parts (for domestic developments) or for the entire building (for non-domestic developments including hotels) to be submitted in the standard form (Appendix B) prior to the consent application;
  - (iii) Information specified in item (ii) above to be updated and submitted at the time of submitting application for occupation permit (OP);
  - (iv) Result of the Final Assessment under the BEAM Plus certification conferred / issued by the HKGBC, within 18 months of the date of issuance of the OP by the BA;
  - (v) Provisional energy efficiency report prior to the consent application in accordance with PNAP APP-156, where applicable; and
  - (vi) Final energy efficiency report upon application for an OP in accordance with PNAP APP-156, where applicable ;
- (e) Compliance with the overall cap on GFA concessions as described in paragraph 4 above, where applicable; and
- (f) Compliance with the relevant acceptance criteria for the individual green and amenity features.

### **Conditions for Granting GFA Concessions**

7. In addition to the acceptance criteria and conditions that may be imposed for granting GFA concessions as detailed in the relevant practice notes for the green / amenity features and non-mandatory / non-essential plant rooms and services described in paragraph 6 above, the following conditions may be imposed:

- (a) The modification is given in recognition of the undertaking submitted by the developer or owner as described in paragraph 6(d) above;
- (b) Information described in paragraph 6(d)(i), (ii) and (v) above shall be submitted to the BD prior to the consent application;
- (c) Information described in paragraph 6(d)(iii) and (vi) above shall be submitted to the BD at the time of submitting application for OP;
- (d) Information described in paragraph 6(d)(iv) above shall be submitted to the BD within 18 months of the date of the OP; and
- (e) The modification will be revoked if the consent application is submitted prior to the submission of information specified in item (b) above.

8. Authorized persons should consult a registered professional engineer under the Engineers Registration Ordinance of the relevant discipline in assessing the energy efficiency of the building and in completing the standard form at Appendix B.

### **Disclosure for Public Information**

9. To increase the transparency of information to the public, the following information will be uploaded onto the BD website after the issuance of the occupation permit:

- (a) The estimated energy performance / consumption information as described in paragraph 6(d)(iii) above;
- (b) The results of the Provisional Assessment under the BEAM Plus certification as described in paragraph 6(d)(i) above, which will be replaced by the results of the Final Assessment described in paragraph 6(d)(iv) above, upon receipt; and

- (c) The finalised RTTV and OTTV for RRF as recorded in the final energy efficiency report.

(YU Tak-cheung)  
Building Authority

Ref. : BD GP/BREG/P/49 (XIV)

First issue January 2011

Last revision August 2020

This revision December 2020 (AD/NB1) (Appendix A amended)

**List of GFA Concessions**

		<b>Practice Notes</b>	<b>Features subject to compliance with the pre-requisites in para. 6 &amp; 7 of PNAP APP-151</b>	<b>Features Subject to the Overall Cap of 10% in para.4 of PNAP APP-151</b>
<b>Disregarded GFA under Regulation 23(3)(b) of the Building (Planning) Regulations (B(P)R)</b>				
1.	Carpark and loading/unloading area excluding public transport terminus	PNAP APP-2 & APP-111		
2.	<b>Plant rooms and similar services</b>			
2.1	Mandatory feature or essential plant room, area of which is limited by respective PNAP or regulation, such as lift machine room, TBE room, refuse storage chamber, etc. <sup>(1)</sup>	PNAP APP-35 & APP-84		
2.2	Mandatory feature or essential plant room, areas of which is NOT limited by any PNAP or regulation, such as room occupied solely by FSI and equipment, meter room, transformer room, potable and flushing water tank, etc. <sup>(2)</sup>	PNAP APP-2 & APP-42		
2.3	Non-mandatory or non-essential plant room, such as A/C plant room, AHU room, etc. <sup>(3)</sup>	PNAP APP-2 & APP-42	✓	✓
<b>Disregarded GFA under Regulation 23A(3) of the B(P)R</b>				
3.	Area for picking up and setting down persons departing from or arriving at the hotel by vehicle	PNAP APP-40		
4.	Supporting facilities for a hotel	PNAP APP-40		
<b>Green Features under Joint Practice Notes (JPNs)</b>				
5.	Balcony for residential buildings	JPN1	✓	✓
6.	Wider common corridor and lift lobby	JPN1	✓	✓
7.	Communal sky garden	JPN1 & 2 PNAP APP-122	✓	
8.	Communal podium garden for non-residential buildings	JPN1	✓	
9.	Acoustic fin	JPN1	✓	
10.	Wing wall, wind catcher and funnel	JPN1	✓	
11.	Non-structural prefabricated external wall	JPN2	✓	✓
12.	Utility platform	JPN2	✓	✓
13.	Noise barrier	JPN2	✓	
<b>Amenity Features</b>				
14.	Caretakers' quarters, counter, office, store, guard room and lavatory for watchman and management staff and owners' corporation office	PNAP APP-42	✓	✓

15.	Residential recreational facilities including void, plant room, swimming pool filtration plant room, covered walkway, etc. serving solely the recreational facilities	PNAP APP-2, APP-42 & APP-104	✓	✓
16.	Covered landscaped and play area	PNAP APP-42	✓	
17.	Horizontal screen/covered walkway and trellis	PNAP APP-42	✓	✓ <sup>(10)</sup>
18.	Larger lift shaft	PNAP APP-89	✓	✓
19.	Chimney shaft	PNAP APP-2	✓	✓
20.	Other non-mandatory or non-essential plant room, such as boiler room, SMATV room <sup>(4)</sup>	PNAP APP-2	✓	✓
21.	Pipe duct, air duct for mandatory feature or essential plant room <sup>(5)</sup>	PNAP APP-2 & APP-93		
22.	Pipe duct, air duct for non-mandatory or non-essential plant room <sup>(6)</sup>	PNAP APP-2	✓	✓
23.	Plant room, pipe duct, air duct for environmentally friendly system and feature <sup>(7)</sup>	PNAP APP-2	✓	
24.	High headroom and void in front of cinema, shopping arcade etc. in non-domestic development <sup>(8)</sup>	PNAP APP-2	✓	
25.	Void over main common entrance (prestige entrance) in non-domestic development	PNAP APP-2 & APP-42	✓	✓
26.	Void in duplex domestic flat and house	PNAP APP-2	✓	✓
27.	Sunshade and reflector	PNAP APP-19, APP-67 & APP-156		
28.	Minor projection such as A/C box, A/C platform <sup>(9)</sup> , window cill and projecting window	PNAP APP-19 & APP-42		
29.	Other projection such as A/C box and platform not covered in paragraph 3(b) and (c) of PNAP APP-19	PNAP APP-19	✓	✓
<b>Other Items</b>				
30.	Refuge floor including refuge floor cum sky garden	PNAP APP-2 & APP-122		
31.	Covered area under large projecting/overhanging feature	PNAP APP-19		
32.	Public transport terminus (PTT)	PNAP APP-2		
33.	Party structure and common staircase	PNAP ADM-2		
34.	Horizontal area of staircase, lift shaft and vertical duct solely serving floor accepted as not being accountable for GFA	PNAP APP-2		
35.	Public passage	PNAP APP-108		
36.	Covered set back area	PNAP APP-152		
<b>Bonus GFA</b>				
37.	Bonus GFA	PNAP APP-108		
<b>Additional Green Features under JPN</b>				
38.	Buildings adopting Modular Integrated Construction	JPN2 & PNAP APP-161		

- Note<sup>(1)</sup> : Mandatory feature or essential plant room, area of which is limited by respective PNAP or regulation, include duct for basement smoke extraction system, lift machine room, telecommunications and broadcasting room, refuse storage chamber, refuse storage and material recovery chamber, material recovery chamber, refuse storage and material recovery room, or similar feature / plant room, and pipe and air ducts which are part of the distribution network for such mandatory feature or essential plant and contained within such room.
- Note<sup>(2)</sup> : Mandatory feature or essential plant room, area of which is NOT limited by any PNAP or regulation\*, include electrical switch room, meter room, transformer room, generator room, potable and flushing water tank and pump room, sewage treatment plant room, refuse chute, refuse hopper room, room occupied solely by fire service installations and equipment such as fire service / sprinkler water tank and pump room, fire control centre, CO<sub>2</sub> room, fan for smoke extraction system / staircase pressurization system, hose reel closet, sump pump room/ pump room for rainwater, soil and waste disposal, or similar feature / plant room and pipe and air ducts which are part of the distribution network for such mandatory feature or essential plant and contained within such room.
- Note<sup>(3)</sup> : Non-mandatory feature or non-essential plant room, area of which may be disregarded under regulation 23(3)(b) of the B(P)R, include plant room occupied solely by machinery or equipment for air-conditioning or heating system such as AC plant room, air handling unit room, or similar plant room, and pipe and air ducts which are part of the distribution network for such feature or plant and contained within such room.
- Note<sup>(4)</sup> : Other non-mandatory feature or non-essential plant room, area of which may be exempted under regulation 23(3)(a) of the B(P)R, include hot water boiler room, filtration plant room for swimming pool in a hotel or for a water feature in a communal garden/landscape area, SMATV room, or similar plant room, and pipe and air ducts which are part of the distribution network for such feature or plant and contained within such room.
- Note<sup>(5)</sup> : Pipe duct, air duct for mandatory feature or essential plant room, include pipe duct for rainwater, soil and waste disposal and individual pipe and air ducts which are part of the distribution network for such mandatory feature or essential plant as described in notes 1 and 2 above, and located outside such plant room.
- Note<sup>(6)</sup> : Pipe duct, air duct for non-mandatory feature or non-essential plant room, include individual pipe and air ducts which are part of the distribution network for such non-mandatory feature or non-essential plant as described in notes 3 and 4 above and located outside such plant room.
- Note<sup>(7)</sup> : Plant room for environmentally friendly system and feature, area of which may be exempted under regulation 23(3)(a) of the B(P)R, include plant room for rainwater harvesting / grey water recycling system, battery room for solar panels, or similar system / feature, and pipe and air ducts which are part of the distribution network for such system and feature.
- Note<sup>(8)</sup> : High headroom and void in front of cinema, shopping arcade etc. in non-domestic development include void in front of cinema, theatre balcony, banking hall, shopping arcade, cockloft floor for storage within the ground storey in single-staircase building, auditorium, sporting hall, school hall and religious institution that have operational justifications.
- Note<sup>(9)</sup> : It includes A/C platforms complying with Appendix B or Appendix C of Code of Practice on Design for Safety – External Maintenance.

Notes <sup>(10)</sup> : Horizontal screen / covered walkway / trellis may be excluded from the overall cap on GFA concessions subject to provision of greenery to BA's satisfaction as stipulated under PNAP APP-42.

- \* Although the feature or plant room, area of which is not limited by any PNAP or regulation, only the minimum amount of GFA necessary for accommodating and maintaining the services and commensurate with the the development would be allowed to be disregarded as stated in PNAP APP-2.

(Rev. 12/2020)

**Declaration on Annual Energy Use of a Building Development**  
樓宇發展項目每年能源消耗量聲明

**Part I: Building Particulars**

## 第一部分: 樓宇詳情

(a) Building name 樓宇名稱 (if known 如知悉): (English) \_\_\_\_\_ (中文) \_\_\_\_\_

(b) Address of site 地盤地址: (English) \_\_\_\_\_

(中文) \_\_\_\_\_

(c) Lot number 地段編號: \_\_\_\_\_

(d) Type of building 樓宇類型:

\* Domestic Building 住宅樓宇 / Non-domestic Building 非住宅樓宇 / Composite Building 綜合用途樓宇

(e) Provision of Central Air Conditioning 提供中央空調 \*YES 是 / NO 否

(f) Provision of Energy Efficient Features 提供具能源效益的設施 \*YES 是 / NO 否

(g) Please list the \* proposed / installed Energy Efficient Features (add separate sheet if necessary)

請列出 \* 擬安裝 / 已安裝的具能源效益的設施 (如有需要, 請另頁說明)

English

中文

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**Part II: Predicted Annual Energy Use<sup>①</sup> of \* Proposed / Completed \* Building / Part of Building**第二部分: \* 擬興建 / 已竣工 \* 樓宇 / 部分樓宇預計每年能源消耗量<sup>①</sup>

Type of Development 發展項目類型	Location 位置	Internal Floor Area Served (m <sup>2</sup> ) 使用有關裝置的內部樓面面積 (平方米)	Annual Energy Use of Baseline Building <sup>②</sup> (m <sup>2</sup> /annum) 基線樓宇 <sup>②</sup> 每年能源消耗量 (平方米/年)		Annual Energy Use of Proposed/Completed Building (m <sup>2</sup> /annum) 擬 * 興建/已竣工樓宇每年能源消耗量 (平方米/年)	
			Electricity 電力 kWh 千瓦小時	Town Gas / LPG 煤氣 / 石油氣 unit 用量單位	Electricity 電力 kWh 千瓦小時	Town Gas / LPG 煤氣 / 石油氣 unit 用量單位
Domestic Development (excluding Hotel) 住用發展項目 (不包括酒店)	Central building services installation <sup>③</sup> 中央屋宇裝備裝置 <sup>③</sup>					
Non-domestic Development <sup>④</sup> (including Hotel) 非住用發展項目 <sup>④</sup>	Podium(s) (central building services installation) 平台 (中央屋宇裝備裝置)					
	Podium(s) (non-central building services)					

(包括酒店)	installation) 平台 (非中央屋宇裝備裝置)					
	Tower(s) (central building services installation) 塔樓 (中央屋宇裝備裝置)					
	Tower(s) (non - central building services installation) 塔樓 (非中央屋宇裝備裝置)					

**Note:** In general, the lower the estimated “Annual Energy Use” of the building, the more efficient the building in terms of energy use. For example, if the estimated “annual energy use of proposed building” is less than the estimated “annual energy use of baseline building”, it means the predicted use of energy is more efficient in the proposed building than in the baseline building. The larger the reduction, the greater the efficiency.

註：一般來說，樓宇的預計每年每平方米能源消耗量愈低，樓宇的能源消耗愈有效。例如，如果擬興建樓宇的預計每年能源消耗量少於基線樓宇預計的每年能源消耗量，則表示擬興建樓宇的預計能源使用較基線樓宇有效。減少愈多，效能愈大。

### Part III 第三部分

The following installation(s) \* is / are \* designed / completed in accordance with the relevant Codes of Practice published by the Electrical and Mechanical Services Department:-

以下裝置乃按機電工程署公布的相關實務守則 設計 / 完成：-

Type of Installations 裝置類型	YES 是	NO 否	N/A 不適用
Lighting Installations 照明裝置			
Air Conditioning Installations 空調裝置			
Electrical Installations 電力裝置			
Lift & Escalator Installations 升降機及自動梯的裝置			
Performance-based Approach 以總能源為本的方法			

Please (✓) where appropriate 請在適當方格內填上(✓)號

\_\_\_\_\_  
Signature 簽署#  
(Registered Professional Engineer 註冊專業工程師 / Registered  
Energy Assessor 註冊能源效益評核人)

\_\_\_\_\_  
Signature 簽署#  
(Authorized Person 認可人士)

\_\_\_\_\_  
Certificate of Registration No. 註冊證書編號#

\_\_\_\_\_  
Certificate of Registration No. 註冊證書編號#

\_\_\_\_\_  
Date of expiry of registration 註冊到期日#

\_\_\_\_\_  
Date of expiry of registration 註冊到期日#

\_\_\_\_\_  
Company Chop 公司印章 / Signature of applicant 申請人簽署

\_\_\_\_\_  
Date 日期

# In accordance with the registration record 根據註冊記錄

\* Delete whichever is inapplicable 請刪去不適用者

- 
- ① The predicted annual energy use per m<sup>2</sup> per annum, in terms of electricity consumption (kWh) and town gas/LPG consumption (unit) of the development by the internal floor area served, where:-  
預計每年每平方米能源消耗量〔以耗電量（千瓦小時）及煤氣/石油氣消耗量用量單位〕計算，指將發展項目的每年能源消耗總量除以使用有關裝置的內部樓面面積所得出的商，其中：
- (a) “total annual energy use” has the same meaning of “annual energy use” under Section 4 and Appendix 8 of the BEAM Plus for New Building (current version); and  
“每年能源消耗量”與新建樓宇BEAM Plus標準（現行版本）第4節及附錄8中的「年能源消耗」具有相同涵義；及
- (b) “internal floor area”, in relation to a building, a space or a unit means the floor area of all enclosed space measured to the internal faces of enclosing external and/or party walls.  
樓宇、空間或單位的“內部樓面面積”，指外牆及/或共用牆的內壁之內表面起量度出來的樓面面積。
- ② “Baseline Building” has the same meaning as “Baseline Building Model (zero-credit benchmark)” under Section 4 and Appendix 8 of the BEAM Plus for New Building (current version).  
“基線樓宇”與新建樓宇BEAM Plus標準（現行版本）第4節及附錄8中的“基準建築物模型（零分標準）”具有相同涵義。
- ③ ‘Central Building Services Installation’ has the same meaning as that in the Code of Practice for Energy Efficiency of Building Services Installation issued by the electrical and Mechanical Services Department.  
“中央屋宇裝備裝置”與機電工程署發出的《屋宇裝備裝置能源效益實務守則》中的涵義相同。
- ④ Podium(s) normally means the lowest part of the development (usually the lowest 15m of the development and its basement, if any) carrying different use(s) from that of the tower(s) above. For development without clear demarcation between podium(s) and tower(s), the development, as a whole, should be considered as tower(s).  
平台一般指發展項目的最低部分（通常為發展項目最低15米部分及其地庫(如適用)），並與其上的塔樓具有不同用途。對於並無明確劃分平台與塔樓的發展項目，應視整個發展項目為塔樓。

(9/2014)