

**Calculation of Gross Floor Area and Non-accountable Gross Floor Area
Building (Planning) Regulation 23(3)(a) and (b)****Calculation of Gross Floor Area**

Regulation 23(3)(a) of the Building (Planning) Regulations (B(P)R) stipulates that gross floor area (GFA) is the area contained within the outer surface of external walls of a building measured at each floor level. Any portions of this area not floored over should also be included in the GFA calculations.

Voids in Buildings

2. However where large voids occur, a modification of regulation 23(3)(a) of the B(P)R may be granted on application for voids in the following circumstances and subject to compliance with the pre-requisites (for items (a) to (g)) and the overall cap on GFA concessions (for items (f) and (g) only) stipulated in PNAP APP-151 on Building Design to Foster a Quality and Sustainable Built Environment :-

- (a) in front of cinema and theatre balconies;
- (b) in banking halls;
- (c) in shopping arcades provided that the total area of voids in the shopping arcade does not exceed 10% of the total GFA of the shopping arcade;
- (d) in single-staircase buildings in which cockloft floors for storage are provided in the ground storey;
- (e) in auditoria, sporting halls (including squash courts), school halls and religious institutions;
- (f) in main common entrance lobbies of non-domestic buildings;
and
- (g) in duplex domestic flats or houses if they satisfy the criteria set out in Appendix A.

3. In the case of "split level" designs where the difference in level between adjoining floors is less than 1m, the floor may be regarded as being level for the purposes of this regulation. For greater differences in level, the authorized person should clarify with the Buildings Department (BD) before embarking on the project.

Facilities and Features in Buildings

4. Subject to the special circumstances of each case and compliance with the pre-requisites (for all items except item (e)) and the overall cap on GFA concessions (for items (a) to (d) only) stipulated in PNAP APP-151, the Building Authority (BA) is in general prepared to consider favourably application for modification of regulation 23(3)(a) of the B(P)R in respect of :-

- (a) chimney shafts;
- (b) filtration plant rooms for swimming pools in hotels or for water features in communal gardens / landscape area;
- (c) a room of a size not exceeding 1.2m(W) x 1.2m(D), housing satellite master antenna television equipment in accordance with paragraph 33 of PNAP APP-42;
- (d) genuine and properly designed pipe-ducts / air ducts with adequate access for inspection and maintenance which form part of the distribution network for non-mandatory feature or non-essential plant¹;
- (e) genuine and properly designed pipe-ducts / air ducts with adequate access for inspection and maintenance which form part of the distribution network for mandatory feature or essential plant¹; and
- (f) plant rooms for environmentally friendly systems and features such as rainwater / grey water recycling system and battery room for solar panels.

5. A modification of regulation 23(3)(a) of the B(P)R may also be granted on application for refuge floors which comply with the Code of Practice for Fire Safety in Buildings.

Curtain Walls and Claddings

6. Under regulation 42 of the Building (Construction) Regulations (B(C)R), curtain wall means a non load-bearing enclosure fixed onto the load-bearing structure with its dead loads, imposed loads and wind loads transferred to the structure through fixings. Where a curtain wall system (including other similar non load-bearing enclosure system) forms the external face of a building, the BA is prepared to accept² the outer face of the structural elements, e.g. beams, columns and floor slabs, as the external wall for the purpose of measuring GFA and site coverage (SC) where :-

/(a)

¹ Please refer to PNAP APP-151 for examples on plant rooms that are considered mandatory / essential or non-mandatory / non-essential plant.

² Not applicable to industrial buildings with small workshop units.

- (a) The curtain wall system itself does not form part of the structural system of the parent building;
- (b) The system does not result in any additional floor area at a floor level by providing a reinforced concrete dwarf perimeter wall not less than 300mm high measured from the floor level;
- (c) The projection of the system from the outer face of the structural elements does not exceed 200mm for a domestic building and 250mm for a non-domestic building; and
- (d) The external reflectance³ of the glass used in the system does not exceed 20%.

The method of measurement of GFA and SC is illustrated in the sketches at Appendix B for reference. The requirements stipulated in item (d) above are applicable to all new building plans or major revision of building plans for development proposals or alteration and addition works submitted to the BA for approval on or after 1 September 2015. For the avoidance of doubt, a purpose built hotel building including the hotel part of a building or a hotel converted from a non-domestic building is treated as a non-domestic building or non-domestic part of a building for the purpose of item (c) above.

7. For the provision of curtain walls to existing facades in the case of wholesale conversion of buildings, exemption from section 31 (1) of the Buildings Ordinance (BO) to allow the curtain walls to project over streets will be favourably considered if low-energy absorbent type glazing / energy efficient materials with energy efficient design of the curtain walls that could achieve 40% in the categories of Energy Use (EU) and Indoor Environmental Quality (IEQ) with the BEAM Plus Certification conferred by the Hong Kong Green Building Council (HKGBC) are incorporated in the proposal. As the pre-requisites for the granting of the exemption, the applicant in applying for approval of plans should submit the official letter issued by the HKGBC acknowledging the satisfactory completion of project registration application for BEAM Plus Certification and a letter by the applicant undertaking to submit to the BD the following documents :-

- (a) Result of the Provisional Assessment under the BEAM Plus Certification conferred by the HKGBC to demonstrate achievement of 40% in the categories of EU and IEQ to be submitted prior to the application for consent to the commencement of the building works shown on the approved plans; and

/(b).....

³ "External reflectance" means the percentage of daylight reflected from any external surface of the glass used in the curtain wall system.

- (b) Result of the Final Assessment under the BEAM Plus Certification conferred by the HKGBC to demonstrate achievement of 40% in the categories of EU and IEQ within 6 months of the date of the BA's letter of acknowledgment of the Form BA14 for the project.

8. The provision of curtain wall to existing balconies over a public street or only at localised portion of the facades will not be accepted. Curtain walls system projecting over streets, if permitted, will not be accountable for GFA and SC under the B(P)R.

9. Under regulation 37 of the B(C)R, cladding means a facing or architectural decoration additional to the external walls of any building. External wall finishes of nominal thickness or claddings with overall thickness of not more than 90mm (75mm in the case of cladding to non-structural prefabricated external walls) as the external wall finishes may be disregarded for the purpose of measurement of dimensions under regulation 23(3) of the B(P)R. However, no part of any wall finishes, including claddings, should project beyond the site boundaries. For the refurbishment of buildings, application for exemption from section 31(1) of the BO is required if the claddings will project over streets.

10. For curtain walls and claddings as mentioned in paragraphs 7 to 9 above projecting outside the lot boundary over public streets, authorized persons are reminded to ensure that the relevant lease conditions are complied with.

Non-accountable Gross Floor Area

11. Under regulation 23(3)(b) of the B(P)R, the BA may disregard from GFA calculation floor space occupied solely by machinery or equipment for lift, air-conditioning, heating system or any similar service. The phrase "any similar service" may generally be interpreted to include fire control centre, water tanks, electrical switch rooms, meter rooms, transformer rooms, generator rooms, pump rooms, telephone equipment rooms, cable riser duct room, CO₂ rooms, hose reel closets, sewage treatment plant rooms and smoke extraction system. In each case, both the premises for and the size of any such feature should be justified. To guard against possible abuse, the BA will take the following into consideration when disregarding the above features from GFA calculation for single-family residence or house type developments :-

- (a) There should not be any duplication in the provision of services when GFA exclusions are also being separately applied for; and
- (b) Only the minimum amount of GFA necessary for accommodating and maintaining the services and commensurate with the development would be allowed to be disregarded. The authorized person may be required to demonstrate why it is not possible to consolidate the provision of all related services into multi-purposes or centralised rooms such that the area which is disregarded from GFA could be used for efficiently.

12. For plant rooms and other features that are to be disregarded from GFA calculation, the enclosing walls and the associated protected lobby, if any, solely serving the said rooms or features and do not serve any other function, may also be disregarded from GFA calculation. The maximum thickness of such wall to be disregarded from GFA calculation should normally be not greater than 100mm.

13. The granting of GFA concessions for plant room occupied solely by machinery or equipment for air-conditioning or heating system is subject to compliance with the pre-requisites and the overall cap on GFA concessions stipulated in PNAP APP-151 on Building Design to Foster a Quality and Sustainable Built Environment.

14. The horizontal area of staircases, lift shafts and vertical ducts should normally be measured for GFA together with the floor through which they pass, except refuge floors. However, where these features solely serve floors (i.e. not serving GFA accountable floors above or below) accepted as not being accountable for GFA (by reason of the captioned regulation), the area of the features may also be discounted. If these features serve underground car parks as well as other floors, the BA may consider discounting the portion of these features at underground carpark floors from GFA calculation.

Carparking and Loading and Unloading Areas

15. Under regulation of 23(3)(b) of the B(P)R, the BA has the discretionary power to disregard from GFA calculations any floor space that he is satisfied is constructed and intended to be used solely for, inter alia, parking motor vehicles and loading and unloading of motor vehicles. The BA generally accepts that public and private car-parks, and public transport termini provided in buildings are space for parking or loading and unloading of motor vehicles falling within the meaning of regulation of 23(3)(b) of the B(P)R. In exercising his discretionary power under regulation of 23(3)(b) of the B(P)R to disregard or not to disregard such area or any part thereof from GFA calculation, the BA will determine each case on its merits and take into account all relevant considerations including the design of the car-park and the effect on public interest such as impact on infrastructure, density and building bulk. In general, the BA will follow the lines as mentioned in paragraphs 16 to 18 below in his exercise of discretion.

Carparking Spaces

16. (a) When a lot is subject to lease / grant conditions requiring the provision or incorporation of a **public** carpark within a building or buildings, all the required facilities and associated works, including service core areas of such public carpark should be accountable for GFA calculation.
- (b) For **private** carparking spaces which are intended for the use of the occupants and their bona fide visitors of the parent building, the BA may disregard them from GFA calculation under regulation 23(3)(b) of the B(P)R subject to the following criteria :-

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- (i) In deciding on the number of car-parking spaces that could be disregarded, the BA will make reference to the standards set out in the Hong Kong Planning Standards and Guidelines (HKPSG) and the advice of the Commissioner for Transport (C for T).
- (ii) All car-parking spaces to be disregarded from GFA are electric vehicle (EV) charging-enabling, as follows :-
 - (1) the EV charging facilities, which may comprise main switchboards, distribution boards, electrical wiring and socket outlets, should be installed, tested and commissioned in accordance with the Technical Guidelines for Electric Vehicle Charging-enabling for Car Parks of New Building Developments (TGNBD) issued by the Environment Bureau and Electrical and Mechanical Services Department (EMSD) and the Technical Guidelines on Charging Facilities for Electric Vehicles issued by the EMSD (the guidelines can be downloaded from the following websites respectively:
http://www.enb.gov.hk/en/resources_publications/guidelines/files/guidelines_on_enabling.doc
and
http://www.emsd.gov.hk/emsd/e_download/pps/pub/EV_guidelines.pdf);
 - (2) the design of the fixed electrical installations for the EV charging facilities shall be certified by a Registered Professional Engineer (RPE) under the Engineers Registration Ordinance (Cap. 409) of either the Electrical or Building Services discipline and the design information as mentioned in the TGNBD should be submitted together with the relevant building plans prepared by the Authorized Person (AP) to the BA for consideration;
 - (3) prior to the application for an occupation permit, a certificate of completion of the works for the EV charging facilities shall be signed by the RPE and submitted to the BA through the AP; and

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- (4) for the avoidance of doubt, meter rooms (if provided) being part of the EV charging facilities are considered as essential plant rooms and will enjoy 100% GFA concession and not subject to the 10% cap as mentioned in PNAP APP-151, irrespective of whether the carparks they serve are underground or above ground.
- (iii) In order to help reduce building bulk, 100% GFA concession may be granted for underground car parks while only 50% GFA concession may be granted for aboveground car parks.
- (iv) 100% GFA concession may be granted for aboveground car parks if it is proven with sufficient evidence that it is technically infeasible to construct an underground car park due to site constraints in a specific site or that the above-ground car parks will not pose adverse environmental or visual impact to its surrounding areas.
- (v) Examples of site constraints⁴ making underground car parks technically infeasible include sites located above major underground utilities, within Areas Number 1, 2, 3 or 4 in Schedule 5 of the BO or with other complex geotechnical constraint.
- (vi) Examples for accepting above-ground car parks as not posing adverse environmental or visual impact to its surrounding areas include ancillary car parks in low-rise low-density sites such as a development with plot ratio not exceeding 1 and not more than 6 storeys in height with maximum 5 storeys on top of one storey carpark.
- (vii) A carpark may be accepted as an underground carpark in the following circumstances :-
 - (1) If the site abuts on only one street, a carpark may be accepted as an underground carpark if the structural ceiling soffit of the carpark is at or below the mean level of that portion of the street on which the site abuts and subject to such mean level to be not more than 5m above the lowest level of such portion of the street;

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⁴ These serve as examples only and each case should be considered on its individual merits based on relevant information or justifications submitted.

- (2) If the site abuts more than one street, a carpark may be accepted as an underground carpark if the structural ceiling soffit of the carpark is at or below the level obtained by dividing the sum of the mean levels of the respective portion of the streets on which the site abuts by the number of such streets on which the site abuts and subject to the level so obtained is not more than 5m above the mean level of that portion of the lowest street on which the site abuts;
 - (3) For the purpose of allowing the provision of natural lighting and ventilation to the topmost carpark floor, a carpark may be accepted as an underground carpark if not more than half of the height measured from the structural floor to the structural ceiling soffit of the topmost carpark floor and subject to a maximum height of 2.5m protrudes above the level as determined in (1) or (2) above for a site abutting on only one street or more than one street respectively; or
 - (4) When there are site constraints that affect the design and location of the carparking floors e.g. there is significant difference in the levels of the streets on which the site abuts; there is an existing large platform that governs the carparking design; the carpark is semi-sunken and follows the slope profile of the site and adjoining land, etc., the BA may consider the special circumstances of the case in accepting a carpark as an underground carpark.
- (viii) For underground carpark to be granted with 100% GFA concession as stated in (iii) above, any entrance lift lobby, lift shaft or ramp for vehicles which is above-ground, solely serving the underground carpark, may be allowed to be granted with 100% GFA concession if the area involved is of a reasonable size. However, any entrance lift lobby/lift shafts which serve the development as well as the underground carparks should be fully accountable for GFA.

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- (ix) Subject to paragraph 18(b) below, associated ramps and facilities passing through floors accountable for GFA may be excluded from GFA calculation if they are physically separated from and do not provide access to the accommodation on the floors they pass through, the extent of GFA concession of which will follow that of the carpark served by the associated ramps and facilities.
- (c) Where both **private and public** carparking spaces are proposed in the same building and upon being satisfied with the design of the carpark, the BA will assess the accountability of GFA on the following basis :-
 - (i) Where private and public carparking spaces are provided on **separate floors**, the floor space exclusively provided for private carparking purposes on that floor may, subject to paragraph 16(b) above, be considered for disregarding from GFA calculation under regulation 23(3)(b) of the B(P)R whereas the floors provided exclusively for public carparking purposes would be accountable for GFA under Regulation 23(3)(a) of the B(P)R.
 - (ii) Where both private and public carparking spaces are provided on the same floor, only the areas, including carparking spaces, driveways, ramps, lift halls and staircases solely serving the private carpark would be considered for disregarding from GFA calculation under regulation 23(3)(b) of the B(P)R. Those public car parking spaces, associated driveways, lift halls, staircases, ramps which serve either the public carpark or both the public and the private carparks will not be disregarded from GFA calculation. Moreover the areas used by the public carpark and its associated facilities should be delineated on plans.
- (d) The area of driveways, ramps, staircases and lift halls at the levels providing access to / from a building for use by both private and public carparks should be included in the GFA calculation.
- (e) Covered bicycle parking spaces required under lease and designated as common parts of a development need not be accountable for GFA.

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- (f) Car parking provisions on open area / podium roof need not be accountable for GFA.

Public Transport Terminus (PTT)

17. The BA would take the advice of the Planning Department in determining the effect of excluding PTT from GFA calculation on the infrastructure, density and building bulk. As Planning Department has advised that the town planning intention is that all PTT should count for GFA calculation unless otherwise provided for in the relevant town plan, hence as a general rule, unless otherwise specified in the relevant town plan or any specific planning approval for the site, all PTT should be accountable for GFA.

Loading and Unloading Areas

18. (a) Areas for loading / unloading purposes would only qualify for disregarding from measurement of GFA if they are directly associated with spaces specifically earmarked for parking of motor vehicles for loading and unloading purposes and are designed to the satisfaction of the BA and the provision are not excessive with reference to the standards set out in the HKPSG or requirements stipulated by the C for T. For instance, areas set aside for loading / unloading detached container boxes in a container yard should be measured for GFA.
- (b) If ramps are provided in association with loading / unloading areas which have direct access to the accommodation on the floors e.g. warehouse / godown in logistics centre developments, the ramps are considered to serve the same function as lifts for vertical transportation, and the area of the ramps should be accountable in full for GFA under regulation 23(3)(a) of the B(P)R.
- (c) 100% GFA concession may be granted for such loading and unloading areas if they are provided at ground level or underground but may only be qualified for 50% GFA concessions if they are provided at upper storeys above ground level. For cases where run-in/out or driveway at ground level serve loading and unloading areas at ground level or underground but also serve car parking spaces aboveground entitling only 50% GFA concessions, the percentage of GFA concessions of such run-in/out or driveway areas will be calculated on a pro-rata apportionment basis judging on the merits of each individual cases.

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- (d) Apart from (c) above, areas for loading and unloading purposes and parking space for refuse collection vehicle next to a refuse storage and material recovery chamber may be disregarded from GFA calculation if vehicular access is required to be provided to the refuse storage and material recovery chamber under the Building (Refuse Storage and Material Recovery Chambers and Refuse Chutes) Regulations. 100% GFA concession may be granted for such space solely for refuse collection vehicle, which is provided either underground or above-ground.



(HUI Siu-wai)
Building Authority

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1. Exemption Criteria for Exclusion of Voids in Duplex Domestic Flats and Houses from Gross Floor Area Calculations

	Duplex Flats	Houses
UFS⁽¹⁾ of premises	150 m ² (min.)	250m ² (min.)
% of void to UFS of premises	10% (max.)	5% (max.)
% of void to total domestic GFA	Only two levels of voids will be allowed for each residential tower block, subject to a maximum of 0.5% ⁽²⁾ of the total domestic GFA of the development.	N.A.
Headroom of void	6.5m (max.)	7.0m (max.) ⁽³⁾
Location of void	Living/ dining room or entrance foyer	Living/ dining room or entrance foyer

- (1) “UFS” means any floor space other than staircases, staircase halls, lift landings, the space used in providing water-closet fittings, urinals and lavatory basins and the space occupied by machinery for any lift, air-conditioning system or similar services.
- (2) The “0.5% cap” will be applied with some flexibility for low-rise and low-density flat-type development which is similar to house-type development. Each case will be considered on individual merits.
- (3) In case of sloping ceiling resulted from a pitch roof, the headroom should be measured to the mean level of the underside of the portion of ceiling that is above the void area.

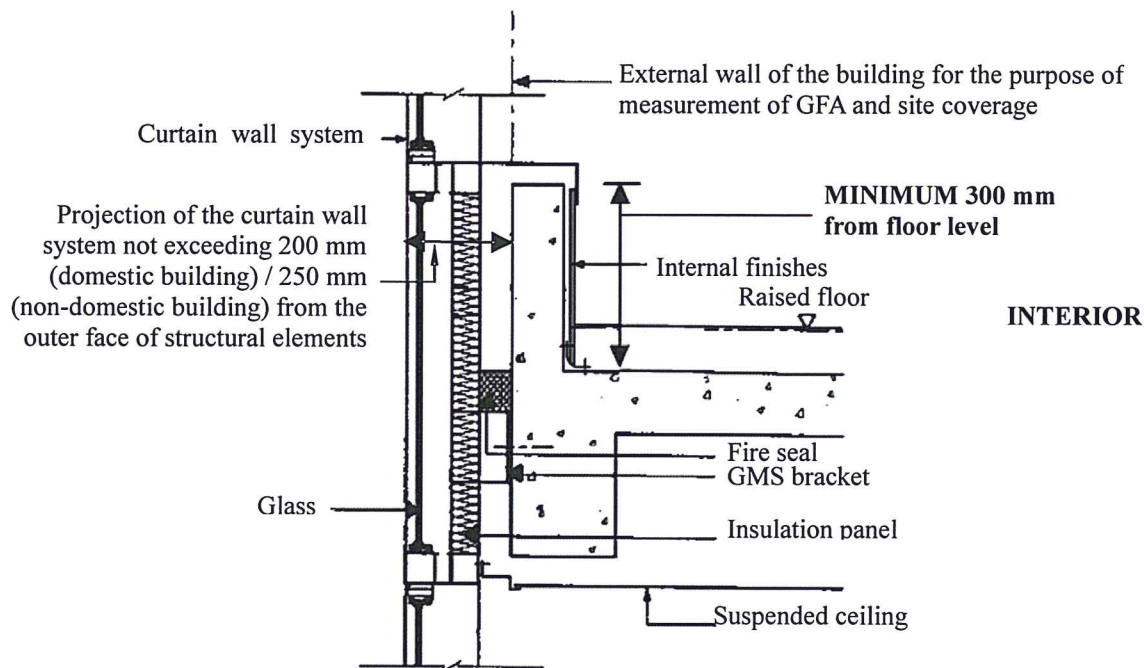
2. Conditions of Exemption

- (i) The Building Authority (BA) is satisfied that the void design is compatible with the type of residential development and that effective measures to prevent any possible abuse are provided, such as up-stand beam design, voids fronted by large glazing panels facing the exterior, no adjoining structural wall or beam, etc.
- (ii) The development after excluding the area of voids from GFA calculation will not contravene the development restrictions relating to building height, GFA, etc. in the relevant statutory town plan and any specific provisions or restrictions in the lease conditions.

- (iii) To support an application for exemption of voids from GFA calculations, the developer or owner is required to submit a letter of undertaking for the proposed development. It shall include an undertaking from the developer or owner to the BA to designate the area of the voids as 'voids' in the Deed of Mutual Covenant (DMC) with their locations clearly indicated. The DMC should contain binding and enforceable conditions for the control, management and maintenance of the features. Where no DMC is to be in force for a development, such designation shall be incorporated into the Sales and Purchase Agreement, Assignment, Tenancy Agreement or conveyance document such that the future owners or tenants are aware of their rights and liabilities.
- (iv) Applications for exemption of voids from GFA calculations in duplex domestic flats or houses or in the case of a development with houses and flats on the same site, would be considered on the special circumstances of each case.

(Rev. 7/2013)

Section of Curtain Wall System installed at New Building



Section of Curtain Wall System installed at Existing Building

