

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 Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (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 persons (AP) should clarify with the Buildings Department (BD) before embarking on the building 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 section 26 of the Building (Construction) Regulation (B(C)R), curtain wall means a non-load-bearing enclosure of a building fixed on to the load-bearing structure of the building. 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 surface 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.

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 surface 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. 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) 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. ...

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

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 B(P)R.

9. Under section 26 of the B(C)R, cladding means a facing or architectural decoration additional to the structural elements of a 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, APs 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 AP 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 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 accepted as not being accountable for GFA (by reason of the captioned regulation), the area of the features may also be discounted.

Car Parking, Loading and Unloading Areas

15. The BA considers that areas of public and private car parks, and public transport termini provided in buildings or any part thereof are spaces for parking or loading and unloading of motor vehicles and exercises discretion under regulation 23(3)(b) of the B(P)R whether to disregard such areas from GFA calculation on case merits, taking into account all relevant considerations which include the design of the car park and the effect on public interest such as impact on infrastructure, density and building bulk.

16. In deciding on the areas of car parks that could be disregarded from GFA calculation, the BA will make reference to the advice/requirements of the Commissioner for Transport, requirements as stipulated in the statutory town plans and the standards set out in the Hong Kong Planning Standards and Guidelines (HKPSG).

17. In general, car parking and loading and unloading provisions on open area/podium roof are not GFA accountable. For other scenarios, the following additional factors will also be taken into account in accordance with the guidelines detailed in Appendix C:

- (a) Nature – public⁴ or private⁴ as well as whether they are required to be provided under lease for Government Accommodation⁵(GA), or subsidised sale/rental flats⁶ as accepted by the Government to be provided by the Hong Kong Housing Society (HKHS) or the Urban Renewal Authority (URA);

/(b) ...

⁴ As defined in paragraphs 1 and 2 of Appendix C.

⁵ As required to be provided and to be assigned to the Financial Secretary Incorporated upon completion under lease. Unless stated otherwise, all references to “lease” in this practice note shall include Government Lease or Conditions of Sale/Grant/Exchange, etc (as the case may be) and “leases” shall be construed accordingly.

⁶ A letter issued by the HKHS or the URA, as appropriate, should be submitted together with the building plans to BD to confirm that the proposed project involves “subsidised sale/rental flats as accepted by the Government and required to be provided under lease”. Besides, before submitting the building plans for approval, the AP of the building project should agree with the Transport Department on the car parking and/or loading and unloading provisions in accordance with the HKPSG and with supporting documents such as traffic impact assessment reports. The AP should submit the agreed provisions (including the respective provisions for subsidised sale/rental flats, non-subsidised sale/rental flats, office, retail, etc.) upon building plans submission and clearly delineate the respective provisions on the building plans.

- (b) Building bulk – above or below ground, and whether there are technical difficulties involved in providing such underground;
- (c) Environmental impact – size (e.g. plot ratio and number of storeys);
- (d) Environmental friendliness – electric vehicle (EV) charging-enabling;
- (e) Deep underground car parks – posing disproportionate construction risk and inefficiency in the layout; and
- (f) Design – meeting the minimum standards as stated in PNAP APP-111.

18. BD adopts the following principles in determining the GFA of car parking and loading/unloading areas under the BO:

	Private Car Parks (% Disregarded)	Public Car Parks (% Disregarded)	Loading/ Unloading (% Disregarded)
(a) Underground	100%*	100%*	100%
(b) Aboveground	50%*	0%	Ground Level (GL) – 100% Above GL – 50%
(c) Not more than one aboveground floor - on the condition that a minimum of two underground carparking floors which fully utilise the site are provided	100%*		Ground Level (GL) – 100% Above GL – 50%
(d) Aboveground (i) Site constraints making underground car parks technically infeasible, or (ii) Poses no adverse environmental or visual impact	100%*	0%	100%
(e) Aboveground - required to be provided under lease for and as part of the GA	100%*	100%*	100%
(f) Aboveground - required to be provided under lease for subsidised sale/rental flats as accepted by the Government, to be provided by HKHS or URA	100%*	100%*	100%

* Provided that the car parking spaces are EV charging-enabling except those installed with automated parking system.

19. The principle on underground public car parks at paragraph 18(a) is applicable to all new building plans (including major revision) submitted to the BA for approval on or after 1 March 2017, but not applicable to existing public car parks. The principles on aboveground car parks and loading/unloading areas at paragraph 18(e) and (f) are applicable to all new building plans (including major revision) for new building developments submitted to the BA for approval on or after 1 August 2023, but not applicable to existing buildings. The principles on aboveground car parks at paragraph 18(c) are applicable to all new building plans (including major revision) for new building developments submitted to the BA for approval on or after 31 December 2023, but not applicable to existing buildings.

Public Transport Terminus (PTT)

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

Bicycle Parking

21. Covered bicycle parking spaces required to be provided under lease and to be designated as common areas of a development may be exempted from GFA on application for exemption of regulation 23(3)(a) of the B(P)R.

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Building Authority

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This PNAP is previously known as PNAP 13

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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

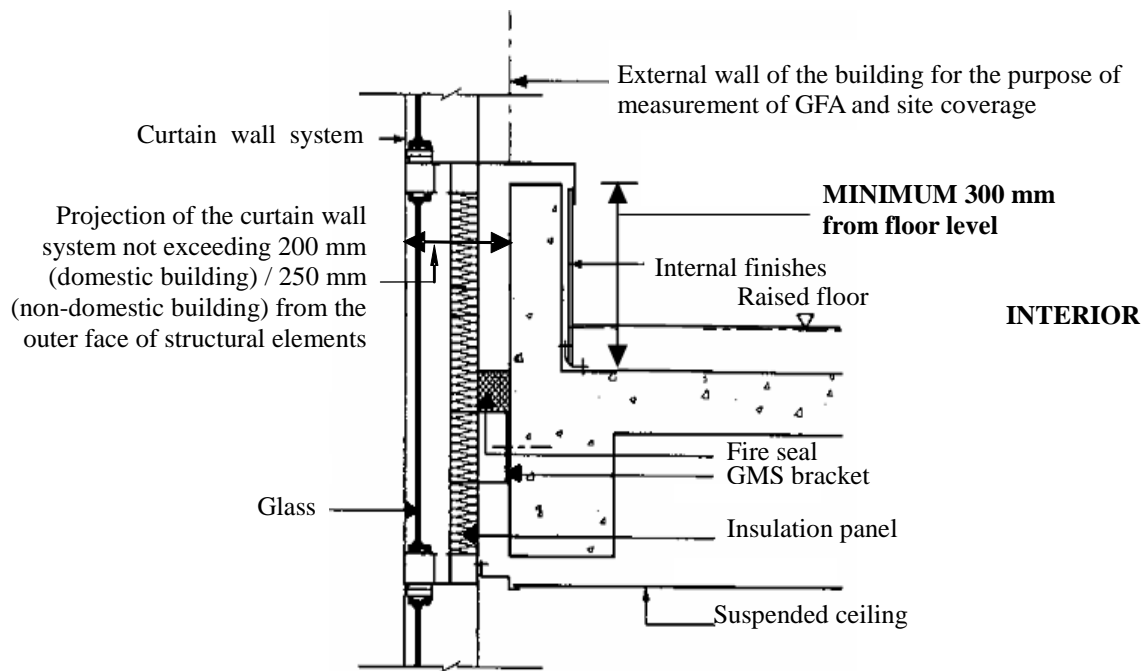
- (i) The Building Authority (BA) is satisfied that the void design is compatible with the type of residential development and that effective measures to prevent any possible abuse are provided, such as up-stand beam design, voids fronted by large glazing panels facing the exterior, no adjoining structural 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.

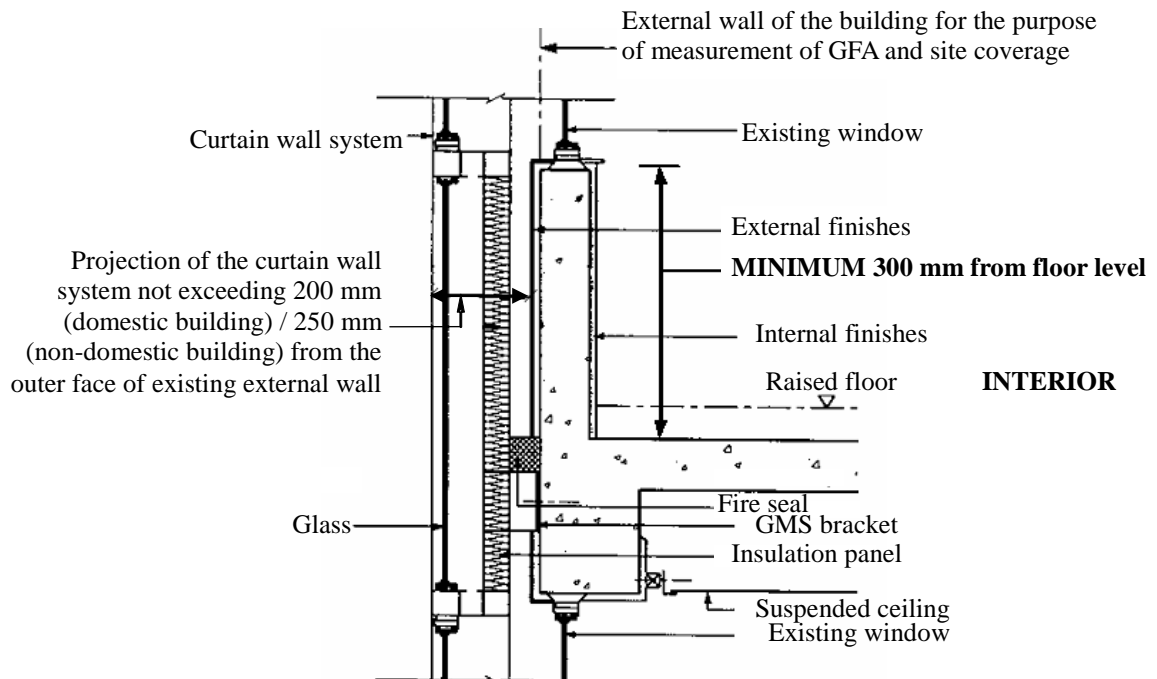
- (iv) Applications for exemption of voids from GFA calculations in duplex domestic flats or houses or in the case of a development with houses and flats on the same site, would be considered on the special circumstances of each case.

(Rev. 7/2013)

Section of Curtain Wall System installed at New Building



Section of Curtain Wall System installed at Existing Building



**Guidelines for GFA Calculations of Car Parking, Loading and Unloading Areas
under Regulation 23(3)(a) or Exclusion of Such under Regulation 23(3)(b) of B(P)R**

Section A – Car Parks

Public or Private Car Parks

1. Public car parks refer to car parks required under the statutory town plans or by the Commissioner for Transport (C for T) that are open and operated commercially for parking by the general public.
2. Private car parks generally refer to those intended for use by the occupants of the parent building and their bona fide visitors.

Underground Car Parks

3. Circumstances that may be favourably considered in accepting a car park as an underground car park:
 - (a) If the site abuts on only one street, the structural ceiling soffit of the car park is at or below the mean level of that portion of the street on which the site abuts, provided that such mean level is not more than 5m above the lowest level of such portion of the street;
 - (b) If the site abuts more than one street, the structural ceiling soffit of the car park 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, provided that 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;
 - (c) If for the purpose of providing natural lighting and ventilation to the topmost car parking floor, not more than half of the height measured from the structural floor to the structural ceiling soffit of the topmost car parking floor protrudes above the level as determined in (a) or (b) above, provided that the protruding height is not more than 2.5m; or
 - (d) If there are site constraints that affect the design and location of the car parking floors such as significant difference in the levels of the streets on which the site abuts or existence of large platform restricting the car parking design, provided that the topmost car park floor is semi-sunken and follows the slope profile of the site and adjoining land, etc.

/EV...

EV Charging-enabling

4. Except for carparking spaces installed with an automated parking system, all car parking spaces to be disregarded from GFA calculation should be EV charging-enabling and meet the following requirements:
- (a) The EV charging-enabling 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 then Environment Bureau and Electrical and Mechanical Services Department (EMSD) in April 2011 and the Technical Guidelines on Charging Facilities for Electric Vehicles issued by the EMSD in April 2015 (the guidelines can be downloaded from the following websites respectively:
 - https://www.epd.gov.hk/epd/sites/default/files/epd/english/environmentin_hk/air/prob_solutions/files/Archived_Technical_Guidelines_eng.pdf ;
 - and
 - http://www.emsd.gov.hk/filemanager/en/content_444/Charging_Facilities_Electric_Vehicles.pdf ;
 - (b) The design of the fixed electrical installations for the EV charging-enabling 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 AP to the BA for consideration;
 - (c) Prior to the application for an occupation permit, a certificate of completion of the works for the EV charging-enabling facilities shall be signed by the RPE and submitted to the BA through AP; and
 - (d) Meter rooms (if provided) being part of the EV charging-enabling facilities are considered as essential plant rooms and will be disregarded from GFA calculation under regulation 23(3)(b) of the B(P)R, irrespective of whether the car parks they serve are underground or aboveground.

/Technical ...

Technical Difficulties in Providing Underground Car Parks

5. Aboveground private car parks may be 100% disregarded from GFA calculation if it is proven with sufficient evidence that it is technically infeasible to construct an underground car park due to the specific site constraints. Examples of such site constraints include sites located above major underground utilities, within Areas Number 1, 2, 3 or 4 in Schedule 5 to the BO or with other complex geotechnical constraints.

No Adverse Environmental Impact

6. Aboveground private car parks that will not pose adverse environmental or visual impact to its surrounding areas may similarly be 100% disregarded from GFA calculation. For example, ancillary carparks in low-rise low-density sites, such as a building development with plot ratio not exceeding 1 and not more than 6 storeys (5 storeys above 1 storey car park).

Underground Car Parks Fully Utilising the Site

7. Not more than one aboveground carparking floor¹ may be 100% disregarded from GFA calculation if a minimum of two underground carparking floors which fully utilise the site are provided.
8. Circumstances that may be favourably considered as an underground car parking floor that fully utilises the site²:
 - (a) Such floor is solely used for car parks or partly used for car parks and partly used for non-GFA accountable areas or features³;
 - (b) Such floor is partly used for car parks and partly used for GFA accountable areas (such as shops, restaurants, etc.) on the condition that additional floor(s) of underground car parks of the same total floor area as the GFA accountable areas is provided⁴; or

/(c) ...

¹ If both private and public car parks are provided aboveground, only one such floor may be 100% disregarded. If more than one floor of aboveground car parks is provided, only one such floor may be 100% disregarded. AP should clearly indicate on plans which floor is to be 100% disregarded from GFA calculation.

² Reasonable spaces and areas within the site boundaries for the construction of the underground car parks are regarded as part of the underground car parking floor for the purpose of considering its full utilisation of the site.

³ Non-GFA accountable areas or features include those areas or features given in the List of GFA Concessions under Appendix A of Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers APP-151 that are exempted and disregarded from GFA calculation by the BA.

⁴ If GFA accountable areas comprise only the horizontal areas of staircases and lift shafts passing through the underground carparking floor to access other floor(s), additional underground car parking floor is not required to be provided.

- (c) Such floor has split-levels or consists of multiple levels (to suit site conditions and profile, such as a sloping site) on the condition that the total floor area of the split levels or multiple levels is equal to the site area.
9. If it is proven with sufficient evidence that it is technically infeasible for an underground car park to fully utilise the site (such as site with localised geotechnical constraints, of irregular profile, with non-building area required under lease, or with constraints causing underground structural elements to be constructed at the same level as the underground car parks), the area with technical constraints may be disregarded for the purposes of considering the full utilisation of the site.

Section B – Car Park Ancillary Areas and Loading/Unloading Areas

*Car Park Ancillary Areas*⁵

10. The percentage of GFA of the car park ancillary areas that may be disregarded under regulation 23(3)(b) of the B(P)R will be determined according to the following principles:

Car Park Ancillary Areas (% Disregarded)		
(a) <u>Solely</u> serve car parks that are 100% disregarded; or (b) <u>Solely</u> serve car parks and other floor spaces that are also 100% disregarded	(c) <u>Solely</u> serve private car parks that are 50% disregarded; or (d) <u>Solely</u> serve private car parks that are 50% disregarded and other floor spaces that are 100% disregarded	(e) Serve other scenarios
100%	50% ⁶	0%

Criteria for Disregarding Loading/Unloading Areas from GFA Calculation

11. Ancillary areas to loading/unloading areas, would qualify for the same level of percentage disregarded from GFA calculation, provided that they are solely associated with spaces specifically earmarked for parking of motor vehicles for loading/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 Hong Kong Planning Standards and Guidelines or requirements stipulated by the C for T. However, areas set aside for loading/unloading detached container boxes in a container yard should be measured for GFA.

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⁵ The ancillary areas serving car parking spaces and loading/unloading areas include reasonable size driveways, ramps, lift shafts and lobbies of car/passenger lifts and staircases. Besides, parking information facilities may be disregarded from GFA calculation under regulation 23(3)(b) of the B(P)R subject to the satisfaction of the C for T.

⁶ Save as provided in paragraph 13 below for run-in/out or driveway disregarded from GFA calculation.

12. 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.
13. For cases where run-in/out or driveway at ground level not only serves loading/unloading areas at ground level or underground but also serves 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.
14. 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.

(Rev. 12/2023)