

## **Building Approval Process**

### **Introduction**

The Buildings Department (BD) is committed to adopt a totally positive attitude towards building development. Its mission is not to find faults in a building proposal but to facilitate building professionals in the approval process whilst ensuring public safety and health. This practice note sets out the principles adopted in the building approval process and the services which BD provides to facilitate the process.

### **Conformity Among Different Types of Plans**

2. A project involves submissions of different types of plans. Among them, the general building plans (GBP) should form the basis for the development of the detailed design of other types of plans. In other words, the building layout shown on the GBP shall prevail over the layout shown on other types of plans. The authorized persons (AP), registered structural engineers (RSE) and registered geotechnical engineers (RGE) should ensure such other types of plans prepared by them correspond to the latest approved GBP. Approval of such other types of plans shall not be deemed to be approval of the building layout shown on such plans.

3. Prior to certifying completion of the alteration and addition (A&A) works or applying for an occupation permit, the AP, RSE and RGE should ensure that approval and consent for all the amendments are obtained and the latest amended GBP, structural plans, drainage plans and site formation plans where applicable for the project, tally with each other.

### **Pre-submission Enquiry and Conference**

4. AP, RSE and RGE may wish to settle the design principles involved at an early stage so that they can proceed with confidence and avoid abortive work. To facilitate early clearance of basic design principles before formal submission of plans, BD will upon receipt of a written enquiry provide a determination on the matters involved in the form of a “letter of assurance” normally within 45 days. BD may hold pre-submission conferences with AP/RSE/RGE and invite representatives of concerned Government departments to discuss and examine the issues and principles involved.

5. It is recommended that AP/RSE/RGE should make use of this service to consult BD as early as possible on the use of any new structural theory, materials or systems, sophisticated designs and unconventional construction methods prior to preparing the detailed design.

## Processing of Plan Submissions

6. For submissions of GBP, superstructure plans and drainage plans, a curtailed check system has been adopted to check on fundamental issues only.

7. In respect of GBP, BD will check issues concerning density, safety, health and environment, and major issues under the allied legislations. The items to be checked are provided in Appendix A.

8. For superstructure plans<sup>1</sup>, BD will check the master framing plans, notes, design loads, design methods, material standards, design codes and fire resistance rating requirements of structural elements. The items to be checked are provided in Appendix B.

9. For drainage plans, BD will check<sup>2</sup> the disposal system, underground drain layout and access for maintenance/repair as provided in Appendix C.

10. As regards other types of plans, such as demolition, site formation, foundation and excavation & lateral support works, the items to be checked are provided in Appendix D.

11. To facilitate the preparation of plan submissions for various types of building works, specific checklists and sample tables/drawings are given in Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) ADV-33.

12. Under the curtailed check system, non-fundamental issues will not be checked and will not be raised as disapproval items. These relate generally to matters that do not affect the basic design of the proposed building. It is the responsibility of the AP/RSE/RGE to ensure that all such non-fundamental issues fully comply with the relevant regulations and codes of practice before commencement of the works. After commencement of works, any contravention of the Buildings Ordinance (BO) and its subsidiary regulations should be rectified as and when they are discovered and in any event, before certification of completion of works.

13. To ensure that a high standard of self-regulation is maintained, BD carries out audit checks by examining in detail some submissions selected at random. BD will consider taking appropriate actions against AP/RSE/RGE who prepare plan submissions which blatantly or repeatedly contravene the requirements of the BO and its subsidiary regulations.

**/Enquiry ...**

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<sup>1</sup> Including curtain wall, window wall, cladding, space frame and similar superstructure elements.

<sup>2</sup> Only a certain percentage of the proposed drainage works will be randomly selected for checking.

## **Enquiry Service**

14. To assist AP/RSE/RGE in ensuring that design details comply with BD's requirements, BD will also provide an enquiry service regarding compliance or interpretation of building regulations and codes of practice throughout the entire development process. BD will give an answer to these enquiries normally within four weeks.

## **Concept Drawings**

15. To assist AP in demonstrating to concerned Government departments that their basic design principles comply with Government and statutory requirements, they are recommended to submit concept drawings for pre-submission conference when making an enquiry or formal submission of GBP. Concept drawings are coloured key plans summarising the basic design parameters on site coverage, plot ratio, accountable gross floor areas, fire safety strategy, barrier free access strategy, etc. in broad terms. Guidelines for concept drawings are provided in Appendix E. A set of sample concept drawings is provided for reference in BD website [www.bd.gov.hk](http://www.bd.gov.hk).

## **Use of Computer for Mathematical Calculations**

16. AP adopting the use of computer for calculating floor areas of buildings in the preparation of GBP are required to provide BD with a digital file of the plan submission with the calculations in an accepted format capable of being verified by AutoCAD, MicroStation, Revit, ArchiCAD or other software accepted by BD. AP is required to submit the digital file together with the GBP in paper for referral to relevant departments under the centralised plan processing system.

17. When AutoCAD or MicroStation is used in the preparation of GBP, AP should follow the guidelines in Appendix F. When Revit or ArchiCAD is used for Building Information Modelling (BIM) in the preparation of GBP, AP should follow the Guidelines for Using Building Information Modelling in General Building Plan Submission and use the standard templates which can be downloaded from BD website [www.bd.gov.hk](http://www.bd.gov.hk).

18. Under PNAP ADM-14, AP may make minor amendments to the submitted plans with BD's prior agreement. If the paper drawings after revision are approvable but they do not tally entirely with the information in the submitted digital file, the plans may be approved, in the interest of time, subject to AP's incorporation of such revisions to the digital file for submission to BD in the next amendment submission involving change in area calculation. Upon the application of an occupation permit or submission of a certificate for completion of A&A works, AP is required to submit the digital file consolidating all approved revisions for record.

### **Consent to the Extraction of Information from BIM Model**

19. If BIM is used in the preparation of GBP, the model of the completed project will be referred to the Lands Department (LandsD) and the Planning Department (PlanD) for their updating of 3-Dimensional (3D) spatial data and other 3D maps, and their upkeep of 3D planning and design information to facilitate planning, urban design, and visual and landscape assessments.

20. LandsD will extract simplified BIM data containing features including walls, ceilings, floors, stairs, lift, common corridors, indoor routes, and textual attributes including the use, height, floor level, room number, dimensions, materials, etc. PlanD will extract BIM geo-spatial information such as spatial information, building bulk, views, site information, statutory planning restrictions, development parameters and floor uses from the BIM model. The submission of BIM models from AP will be taken as permitting the use of the BIM models for such purposes.

### **Minor Amendments**

21. With regard to building works for which consent has been given, the requirement for prior approval and consent for all subsequent amendments may affect the progress of construction.

22. Subject to a modification of regulation 33(1) of the Building (Administration) Regulations (B(A)R) being granted by the Building Authority (BA) under section 42(1) of the BO, prior approval and consent to the minor amendments of building, superstructure and drainage works, for which the first consent has already been given, would not be required except for the amendments described in Appendix G.

23. AP/RSE/RGE deferring the submission of minor amendments should ensure that such amendments comply with the building regulations, requirements of concerned Government departments and the lease conditions prior to the execution of the works. Documents showing such amendments should be kept in the site office.

24. AP/RSE/RGE should submit an application for modification of regulation 33(1) of the B(A)R either after obtaining the first consent or simultaneously with the application for the first consent in respect of the specific type of works (i.e. building, building (A&A), superstructure, superstructure (A&A), drainage and drainage (A&A) works).

25. A practice note covering the above guidelines on minor amendments has also been issued to registered contractors.

### **Concurrent Applications for Approval and Consent**

26. To streamline the approval process for building works, applications for approval of plans and consent for the commencement of the building works specified in the following paragraphs may be made concurrently.

**(A) A&A, Drainage, Curtain Wall and Cladding Works**

27. Approval of plans and consent to the commencement of A&A, drainage, curtain wall or cladding works may be concurrently applied for if the following criteria are met:

- (a) The works do not involve foundation works (other than spread footing with excavation depth not exceeding 4.5m), nor works with significant geotechnical content;
- (b) The works do not entail precautionary works nor other safety measures which are required to be completed to the satisfaction of the BA prior to the commencement of the proposed works;
- (c) All the plans and documents prescribed under regulation 8 of the B(A)Rs are submitted for approval; and
- (d) All the requisite supporting information/documents for the consent application are submitted. These may include site supervision plans, hoarding plans or other supporting documents such as test reports or structural assessment reports required under PNAP APP-117. For curtain wall works, compliance certificates and test reports as required under PNAP APP-37 may be submitted prior to the application for an occupation permit.

**(B) Fast Track Processing for Simple A&A Works**

28. For simple A&A works, where AP/RSE confirm that the proposed works do not involve the structure of the building and do not affect the fundamental issues mentioned above (or if there are only minor changes and AP/RSE confirm that such changes comply with the provisions of the BO) and referrals to the other Government departments (except Fire Services Department) are not necessary, the concurrent applications for fast track approval and consent will be processed within 30 days. A sample of the AP/RSE's certification form is attached in Appendix H.

**(C) Fast Track Processing for Two-storey Warehouse**

29. Procedures for fast track processing of submissions for building a two-storey warehouse are given in Appendix I.

#### **(D) Fast Track Processing for Repairs to Curtain Wall, Window Wall<sup>3</sup> and Cladding**

30. Under the Minor Works Control System (MWCS), certain types of minor repair or replacement of curtain wall, window wall and cladding<sup>4</sup> have been designated as minor works and may be carried out under the simplified requirements as an alternative to obtaining prior approval and consent under the BO. Reference can be made to Schedule 1 of the Building (Minor Works) Regulation (B(MW)R) and PNAP APP-147 regarding the list of minor works items and the simplified requirements respectively.

31. If AP/RSE seeks prior approval and consent for the repair or replacement works, the concurrent applications for fast track processing of approval and consent will be processed within 30 days provided that the structural system of the curtain wall, window wall or cladding will not be altered. The submission requirements are provided in Appendix J. AP/RSE should ensure the submission<sup>5</sup> complies with the requirements in PNAP APP-16, PNAP APP-37 and PNAP APP-117. In this regard, RSE should assess the existing condition and integrity of the curtain wall, window wall and cladding.

#### **(E) Form BA8A**

32. When submitting concurrent applications for approval and consent, AP/RSE should indicate the same in the covering letter and submit the consent application Form BA8A. The Form BA8A submission is subject to the following rules:

- (a) The effective date of application for consent to the commencement of the proposed building works will be the date on which the BA gives his approval of the plans of the proposed building works or, where applicable, the date on which approval is deemed to have been given by the BA;
- (b) The application for consent to the commencement of the proposed building works will not be processed if the prescribed plans and documents of the proposed building works are not approved; and

/(c) ...

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<sup>3</sup> Window wall, including glass wall and glass shop front, refers to window and wall formed by structural glass elements spanning between floors.

<sup>4</sup> They are minor works items 1.48, 1.60, 1.61, 2.8, 2.48, 3.6 and 3.31 under Schedule 1 of the B(MW)R.

<sup>5</sup> For replacement of individual components of the curtain wall and glass wall (e.g. glass panes, sealants, setting blocks, etc.), and the cladding panels which are the same as the approved design, structural analysis and design calculations for the replacement components/cladding panels and the checking on the structural adequacy of the parent structure are not required.

- (c) In cases where the BA considers that the approval can be given but not concurrently with the consent, the period of 28 days as stipulated under regulation 32(3) of the B(A)R would run from the date of approval.

**Erection of Fire Damper in Ventilation System, Supporting Frame for Suspending Air-conditioning Plant or Mechanical Ventilation Plant, and Large Metal Ventilation Duct or Associated Supporting Frame inside Building**

33. Under the MWCS, certain types of minor building works involving erection of a fire damper in a ventilation system, a supporting frame for suspending an air-conditioning plant or mechanical ventilation plant, and a large metal ventilation duct or associated supporting frame<sup>6</sup> inside an existing building have been designated as minor works and may be carried out under the simplified requirements as an alternative to obtaining prior approval and consent under the BO. Reference can be made to Schedule 1 of the B(MW)R and PNAP APP-147 regarding the list of minor works items and the simplified requirements respectively.

34. For development projects or A&A proposals, the proposed minor building works described in paragraph 33 above should be included in the plans for approval before submitting application for occupation permit or certificate of completion of building works respectively unless in the case of A&A proposals, it is indicated on the plans that such works will be carried out under the MWCS. This requirement will apply to development projects with consent to the commencement of superstructure works and A&A proposals with consent to the commencement of works granted after 31 August 2021. However, APs and RSEs are encouraged to incorporate these minor building works in their plan submissions if feasible.

35. The following streamlined procedures are adopted for processing these plan submissions:

- (a) Only amended GBP are required for indicating the locations/layout of the proposed minor building works. Reference can be made to the sample drawings showing acceptable standards as given in Appendix A4 to PNAP ADV-33; and
- (b) Concurrent application for fast track processing of approval and consent in respect of structural plans for the supporting frames and large metal ventilation ducts or associated supporting frames can be made in accordance with paragraph 32 above and BD will process the application within 30 days.

/36. ...

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<sup>6</sup> They are minor works items 1.46, 1.51, 2.42 and 2.46 under Schedule 1 of the B(MW)R.

36. As an alternative for development projects and A&A proposals pending first plan approval, the AP/RSE may consider incorporating the information in paragraph 35(a) above and sample drawings for the structural details given in Appendix B11 to PNAP ADV-33 in the first submission of GBP and superstructure plans respectively. Under this arrangement, the approval and consent for the subsequent amendments to these works would not affect the progress of the construction programme if the requirements for minor amendments under paragraphs 21 to 24 above are followed.

( YU Tak-cheung )  
Building Authority

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BD GP/BREG/A/3  
BD TS/6-15/168 (II)  
BD GR/1-125/5/0

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## **Fundamental Issues of General Building Plans**

### **1. Density**

#### **(a) Site Parameters**

- (i) Claimed site area
- (ii) Site classification  
(Building (Planning) Regulation 19(2) determination?)
- (iii) Required private street/service lane  
(Deducted from site area and not built over)

#### **(b) Site Coverage (SC) and Plot Ratio (PR)**

- (i) Gross floor area (GFA) diagrams (accountable, non-accountable and exempted areas)
- (ii) SC diagrams (accountable, non-accountable and exempted areas)
- (iii) Exempted areas and non-accountable areas
- (iv) Dedication/Surrender in return for bonus
- (v) Overall PR & SC  
Check against the permissible PR and SC, including any granted bonus SC & PR, mean street level and height of podium/building

### **2. Safety**

#### **(a) Means of Access for Firefighting and Rescue (MOA)**

- (i) Number and disposition of fireman's lifts/firefighting & rescue stairway (FRS)
- (ii) Initial access to fireman's lifts and FRS
- (iii) Emergency vehicular access

#### **(b) Means of Escape (MOE)**

- (i) Single staircase building requirements
- (ii) MOE table: Occupancy factor and the required/provided number and width of the exit doors and exit routes
- (iii) Discharge value calculation
- (iv) Discharge at G/F  
(Directly to street, lane or to open area)  
(Exits at ground storey)
- (v) Inter-relationship between staircases
- (vi) Direct distance and travel distance
- (vii) Independent staircase serving the basement, kindergarten or child care centre
- (viii) Disposition of refuge floors
- (ix) PPE premises(Site, exit routes and staircases)

- (c) Fire Resisting Construction (FRC)
  - (i) FRC table  
(Required/provided fire resistance rating against the compartment volume and use)
  - (ii) Protection of adjoining buildings
  - (iii) External walls of required staircases/lobbies
  - (iv) Smoke vent disposition
  - (v) Bridge and tunnel  
(Fire shutter and by-pass lobby)

### **3. Health and Environment**

- (a) Lighting and Ventilation
  - (i) Window provided for habitable room, kitchen and office
  - (ii) Disposition of windows
- (b) Open space: Required/provided area and its disposition

### **4. Major issues under allied legislations**

- (a) Barrier Free Access (BFA) Facilities
  - (i) Initial BFA to entrance
  - (ii) Accessible route to required areas
  - (iii) Accessible toilet
- (b) Fire certificate
- (c) Outline Zoning Plan
- (d) Vehicular run-in/out acceptable to Transport Department and Highways Department
- (e) Geotechnical assessment - PNAP APP-25
- (f) Airport height restriction
- (g) Railway protection
- (h) Road works - control under Section 22 of Roads (Works, Use and Compensation), Cap 370
- (i) Sewage tunnel works - control under Section 17A of Buildings Ordinance, Cap 123
- (j) Antiquities – prohibition of works in a proposed monument or monument under Section 6 of Antiquities and Monuments Ordinance, Cap 53

(Rev. 2/2016)

### **Fundamental Issues of Superstructure Plans**

For superstructure plans, submissions are divided into two parts, viz. :

- (i) master framing plans in which all the requirements on materials, design loadings, workmanship and the structural framing of the structure are stipulated; and
  - (ii) structural detailed plans in which details of every structural members of a building, including the size of members, quantity and arrangement of steel bars inside the members are given; and
2. BD's check on the master framing will focus on the following aspects:
- (i) Stability and framing;
  - (ii) Fire Resistance Rating (FRR) requirements;
  - (iii) Loading; and
  - (iv) Materials.
3. To assist RSE in making superstructure submissions, a list of the items appropriate to the type of structural plans which will be checked in processing master framing plans is enclosed at Appendix B1 for general guidance. RSE should complete the checklist and include them into Part I of the calculations (prepared in accordance with PNAP ADM-8) for submission with the structural plans for approval.

(Rev. 2/2016)

### Checklist on Fundamental Issues of Superstructure Plans

Items to be checked		Remarks
<i>Structural Stability &amp; Safety</i>		
(1) Structural System	<input type="checkbox"/> Beam-column/core wall/shear wall <input type="checkbox"/> Flat Slab/Prestressed/Precast Beam-Slab <input type="checkbox"/> Curtain Wall/Cladding/Window Wall <input type="checkbox"/> Others: _____	
(2) Compatibility Check	<input type="checkbox"/> Wind modelling <input type="checkbox"/> Structural layout compatible with building plans <input type="checkbox"/> Loading compatible with foundation plans	
(3) Stability Check	<input type="checkbox"/> Comply with B(C)R 15 <input type="checkbox"/> Max. lateral deflection= (d/H = 1/ ) <input type="checkbox"/> Anchorage system: cast-in/drill-in/through bolt <input type="checkbox"/> Supporting structure for curtain wall/cladding/window wall <input type="checkbox"/> Robustness of the building and in particular those adopting precast concrete construction	
(4) FRR Requirements	<input type="checkbox"/> Comply with building plans' requirements <input type="checkbox"/> Comply with Code of Practice for Fire Safety in Buildings 2011	
<i>Loading</i>		
(5) Floor Loads	<input type="checkbox"/> Comply with building plans' requirements <input type="checkbox"/> Comply with B(C)R 17(1) & (2)	
(6) Lateral Loads	<input type="checkbox"/> Wind loads comply with HK Wind Code 2004 <input type="checkbox"/> Impact loads comply with B(C)R 17(3) & (4) <input type="checkbox"/> Design soil pressure and surcharge loads <input type="checkbox"/> Others: _____	
(7) Dynamic Loads	<input type="checkbox"/> Comply with B(C)R 17(5) <input type="checkbox"/> Others: _____	

<i>Design Standard</i>		
(8) Design Codes	<input type="checkbox"/> Code of Practice for Structural Use of Concrete 2013 <input type="checkbox"/> Code of Practice for the Structural use of Steel 2011 <input type="checkbox"/> Others: _____	
(9) Design Method	<input type="checkbox"/> Working Stress Method <input type="checkbox"/> Limit State Method <input type="checkbox"/> Others: _____	
(10) Computer Programme	<input type="checkbox"/> Pre-acceptance programmes: _____ <input type="checkbox"/> Others: _____	

<i>Material Specification</i>		
(11) Concrete	<input type="checkbox"/> Not exceeding grade C45 <input type="checkbox"/> Exceeding grade C45, please specify : _____	
(12) Reinforcement	<input type="checkbox"/> Grade 250/500 complying with CS2:2010 <input type="checkbox"/> Others: _____	
(13) Prestressed Tendon	Grade _____ complying with _____	
(14) Structural Steel	Grade _____ complying with _____	
(15) Aluminum	Grade _____ complying with _____	
(16) Glass	Type: _____ Permissible stress = _____ complying with _____	
(17) Others		

(Rev. 2/2016)

## **Fundamental Issues of Drainage Plans**

### **1. Method of disposal**

- (a) Public sewers (including nullah, culvert and streamcourse) available for connection and acceptable to Drainage Services Department (DSD);
- (b) Private sewers available for connection and acceptable to DSD;
- (c) Sewage treatment plant, septic tank and soakaway design acceptable to Environmental Protection Department (EPD); and
- (d) Trade/industrial effluent discharge acceptable to EPD.

### **2. Layout of Underground drain**

- (a) Direction of flow in order;
- (b) No surface water discharging to foul water drains;
- (c) No foul water discharging to surface water drains;
- (d) Special design provisions for underground drains on newly reclaimed land (PNAP APP-103);
- (e) Underground drains kept out of slopes (PNAP APP-76); and
- (f) Terminal manholes, invert levels and sizes of connection pipes acceptable to DSD.

### **3. Access for maintenance/repair**

- (a) Common underground drains and above-ground stacks located in common areas (PNAP APP-93); and
- (b) No water-borne pipes embedded in structural elements (PNAP APP-105).

### **4. Other related issues**

- (a) Well construction in order (PNAP APP-4);
- (b) Drain within a gathering ground acceptable to Water Supplies Department;
- (c) Discharge proposal for sites within 200m of seaward boundaries of a marine fish culture zone acceptable to EPD;
- (d) Railway protection zone:
  - (i) on acceptable to Mass Transit Railway Corporation (MTRC)
  - (ii) Installation of wells including bored well acceptable to MTRC; and
- (e) Condensate disposal system for air-conditioning units provided (PNAP APP-112).

(Rev. 2/2016)

**1. Fundamental Issues of Demolition Plans**

- (a) Precautionary measures particularly the hoarding, covered walkways and any necessary propping and shoring;
- (b) The codes and standards proposed to be adopted;
- (c) Appraisal of the building to be demolished, method statement, sequence of demolition and the safe use of any powered mechanical plant;
- (d) Stability of the framing system during demolition and of any remaining structures after demolition; and
- (e) Effects on all affected buildings, slopes structures, lands and services and the provision of supports and protection, if necessary.

**2. Fundamental Issues of Site Formation Works (including Slope Works) and Excavation and Lateral Support (ELS) Works**

- (a) The codes and standards proposed to be adopted;
- (b) The geotechnical parameters and assumptions adopted in the design;
- (c) The margin of safety, including local/ regional stability of ground, stability of earth retaining structures, overall stability of ELS system;
- (d) The structural adequacy of major structural elements, including structural members of slope protection works/ earth retaining structures and structural framing of ELS system;
- (e) The effects of the proposed works on adjoining buildings, structures, lands, streets, utility services and facilities, including ground settlement/ building settlement/ groundwater drawdown estimations;
- (f) The buildability such as the construction sequence, working space and safety under temporary condition; and
- (g) The adequacy of precautionary measures.

**3. Fundamental Issues of Structural Works other than Superstructure, such as Foundation and ELS Works**

- (a) The codes and standards proposed to be adopted;
- (b) The geotechnical parameters and assumptions adopted in the design;
- (c) Design loadings;
- (d) The margins of safety, including stability of structural framing and foundation system and overall stability of ELS system;
- (e) The structural adequacy of major structural elements of the foundation system and the ELS system;
- (f) The effects of the proposed works on adjoining buildings, structures, lands, streets, utility services and facilities, including ground settlement/building settlement/groundwater drawdown estimations;
- (g) The buildability such as construction sequence, working space and safety under temporary condition; and
- (h) The adequacy of precautionary measures.

(Rev. 2/2016)

## **Guidelines for Concept Drawings**

### **Basic Information in Concept Drawings**

1

- (a) Site coverage including accountable, non-accountable and exempted SC areas;
- (b) GFA including accountable, non-accountable and exempted domestic and non-domestic GFA;
- (c) Fire safety strategy including MOE, MOA and FRC arrangements; and
- (d) Barrier free access including basic provision of access and facilities for wheelchair-users.

### **2 Sample Drawings**

Sample concept drawings are available in BD's website at [www.bd.gov.hk](http://www.bd.gov.hk) for reference.

### **3 Size**

A2, A3 or A4 depending on size of development.

### **4 Colour Scheme**

It is recommended that the colour schemes for designation of different types of SC & GFA and barrier free access in sample concept drawings be adopted.

### **5 Signs and Indicators**

It is recommended that the signs and indicators for MOE, MOA and FRC arrangements in the sample concept drawings be adopted.



## **Notes on Submission Drawing Standards in Electronic Format**

### **Electronic Submission for Mathematical Calculation of Areas**

#### **Introduction**

The purpose of this supplementary note is to advise on the electronic format and the pre-requisites for checking of area calculations in CAD drawing files electronically.

2. When the requirements set out in the following paragraphs are complied with and clearly shown in the submitted CAD drawing files, diagrammatic breakdowns and details on calculation of the gross floor area, usable floor area, site coverage, plot ratio, refuge floor area and green feature area etc. would not be required to be included in plan submission. For avoidance of doubt, annotation and dimension of the areas concerned are required to be indicated on plans for checking purpose. Samples of the dimensioned plans are in Annex 1 for reference.

3. For area calculations computed electronically, soft copies of the building floor plans containing the area diagram layer(s) are required to facilitate verification of the calculations. For approval purpose, hard copies of the general building plans showing floor area layouts, area diagrams and calculations without breakdowns are required. Information shown in both the soft and hard copies of the plans submitted for approval must be identical to each other. Plans may be rejected if discrepancy between the two is found. The AP should certify on each of the DVD-ROM discs with a permanent marker signifying that information in the electronic drawing files are identical to the submitted hard copies and that all files are prepared under his supervision. The disc should be finalised before submission, i.e. the contents of the disc cannot be further changed. His signature shall be deemed to be his assumption of responsibility for the electronic plans and the calculations.

4. The following minimum requirements in CAD drawing format should be observed and provided for in the area calculations computed electronically. Plans may be rejected on grounds of insufficient information if these requirements are not complied with.

#### **4.1 Format and Software Version**

- (a) The submitted CAD drawing files should be stored in non-rewritable DVD-ROM discs. Except otherwise agreed by the Building Authority all other electronic submission formats are not acceptable;
- (b) CAD drawings using AutoCAD version R14 or later or MicroStation version SE, J, V8 or later are acceptable;
- (c) AutoCAD files should be saved in “.dwg” format and MicroStation files in “.dgn” format only. All other compressed or zipped file formats are not acceptable; and
- (d) Title blocks completed with drawing number showing revision legends, site/project title, drawing title etc. should be inserted in every drawing for identification purpose. Each CAD file shall contain one hard copy drawing only. Typical title block sample is attached in Annex 2 for reference.

## 4.2 Referencing System

### *File Name/Drawing Number Convention*

- (a) Each file shall contain one drawing only, default zoomed to full drawing extent;
- (b) All information for approval shall be contained in the same drawing file. The need to cross-reference or hyper-link with another CAD file to enable verification of the area calculations in the DVD-ROM is not acceptable except in situation covered in (c) below;
- (c) In situation where the layering number and the system are limited due to software constraint, limited referencing system might be used provided that all information and model files which compose the final drawings are clearly visible and intact when files are open in the computer. A clear and systematic path trial in hard copy format highlighting the list of file(s) for area checking purpose should be provided to facilitate the verification exercise. All drawing files and model files are to put into the same folder to ensure coherent path recognition. Cross-referencing and hyper-linking within folder should be kept to the minimum;
- (d) Naming and numbering of drawing files in the hard copy should be identical to those in the submitted soft copy; and
- (e) A completed hard and soft copy of the drawing index listing all file names, drawing numbers with brief description on location and contents of the submitted drawings shall be provided. Drawings under different revision must carry a revision letter (e.g. A to Z) for identification purpose. For large and complicated project involving numerous drawing versions/amendments, a revision legend should also be provided as well.

e.g.      **B-01\_A.DWG**

Drawing No.    Rev. A

## 4.3 Layering Organization

- (a) CAD drawing files including floor plans, tables and calculations etc. shall contain all information identical to the hard copy. Each file shall accommodate different elements such as floor layout plans, usable floor area, gross floor area and dimension etc. into the relevant layers. The “layering” drafting technique isolates elements of a drawing and places them into separate layers for easy reference and manipulation. The same principle applies to “level” in MicroStation files;
- (b) To facilitate checking of the area calculations, general building plans shall contain GFA and other areas diagram layer(s) for verification and calculations. To reconcile the requirements of other government departs and to adopt the rules under CAD Standard for Works Projects (CSWP) of Development Bureau, AP shall name the relevant layers in a format specified below;

## Layer Name Convention

**Diagram A: Rules of Layer Name Convention of CSWP (abstracted)**

<p><b>ARC      082   4      0</b></p> <p>Field 3 - Addition/Deduction Type  Field 2 - Building Plan Area Type (Sub-class)  Field 2 - CSWP Element Code assigned for Building Plan Area Calculation (Class)  Field 1 - Agent Responsible Code (ARC) <b>e.g. ADA</b></p>			
Field	Description	Length/Type	Coding
1	Agent Responsible Code	3 (alphanumeric)	See <a href="http://www.devb.gov.hk">www.devb.gov.hk</a>
2	CSWP Element Code assigned for Building Plan Area Calculation (Class)	3 (numeric)	a) 082 for BD's area calculation, b) 086 for LandsD's area calculation
	Building Plan Area Type (Sub-class)	1 (numeric)	See Diagram B
3	Addition/Deduction Type	1 (alphanumeric)	See Diagram C

**Diagram B**

Code	Building Plan Area Type
1	Site Coverage (SC) – Non-domestic
2	Site Coverage (SC) –Domestic
4	Gross Floor Area (GFA) – Non-domestic
5	Gross Floor Area (GFA) – Domestic
9	Usable Floor Area (UFA)
0	Open Space (OS)
–	Elements common to all area type

**Diagram C**

Code	Addition/Deduction Type	Remarks
0	Base Area	
4	Deduction Area	For area to be deducted from the outline of area layers under the Buildings Ordinance.
5	Deduction Area	For area to be deducted from the outline of area layers under the Lands Department requirement.
6	Deduction Area	For area to be deducted from the outline of area layers under the Planning Department requirement.
8	Dimension	

**Diagram D: Layer Names generated from the above rules for this PNAP**

Code	Description	Remarks
<i>ARC08240</i>	Non-domestic area Layer	For outline of non-domestic GFA layer.
<i>ARC08244</i>	Non-domestic area to be deducted from area calculations	For non-domestic area to be deducted from the outline of non-domestic area layers under the Buildings Ordinance.
<i>ARC08246</i>	Non-domestic area to be deducted from area calculations	For non-domestic area to be deducted from the outline of non-domestic area layers under the Planning Department requirements.
<i>ARC08250</i>	Domestic area Layer	For outline of domestic GFA layer.
<i>ARC08254</i>	Domestic area to be deducted from area calculations	For domestic area to be deducted from the outline of domestic area layers under the Buildings Ordinance.
<i>ARC08256</i>	Domestic area to be deducted from area calculations	For domestic area to be deducted from the outline of domestic area layers under the Planning Department requirements.
<i>ARC082_8</i>	Dimension layers	All dimensions for the floor layout plans are automatically generated from the computer software ( <i><b>not to be manually inserted by text input construction</b></i> )
<i>ARC08210</i>	Area for non-domestic site coverage calculations	For outline of non-domestic site coverage layer.
<i>ARC08214</i>	Non-domestic site coverage deducted from calculations	Deduction complying with requirements of the Buildings Department.
<i>ARC08216</i>	Non-domestic site coverage deducted from calculations	Deduction complying with requirements of the Planning Department.
<i>ARC08220</i>	Area for domestic site coverage calculations	For outline of domestic site coverage layer.
<i>ARC08224</i>	Domestic site coverage deducted from calculations	Deduction complying with requirements of the Buildings Department.
<i>ARC08226</i>	Domestic site coverage deducted from calculations	Deduction complying with requirements of the Planning Department.
<i>ARC08200</i>	Area for open space calculations	For outline of open space layer.
<i>ARC08204</i>	Area to be deducted from open space calculations	For area to be deducted from outline of the open space under the Buildings Ordinance.
<i>ARC08290</i>	Area for usable floor area calculations	For outline of usable floor area layer.
<i>ARC08294</i>	Area to be deducted from the usable floor area calculations	For area to be deducted from outline of the usable floor area under the Buildings Ordinance.

- (c) The layer names required by LandsD are not listed in this PNAP and AP should make reference to LandsD LAO Practice Note 3/2018. AP should also refer to CSWP of Development Bureau (at [www.devb.gov.hk](http://www.devb.gov.hk)) for other layer name convention;
- (d) Layering organization of the file(s) in hard copy format shall be submitted. If more layering description is required in the submitted general building plans, AP could lengthen the above list with additional input along similarly constructed methodology. All layering organizations must be clearly shown; and

#### ***Layer contents***

- (e) CAD file for the floor plan shall contain all elements and information that have to be shown on the drawings to facilitate approval, including, inter alia, the area and the dimension layers. Elements such as lighting, electric appliances and the like where approval from the Building Authority is not required should not be shown in the submitted drawings.

### **4.4 Presentation Style**

#### ***Drawing Scale***

- (a) CAD drawings should be drawn in true size (i.e. 1 drawing unit = 1mm or metre) with precision rounded up to the nearest mm unit.

#### ***Drawing Object within area diagram***

- (b) The position of the drawing shall be close to World Coordination 0,0 and drawing objects in area diagram shall not be grouped or blocked.

#### ***Polyline***

- (c) All line drawings intended for area calculations in area layer(s) shall be in **closed** polyline diagram (or in complex shape in MicroStation files).

#### ***Dimension***

- (d) All dimensions should be true dimensions generated automatically by the software and laid in the specified layers. Text figures or figures manually inserted, amended or constructed for calculation purpose in the CAD file is not acceptable.

#### ***Decimal places of areas and volumes***

- (e) All areas and volumes should be presented in m<sup>2</sup> and m<sup>3</sup> units respectively and rounded up to 3 decimal places.

#### ***Suggested Text Font***

- (f) Text style is not compulsory. Conventional text fonts are suggested. Common type such as “Romans” font is recommended for use in the text. For MicroStation, “Engineering” font could be adopted.

## **Review**

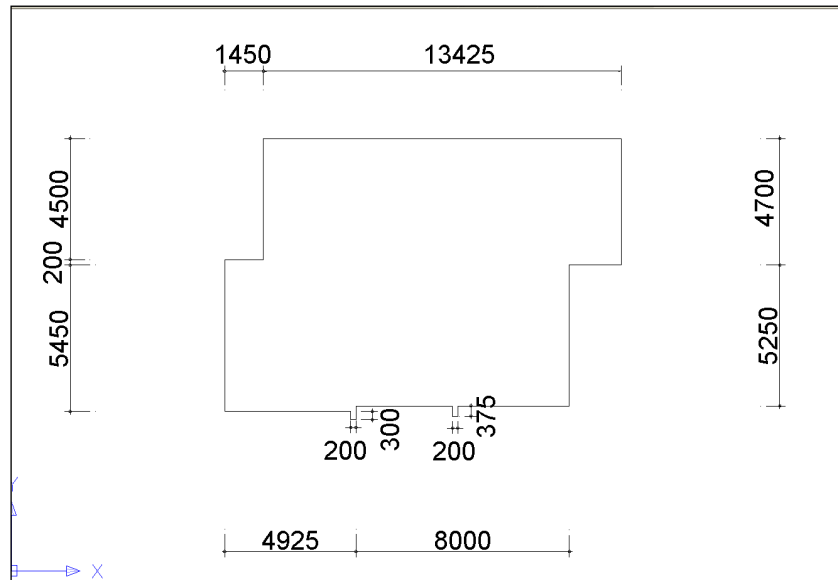
5. These guidelines will be refined taking into the experience gained. Suggestions to facilitate and/or to improve the electronic vetting procedures are always welcomed.

(Rev. 9/2019)

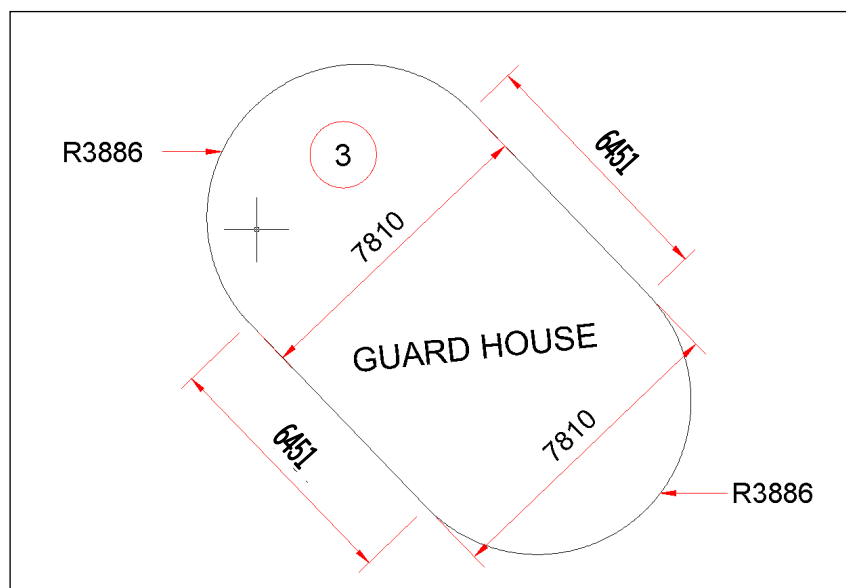
## Samples for Dimensioned and Annotated GFA Diagrams

The following part diagrams shown with dimensions and annotations are for reference only. They are intended to illustrate the minimum information required to facilitate electronic verification of the area calculations more effectively. Illustrations shown are by no means exhaustive.

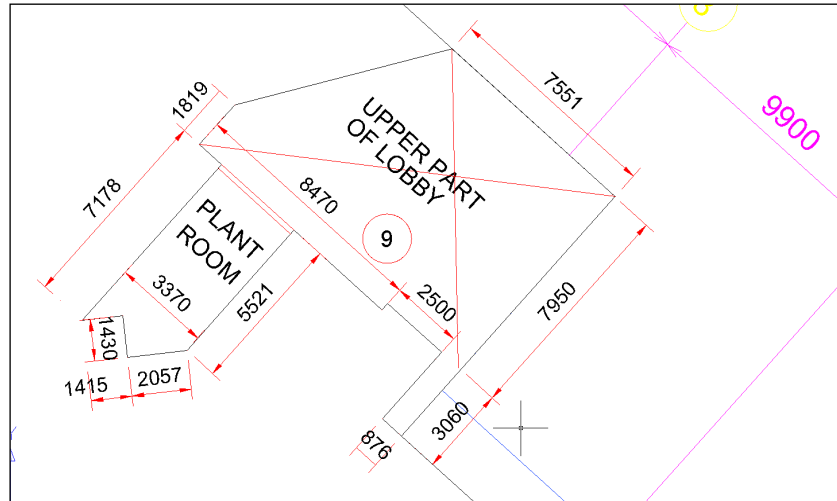
**Sample 1      Rectangular shape GFA diagram**



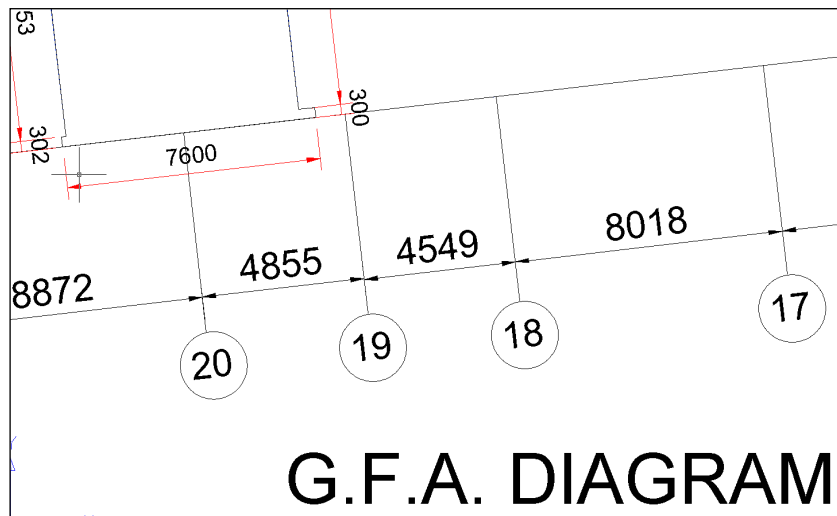
### Sample 2 GFA diagram with curve(s) and annotations



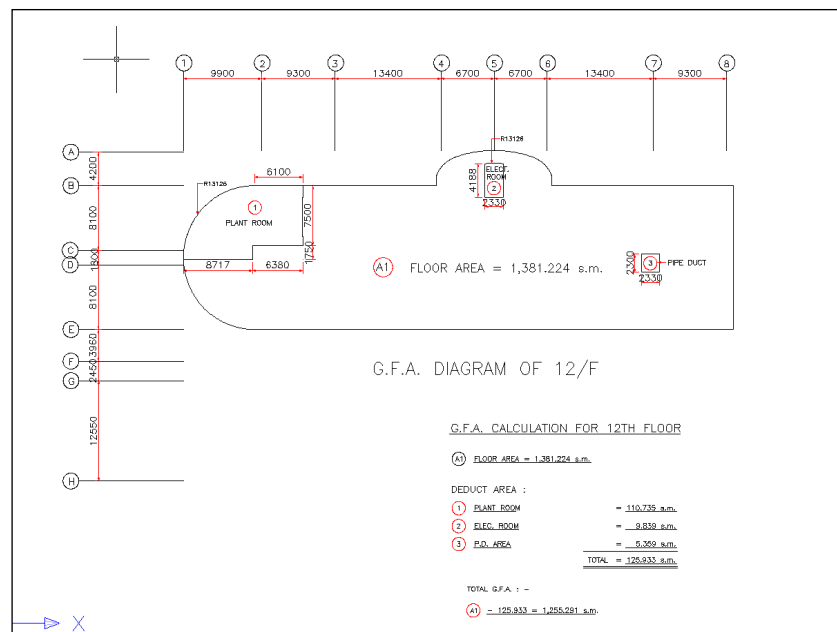
**Sample 3 GFA diagram (part) with dimension and annotation**



**Sample 4 GFA diagram (part) with grid line and dimension.**



**Sample 5 Overview of a sample GFA diagram with calculations**





## Sample Title Panel

BD REF	<	BD File Reference
BIM REF	<	BIM File Reference
FSDREF	<	FSD File Reference
		Unused Minimum Border: A0 – 20mm A1 – 20mm A2 – 10mm A3 – 10mm A4 – 10mm (PNAP ADM-10 App A)
PROJECT	<	<b>Site/Project Title</b>
DRAWING TITLE	<	<b>Drawing Title</b>
SCALE	<	Scale
DRAWING NO	<	<b>Drawing Number (with revision)</b>
SOURCE	<	Original Drawing No. (if any)
	<	Company Logo (if any)
	<	
	<	AP/RSE/RGE's signature/and stamp chop
BD's OFFICIAL USE	<	90mm(W)x150mm(H) space for BD's approval stamp/ certification of copies of approved plans (PNAP ADM-10 App A)

\* Information box shown in bold letter is compulsory for BD submission.

**List of Minor Amendments Not Qualified  
for Deferring Submission**

1. **For Building and Building (A&A), a minor amendment:**
  - (a) resulting in a major revision or localised major revision as per criteria specified in PNAP APP-55;
  - (b) having material effect on the fundamental issues;
  - (c) involving concern on stability/deformation of slopes, retaining walls, adjoining land and buildings;
  - (d) involving an application for exemption or modification of the BO and its subsidiary regulations;
  - (e) not in compliance with the relevant Outline Zoning Plan or deviating from a scheme approved by the Town Planning Board; or
  - (f) involving works outside the lot boundary.
  
2. **For superstructure and superstructure (A&A), a minor amendment:**

affecting the overall structural stability of the building.
  
3. **For drainage and drainage (A&A), a minor amendment:**
  - (a) encompassing the revision of drainage layout as a result of a major revision of the building proposal;
  - (b) involving the change of disposal system or connections to public sewers;
  - (c) concerning stability/deformation of slopes, retaining walls, adjoining land and buildings;
  - (d) involving an application for exemption or modification of the BO and its subsidiary regulations;
  - (e) involving excavations deeper than 3m; or
  - (f) entailing works outside the lot boundary.

**Request for Fast Track Processing of Plans  
of Alteration and Addition (A&A) Works and Certificate of Preparation of Plans**

To the Building Authority,

In accordance with paragraph 24 of PNAP ADM-19, I hereby request for fast track processing of the plans submitted for the proposed A & A works to be carried out at \_\_\_\_\_.

2. I confirm that the A & A works as shown on the enclosed drawings (dwg. no. \_\_\_\_\_ to \_\_\_\_\_) do not involve the structure of the building and do not involve changes to the latest approved plans of the affected areas in the following aspects :

- ☐ Density - site parameter, plot ratio, site coverage
- ☐ Fire safety - means of access, means of escape in case of fire, fire resistance, compartmentation
- ☐ Health and environment - lighting, ventilation, open space
- ☐ Fundamental issues required under allied legislation - fire safety, OZP, access for persons with a disability, airport height restrictions, railway route protection

3. I also confirm that the A & A works as shown on the enclosed drawings (dwg. no. \_\_\_\_\_ to \_\_\_\_\_) involve changes to the latest approved plans of the affected areas in the following aspects :

- ☐ Fire safety - means of access, means of escape in case of fire, fire resistance, compartmentation
- ☐ Health and environment - lighting, ventilation, open space
- ☐ Minor changes to structural elements of the building

and that such changes as shown on the said drawings comply with the provisions of the Buildings Ordinance.

4. A Form BA 8A applying for your consent to the commencement and carrying out of the A & A works mentioned in paragraph 1 above is enclosed.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Authorized Person

\_\_\_\_\_  
(Name in full)

\_\_\_\_\_  
Signature of Registered Structural Engineer

\_\_\_\_\_  
(Name in full)

**Fast Track Processing of Proposal  
for Two-Storey Warehouse**

The Efficiency Office (EffO) operates a One Stop Centre for receiving submissions and coordinating joint inspections for two-storey warehouse proposals on behalf of relevant Government departments (including BD) and utility companies. Details of the scheme are available from EffO's website at <https://www.effo.gov.hk>.

2. Submission of a proposal for building a two-storey warehouse via the EffO's One Stop Centre to the BD should include all relevant plans such as GBP, structural plans, drainage plans, demolition plans, site supervision plans and hoarding plans, and the corresponding consent application. Alternatively, such submission may be made to the BD directly.

3. For building proposals satisfying the following criteria, concurrent approval and consent may be applied for:

- (a) The proposed building is a warehouse for general storage, of not more than two storeys and has no basement;
- (b) The site is a Class A, B or C site and emergency vehicular access is provided in compliance with regulation 41D of the Building (Planning) Regulations and the Code of Practice for Fire Safety in Buildings;
- (c) No compartment in the building shall exceed 28,000m<sup>3</sup> nor 10,500m<sup>2</sup>; and
- (d) The criteria as set out in PNAP ADM-19 are satisfied.

4. For proposals satisfying the criteria in paragraph 3 above and irrespective of whether the submission is made via the EffO's One Stop Centre or directly to the BD, the BD undertakes to process the concurrent applications for fast track approval and consent within 45 days from the date of submission and to conduct inspection of the foundation bearing strata within one working day upon receipt of notification.

**Fast Track Processing for Repair Works of Curtain Wall,  
Window Wall<sup>1</sup> and Cladding**

To enable BD to process the application for fast-track approval and consent within 30 days<sup>2</sup>, the following shall be submitted concurrently:

- (a) A supervision plan for the curtain wall, window wall or cladding works, where applicable, prepared by the AP, RSE and Registered General Building Contractor (RGBC) in accordance with the Technical Memorandum for Supervision Plans and the Code of Practice for Site Supervision;
- (b) If tempered glass is to be installed, the RSE shall submit the following documents as stipulated in PNAP APP-37-
  - (i) quality supervision plan prepared by the RSE and RGBC for the quality supervision of manufacturer's heat soak process, and
  - (ii) a copy of Quality Assurance Scheme issued by the manufacturer;
- (c) If the thermal transmittance characteristics of the replaced external wall materials regarding insulation is inferior to the approved one, provisional Overall Thermal Transfer Value report under PNAP APP-67 and, where applicable, provisional energy efficiency report under PNAP APP-156<sup>3</sup>; and
- (d) If the repair works involve a change/upgrading of the approved materials, full justifications of their structural adequacy, non-combustibility, fire resisting properties in compliance with the relevant current Building Regulations, design standards and codes of practice.

(2/2021)

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<sup>1</sup> Window wall, including glass wall and glass shop front, refers to window and wall formed by structural glass elements spanning between floors.

<sup>2</sup> Paragraph 31 of PNAP ADM-19 refers.

<sup>3</sup> Applicable to developments previously approved subject to the Building (Energy Efficiency) Regulation or PNAP APP-156.