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### **Structural Design Information**

Structural submissions are ever increasing in volume of plans and complexity of calculations. To facilitate expeditious processing of submissions, plans and calculations should be clearly presented and organized as outlined below.

#### **Structural Plans**

2. Structural plans should be properly indexed and each drawing should bear a drawing title and drawing number.
3. The first drawing of the set should contain general specification notes on :
  - (a) concrete materials, including cement, aggregates and pulverized fuel ash (if used);
  - (b) reinforcement and other structural materials;
  - (c) grade and characteristic strength of structural materials;
  - (d) concrete covers, corrosion protections and fire resistance requirements; and
  - (e) workmanship and other particulars of method of construction.
4. There should be adequate general-arrangement drawings consisting of floor plans, sections and elevations where appropriate showing layout, dimensions, levels and identification of all structural frames and members.
5. Notes on designed imposed loads (including allowance for partitions, screeds, dynamic effects and the like) should be given on the corresponding floor plans. Where there are different designed imposed loads for different parts of the floor, the variations should be illustrated diagrammatically.
6. In alteration and addition submissions, reinforcement details of the structural members in the existing building affected by the alteration and addition works should be shown on drawings. These reinforcement details should be extracted from the original approved plans.

#### **General Building Plans**

7. The information on designed imposed loads specified in paragraph 5 above should also be given on the general building plans.

*/Structural .....*

## Structural Calculations

8. Structural calculations should be grouped into two parts, each to be properly indexed. The first part should contain essential information on the structural design of the building as given in paragraph 9 below, and is to be retained in Buildings Department (BD) for record. The second part, containing relevant details of analysis and design calculations of the structural elements, will be returned to the authorized person / registered structural engineer after the issue of the occupation permit for the building.

9. The first part of the structural calculations should contain the following:

- (a) a synopsis of the structural design giving --
  - (i) a general description of the foundation and structural system and the basic anatomy of stability by which the applied loads are transferred to the ground;
  - (ii) design method, assumptions, codes used and limitations of stresses and deformation;
- (b) essential information on the computerized calculations including --
  - (i) The name, version, developer's name/ identification, BD reference number and validity period of the computer program used;
  - (ii) The scope of application of the program which is accepted by BD and a list of the limitations in application;
  - (iii) Assumptions made and justifications on parameters used in the computer model e.g. material properties, boundary conditions etc.;
  - (iv) Input data with computer-generated graphics or hand sketch showing the framing & layout of the structure, nodes & elements, joint fixity etc.;
  - (v) Summary of salient output results e.g. the design envelopes of moment, shear, displacement of the most critical cases for the design and check of the applied forces against the output overall reaction;
  - (vi) The interpretation and application of the computer output in the design;

/(c) .....

- (c) essential information on the design to resist wind load, including --
- (i) a general description of the wind-resisting system and mathematical modelling;
  - (ii) diagrams illustrating the location and identification of all structural frames and members in the wind-resisting system;
  - (iii) a summary of sectional properties of wind-resisting elements;
  - (iv) a summary of wind loads applied to the building and the distribution of the wind forces on individual frames at each floor level;
  - (v) principal reactions (moments, shear forces and axial forces) in the wind-resisting elements; and
  - (vi) a summary of equilibrium check on applied lateral forces and calculated reactions of vertical structural members at foundation and other critical levels where there is a major change in structural configuration;
- (d) essential information on the design to resist dead and imposed loads, including --
- (i) the design data on dead and imposed loads (including allowance for partitions, screeds, dynamic effects and the like); and
  - (ii) a summary of principal reactions (moments, shear forces and axial forces) in vertical structural members at foundation and all floor levels;
- (e) details of the design of major transfer members where the failure of which would induce cumulative instability; and
- (f) details of the design of cantilevered canopies, balconies and major structural appendages.

**Documents Submitted**

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10. Appendix A is a list of documents and plans required to be included in the structural submission. This list is not exhaustive and more information may be required for individual consideration.



( H W CHEUNG )  
Building Authority

Ref.: BD GP/BREG/A/12

First issue July 1986

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This revision September 2002 (AD/NB2) - Para. 9(a)(iii) deleted and  
a new para. 9(b) added

Index under : Structural Design Information  
Structural Submissions

**Check List on Documents  
for Inclusion in Structural Submissions**

**PART 1 - GENERAL INFORMATION**

BD Ref. No.: \_\_\_\_\_ Address of Site: \_\_\_\_\_ Lot No.: \_\_\_\_\_

Authorized Person: \_\_\_\_\_ Registered Structural Engineer: \_\_\_\_\_

Type of Submission (tick as appropriate):

New Building ; Alternation & Addition Works ;

First submission ; Resubmission upon refusal ; Revision/Amendment

Type of Works (circle or state type):

Foundations --

Ground Investigation; Driven Piles; Small Diameter Bored Piles (not exceeding 750mm);  
Large Diameter Bored Piles (over 750mm); Barrettes; Spread Footings; Rafts; Pile Caps;  
Others \_\_\_\_\_

Earth-retaining, Excavation and Lateral Support Works --

Retaining Walls; Sheet Piling; Piled Walls; Panelled Diaphragm Walls; Lateral Support Details;  
Other Shoring System \_\_\_\_\_

Underground Structures --

Basement; Others \_\_\_\_\_

Superstructures --

Main Structure; Curtain Walls; Others \_\_\_\_\_

**PART 2 - DOCUMENTS SUBMITTED (tick as appropriate)**

	Yes	N/A
Plans (2 signed sets for BA approval)		
Design Calculations (Part I, No. of Vol. )		
(Part II, No. of Vol. )		
Ground/Site Investigation Report (2 sets)		
Appraisal Report on Adjacent Buildings		
Geotechnical Report		
Form BA 4 (Appointment of AP/RSE)		
Form BA 5 (Application for approval)		
Form BA 6 (Stability Certificate)		
Form BA 16 (Application for exemption/modification)		
Form BA 17 (Temporary building)		
Payment of Fees (for structural alteration & addition works)		

**PART 3 - ADDITIONAL PLANS FOR REFERRAL**

Does proposal involve or affect the following?	Yes	No	If yes please indicate the number of additional set(s) of plans for referral to each of the relevant organization
Schedule Area No. 1, 2 or 4			Geotechnical Engineering Office
Schedule Area No. 3 or MTR Protection Area			Mass Transit Railway Corporation
Schedule Area No. 5			(a) Geotechnical Engineering Office; and (b) Drainage Services Department
Slopes/Retaining Structures/Deep excavation/disused tunnel			Geotechnical Engineering Office
Culvert, nullah, stream course			(a) Geotechnical Engineering Office; and (b) Drainage Services Department/Project Manager, Territory Development Department for New Territory area
Kowloon Canton Railway route protection area or proposed rail routes			Railway Division, Highways Department
Light Rail Transit			Light Rail Division, Kowloon Canton Railway Corporation
Chek Lap Kok Airport			(a) Civil Aviation Department; and (b) Civil Engineering Department
Structures to be erected in, over, under or upon street			(a) Lands Department; and (b) Highways Department
Highway Structures			Highways Department
Sea walls, adjacent to sea front			Port Works Division, Civil Engineering Department
Reclamation, piers			(a) Marine Department; and (b) Port Works Division, Civil Engineering Department
Public drainage			Drainage Services Department
Water mains			Water Supplies Department
Total no. of sets of additional plans for referral:			

\_\_\_\_\_ Date

\_\_\_\_\_ Signed (AP/RSE, Name in full)

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