

APPENDIX - B

STRUCTURAL DESIGN BASIS REPORT

1. This report to accompany the application for Building Permission.
2. In case information on items 3, 10, 17, 18 and 19 cannot be given at this time, it should be submitted at least one week before commencement of construction.

Part 1 General Data			
S. No	Description	Information	Notes
1	Address of the building <ul style="list-style-type: none">• Name of the building• Plot number• Subplot number• TPS scheme a. Name b. Number <ul style="list-style-type: none">• Locality / Township• District		
2	Name of the owner		
3	Name of builder on record		
4	Name of Architect/Engineer on record		
5	Name of Structural Engineer on record		
6	Use of the building		
7	Number of storeys above ground level (including storey to be added later, if any)		
8	Type of structure <ul style="list-style-type: none">• Load bearing• R.C.C frame• R.C.C frame and shear walls• Steel frame		
9	Soil data <ul style="list-style-type: none">• Type of soil• Design safe bearing capacity		IS: 1893 Cl.6.3.5.2 IS: 1904
10	Dead load (unit weight adopted) (i) Earth (ii) Water (iii) Brick masonry (iv) Plain cement concrete (v) Reinforced cement concrete (vi) Floor finish		IS:875 Part 1

	(vii) Other fill materials (viii) Piazza floor fill and landscape		
11	Imposed (Live) loads <ul style="list-style-type: none"> • Piazza floor accessible to Fire Tender • Piazza floor not accessible to Fire Tender ♥ Floor loads ♦ Roof loads		IS: 875 Part 2
12	Cyclone / Wind <ul style="list-style-type: none"> • Speed • Design pressure intensity 		IS: 875 Part 3
13	Seismic zone		IS: 1893 (2016)
14	Importance factor		IS: 1893 (2016) Table 6
15	Seismic zone factor (Z)		IS: 1893 Table 2
16	Response reduction factor		IS: 1893 Table 7
17	Fundamental natural period -approximate		IS: 1893 CL. 7.6
18	Design horizontal acceleration spectrum value (A_h)		IS: 1893 CL. 6.4.2
19	♠ Expansion / Separation joints		

♥ Enclose small scale plans of each floor on A4 sheets

♦ In case terrace garden is provided, indicate additional fill load and live load

♠ Indicate on a small scale plan on A4 sheet

APPENDIX-B (continued)

Part 2 Load bearing masonry buildings																							
S. No.	Description	Information	Notes																				
1	<ul style="list-style-type: none"> • Building category 		IS: 4326 CL. 7 read with IS: 1893 <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Zone</td> <td style="text-align: center;">II</td> <td style="text-align: center;">III</td> <td style="text-align: center;">IV</td> <td style="text-align: center;">V</td> </tr> <tr> <td style="text-align: center;">Bldg</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Ordinary</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> <td style="text-align: center;">E</td> </tr> <tr> <td style="text-align: center;">Important</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> <td style="text-align: center;">E</td> <td style="text-align: center;">E</td> </tr> </table>	Zone	II	III	IV	V	Bldg					Ordinary	B	C	D	E	Important	C	D	E	E
Zone	II	III	IV	V																			
Bldg																							
Ordinary	B	C	D	E																			
Important	C	D	E	E																			
2	Number of floors including Ground floor (all floors including stepped floors in hill																						

	slopes)		
3	Type of wall masonry		
4	Type and mix of mortar		IS: 4326 CL. 8.1.2
5	Re: size and position of openings (see note No.1) <ul style="list-style-type: none"> • Minimum distance (b5) • Ratio $(b_1 + b_2 + b_3)/l_1$ or $(b_6 + b_7)/l_2$ Minimum pier width between consequent opening (b4) • Vertical distance (h3) • Ratio of wall height to thickness 4 • Ratio of wall length between cross wall to thickness 		IS: 4326 Table 4, Fig. 7
6	Horizontal seismic band <ul style="list-style-type: none"> i. At plinth level ii. At window sil level iii. At lintel level iv. At ceiling level v. At eave level of sloping roof vi. At top of gable walls vii. At top of ridge walls 	IP TP NA <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	(See Note No. 2) IS: 4326 CL 8.4.6 IS: 4326 CL 8.3 IS: 4326 CL 8.4.2 IS: 4326 CL 8.4.3 IS: 4326 CL 8.4.3 IS: 4326 CL 8.4.4
7	Vertical reinforcing bar <ul style="list-style-type: none"> • At corners and T junction of walls • At jambs of doors and window openings 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	IS: 4326 CL 8.4.8 IS: 4326 CL 8.4.9
8	Integration of prefab roofing / flooring elements through reinforced concrete screed	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	IS: 4326 CL. 9.1.4
9	Horizontal bracings in pitched truss <ul style="list-style-type: none"> (ix) In horizontal plane at the level of ties (x) In the slopes of pitched roofs 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

Notes:

1. Information in item 6 should be given on separate A4 sized sheets for all walls with large number of openings
2. IP. indicated "Information Provided"
TP indicates "Information to be provided"
NA indicates "Not applicable"
Tick mark one box.

APPENDIX-B (continued)

Part 3		Reinforced concrete framed buildings	
S No.	Description	Information	Notes
1	Type of building <ul style="list-style-type: none"> • Regular frames • Regular frames with shear walls • Irregular frames • Irregular frames with shear walls • Soft storey 		IS: 1893 CL. 7.1
2	Number of floors including ground floor		
3	Horizontal floor system <ul style="list-style-type: none"> • Beams and slabs • Waffles • Ribbed floor • Flat slab with drops • Flat plate without drops 		
4	Soil Data <ul style="list-style-type: none"> • Type of soil • Recommended type of foundation <ul style="list-style-type: none"> - Independent footings - Raft -Piles • Recommended bearing capacity of soil • Recommended, type, length, diameter and load capacity of piles • Depth of water table • Chemical analysis of ground water • Chemical analysis of soil 		IS: 1498
5	Foundations <ul style="list-style-type: none"> • Depth below ground level • Type <ul style="list-style-type: none"> ▪ Independent ▪ Interconnected ▪ Raft ▪ Piles 		
6	System of interconnecting foundations <ul style="list-style-type: none"> • Plinth beams • Foundation beans 		IS: 1893 Cl.7.12.1

7	Grades of concrete used in different parts of building		
8	Method of analysis used		
9	Computer software used		
10	Torsion included		IS: 1893 CL. 7.9
11	Base shear a. Based on approximate fundamental period b. Based on dynamic analysis c. Ratio of a/b		IS: 1893 CL. 7.5.3
12	Distribution of seismic forces along the height of the building		IS: 1893 CL. 7.7 (provide sketch)
13	The column of soft ground storey specially designed		IS: 1893 CL. 7.10
14	Clear minimum cover provided in <ul style="list-style-type: none"> • Footing • Column • Beams • Slabs • Walls 		IS: 456 CL. 26.4
15	Ductile detailing of RC frame <ul style="list-style-type: none"> • Type of reinforced used • Minimum dimension of beams • Minimum dimension of columns • Minimum percentage of reinforcement of beams at any cross section • Maximum percentage of reinforcement at any section of beam • Spacing of transverse reinforcement in 2-d length of beams near the ends. • Ratio of capacity of beams in shear to capacity of beams in flexure • Maximum percentage of reinforcement in column • Confining stirrups near ends of columns and in beam-column joints a. Diameter b. Spacing 		IS: 456 CL. 5.6 IS: 13920 CL. 6.1 IS: 13920 CL. 7.1.2 IS: 456 CL. 26..5.1.1. (a) IS: 13920 CL. 6.2.1 IS: 456 CL. 26.5.1.1. (b) IS: 13920 CL. 6.2.2 IS: 13920 CL. 6.3.5 IS: 456 CL. 26.5.3.1 IS: 13920 CL. 7.4

	<ul style="list-style-type: none"> Ratio of shear capacity of columns to maximum seismic shear in the storey 		
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General Notes

1. The SDBR shall be submitted along with the application for Building Development Permission.
2. In addition to the completed report following additional information shall be submitted, at the latest, one month before commencement of construction.
 - 2.1 Foundations
 - 2.1.1 In case raft foundation has been adopted indicate K value used for analysis of the raft.
 - 2.1.2 In case pile foundations have been used give full particulars of the piles, type, diameter, length, capacity, pile shoe.
 - 2.1.3 In case of high water table indicate system of countering water pressure, and indicate the existing water table, and that assumed to design foundations.
 - 2.2 Idealization for Earthquake analysis.
 - 2.2.1. In case of a composite system of shear walls and rigid frames, give distribution of base shear in the two systems on the basis of analysis and that used for design of each system
 - 2.2.2 Indicate the idealization of frames and shear walls adopted in the analysis with the help of sketches
 - 2.3 Submit framing plans of each floor
3. All IS codes to be considered for designing as given in the report above shall be of the latest publication.

APPENDIX-B (continued)

Part 4		Buildings in structural steel	
1	Adopted method of Design	<input type="radio"/> Simple <input type="radio"/> Semi-rigid <input type="radio"/> Rigid	IS: 00; CL. 3.4.4 IS: 800; CL. 3.4.5 IS: 800; CL 3.4.6
2	Design based on	<input type="radio"/> Elastic analysis <input type="radio"/> Plastic analysis	IS: 00; Section-9 SP: 6(6)
3	Floor construction	<input type="radio"/> Composite	

		<input type="radio"/> Non composite <input type="radio"/> Boarded	
4	Roof construction	<input type="radio"/> Composite <input type="radio"/> Non-composite <input type="radio"/> Metal <input type="radio"/> Any other	
5	Horizontal force resisting system adopted	<input type="radio"/> Frames <input type="radio"/> Braced frames <input type="radio"/> Frames and shear walls	Note: Seismic force As per IS:1893 would depend on system
6	Slenderness ratios maintained	Members defined in Table 3.1, IS: 800	IS: 800; CL. 3.7
7	Member of deflection limited to	Beams, Rafters Crane Girders Purlins Top of columns	IS: 800; CL. 3.13
8	Structural members	<input type="radio"/> Encased in concrete <input type="radio"/> Not encased	IS: 800; Section-10
9	Proposed materials	<input type="radio"/> General weld-able <input type="radio"/> High strength <input type="radio"/> Cold formed <input type="radio"/> Tubular	IS: 2062 IS: 8500 IS: 801, 811 IS: 806
10	Minimum metal thickness Specified for corrosion protection	<input type="radio"/> Hot rolled sections <input type="radio"/> Cold formed sections <input type="radio"/> Tubes	IS: 800; CL. 3.8 CL. 3.8.1 to CL 3.8.4 CL. 3.8.5 CL. 3.8.5
11	Structural connections	<input type="radio"/> Rivets <input type="radio"/> CT Bolts <input type="radio"/> SHFG Bolts <input type="radio"/> Black Bolts <input type="radio"/> Welding-field Shop (Specify welding type proposed) <input type="radio"/> Composite	IS: 800; Section-8 IS: 1929, 2155, 1149 IS: 6639, 1367 IS: 3757, 4000 IS: 1363, 1367 IS: 816, 814, 1395 7280, 3613, 6419 6560, 813, 9595
12	Minimum fire rating Proposed with method	<input type="radio"/> Rating..... hours <input type="radio"/> Method proposed- - In tumescent painting -Spraying -Quilting -Fire retardant boarding	IS: 1641, 1642, 1643