

FORM NO. 11

STRUCTURAL DESIGN BASIS REPORT

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

Part 1: General Data

| Sl 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<ol style="list-style-type: none">a. Nameb. Number• Locality/Township• District | | |
| 2 | Name of 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 storeys to be added later, if any) | | |
| 8 | Number of basements below ground Level | | |
| 9 | Type of structure <ul style="list-style-type: none">• Load bearing walls• R.C.C frame• R.C.C frame and Shear walls• Steel frame | | |
| 10 | Soil data <ul style="list-style-type: none">• Type of soil• Design safe bearing capacity | | IS: 1893 Cl. 6.3.5.2 IS: 1904 |
| 11 | Dead loads (unit weight adopted) <ul style="list-style-type: none">• Earth• Water• Brick masonry• Plain cement concrete• Reinforced cement concrete• Floor finish• Other fill materials• Piazza floor fill and landscape | | IS: 875 Part 1 |
| 12 | Imposed (live) loads | | IS: 875 Part 2 |

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| | <ul style="list-style-type: none"> • Piazza floor accessible to Fire Tender • Piazza Floor not accessible to Fire Tender . □□Floor loads . □□Roof loads | | |
| 13 | Cyclone / Wind <ul style="list-style-type: none"> • Speed • Design pressure intensity | | IS: 875 Part 3 |
| 14 | Seismic zone | | IS:1893 2002 |
| 15 | Importance factor | | IS:1893 (2002) Table 6 |
| 16 | Seismic zone factor(Z) | | IS:1893 Table 2 |
| 17 | Response reduction factor | | IS: 1893 Table-7 |
| 18 | Fundamental natural period - approximate | | IS: 1893 Cl. 7.6 |
| 19 | Design horizontal acceleration spectrum value (Ah) | | IS: 1893 Cl. 6.4.2 |
| 20 | Expansion / Separation Joints | | |

Part 2:Load bearing masonry buildings

| Sl No | Description | Information | Notes |
|-------|--|--------------------------|---|
| 1 | Building category | | IS:4326 Cl. 7 read with IS: 1893 Bld/Zone II III IV V Ord. B C D E Important C D E E |
| 2 | Basement Provided | | |
| 3 | Number of floors including Ground Floor (all floors including stepped floors in hill slopes) | | |
| 4 | Type of wall masonry | | |
| 5 | Type and mix of Mortar | | IS:4326 Cl. 8.1.2 |
| 6 | Re: size and position of openings (See note No.1) <ul style="list-style-type: none"> • Minimum distance (b5) • Ratio (b1+b2+b3)/l1 or (b6+b7)/l2 • Minimum pier width between consequent opening (b4) • Vertical distance (h3) • Ratio of wall height to thickness⁴ • Ratio of wall length between cross wall to thickness | | IS:4326 Table 4, Fig.7 |
| 7 | Horizontal seismic band <ul style="list-style-type: none"> • at plinth level | P IP NA | (see note no.2) IS:4326 Cl. 8.4.6 |

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| | <ul style="list-style-type: none"> • at window sill level • at lintel level • at ceiling level • at eave level of sloping roof • at top of gable walls • at top of ridge walls | | 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 |
| 8 | Vertical reinforcing bar <ul style="list-style-type: none"> • at corners and T junction of walls • at jambs of doors and window openings | | IS:4326 Cl. 8.4.8 IS:4326 Cl. 8.4.9 |
| 9 | Integration of prefab roofing/flooring elements through reinforced concrete screed | | IS:4326 Cl. 9.1.4 |
| 10 | Horizontal bracings in pitched truss <ul style="list-style-type: none"> • in horizontal plane at the level of ties • in the slopes of pitched Roofs | | |

Part 3 : Reinforced concrete framed buildings

| Sl No | Description | Information | Notes |
|-------|---|-------------|------------------|
| 1 | Type of Building <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> Regular frames <input type="checkbox"/> <input type="checkbox"/> Regular frames with Shear walls <input type="checkbox"/> <input type="checkbox"/> Irregular frames <input type="checkbox"/> <input type="checkbox"/> Irregular frames with shear walls <input type="checkbox"/> <input type="checkbox"/> Soft storey | | IS: 1893 Cl. 7.1 |
| 2 | Number of basements | | |
| 3 | Number of floors including ground floor | | |
| 4 | Horizontal floor system <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> Beams and slabs <input type="checkbox"/> <input type="checkbox"/> Waffles <input type="checkbox"/> <input type="checkbox"/> Ribbed Floor <input type="checkbox"/> <input type="checkbox"/> Flat slab with drops <input type="checkbox"/> <input type="checkbox"/> Flat plate without drops | | |
| 5 | Soil data <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> Type of soil <input type="checkbox"/> Recommended type of foundation <ul style="list-style-type: none"> - Independent footings - Raft - Piles <input type="checkbox"/> Recommended bearing capacity of soil <input type="checkbox"/> Recommended, type, length, diameter and | | IS: 1498 |

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| | <p>load capacity of piles</p> <ul style="list-style-type: none"> <input type="checkbox"/>Depth of water table <input type="checkbox"/>Chemical analysis of ground water <input type="checkbox"/>Chemical analysis of soil | | |
| 6 | <p>Foundations</p> <ul style="list-style-type: none"> <input type="checkbox"/>Depth below ground level <input type="checkbox"/>Type <ul style="list-style-type: none"> • Independent • Interconnected • Raft • Piles | | |
| 7 | <p>System of interconnecting foundations</p> <ul style="list-style-type: none"> <input type="checkbox"/><input type="checkbox"/>Plinth beams <input type="checkbox"/><input type="checkbox"/>Foundation beams | | IS: 1893 Cl. 7.12.1 |
| 8 | Grades of concrete used in different parts of Building | | |
| 9 | Method of analysis used | | |
| 10 | Computer software used | | IS: 1893 Cl. 7.9 |
| 11 | Torsion included | | |
| 12 | <p>Base shear</p> <ul style="list-style-type: none"> a. Based on approximate fundamental period b. Based on dynamic analysis c. Ratio of a/b | | IS: 1893 Cl. 7.5.3 |
| 13 | Distribution of seismic forces along the height of the building | | IS:1893 Cl. 7.7 (provide sketch) |
| 14 | The column of soft ground storey specially Designed | | IS:1893 Cl. 7.10 |
| 15 | <p>Clear minimum cover provided in</p> <ul style="list-style-type: none"> • Footing • Column • Beams • Slabs • Walls | | IS: 456 Cl. 26.4 |
| 16 | <p>Ductile detailing of RC frame</p> <ul style="list-style-type: none"> • Type of reinforcement 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 | | IS: 456 Cl. 5.6 IS:13920 Cl. 6.1 IS:13920Cl. 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 |

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| column | <ul style="list-style-type: none"> • Confining stirrups near ends of columns and in beam-column joints <ul style="list-style-type: none"> a. Diameter b. Spacing • Ratio of shear capacity of columns to maximum seismic shear in the storey | | |
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General Notes

1. A certificate to the effect that this report will be completed and submitted at least one month before commencement of Construction shall be submitted 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 Incase raft foundation has been adopted indicate K value used for analysis of the raft
 - 2.1.2 Incase pile foundations have been used give full particulars of the piles, type, dia, length, capacity
 - 2.1.3 Incase 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 Incase 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
 - 2.4 Incase of basements, indicate the system used to contain earth pressures

Part 4 : Buildings in Structural Steel

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|---|---|--|---|
| 1 | Adopted method of Design | <input type="radio"/> Simple <input type="radio"/> Semi-rigid <input type="radio"/> Rigid | IS: 800; 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: 800; 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 & shear walls | <i>Note: Seismic force As per IS: 1893 Would depend on system</i> |

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| 6 | Slenderness ratios maintained | Members defined in Table 3.1, IS: 800 | IS: 800; Cl. 3.7 |
| 7 | Member deflection limited to | Beams, Rafters Crane Girders Purlins Top of Columns | IS: 800; Cl. 3.13 |
| 8 | Structural members | O Encased in Concrete O Not encased | IS: 800; Section-10 |
| 9 | Proposed material | O General weld-able O High strength O Cold formed O Tubular | IS: 2062 IS: 8500 IS: 801, 811 IS: 806 |
| 10 | Minimum metal thickness Specified for corrosion protection | O Hot rolled sections O Cold formed sections O 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 | O Rivets O C T Bolts O S H F G Bolts O Black Bolts O Welding- Field Shop (Specify welding type proposed) O 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 |
| | Minimum Fire rating Proposed, with method | O Rating ----- hours O Method proposed- - In tumescent Painting - Spraying - Quilting - Fire retardant boarding | IS: 1641, 1642, 1643 |