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Mahimtura Consultants Pvt. Ltd
Shakti Tower, 3rd Floor, H, Wing-II,
766, Anna Salai, Chennai – 600002
Tele – 044-43156723

To

Date : - 29-02-2024

The Real Estate Regulatory Authority
(Tamil Nadu)
N 1A, First Floor
Gandhi Irwin Road
Egmore, Chennai – 600008.

Sub: Proposed development of Structures construction of Residential Development by M/s.SME at property on OMR, Karapakkam, Village, Sholinganallur Taluk, Kanchipuram District, Tamil Nadu Survey Nos. 166/1A, 166/1B,166/2, 166/3A, 166/3B, 166/ 4A, 166/4B, 166//5A, 166/5B & 166/ 15A 1.

****

Dear Sir,

I hereby certify that the above ongoing proposal will be designed for the services of Structural Design & Analysis, for Residential Towers-C, D, E -B+S+19 Floors and Tower-F-S+18 Floors totally 4 Towers developed in Phase-2 at the above subject site.

The Structure design for

a) Steel of Grade Fe 500
b) Minimum Concrete mix of M25.
c) Design as per seismic zone III.

The details & design is undertaken with due consideration to seismic forces as per prevalent I.S. Code No. 1893 2016, and IS Code 4326–1993, and also as per NBC-2005 and that to the best of my knowledge and belief the said structure will be safe and sound for the purpose for which it is intended, if carried out as per my designs & details.

Thanking You.

Yours faithfully,

HITEN R. MAHIMTURA
Structural Engineers Grade-1 (SE)
Regn. No: SE/GR-1/19/03/021
Shakti Towers, 3rd Floor, H, Wing-2,
766, Anna Salai, Thousand Lights,
Chennai-600 002, Tel: 044-43156723
E-mail:brchennaimcpl@gmail.com

DESIGN BASIS REPORT

PROJECT : **PROPOSED RESIDENTIAL DEVELOPMENT**
RAJIV GANDHI SALAI, OMR
KARAPAKKAM CHENNAI-600 097.

Survey No. : **166/1A,166/1B,166/2,166/3A,166/3B,166/4A,166/4B**
166/5A,166/5B &166/15A 1

CLIENT : **SHREE MAHALAXMI ENTERPRISES**
PMC : **F.A.B.S**

ARCHITECT: RSP DESIGN CONSULTANT PVT. LTD

MAHIMTURA CONSULTANTS PVT.LTD.
CONSULTING ENGINEERS
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25, S.A.Brelvi Road, Fort,
Mumbai - 400 001.
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website: www.mahimtura.com

DESIGN BASIS REPORT

C/6756/2013

Date: 8th July, 2013

PROJECT	:	Proposed Residential Development At karapakkam Chennai
CLIENT	:	Shree Mahalaxmi Enterprises
ARCHITECT	:	RSP Design Consultants Pvt. Ltd
STRUCTURAL CONSULTANT	:	M/s Mahimtura Consultants Pvt. Ltd.
GEO-TECH CONSULTANTS	:	Geo Foundations & Structures Pvt. Ltd.

1. DESIGN ASSUMPTION

a) STRUCTURAL SYSTEM

The design has been done in accordance with the provision given in the architectural drawing. The structural system for the proposed "Residential Development at OMR Chennai" With Tower C, D, E (E1 & E2) & F (Phase 2) consists of RCC framed structure with Beam, slabs, column, shear wall, Staircase, Pergola Etc designed by using ETABS Software. The floor slabs are mainly conventional beam slab system. Pile foundations and Super Structure of Towers C, D, E1, E2 and F were already designed as per old IS 1893-2002. The sections outline the key structural design criteria and the envisaged structural engineering systems to cater for the loads expected to be carried in service for the economic life of the

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building. The Number of floors which has to be Design for each tower is given below.

SL.NO	TOWER	NUMBER OF FLOORS
1.	C	Basement + Stilt + 19 Floor + Terrace
2.	D	Basement + Stilt + 19 Floor + Terrace
3.	E	Basement + Stilt + 19 Floor + Terrace
4.	F	Stilt + 18 Floor + Terrace

SL.NO	FLOOR LEVEL	FLOOR TO FLOOR HT (M)
1.	Stilt to first floor	2.85
2.	First to terrace	3.00
3.	Basement to stilt	-
4.	Avg. N.G.L.	-
5.	Founding depth from Avg. N.G.L.	-

a) The height of the building from stilt to Terrace slab is about 59.85m for Tower C, 59.85m for Tower D, and 59.85m for Tower E and 56.85m for Tower F.

b) The total height of the building from stilt to LMR terrace slab is about 62.70m for Tower C, D, E and 59.70m for Tower F.

2. DESIGN LOADS

a) GRAVITY LOADS

The construction load, super imposed dead load that are envisaged to act permanently (wherever applicable) & Live loads for each occupancy category as per IS:875(part-2)–1987 are as follows:-

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i) LIFT LOBBY/CORRIDOR, UTILITY ROOM

Name of Structure		KN/m2
Construction Dead Load	Slab & Beam	As per sizes Of members
Superimposed Dead Load	Finishes (50 mm For, Lift) Finishes (150 mm, for utility Room)	1.00 3.60
Live Load		3.00

ii) MASTER BED ROOM, KITCHEN ROOM, DINNING ROOM, STUDY ROOM

Name of Structure		KN/m2
Construction Dead Load	Slab & Beam	As per sizes Of members
Superimposed Dead Load	Finishes (50 mm) Finishes (50 mm for kitchen)	1.00 1.00
Live Load		2.00

iii) TOILET / BATHROOM

Name of Structure		KN/m²
Construction Dead Load	Slab & Beam	As per sizes Of members
Superimposed Dead Load	Sunk (100mm)	2.40
Live Load		2.00

iv) BALCONY

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Name of Structure		KN/m²
Construction Dead Load	Slab & Beam	As per sizes Of members
Superimposed Dead Load	Sunk & waterproofing (100mm)	2.40
Live Load		3.00

v) STAIRCASE

Name of Structure		KN/m²
Construction Dead Load	Steps (150mm riser & 300 tread)	6.00
Superimposed Dead Load	Finishes (average 50 mm)	1.00
Live Load		3.00

vi) TERRACE

Name of Structure		KN/m²
Construction Dead Load	Slab & Beam	As per sizes Of members
Superimposed Dead Load	Water proofing (150 mm) (including tiles and cement mortar)	4.0
Live Load		3.00

Vii) Parking

Name of Structure		KN/m²
Construction Dead Load	Slab & Beam	As per sizes Of members
Superimposed Dead Load	Finishes (average 50 mm)	1.0
Live Load		5.0

viii) Fire Tender Load

Name of Structure		KN/m²
Construction Dead Load	Slab & Beam	As per sizes Of members
Superimposed Dead Load	Finishes (average 50 mm)	1.0
Live Load		15

3. WALL

A) External Wall & Internal / Partition Wall =

All Periphery walls are 160mm, Unit common wall to be 200mm, internal wall to be 100 mm & 125 mm thick Non-structural wall (density: 25 kN/cu.m.)

B) LIFT SHEAR WALLS =

200mm thick structural wall with density to be 25 kN/cu.m.

TYPICAL INITIAL ESTIMATE OF WIND LOAD & EARTH QUAKE
(For Tower C, D, E & F)

4. WIND LOADS

The wind pressure for Initial Estimate of Wind Load has been calculated

Based on clause 5.4 of I.S. 875 (Part) – III) 1987.

Basic Wind Speed V_b = 50 m/sec

Table-1 Risk Coefficient k_1 = 1.0
(Based on 50 years return Period)

Terrain Category = 3

Hourly mean wind speed factor $\overline{k_2}$ = Varies as per height

Topography factor k_3 = 1.0

Design hourly mean wind Speed $V_z = V_b k_1 \overline{k_2} k_3$

Wind Pressure $p_z = 0.6 V_z^2$

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Design Wind Pressure (p_d) calculated as per IS 875 (part 3) clause 5.4.

Gust factor has been considered in analysis as per IS 875 (part 3) clause 8.3.

Gust Factor G , = $1+r\sqrt{g_r^2 B_s (1+g)^2 + \frac{\text{s}^2 R}{\beta}}$

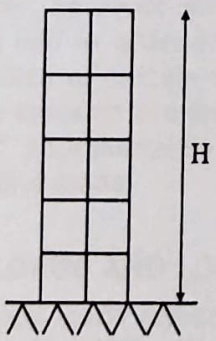
5. EARTHQUAKE LOADS

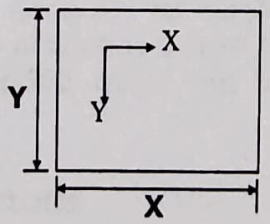
The loading due to earthquake is assessed based on the provisions of IS: 1893(Part-1):2002

Seismic Zone		=	III
Table-2	Zone factor (Z)	=	0.16
Table-6	Importance Factor (I)	=	1.0
Table-7	Response Reduction Factor (R)	=	4
Height of building above ground (H)		=	63.00 m
Soil type		=	soft soil

Fundamental Natural Time Period (Ts) with INFILL WALLS

(Length = X m; Width=Y; Height = H m)





1) Time period in X direction:

T_x = 0.09H/(√d) from CL.7.6.2 – IS1893(Part-I):2002

= (0.09xH)/(√X)

Sa/g = $1/T_x$

2) Time period in Y direction:

Ty = 0.09H/(√d) from CL.7.6.2 – IS1893(Part-I):2002

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$= (0.09xH)/(\sqrt{Y})$

$Sa/g = 1/T_y$

Horizontal seismic coefficient

$Ah = \frac{Z \times I \times Sa_x}{2 \times R \times g}$ for X-Dir.

$Ah = \frac{Z \times I \times Sa_y}{2 \times R \times g}$ for Y-Dir.

$V_b = Ah \times W$

Dynamic analysis is performed using response spectrum as per IS-1893 (part-I) 2002.

6. DEFLECTION:

Beam Slab deflection: -Span /Depth ratio as per IS: 456-2000

7. Temperature:

Temperature Analysis is done with a temperature gradient of 15 deg.

8. BUILDING SWAY AND INTER-STOREY DRIFT.

It is generally recognized that absolute sway is not a perceivable parameter, however limiting sway is used to provide a reasonable level of stiffness and in order to limit damage to non-structural elements as well as limit size of curtain wall joints, etc. Generally tall building lateral load resisting systems are sized on the basis of limiting overall lateral sways to limits of approximately Overall Height/500 under the 50 year return period wind loads.

9. BASIC LOADS AND LOAD COMBINATIONS

The various loads are combined in accordance with the stipulations in IS: 875 (Part 5)-1987. Wherever imposed load is combined with earthquake load the appropriate part of the imposed load as specified in IS:1893-2002 is adopted both for evaluating earthquake effect and for combined load effects, used in such combination.

Type	LOAD COMBINATIONS
Primary	DEAD LOAD (DL)
Primary	WALL LOAD (WL)
Primary	SLAB DEAD LOAD (SDL)
Primary	LIVE LOAD (LL)
Primary	WIND LOAD X (+) WLX
Primary	WIND LOAD Z (+) WLZ

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Primary	SIESMIC LOAD ALONG-X SLX
Primary	SIESMIC LOAD ALONG-Z SLZ
Combination	DL + WL + SDL + LL
Combination	DL + WL + SDL + LL + WLX
Combination	DL + WL + SDL + LL + WLZ
Combination	DL + WL + SDL + LL - WLX
Combination	DL + WL + SDL + LL - WLZ
Combination	DL + WL + SDL + LL + SLX
Combination	DL + WL + SDL + LL + SLZ
Combination	DL + WL + SDL + LL - SLX
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Combination	DL + WL + SDL - WLZ
Combination	DL + WL + SDL + SLX
Combination	DL + WL + SDL + SLZ
Combination	DL + WL + SDL - SLX
Combination	DL + WL + SDL – SLZ
Combination	1.05DL+1.05WL+1.05SDL+1.05T +1.275LL
Combination	1.4DL+1.4WL+1.4SDL+1.4T

10. LOAD FACTORS FOR DESIGN

Description of Load Combination	Load Factor for Primary Load Cases			
	Dead Load	Live Load	Wind Load	Seismic Load
Dead load + Live load	1.5	1.5	0.0	0.0
Dead load ± Wind load	1.5	0.0	±1.5	0.0
Dead load ± Seismic load	1.5	0.0	0.0	±1.5
Dead load + Live load ± Wind load	1.2	1.2	±1.2	0.0
Dead load + Live load ± Seismic load	1.2	1.2	0	±1.2
Dead Load ± Wind Load	0.9	0.0	±1.5	0.0
Dead Load ± Seismic Load	0.9	0.0	0.0	±1.5

11. ANALYSIS METHOD

The structure is analyzed for Static loads (both dead and live loads) and Lateral loads due to Earthquake/Wind loads and its combinations.

12. DESIGN LIFE

The design life of the structure is assumed as 100 years. This requirement is not applicable to replaceable materials.

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13. DESIGN METHODOLOGY

All structures have been designed according to the Limit State Method as specified in IS: 456-2000. Appropriate loads and its combinations, as per relevant clauses in IS 456:2000 code, for the most unfavorable effects are chosen for design.

14. EXPANSION STRIP

Since Length of the block for Tower - E is 98.0 m, hence an expansion Strip of 1m wide is provided.

15. MATERIALS

The self-weight of the various elements are computed based on the built weight of materials as given below:-

Materials	Unit Weight in KN/m^3
Steel	78.50
Plain Concrete	24.00
Reinforced Concrete	25.00
Soil	18.00
Water	10.00
Block	22.0
Toilet Sunk Filling Load	20.0
Density of brick work with plaster	20.0
Brick	18.00

16. CONCRETE

All the concrete items for the construction have the following characteristics and to be mix designed as per IS: 456-2000

Grade of Concrete = M40 for Column/shear wall
M40 for Beam & Slab

For Club House & Non Tower Area = M30 for Slab, Beam & Column
M15 - For P.C.C.

Aggregate = 20mm and down size, mechanically Crushed Aggregate

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17. STEEL

Steel reinforcement shall be of Grade Fe500 conforming to IS: 1786-1985,
With 4.5% elongation as per cl. 5.3 of 13920:1993.

18. EXPOSURE CONDITION

Structural elements below Plinth level and Exterior External faces of walls are designed for Moderate exposure condition and internal faces of walls, floor beams and slabs are designed for mild exposure condition as per Table 16 of IS 456-2000.

19. COVER TO REINFORCEMENT

The clear cover to main reinforcement shall be as follows.

Footings/Pile caps	=	Bottom: 75mm, Sides: 75mms
Floor Slab	=	25mm
Columns & shear walls	=	40mm
Transfer Beams	=	50mm
Floor Beams	=	40mm
Retaining wall (Backfilling side)	=	50mm
Retaining wall (Internal side)	=	40mm

20. FOUNDATION SYSTEM

Pile Foundation is recommended as per soil investigation report, provided by Geo Foundation & Structures Pvt. Ltd.

21. CODES & STANDARDS

All the designs are conforming to the relevant Indian Standards. Some of the relevant Indian Standard Codes, which have been followed for the structural design, are given below.

CODE	DESCRIPTION
IS:875(Part-1)-1987	Code of Practice for Design Loads (Other than Earthquake) for Building and Structures-Unit Weights of Buildings Materials and Stored Material.
IS:875 (Part-2)-1987	Code of Practice for Design Loads (Other than Earthquake) for Building and Structures-Imposed loads
IS:875 (Part-3)-1987	Code of Practice for Design Loads (Other than Earthquake) for Buildings and Structures –Wind Load.

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IS:875 (Part-3)-1987	Code of Practice for Design Loads (Other than Earthquake) for Buildings and Structures –Wind Load.

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IS:875 (Part-5)-1987	Code of Practice for Design Loads (Other than Earthquake) for Buildings and Structures - Special Loads and Load Combinations
IS:456 -2000	Code of Practice for Plain and Reinforced Concrete
IS:1893(Part-1)-2002	Indian Standard Criteria for Earthquake Resistant Design of Structures
IS:432 (Part-1)-1982	Specification of Mild Steel and Medium Tensile Steel bars and Hard drawn Steel Wire for concrete reinforcement –Mild Steel and Medium Tensile Steel Bars
IS:432(Part-2)-1982	Specification of Mild Steel and Medium Tensile Steel bars and Hard drawn Steel Wire for concrete reinforcement –Hard drawn Steel Wire.
IS:1786-1985	Specification for High Strength Deformed Steel Bars and Wires for Concrete Reinforcement
IS:13920-1993	Ductile Detailing of reinforced concrete structures subjected to seismic forces – code of practice.
IS:1904	Indian Standard Code of practice for Design & Construction foundations in Soil: General Requirements.
IS:1642-1989	Indian Standard Code of practice for Fire Safety Of Buildings (General): Details of Construction.
BS8110	British Standard: Structural Use of Concrete
BS5950	British Standard: Structural Use of Steelwork in Building
BS5950	British Standard: Structural Use of Steelwork in Building
BS5400	British Standard: Design of Composite Bridges, Part 5
IS 2950	Indian Standard Code of Practice for Design & Construction of raft foundation – (Part –1)
IS 2950	Code of Practice for Design & Construction of machine foundation

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Forms & Templates, Document Generator, Document Translation, Dictionary

Vastu & Property Management Tools

Home Vastu Shastra, Plot Vastu Shastra, Property Management

Verified RealEstate™

We're honored to be part of your real estate journey

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