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Registered Valuer

STATEMENT TO ACCOMPANY THE CERTIFICATE OF STRUCTURAL SOUNDNESS

FORM A

1. Location (Street number Ward number Name ... SFNo: 730/1A, 730/1B1, 731/3A ,of Vadavalli Village,perur taluk,

   Of place, i.e. Corporation, Municipality / Panchayat Union/Township/Cantonment) ... Coimbatore Corporation.

2. Year of construction ... Not yet started

3. Approximate cost of construction as per Current rates ... 52.12 Crores

4. Approximate cost of construction per Sq.m ... Rs. 8535.00/ sq.m

5. No. of Block & Storeys ... BLOCK: A, B & C Residential Apartment Building (Stilt Floor + First floor +Second floor + Third floor+ Fourth floor + Fifth floor + Terrace floor)

BLOCK –A AREA DETAILS		
Sl.no	**Floor Details**	**Area**
01	Stilt Floor (parking Electrical room & association office)	1576.10 Sq.m
02	First Floor	1270.61 Sq.m
03	Second Floor	1270.61 Sq.m
04	Third Floor	1270.61 Sq.m
05	Fourth Floor	1270.61 Sq.m
06	Fifth Floor	954.63 Sq.m
07	Terrace Floor	38.08 Sq.m
	'A' BLOCK TOTAL	**7651.25 Sq.m**

BLOCK –B AREA DETAILS		
Sl.no	**Floor Details**	**Area**
01	Silt Floor : (Parking, Electrical meter room, R.O Pump rooms,	1601.77 Sq.m
02	First Floor	1292.79 Sq.m
03	Second Floor	1292.79 Sq.m
04	Third Floor	1292.79 Sq.m
05	Fourth Floor	1292.79 Sq.m
06	Fifth Floor	1292.79 Sq.m
07	Terrace Floor	38.38 Sq.m
	'B' BLOCK TOTAL	**8104.10 Sq.m**

BLOCK –C AREA DETAILS		
Sl.no	**Floor Details**	**Area**
01	Silt Floor : (Parking, Electrical meter room & GYM,R.O.Pump room, Electrical Rooms & Drivers Toilet	1606.63 Sq.m
02	First Floor	1293.74 Sq.m
03	Second Floor	1293.74 Sq.m
04	Third Floor	1293.74 Sq.m
05	Fourth Floor	1293.74 Sq.m
06	Fifth Floor	1293.74 Sq.m
07	Terrace Floor	39.01 Sq.m
	'C' BLOCK TOTAL	**7797.93 Sq.m**
08	GUARD ROOM	5.95 Sq.m
BLOCK -- A+B+C GRAND TOTAL		**23553.28 Sq.m**

6. Purpose for which the building is being Used or proposed to be used ... Residential Apartment Building
7. Purpose of which the building has hitherto Been used ... Residential Apartment Building
8. Area of details of the building

   Total area ... **23553.28 Sq.m**
9. Details of construction of the building (Particulars of the foundation soil, Specification of the various parts under)

[1] Foundation	...	Hard gravel, R.C.C. Column and footing on Gravel strata.
[2] Basement	...	Brick Masonry over Grade beam
[3] Superstructure	...	R.C.C.Framed structure with Renocon or ARC Block work Panels. Flooring with P.C.C and Tiles, Wall plastering with Cement Mortar. Internal Partition with 4 " tk Renocon or ARC Block walls With necessary doors and windows.
[4] Floor and roof	...	Tiles flooring and Reinforced Cement Concrete Roof slab.

10. Structural Specifications:

A. Framed structure with reinforced Cement Concrete Columns, Beams and Slabs
1. Maximum span of the beam 6 meters
2. Maximum unsupported length of Columns 3.0 meters
3. Minimum size of the column 230 x 450 mm
4. Minimum size of the beam 230x230 mm

B. Design load on the structure for Apartment
1. Live load at floor level - 2 KN/Sq.m
2. Live load at Roof level - 1.5 KN/Sq.m
3. Live load for stair, corridor and balconies - 5 KN/Sq.m

C. Dead loads assumed other than self weight.
1. For floor finishes - 1 KN/Sq.m
2. For partitions - 1.5 KN/ Sq.m
3. For terrace finish - 2 KN/Sq.m

D. Other service loads as per actual

11. No. of persons to be accommodated ... approx. 700 Nos

Date: 09 -07-2024

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F O R M- B

Form of certificate of structural soundness under Sub-section (4) of section 4
of the Tamil Nadu Public Buildings (Licensing) Act, 1965
(Tamil Nadu Act 13 of 1965) referred to in Rule 4
of the Tamil Nadu Public Buildings (Licensing) Rules 1966)

Since the building is a proposed one so this certificate is not issued

Place : Coimbatore

Date :09 -07-2024

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STATEMENT TO ACCOMPANY THE CERTIFICATE OF STRUCTURAL SOUNDNESS

1. Location (Street number Ward number Name	...	SFNo: 730/1A, 730/1B1, 731/3A of Vadavalli Village, Perur Taluk,
Of place, i.e. Corporation, Municipality / Panchayat Union/Township/Cantonment)	...	Coimbatore Corporation.
2. Year of construction	...	Not yet started
3. Approximate cost of construction as per Current rates	...	52.12 Crores
4. No. of Block & Storeys	...	BLOCK: A , B & C Residential Apartment Building (Stilt Floor + First floor +Second floor + Third floor+ Fourth floor + Fifth floor + Terrace floor)
5. Purpose for which the building is being Used or proposed to be used	...	Residential Apartment Building
6. Short description of structures – RCC Framed or load bearing masonry	...	RCC Framed structure
7. The period for which the building will be Structurally sound	...	More than 50 years
8. No. of persons to be accommodated	...	approx 700 nos.
9. Remarks	...	Good

Date: 09 -07-2024

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FORM-C

Form of certificate of structural soundness under Sub-section (4) of section 4
of the Tamil Nadu Public Buildings (Licensing) Act, 1965
(Tamil Nadu Act 13 of 1965) referred to in Rule 4
of the Tamil Nadu Public Buildings (Licensing) Rules 1966)

I certify that the proposed construction of Building mentioned in the statement and furnish below its salient technical features.

1. Foundation
   - Depth below ground level — 10'0"
   - Nature of soil met with a foundation level — Hard gravel
   - Pressure at foundation — 125 KN/ Sq.m
   - Probable safe bearing capacity of the Strata met with at Foundation — T/Sq.m

2. Super Structure
   - Nature of masonry and concrete and its safe Permissible stress. — R.C.C. framed structure

     R.C.C- M20 concrete mix

This is to certify that the proposed building to be constructed has been designed according to I.S. loading standards 875 (Latest version) and other relevant Indian Standard code of practice and declare that the building will be structurally sound and to be used as a public building for the purpose noted in the statement.

Date: 09 -07-2024

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SEISMIC FORCE RESISTANCE CERTIFICATE

This is to certify that the building that to be constructed at proposed construction of R.C.C. Roof In SF No: 730/1A, 730/1B1, 731/3A, Vadavalli Village , Perur taluk, Coimbatore Corporation is to adopt the seismic force resistance.

The seismic force and its design form are calculated under the following techniques explained below.

Reinforcement techniques:

The strength and stiffness of soil deposits can be increased by the installation of discrete inclusions consisting of structural elements or of geomaterials such as gravel or crushed stone.

a. Stone columns:

Dense columns of gravel or crushed stone are installed in the loose deposits using vibroflotation or other technique to increase the effective lateral stresses in the surrounding soil and it results additional improvement.

b. Compaction piles:

Loose granular soils can be improved by the installation of displacement piles, usually pre stressed concrete or timber piles. The shear, flexural and tensile strength of the piles also provide resistance to soil deformations.

Grouting:

Grouts improve the soil by cementing the contacts of the particles and by filling the voids between particles with low-compressibility material.

1. Permeation grouting-It involves the injection of low viscosity liquid grout into the voids of the soil without
   Disturbing the soil structure.

2. Intrusion grouting – Here the fluid grout is injected under pressure to cause controlled fracturing of the Soil. Relatively viscous cement grouts are used here.

Mixing:

Localized improvement of soil column can be achieved by in situ mixing of the soil with cementations material.

1. Soil mixing – it describes a specific technique in which cementations material is mechanically mixed into the soil using auger arrangement.

2. Jet grouting –The soil is mixed with cement grout injected horizontally under high pressure in the previously drilled borehole. Injection nozzle is used here.

Drainage techniques:

The potential for ground failure can often be reduced by lowering the ground water table prior to shaking or by increasing the rate at which excess pore water pressure dissipates. The installation of stone column introduces zones of dense; relatively high-permeability material in which pore water pressure can by expected to remain nearly hydrostatic during shaking.

SUMMARY

The basic element of seismic site characterization includes determination of dynamic characteristics such as maximum shear modulus, module reduction behavior, Strain- dependent damping behavior. Based on the seismic characterization, classification of site, site response analysis considering local soil condition and soil-foundation-structure interaction analysis for various structures are performed.

Shear wave velocity measured by seismic cross-hole tests can be used for determination of low-strain dynamic soil properties; Seismic cross-hole test data also enables us to identify the presence of faults, fractures zones and weaker zones. However, this technique cannot be used for estimation the material damping of different strata. For evaluation dynamic properties at large strain level and evaluation of strain-dependent damping, laboratory cyclic tests such as cyclic triaxial test shall be performed on undisturbed soil specimens.

Site effects particularly local ground response effect can be considered in terms of simplified procedures using site classification method and site amplification factors. For important projects site specified ground response analysis is recommended to arrive design ground motion parameters. One dimensional ground response analysis based on equivalent linear approach is commonly carried out using a computer program SHAKE 91.Among available site categorization schemes, $V_{s\,30}$ scheme is the most widely used site classification procedure in modern practice.

SFSI effects are routinely ignored in practice, but it must be carried out by using appropriate SFSI modulus either by direct approach or substructure approach. Soil liquefaction is the major hazard due to earthquake. Among several approaches available for characterization of loading and resistance proposed for liquefaction problem, the cyclic stress method has been commonly used for evaluation liquefaction potential. Earthquake hazards including liquefaction hazards can be mitigated by densification techniques. In the new construction projects and by grouting techniques in the existing structure.

FINITE ELEMENTS ANALYSIS OF EARTHQUAKE RESISTANT

MULTI-STORY FRAMES

Structures, which have some seismic resistant systems like, shear walls: ductile frames etc., are termed as earthquake resistant structures. The objective of design of earthquake resistant frames is to ensure that the structure possess at least a minimum strength to withstand minor earthquakes which occur frequently without damage; resist moderate earthquakes without significant structural damage though some non-structural damage may occur, and aims that structures withstand a major earthquake without collapse.

As per IS: 1893 (Part I) : 2002 [7] the total design lateral force is given by the expression.

V W where Ah is the horizontal acceleration spectrum and W the seismic weight of the building.

The design- base shear (V_R) shall be distributed along the height of the building as per the expression.

$$Q_i = V_R \sum_{J=1}^{n} \frac{W_i h_i^2}{W_j h_j^2}$$

Where Q_i is the design lateral force, W_i the seismic weight, h_i the height measured from the base, I the floor considered and n the number of storey in the building.

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CERTIFICATE REGARDING EFFLUENT DISCHARGE FOR THE PROPOSED CONSTRUCTION OF R.C.C. ROOF RESIDENTIAL APPARTMENT BUILDINGIN BLOCK-A,B & C (STILT + FIVE FLOOR) , IN SF NO: 730/1A, 730/1B1 & 731/3A, OF VADAVALLI VILLAGE, PERUR TALUK, COIMBATORE CORPORATION.

Calculation of water supply:

Data taken to account for the calculations are as per the guidelines given in the manual on water supply published by Ministry of works housing, New Delhi.

Domestic

Population (Assumed) : - 700
Therefore population : - 700 persons

Total requirement of water supply/head/day in liters as per IS 1172

For population upto 1000 persons - 135 lit/head/day

Total requirement of water - 1000 persons x 135 lit = 135000Lit/day

As per IS 1172, from the required water supply the assumptions are as Follows:
For drinking purpose - 5 lit/head/day

Drinking water for the total no of persons - 500 persons x5Lit = 2500lit/day

For cooking purpose - 500 persons x 25 lit = 12500lit/day
The water Requirement is (Including steam cooking) ----------
15,000.00 lit/day

Therefore water other than drinking and cooking purpose is

135000 lit- 15,000 lit =120000 lit/day

As per IS 1172, for WC flushing system, the water consumption per day is Assumed as 20 lit per persons

Therefore for 750persons water consumed is 500x20 =10000lit/day

Water taken for treatment plant = 120000-10000 = 110000lit/day

As explained above 110000 lit of effluent is connected with septic tanks and treated. The treated water is allowed to the dispersion trenches provided in the site.

The above water will be soaked in the earth beneath the applicant's area itself. No quantity of water will be connected to the Municipal drainage. Therefore no amount of sewage water will be expelled from the site.

110000 lit. of effluent from kitchen, bath, washing etc. are taken to the treatment plant, where it is treated and the treated water is wholly used for gardening and air cooler plants, Etc.

As per the above details, I certify that the treatment plant proposed with in the site is more than sufficient for treating of waste water produced. And the septic tank and dispersion trenches provided will be sufficient for the treatment of sewage water and soaking of the treated effluent.

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