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DHANAA SUNDARARAJULU AND ASSOCIATES

Structural Engineering Consultant

DSA

Er. G. DHANA LAKSHMI, CEng.,
M.Tech(Struct.,)B.Tech(Civil), AMIA Struct E, AMIE,
Registered Structural Engineer- (CMDA, GCC,)

Plot No.1&2, Kabilar Street, Senthil Nagar,
Thirumullaivoyal, Chennai – 600 062.
Mob.: 98406 22035, Email: dhanastructural@gmail.com
dhanaasassociates@gmail.com

CERTIFICATE FOR STRUCTURAL DESIGN SUFFICIENCY & SAFE & SOUND

With respect to the Proposed Construction of Residential Non - High Rise Apartment, Stilt + 3 Floors in site Sivagangai District, Town and Country Planning Office – Sivagangai and Karaikudi Municipal Local Planning Area Ward No.3, Block No.1, T.S.No.464, Jawhar Street, New Town Karaikudi, We certify that the designs are being done after detailed Soil Investigation and the Design is being done to meet all the Structural Stability requirements as stipulated in IS 456, IS 875 and other relevant codes and it is Structurally safe and sound.

V. EZHILARASAN, ME,M.S.(Valu)
Govt. Approved Valuer, Chartered Engineer
Registered Engineer Class-I in CMDA, GCC & DTCP
Flat No.14/3, First Floor, Welcome Colony,
Ambattur Estate Road, Anna Nagar West Ext,
Chennai - 600101, Cell : 9444017383
E-mail : ezhilenterprises@gmail.com

STRUCTURAL STABILITY CERTIFICATE

Proposed Construction of a Residential Building which is situated in the site or plot of land, T.S.No.464, Jawhar Street, Karaikudi New Town, Karaikudi, Karaikudi Municipality Ward No.3, Block No.1, Sivagangai District

The Proposed Building referred to above is a framed structure with Stilt + Three Floors only. The Structural Design and Drawing for Building are being prepared by us conforming to the relevant Bureau of Indian Standard Viz. IS 456: 2000 for Plain and Reinforced Concrete, IS 875 (Part II) – 1987 for imposed loads.

We certified that the building when constructed according to our Structural Designs and Drawings will be structurally safe and fit for occupation.

1. The least Dimension of the Column is 230 mm for Lift.
2. The least Dimension of the Column is 300 mm wherever necessary as per design requirement.
3. The Minimum Grade of Concrete is M 25
4. The Minimum Grade of steel is Fe -500

PREAMBLE:

1. I hereby certify that the Structural Design Calculation is done for Critical Footings, Columns, Beams and Slabs for the Building.
2. The usage of the building is for Residential Purpose.
3. The building is designed for Stilt + Three Floors Only.
4. The Super Structure is built with 230 mm thick outer walls and 115 mm thick inner walls.

V. EZHILARASAN, M.E., M.I.S (Valu)
Civil Engineering
Registered Engineer
PAN No.
Ammonia Valve
Chennai - 600 101
E-mail:

REPORT FOR THE PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING COMPRISED IN T.S. No.464, JAWHAR STREET, KARAIKUDI NEW TOWN, KARAIKUDI, KARAIKUDI MUNICIPALITY WARD No.3, BLOCK No.1, SIVAGANGAI DISTRICT.

INTRODUCTION

The Report has been prepared for the Proposed Construction of a Residential Building at Plot T.S.No.464, Jawhar Street, Karaikudi New Town, Karaikudi, Karaikudi Municipality Ward No.3, Block No.1, Sivagangai District

This Report deals with the Detailed Analysis and Design of a Residential Building.

GEOMETRY :

The Proposed Building is a R.C.C Framed Structure. The building consists of Stilt + Three Floors only. The usage of the building is enabled for Residential purpose.

MATERIAL :

Reinforced Cement Concrete :

Grade of Concrete - M 25 (Deign Mix) for Footings and Columns.

Grade of Concrete - M 25 (Deign Mix) for RCC Beams, Slabs, etc.,

Grade of steel – Fe 500

LOADINGS

a. **Dead Load :**

Unit weight of Concrete	=	25 kN/m^3
Unit weight of Brick Work	=	20 kN/m^3
Unit weight of Aerocon Block	=	8.0 kN/m^3
Weathering Course	=	1.5 kN/m^2

b. Live Load :

Live Load on Floor = 2.00 kN/m^2

c. Seismic Load:

Seismic loads are considered as per IS 1893 2002.

Seismic Zone	- II
Zone Factor	- 0.10
Importance Factor	- 1
Soil Type	- Medium Type II
Response Reduction factor	- 1.5

All other Dead & Live loads are given as gravity loads. The seismic detailing of reinforcement is done as per IS 456-2000, IS 13920:1993 and SP 34. The entire structure is analyzed for each load and Load combinations.

d. Load Combinations :

1. 1.5 Dead Load + 1.5 Live Load
2. 0.9 Dead Load + 1.5 Earthquake X
3. 0.9 Dead Load + 1.5 Earthquake -X
4. 0.9 Dead Load + 1.5 Earthquake Z
5. 0.9 Dead Load + 1.5 Earthquake -Z
6. 0.9 Dead Load + 1.5 Windload X
7. 0.9 Dead Load + 1.5 Windload -X
8. 0.9 Dead Load + 1.5 Windload Z
9. 0.9 Dead Load + 1.5 Windload -Z

e. **Loads due to Slab :**

Self Weight of Slab	-	(0.15 * 2500)	-	375 kg / sq m
Live Load	-		-	200 kg / sq m
Floor Finish	-		-	100 kg / sq m
Unforseen Load	-		-	25 kg / sq m
Total Load	-		-	**700 kg / sq m**

ANALYSIS

The entire analysis is carried out using finite element method using the program of Staad Pro package for a Residential building as per approval drawing. The beams and columns are modeled as frame elements and the slabs are modeled as shell element. The columns are assumed to be Fixed at the base. Seismic Analysis is carried out for seismic forces corresponding to Zone II of seismic zones of India maps per IS 1893 -2002. Auto generation of lateral loads is done by the program itself for the corresponding seismic factors.

LOAD CASES :

1. Dead Load (DL) : Loads from Self-weight of Slab, Beams, Walls, Staircase and Water Tank are taken as Dead Load of the structure.

2. Live Load (LL) : The Live Load of this structure is calculated as per IS:875 (Part 2) for all types of Residential Building should be taken as 2 kn/sqm.

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Chennai - 600 101, Cell : 9[illegible]53
E-mail : ezhilarasanvalu@gmail.com

COVER FOR REINFORCEMENT:

Cover for reinforcement is considered as per table 16A of NBC, for a fire resistance of 2 hours

1. Footing = 50 mm
2. Columns = 40 mm
3. Roof Beams = 30 mm
4. Roof Slabs = 20 mm

Design for Stilt + Three Floors Only.

CODES REFERRED :

- I.S. 875 - 1987 CODE OF PRACTICES for design loads (Part 1,2 & 3)
- I.S. 456 - 2000 & SP – 16 CODES OF PRACTICES for Plain and Reinforced Concrete
- I.S. 1786 - 1985 CODE PRACTICES specified for high strength deformed steel bars & wires for concrete reinforcement.
- IS 13920:1993 CODE OF PRACTICES for Ductile Detailing.
- I.S. 1904 - 1986 CODE OF PRACTICES for design of construction of foundation in soils.

DESIGN CONCEPT :

- Limit State concept of design will be used as per IS : 456-2000 & SP-16
- The Detailing of Reinforcement shall be done satisfying the requirements of IS 465-2000
- SP-16, IS : 13920, IS 4326-1993, SP-34 and IS: 2911(Part1/Sec2)
- The Slabs and Beams are checked for deflection as per IS 456-2000
- Cover for reinforcement is considered as per Table 16A of NBC, for a Fire resistance of 2 Hours.

V. EZHILA
Govt. Approved
Registered Engg.
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DHANAA SUNDARARAJULU AND ASSOCIATES

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dhanaasassociates@gmail.com

STATEMENT ACCOMPANYING FORM –"A"

1.	Applicant	: Mr.N.Sabarathinam
2.	Door No./S.No of the building	: T.S.No.464,Jawahar Street,
3.	Name &Location: Street/Ward No.	: Karaikudi Municipality Ward No.3, Karaikudi New Town, Karaikudi.
4.	Year of Construction	: Proposed Construction
5.	Approximate Cost of construction as per Current rates	: Rs.4,37,00,000/-
6.	Purpose for which the Building is Being used Or proposed to be used	: Enabled for residential purpose
7.	Purpose for which the Building has (in there to) been used	: Enabled for residential purpose

V. E.ZHILARASU, B.E., M.I.E. (India)
Govt. Approved Valuer, Town and Country Planner
Registered Engineer (Class-I) in CMDA, DTCP
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Ambattur Estate Post, Ambattur Industrial Area,
Chennai - 600101, Cell : 9444012603
E-mail : ezhilenterprises@gmail.com

8. Details of Construction of the Building (particulars)
of the foundation, soil Specification of the various parts as under.

(i)	Foundation	: Isolated Column/ Combined Footing
(ii)	Basement	: Yes, R.C.C. Framed Structure with Brick Masonry 1: 5
(iii)	Superstructure	: R.C.C. Framed Structure with Brick Masonry
(iv)	Floor and Roof are to be given	: Beams & Slabs are provided
(v)	Period for which the license required	: Three Years (Proposed Building) **(From 21.03.2024 to 20.03.2027)**

Date:21.03.2024

Signature of the Engineer

V. EZHILARASAN, ME,M.S.(Valu)
Govt. Approved Valuer, Chartered Engineer
Registered Engineer Class-I in CMDA, GCC & DTCP
Flat No 14/3, First Floor, Welcome Colony,
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9.(a) "CERTIFIED that no addition or alteration has been made to the existing or portion of a building for which this application has been made. I undertake to obtain a fresh license in case any addition of alteration is made to the existing or portion of building. I also undertake to obtain fresh license if the purpose for which the license was granted for the use of the building or a portion of the building originally is changed or altered subsequently.

Date:

Signature of the Owner of the Building

DHANAA SUNDARARAJULU AND ASSOCIATES

Structural Engineering Consultant

DSA

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FORM - B

[Form of certificate of structural soundness under sub-section(4) of the Tamil Nadu Public Buildings(Licensing) Act,1965 (Tamil Nadu Act XIII of 1965) referred to in rule 4 of the Tamil Nadu Public Buildings (Licensing) Rules,1966.]

I certified that I have gone through the Plan of the Proposed Additional & Alteration of the Public building mentioned in the statement and furnish below its Salient Technical Features.

STATEMENT TO ACCOMPANY THE CERTIFICATE OF STRUCTURAL SOUNDNESS

1.	Location of the Building	:	T.S.No.464,Jawahar Street, Karaikudi Municipality Ward No.3, Karaikudi New Town, Karaikudi.
2.	Age of the Building	:	Proposed Building
3.	Purpose for which the Building is to be proposed	:	Proposed Construction of a Residential Building and it is Enable for Residential Purpose.
4.	The Period for which the building will be structural sound	:	60 Years
5.	Remarks	:	Designed as per latest design codes of IS-456 and IS – 875 are followed with SP – 16 Design Aid Books for the purpose of calculations. It is designed by us. It will be safe and stable against all possible Dead loads, live loads and other combination of loads as per IS Code, the Structure is intended to carry.

V. EZHIL
Civil Engineer
Registered Structural Engineer
Firm No.
Ampattur Taluk
Chennai District
Tamil Nadu

DHANAA SUNDARARAJULU AND ASSOCIATES

Structural Engineering Consultant

DSA

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dhanaasassociates@gmail.com

FORM – C

[Form of Opinion under sub-section 1 of Section 5 of the Tamil Nadu Public Buildings (Licensing) Act,1965 (Tamil Nadu Act XIII of 1965) referred to in rule 5 of the Tamil Nadu Public Buildings (Licensing) Rules,1966.]

I have gone through the Plan of the Proposed Construction of a Residential Building specified in the statement below and I have satisfied myself that the Proposed Building is Structurally Sound if it is Constructed as per Structural Design and Plan prepared and supervised by the Qualified Structural Engineer and to be used as Public Building for the purpose noted in the statement, the structural – Soundness of the Building has been verified, taking into account, the loading as per the latest Indian Standard 875, I am therefore the opinion that the License may be granted for the period from **21.03.2024 to 20.03.2027 (Three Years)** inclusive.

Signature of the Engineer

V. EZHILARASAN, ME.M.S (Valu)
Govt. Approved Valuer, Chartered Engineer
Registered Engineer Class-I in CMDA & DTCP
Flat No.14/3, First Floor, Vellore [illegible],
Ambattur Estate Road, Anna Nagar [illegible],
Chennai - 600101, Cell : [illegible]
E-mail : ezhilenterprises@gmail.com

1. FOUNDATION :

a)	Depth below Ground Level	:	2.00 m below Natural Ground Level
b)	Nature of soil met with at foundation level	:	Soft Disintegrated rock
c)	Pressure at Foundation	:	Vide Soil Report From M/s. Geomatrix Consultancy Report No. 71/RB/GMC/23-24 Dt.22.06.2023
d)	Probable safe bearing capacity of the Strata met with foundation	:	

e) Safe Bearing Capacity of the soil met with at 2.00 m : 26 t / sq m

f) Load to be transmitted by column to foundation : **370 t (Critical)**

2. SUPERSTRUCTURES :

I)	Maximum Compressive stress in the most Critical Section of masonry	:	5 kg/sq.cm
	Permissible maximum compressive stress : in Masonry (BW in CM 1:5, 23cm thick), for (the crushing strength of 80 kg / cm^2) as per Table 4 of IS 1905		7 kg/sq.cm
II.	Maximum Compressive stress in the most Critical Section of concrete for M 25 Grade	:	a) Bending : 6 N/mm^2 (60 kg/cm^2) b) Direct : 4 N/mm^2 (40 kg/cm^2)
	Maximum Permissible compressive stress for concrete M25 Grade as per Table 21 of IS 456-2000	:	a) Bending : 8.5 N/mm^2 (85 kg/cm^2) b) Direct : 6 N/mm^2 (60 kg/cm^2)

The Structural Soundness of the Proposed Construction of a Residential Building loading as per latest Indian Standard -875 (Latest Version and other relevant Indian Standard Code of Practice and I declare that the Proposed Building is Structurally Sound if it is constructed as per Plan and Structural Design prepared by the Qualified Structural Engineer and his regular supervision and to be used as Public Building for the purpose noted in the statement.

A License may be granted for the period from **21.03.2024 to 20.03.2027 (Three Years)** inclusive.

Signature of the Engineer

V. EZHILARASAN, M.E.,M.I.S (Valu)
Govt. Approved Valu...
Registered Engineer Class-I...
Flat No.14/3, First Fl...
Ambattur Estate Road, ...
Chennai - 600 101, Cell ...
E-mail : ezhilcivilengineer...

STATEMENT TO ACCOMPANY THE CERTIFICATE OF STRUCTURAL SOUNDNESS

Location of the building, Door No, Street Name & Name of the place (1)	Age of the building (2)	Value of the building in Rs. (3)	No. of Storeys (4)	Short description of Structure, Steel, R.C.C framed or Load Bearing Masonry (5)
THE PROPOSED CONSTRUCTION OF STILT FLOOR + FIRST FLOOR+ SECOND FLOOR +THIRD FLOOR OF RESIDENTIAL BUILDING AT T.S.NO. 464, JAWHAR STREET, KARAIKUDI NEW TOWN, KARAIKUDI, KARAIKUDI MUNICIPALITY WARD NO.3, BLOCK NO.1, SIVAGANGAI DISTRICT	**Proposed**	**4,37,00,000**	**Stilt+ Three Floors only**	**RCC Structure with M25 concrete.**

Purpose for which the building is certified For use (6)	The period for which the building will be structurally sound (7)	No. of persons accommodated (8)	Remarks (9)
Enabled for Residential Purpose	**From 21.03.2024 to 20.03.2027 (Three Years)**	12 Dwelling units	Stability should be checked up once in every Three Years

Signature of the Engineer / Designation

V. EZHILARASAN, ME,M.S.(Valu)
Govt. Approved Valuer, Chartered Engineer
Registered Engineer Class-I in CMDA, GCC & DTCP
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E-mail : ezhilenterprises@gmail.com

FORM E

Form of report to be made to the competent authority by inspecting authorities or officers appointed under other act under section 25 of the Madras Public Building Licensing) Act 1965(Madras act 13 of 1965) referred to in rule 7 of the Madras Public Buildings Licensing rule 1966.

1 Name and designation of inspecting Authority Or officer appointed or Having Jurisdiction Under any other Act or law	:	Er.V.Ezhilarasan, B.Tech Civil, M.Tech (Struct.,) Chartered Engineer Professional Engineer Registered Struct., Er - CMDA Registered Struct., Er - GCC Registered Struct., Er - DTCP Approved by Collector of Chennai – for issue of stability certificate Government Registered Valuer
2. Location of the building inspected D.No / Street / locality /Municipality / Panchayat / Panchayat Union / Township / Cantonment	:	The Proposed Construction Stilt Floor + First Floor + Second Floor + Third Floor of Residential Building At T.S.No. 464, Jawhar Street, Karaikudi New Town, Karaikudi, Karaikudi Municipality Ward No.3, Block No.1, Sivagangai District.
3. Purpose for which the building is used	:	Enabled for Residential Building
4. Nature of defects noticed	:	None
5. Suggestion for rectifying defects	:	Not applicable
6. If in a dangerous condition Immediate action Recommended be taken	:	Not applicable

Date: 21.03.2024

Signature of Inspecting Authority / Officer Appointed or having jurisdiction

V. EZHILARASAN, M.E.M.S (Valu) CE AM 150824-8 Panel Engineer-1A Cr.No.V2/30807/2022 Chartered Engineer, Valuer



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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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