Verified RealEstate™

RE REGULATORY RECORD

RERA Document

The document as the regulator published it, reproduced in full behind this page.

Published for reference. The authority's own register is the operative record.

Verified RealEstate™
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India

hello@verified.realestate
+91 9996 12 9996
verified.realestate

DIGITALLY VERIFIED RECORD

BHAVANI FOUNDATION

STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9445091085
E-mail: bhavanifoundation@gmail.com

26.11.2025

STABILITY CERTIFICATE

The detailed engineering and structure design of the proposed building comprising of G+01 floors at Thaiyur, S.No. 1483/3B1 & 3B2 has been done by me based on the report of geotechnical investigation (soil test) done by M/s. GEO MINES ENGINEERS PVT.LTD Report No. GMEPL/SUGAL EARTHEN SPACES LLP/016/2025-26 Dated 10-04-2025 And considering the functional requirement of the building.

2. It is certified that among other factors, the proposed building has been designed to resist earthquake. I have checked various parameters and found that the proposed building would be safe.

3. I further certify that:

   (i) The minimum grade of concrete is M25

   (ii) The design and analysis has been done using the code of practice for plain and reinforced concrete as per IS 456, design loads as per IS Code No 875 and design of earthquake resistant structure as per IS Code No 1893

4. The building will be safe and sound when used for the purpose for which it is designed.

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

S. Varun Kumar M.Tech,AMIE.

Proprietor
BHAVANI FOUNDATION

Encl.: Structural Design Calculation

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

Block - O. Design Calculation.

DESIGN BASIS REPORT

PROJECT

PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO: 1483/3B1 & 3B2 OF THAIYUR-A VILLAGE AND PANCHAYAT, THIRUPORUR TALUK, CHENGALPATTU DISTRICT, THIRUPORUR PANCHAYAT UNION LIMIT.

CLIENT

STRUCTURAL CONSULTANT

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

INDEX

Contents

STRUCTURAL DESIGN BASIS REPORT .....

1. Introduction .....
2. Structural Scheme.....
3. Structural Design Standards and codes.....
   Indian codes.....
4. Design Basis.....
   4.1 General.....
   4.2 Grade of Concrete and Cover to the Reinforcement accoprding to the provisions of the Indian code.....
   4.3 Reinforcement.....
   4.4 Strucutural Dimensioning.....
5. Soil Data:.....
   5.1 Foundation System.....
6. Load Data.....
   6.1 Dead Load:.....
   6.2 Live Load:.....
7. Design Load Combinations.....
8. Detailing for Ductility.....
9. Control of Deflection.....
10. Control of Cracking.....
11. Analysis.....
12. Results.....

Revision History

Rev	Date	Purpose/Status	Document Ref.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

STRUCTURAL DESIGN BASIS REPORT

1. Introduction

This report describes in brief the Structural aspects and Design Philosophy. The structural design is primarily based on the current Indian Codes of practice.

The objective of this document is to present an abstractive view about the structural engineering aspects of the project, like building system its analysis and design methodology. The document highlights the structural concept and the adopted design philosophy.

The structural design of the project has been governed by the architectural concept and the requirement for services. The design of the structure takes the following into consideration:

- Most cost effective constructional system
- Effective functioning of the building
- Speed of construction
- Client Functional requirement
- Contractual provision

2. Structural Scheme

The structural system adopted is as below, based on preliminary analysis and design, which have been elucidated later in this report: The buildings are RC framed structures are as follows,

Sr No.	Building Name	Configuration	Structure type
1.	Residential Building	G+01	Framed –RCC Structure

- The analysis and design are done using STAAD Pro
- The foundation is designed as open foundation
- Slabs and beam are designed as conventional beam & slabs arrangement

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

2.1 Building Description

- Commercial & Residential Building

This is a G+01 floor building having no future expansion. The building is designed as Reinforced concrete Structure.

3. Structural Design Standards and codes

Following Indian codes will be used for analysis and detailed design

- **Indian codes**

IS -875-1987 (re-affirmed 2003)	Code of practice for Design loads
Part I	Dead load
Part II	Imposed loads
Part III (2015)	Wind loads
Part IV	Snow loads
Part V	Special loads and load combinations
IS 1893-2016	Criteria for earthquake resistance design of structures
IS – 4326-2008	Code of practice for earthquake resistant design & Construction of building.
IS-13920-1993 (re-affirmed 2003)	Ductility detailing of RCC Structure subjected to Seismic forces
IS: 3414	Code of practice for design and installation of joints in Buildings

Concrete Design

IS-456-2000	Plain and Reinforced Concrete
SP-16	Design Aids to IS 456
IS-3370	Design of Liquid retaining structures

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

Part I - 2009	
Part II - 2009	
Part III – 1999	
Part IV -1999	
IS-4971 -2007	Industrial floor finishes

Foundation Engineering

IS – 1080-2007	Design and construction of shallow foundation on soils
IS-6403-2007	Determination of bearing capacity on shallow foundations.
IS-2011-1979 (Part I to IV)	Design and Construction of Pile Foundations
IS-8009	Calculation of settlement of foundations
Part I-2008 Part II -2006	
IS-1904	Code of practice for design & construction of foundations In soil general requirements
IS 2950, Part I	Code of practice for design & construction of raft Foundations, Part I- Design
IS-6403	Code of Practice for determination of bearing capacity of shallow foundations

Design Aids

SP-7-2005	National Building Code of India
SP -16-1980	Design aids for reinforcement Concrete to IS 456 Hand Book on Concrete mixes.
SP-23	Explanatory hand book on Indian standard code of for plain and reinforced concrete (IS:456)
SP-24	
SP-34-1987	Handbook on concrete reinforcement and detailing

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

4. DESIGN BASIS

4.1 General

The structure of the project is designed in accordance with the Indian Code IS: 456-2000, which is considered mandatory for concrete.

4.2 Grade of Concrete and Cover to the Reinforcement according to the provisions of the Indian Code

The appropriate grade of concrete and nominal cover to reinforcement is governed by the following main considerations:

i) Durability of Concrete
ii) Corrosion Protection of the Reinforcement
iii) Bar Size
iv) Nominal maximum aggregate size
v) Fire Resistance

The Indian Code IS: 456 -2000, permits a minimum grade of concrete for reinforced concrete members as M 20 and the following nominal cover to all reinforcement for "normal" conditions (clause 26.4 of the code).

i) Beams	:	30 mm or bar dia whichever is greater
ii) Slabs	:	25 mm or bar dia whichever is greater
iii) Columns	:	40 mm or bar dia whichever is greater
iv) Foundation	:	50 mm

We have used M-20 concrete for all structural elements namely the foundations, columns, beams, staircases and slabs, keeping in mind the durability considerations.

4.3 Reinforcement

The following types of reinforcement bars are used:

1. High Yield Strength Deformed Bars (TMT) (fy = 500 N/sq mm)	To conform to IS: 1786:2008

Reinforcement Bars of 8, 10, 12, 16, 20 and 25 & 32 mm dia only are used for the project. Only lapped splices shall be used. Welded splices or mechanical couplers shall not be used for splicing of reinforcement. Except for 32 mm dia, this shall be welded or mechanically splices as per IS 456, Amendment No. 3.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS
No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

4.4 Structural Dimensioning

In addition to the requirements governed by loads and forces the minimum structural dimensions are also governed by other considerations like size of aggregates, reinforcement detailing, etc.

The minimum thickness of any structural element shall be 100 mm with the proposed nominal maximum aggregate size of 20 mm in view of clause 5.3.3 of IS: 456: 2000. The maximum thickness of floor/roof slabs shall be 125 mm. Minimum thickness at the edge of isolated/ strip footings shall be restricted to 200 mm from the point of view of detailing of reinforcement.

The slope at the top of the footings shall not be steeper than 1:2:5 in order to obtain well compacted concrete throughout the footing.

5. Soil Data:

Foundation shall be designed considering safe bearing capacity as 30.00 MT at a depth 7.5 m below EGL.

5.1 Foundation System:

The foundation for all buildings shall be pile foundation based on the soil report and the reactions obtained from the model. It is designed for critical Un-factored load combinations.

6. Load Data

6.1 Dead Load:

Self weight if the materials shall be calculated on the basis of unit weights given in **(IS:875 Part I).**

- Unit weight of reinforced concrete - 25.0 kN / m^3.
- Unit weight of plain concrete - 24.0 kN / m^3.
- Unit weight of block wall with plastering - 24.0 kN / m^3.
- Unit weight of brick wall with plastering - 21.0 kN / m^3.
- Unit weight of steel - 78.5 kN / m^3.
- Rubble masonry - 26.0 kN / m^3.
- Ducts and False ceiling - 1.00 kN / m^2.
- Floor finish
  Floor finish including plastering - 1.50 kN / m^2.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

For Conventional slab:

- Self weight of slab - As per thick of slab
- Floor Finish (50 mm) - 2.00 kN / m^2
- Ducts and False ceiling - 1.00 kN / m^2

For Toilet slab:

- Self weight of slab - As per thick of slab
- Floor Finish (50 mm) - 1.50 kN / m^2
- Sunken load (300 mm sunk) - 5.00 kN / m^2

For Terrace floor slab:

- Self weight of slab - As per thick of slab
- Weathering Coarse - 1.5 kN / m^2
  (Cement based water proofing over roof slab avg 150 mm thk including brickbat coba)

6.2 Live Load:

On the basis of intended occupancy and use the loading shall be based on **(IS: 875 PART II)** and client requirement.

- Living room, Bed room - 2.00 kN / m^2.
- Terraces with approach -1.50 kN / m^2.
- Office -2.50 kN / m^2.
- Assembly areas:
  With fixed seats - 4.00 kN / m^2.
  Without fixed seats - 5.00 kN / m^2.
- Restaurants (subject to assembly), Museums and art galleries and Gymnasia - 4.00 kN / m^2.
- Projection rooms - 5.00 kN / m^2.
- Stages - 5.00 kN / m^2.
- Office rooms, kitchens and laundries - 3.00 kN / m^2.
- Dressing rooms - 2.00 kN / m^2.
- Lounges and billiards rooms - 2.00 kN / m^2.
- Corridors, passages, staircases Including fire escapes - 4.00 kN / m^2.
- Balconies - 4.00 kN / m^2.
- Boiler rooms and plant rooms including weight of machinery - 7.50 kN / m^2.
- Corridors, passages subject to loads greater than from crowds, such as wheeled vehicles, trolleys and the like. Corridors, staircases and passages in grand stands - 5.00 kN / m^2.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

7. Design Load Combinations:

The value is to be considered when stability against overturning and stress reversal is critical. Where DL/LL denotes;

The building is designed using the limit state method with appropriate load factors as per **IS: 456 – 2000.**

The load combinations are as follows:

- 1.5 DL + 1.5 LL

Where

- DL - Dead Load
- LL - Live Load

8. Detailing for Ductility

Ductile detailing of Frames viz. beam-column junctions is an important aspect. The ductility provision as laid down in IS: 13920 -1993 and IS: 4326 -1993 are followed in order to improve Seismic Response of the structure. The ductility requirements mainly result into increase in stirrups/ ties in beams and columns at and near their junction and some increase in compression reinforcement provided for flexure. In some of the lightly loaded small span beams the tensile reinforcement is governed by the minimum requirement. Stirrups and ties for columns and beams are provided as per codal provisions.

It may be specifically noted that the norms of ductility detailing impose a few additional problems during construction. Due to the placement of closely spaced stirrups and ties passing through the beam column junctions, the placement of reinforcement and concreting needs to be done with utmost care. Since, lapping of longitudinal reinforcement of up to 1 ½ storey heights (up to about 5m) above the level of concreting. The constructor will be required to make suitable arrangement for the same.

9. Control of Deflection

In order to control deflection of structural elements, two alternative methods in the Serviceability Limit State Design are envisaged in the code. The first is by way of calculating the actual deflection as per clause 23.2 (a), (b) of IS: 456 -2000 and restricting it to be specified values. The second method envisages "deemed- to- satisfy" provisions such as limiting the span/ depth ratio as per 23.2.1 of IS:456 -2000.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS
No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

The first method indicated above is possible as the output in terms of joint displacements can be and are obtained from STAAD PRO and checked to satisfy that deflection is under control.

As per client requirement following deflection criteria will be checked wherever applicable;

Permissible Horizontal Deflection

1.	On Building under Seismic loads	0.04% of Total Height
2.	On Building under Wind loads	Height/500

10. Control of Cracking

In order to avoid excessive cracking in the flexural members, maximum diameter and spacing of the reinforcement is restricted as per the detailing rules indicated in clause 26.3 of IS: 456-2000. The detailing rules incorporated in the design are considered as "deemed – to- satisfy" provision. Therefore, no separate calculations relating to crack width shall be made.

11. Analysis:

1. The structure is idealized as 3D frame and analyzed using Software Package (STAAD-ProV8i) for both Vertical and Lateral loads.

2. Forces and moments from the 3 dimensional analysis output for the critical combination are used for the design of the structure. The foundation is designed for critical un-factored load combinations.

5. The super structure members are designed for actual flexure, shear and other forces.
6. The structure is analyzed for specific loads (Dead and Live loads) and for the load combinations as given in the relevant codes.
7. The bottoms of all the columns are assumed to be fixed.

12. Results

From the analysis the bending moment acting on beams, axial force and bending moment acting on columns and the reaction on the footings are obtained and the members are designed for the appropriate load combinations.

The design has been done after detailed soil test and we are satisfied as to the adequacy of soil test carried and the information given therein is factually correct to the best of our knowledge and understanding.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

FORM – B Structural report

(Form of Certificate of structural soundness under sub-section (4) of section 4 of the Tamilnadu public Buildings (Licensing) Act, 1965 (Tamilnadu Act, 13 of 1965) referred to in rule 4 of the Tamilnadu public buildings (Licensing) Rules 1966)

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

STATEMENT OF ACCOMPANY THE CERTIFICATE OF STRUCTURAL SOUNDNESS

	Location of the building door number,	:	
	Street and name of the place Age of the Building	:	Thaiyur-A Village, Proposed Building
1.	Purpose for which the building will Structurally sound	:	Proposed Building
2.	The period for which the building will be structurally sound	:	Proposed Building
3.	Number of persons to be accommodate	:	
4.	Remarks	:	Proposed Building

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

Station : Chennai

Date: 05.05.2025

Signature of the Engineer

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS
No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

FORM – C Structural report

(Form of Certificate of structural soundness under sub-section (4) of section 4 of the Tamilnadu public Buildings (Licensing) Act, 1965 (Tamilnadu Act, 13 of 1965) referred to in rule 4 of the Tamilnadu public buildings (Licensing) Rules 1966)

1.	Foundation	:	Pile foundation
	i) Depth below ground level	:	7.50 m From EGL
	ii) Nature of soil mmet with at Foundation	:	Weathered Rock
	iii) Probable safe bearing capacity of the soil	:	30.00 MT
	iv) Pressure at Foundation	:	29.00 MT
2.	Superstructure		
	i) Maximum stress in the most critical Section of masonry and concrete	:	For Concrete 13 N/mm^2 For Brick Masonry 0.5 N/m^2
	ii) Naure of masonry and concrete and its safe permissible stresses	: :	M20 Grade Concrete 20 N/nm^2 Brick Masonry in CM 0.75 N/nm^2

This is stated that the building will be designed to take seismic forces and other loads as per the relevant Indian standard codes.

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

Station : Chennai

Date: 13.05.2025

Signature of the Engineer

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

STABILITY CERTIFICATE

(Form of Certificate of structural soundness under sub-section (4) of section 4 of the Tamilnadu public Buildings (Licensing) Act, 1965 (Tamilnadu Act, 13 of 1965) referred to in rule 4 of the Tamilnadu Public buildings (Licensing) Rules 1966)

1.	Door Number of building	:
	Location (Street number, Panchayat	: Thaiyur-A village
2.	Union / Township / Cantonment)	:
3.	Year of Construction	: Proposed Residential Building
4.	Approximate cost of construction	: -
5.	Purpose for which the building is Being used or proposed to be used	: Proposed Residential Building (G + 01)
7.	Purpose for which the building has hither to been used	:
8.	Details of Construction of the Building (particulars of the Foundations soil specification of the various parts under)	:
	(1) Foundation	: RCC framed structure, With Column Foundation
	(2) Basement	: Plinth beam with brick in CM
	(3) Super structure	: RCC frame with slab and beam
	(4) Floor and roof	:
	a) Still Floor	: RCC roof Tile flooring
	b) F.F, S.F & T.F	: RCC roof, Tile flooring
9.	Period for which license required	: Proposed Building
10.	No. of person to be accomodated	: -

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

Station : Chennai

Date: 13.05.2025

Signature of the Engineer

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

District Town and Country Planning Office,
Chengalpattu District,
No.124, Municipal Commercial Complex,
G.S.T.Raod, Chengalpattu - 603 001
E-mail : ddcgldistrict@gmail.com, Phone : 044 - 27422144

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that **Thiru. S.VARUN KUMAR** has enrolled as **Structural Engineer Grade-I (SE)** with Department of Town and Country Planning who has the qualification of **M.Tech., (Structural Engineering)** and experience in the relevant field for more than **08 years**.

He has been given the Registration No. **CGLDIST/SE/Gr-I/2021/03/005** on **10.03.2021**. He shall be required to comply with the duties and responsibilities prescribed by the Government of Tamil Nadu in Part V, "Registration of Professionals", Tamil Nadu Combined Development and Building Rules, 2019 approved vide G.O.(Ms) No.18 MAWS (MA1) Dept. Dated 04.02.2019.

This Registration is valid upto **09.03.2026**.

Deputy Director(I/c),
Chengalpattu District

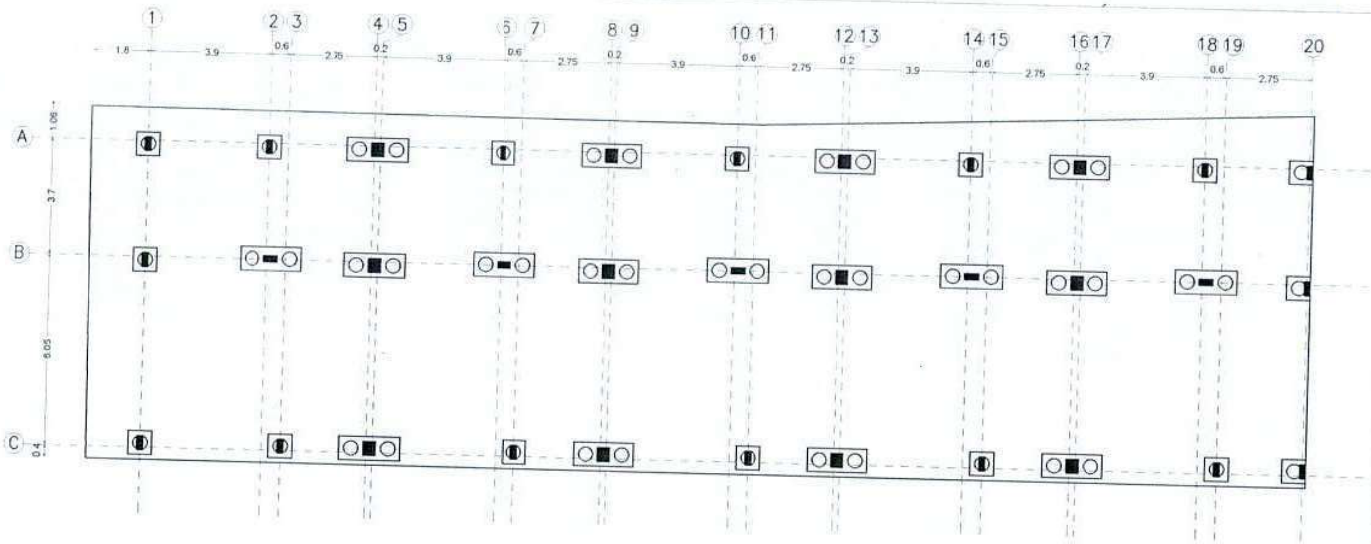


10 MAR 2021

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

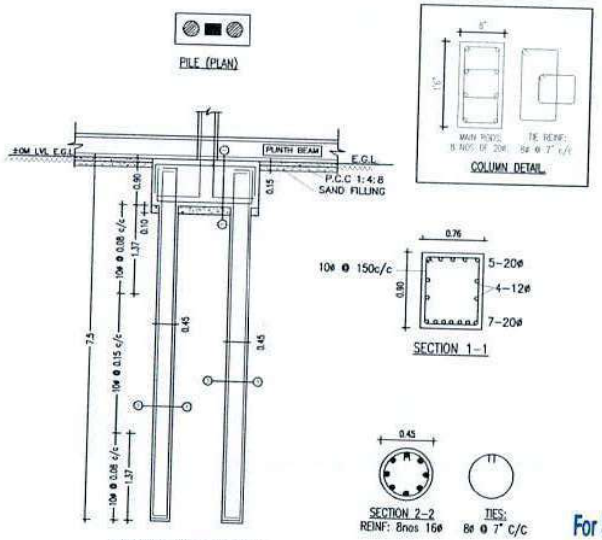
For SUGAL AND DAMANI SHARE BROKERS LTD.

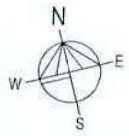
Authorised Signatory



FOUNDATION DRAWING

Pile layout





NOTES:

1. ALL DIMENSIONS ARE IN METER AND MILLIMETER UNLESS SPECIFIED.
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION.
4. CEMENT USED SHOULD BE 53 GRADE.
5. STEEL USED SHOULD BE TMT.
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS.
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION.

G+1 STORIES		CONSULTANT SEAL
R.C.C GRADE	M25 1:1.5:3	
P.C.C GRADE	M7.5:1:4:8	
STEEL GRADE	Fe 500	
CLEAR COVER TO REINF		
FOOTING	50 mm	
COLUMN	40 mm	
PLINTH BEAM	30 mm	
ROOF BEAM	25 mm	
SLAB	20 mm	

DATE	REV. NO	DESCRIPTION	CHECKED	APPROVED

PROJECT:
PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO.1483/331 & 382 OF THAIYUR-A VILLAGE.

TITLE: FOUNDATION DRAWING

	NAME	DATE	SIGNATURE
DSGN.	S.VARUN KUMAR	05/05/25	
DRWN.	S.MAGESHWARI	13/05/25	
CHKD.	S.VARUN KUMAR	13/05/25	
APPD.	S.VARUN KUMAR	13/05/25	

SCALE: NTS
PROJECTION:

DRAWING No. PRO 1047-A-STR-TDN-00-1/1

SHEET	SIZE	REV.
1 OF 1	A3	00

CLIENT:

For SUGAL AND DAMANI SHARE BROKERS LTD.

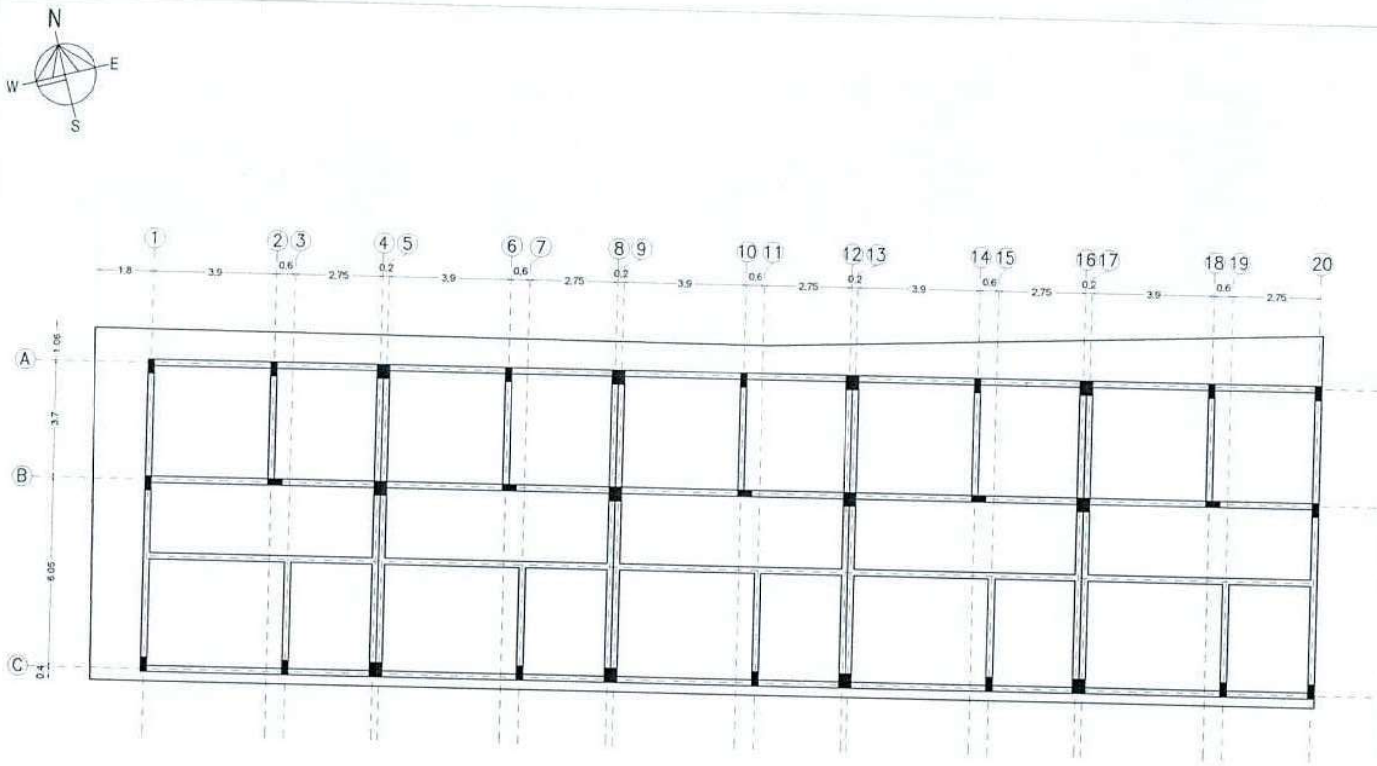
Authorised Signatory

ARCHITECTS:

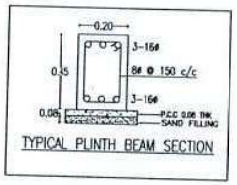
S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

STRUCTURAL CONSULTANTS:

BHAVANI FOUNDATION
BUILDERS & STRUCTURAL CONSULTANTS
OFFICE : BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile: +91- 97911 07670



PLINTH BEAM DRAWING



TYPICAL PLINTH BEAM SECTION

NOTES:

1. ALL DIMENSIONS ARE IN METER AND MILLIMETER , UNLESS SPECIFIED.
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION.
4. CEMENT USED SHOULD BE 53 GRADE.
5. STEEL USED SHOULD BE TMT.
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS.
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION.

G+1 STORIES		CONSULTANT SEAL
R.C.C GRADE	M20 & 1:1.5:3	
P.C.C GRADE	M7.5 1:4:8	
STEEL GRADE	Fe 500	
CLEAR COVER TO REINF.		
FOOTING	50 mm	
COLUMN	40 mm	
PORCH BEAM	30 mm	
ROOF BEAM	25 mm	
SLAB	20 mm	

DATE	REV NO.	DESCRIPTION	CHECKED	APPROVED

PROJECT:

PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO:1483/3B1 & 382 OF THAIYUR-A VILLAGE.

TITLE: PLINTH BEAM DRAWING

	NAME	DATE	SIGNATURE
DSGN.	S.VARUN KUMAR	05/05/25	
DRWN.	M.V.PADMAVATHY	13/05/25	
CHKD.	S.VARUN KUMAR	13/05/25	
APPD.	S.VARUN KUMAR	13/05/25	

SCALE: NOT TO SCALE
PROJECTION

DRAWING No: PRO 1547-A-STR-PB-00-1/1.

SHEET	SIZE	REV.
1 OF 1	A1	00

CLIENT

For SUGAL AND DAMANI SHARE BROKERS LTD.

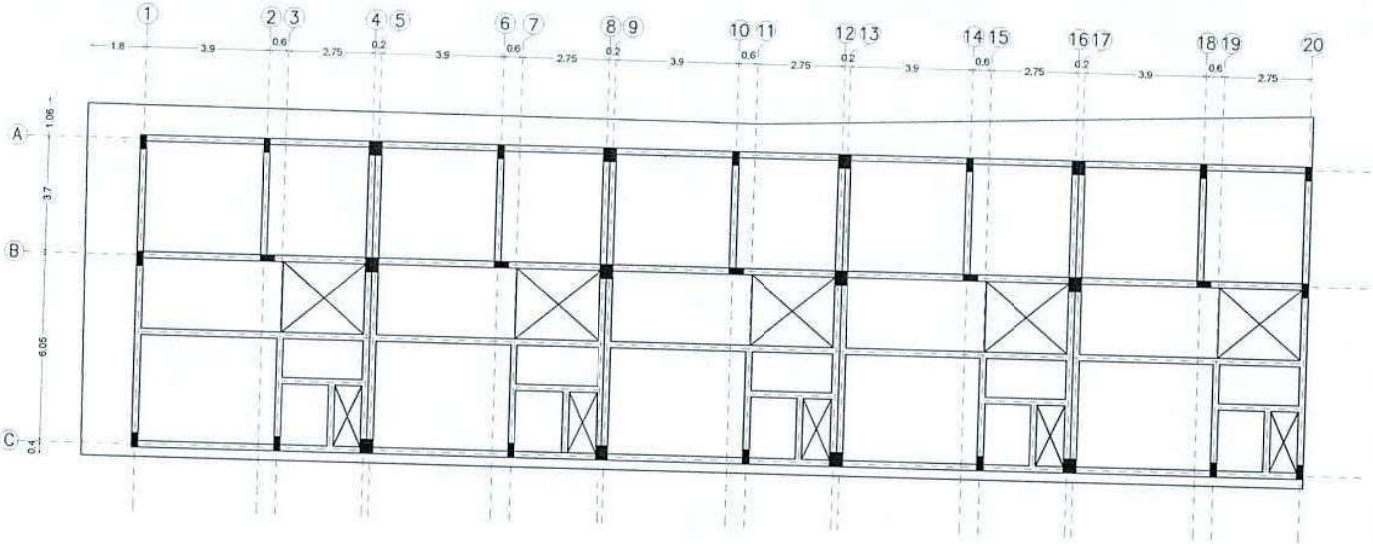
Authorised Signatory

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

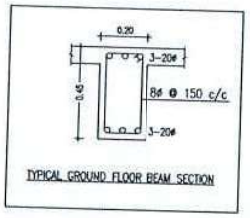
BHAVANI FOUNDATION
BUILDERS & STRUCTURAL CONSULTANTS

OFFICE : BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile: +91- 97911 07670

Floor roof



GROUND FLOOR ROOF SLAB & BEAM DRAWING



TYPICAL GROUND FLOOR BEAM SECTION

SLAB 150 THK TYP.

SLAB REINF 10 @ 150 C/C TYP
(For other then mentioned)

NOTES:

1. ALL DIMENSIONS ARE IN METER AND MILIMETER UNLESS SPECIFIED
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION
4. CEMENT USED SHOULD BE 53 GRADE
5. STEEL USED SHOULD BE TMT
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BAR
7. NECESSARY STOOL PIDS SHALL BE PROVIDED TO KEEP THE TOP BED IN POSITION

G+1 STORIES	
R.C.C GRADE	M20 (1:1.5:3)
P.C.C GRADE	M7.5 (1:4:8)
STEEL GRADE	Fe 500
CLEAR COVER TO REINF	
FOOTING	50 mm
COLUMN	40 mm
PLINTH BEAM	30 mm
ROOF BEAM	25 mm
SLAB	20 mm

CONSULTANT SEAL

DATE	REV NO	DESCRIPTION	CHECKED	APPROVED

PROJECT:
PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO:1483/3B1 & 3B2 OF THAIYUR-A VILLAGE.

TITLE: GROUND FLOOR ROOF SLAB & BEAM DRAWING

	NAME	DATE	SIGNATURE
DSGN	S.VARUN KUMAR	05/05/25	
DRWN	M.V.RADHAKRISHNAN	11/05/25	
CHKD	S.VARUN KUMAR	11/05/25	
APPD	S.VARUN KUMAR	13/05/25	

SCALE: M.S. 1:100 (1:1.5) 1:1

DRAWING No: PRO 1847-A-STR-SFB-00-1/1 | SHEET: 1 OF 1 | SIZE: A1 | REV: 00

CLIENT

For SUGAL AND DAMANI SHARE BROKERS LTD.

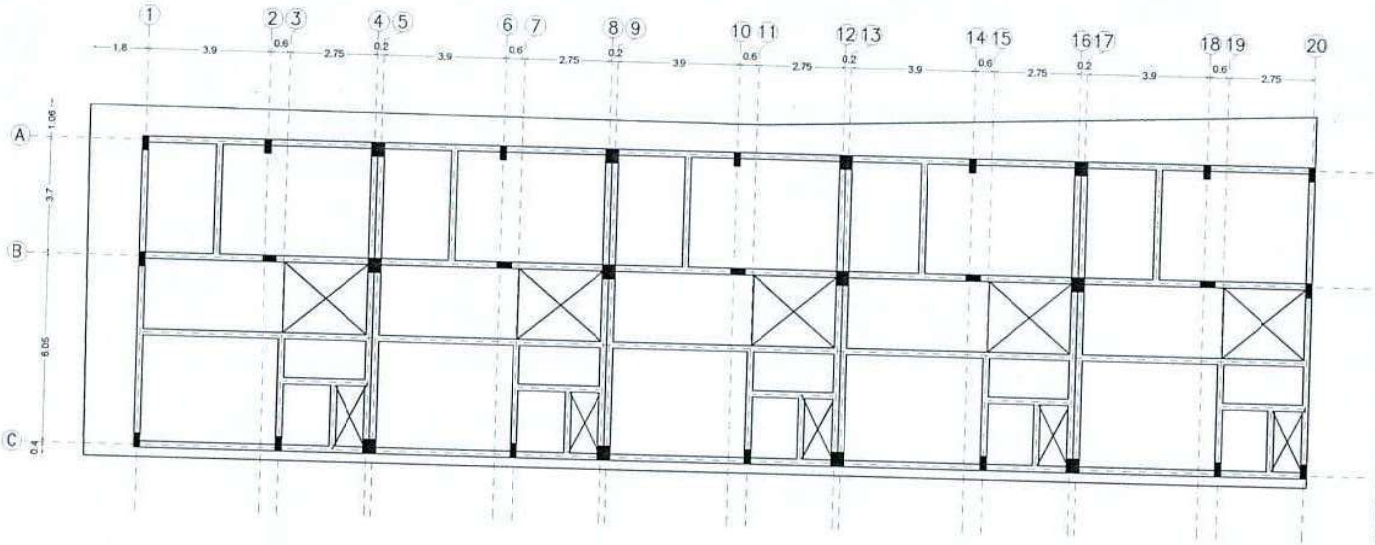
Authorised Signatory

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

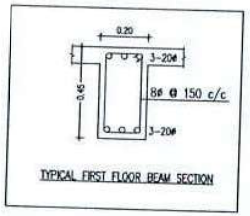
BHAVANI FOUNDATION
BUILDERS & STRUCTURAL CONSULTANTS

OFFICE: BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile: +91- 97911 07670

Floor roof,



FIRST FLOOR ROOF SLAB & BEAM DRAWING



TYPICAL FIRST FLOOR BEAM SECTION

SLAB 150 THK TYP.

SLAB REINF 10 @ 150 C/C TYP
(For other then mentoned)

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

NOTES

1. ALL DIMENSIONS ARE IN METERS AND MILLIMETER UNLESS SPECIFIED.
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION.
4. CEMENT USED SHOULD BE 53 GRADE.
5. STEEL USED SHOULD BE TMT.
6. R.C.C LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS.
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION.

G+1 STORIES	CONSULTANT SEAL
R.C.C GRADE	M20 1:1.5:3
R.C.C GRADE	M25 1:1:2
STEEL GRADE	Fe 500
CLEAR COVER TO REINF	
FOOTING	50 mm
COLUMN	40 mm
PLINTH BEAM	30 mm
ROOF BEAM	25 mm
SLAB	20 mm

DATE	REV NO	DESCRIPTION	CHECKED	APPROVED

PROJECT

PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO:1483/381 & 382 OF THAIYUR-A VILLAGE

TITLE: FIRST FLOOR ROOF SLAB & BEAM DRAWING

	NAME	DATE	SIGNATURE
DSGN	S.VARUN KUMAR	05/04/22	
DRWN	M.V.PADMAVATHY	11/05/22	
CHKD	S.VARUN KUMAR	13/05/22	
APPD	S.VARUN KUMAR	13/05/22	

SCALE 1/50 1/100 1/200 1/500 1/1000

DRAWING No PRO 1647-A-STR-FB-00-1/1	SHEET	SIZE	REV.
	1 OF 1	A3	00

CLIENT

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

STRUCTURAL ENGINEERS
BHAVANI FOUNDATION
BUILDERS & STRUCTURAL CONSULTANTS

OFFICE : BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile +91- 97911 07670

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

Block - (2)

Design Calculation.

DESIGN BASIS REPORT

PROJECT

PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO: 1483/3B1 & 3B2 OF THAIYUR-A VILLAGE AND PANCHAYAT, THIRUPORUR TALUK, CHENGALPATTU DISTRICT, THIRUPORUR PANCHAYAT UNION LIMIT.

CLIENT

STRUCTURAL CONSULTANT

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

INDEX

Contents

STRUCTURAL DESIGN BASIS REPORT .....

1. Introduction .....
2. Structural Scheme.....
3. Structural Design Standards and codes.....
   Indian codes.....
4. Design Basis.....
   4.1 General.....
   4.2 Grade of Concrete and Cover to the Reinforcement accoprding to the provisions of the Indian code.....
   4.3 Reinforcement.....
   4.4 Strucutural Dimensioning.....
5. Soil Data:.....
   5.1 Foundation System.....
6. Load Data.....
   6.1 Dead Load:.....
   6.2 Live Load:.....
7. Design Load Combinations.....
8. Detailing for Ductility.....
9. Control of Deflection.....
10. Control of Cracking.....
11. Analysis.....
12. Results.....

Revision History

Rev	Date	Purpose/Status	Document Ref.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

STRUCTURAL DESIGN BASIS REPORT

1. Introduction

This report describes in brief the Structural aspects and Design Philosophy. The structural design is primarily based on the current Indian Codes of practice.

The objective of this document is to present an abstractive view about the structural engineering aspects of the project, like building system its analysis and design methodology. The document highlights the structural concept and the adopted design philosophy.

The structural design of the project has been governed by the architectural concept and the requirement for services. The design of the structure takes the following into consideration:

- Most cost effective constructional system
- Effective functioning of the building
- Speed of construction
- Client Functional requirement
- Contractual provision

2. Structural Scheme

The structural system adopted is as below, based on preliminary analysis and design, which have been elucidated later in this report: The buildings are RC framed structures are as follows.

Sr No.	Building Name	Configuration	Structure type
1.	Residential Building	G+01	Framed –RCC Structure

- The analysis and design are done using STAAD Pro
- The foundation is designed as open foundation
- Slabs and beam are designed as conventional beam & slabs arrangement

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS
No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

2.1 Building Description

- Commercial & Residential Building

This is a G+01 floor building having no future expansion. The building is designed as Reinforced concrete Structure.

3. Structural Design Standards and codes

Following Indian codes will be used for analysis and detailed design

- **Indian codes**

IS -875-1987 (re-affirmed 2003)	Code of practice for Design loads
Part I	Dead load
Part II	Imposed loads
Part III (2015)	Wind loads
Part IV	Snow loads
Part V	Special loads and load combinations
IS 1893-2016	Criteria for earthquake resistance design of structures
IS – 4326-2008	Code of practice for earthquake resistant design & Construction of building.
IS-13920-1993 (re-affirmed 2003)	Ductility detailing of RCC Structure subjected to Seismic forces
IS: 3414	Code of practice for design and installation of joints in Buildings

Concrete Design

IS-456-2000	Plain and Reinforced Concrete
SP-16	Design Aids to IS 456
IS-3370	Design of Liquid retaining structures

For SUGAL AND DAMANI SHARE BROKERS LTD.
Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

Part I - 2009	
Part II - 2009	
Part III – 1999	
Part IV -1999	
IS-4971 -2007	Industrial floor finishes

Foundation Engineering

IS – 1080-2007	Design and construction of shallow foundation on soils
IS-6403-2007	Determination of bearing capacity on shallow foundations.
IS-2011-1979 (Part I to IV)	Design and Construction of Pile Foundations
IS-8009	Calculation of settlement of foundations
Part I-2008 Part II -2006	
IS-1904	Code of practice for design & construction of foundations In soil general requirements
IS 2950, Part I	Code of practice for design & construction of raft Foundations, Part I- Design
IS-6403	Code of Practice for determination of bearing capacity of shallow foundations

Design Aids

SP-7-2005	National Building Code of India
SP -16-1980	Design aids for reinforcement Concrete to IS 456 Hand Book on Concrete mixes.
SP-23	Explanatory hand book on Indian standard code of for plain and reinforced concrete (IS:456)
SP-24	
SP-34-1987	Handbook on concrete reinforcement and detailing

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

4. DESIGN BASIS

4.1 General

The structure of the project is designed in accordance with the Indian Code IS: 456-2000, which is considered mandatory for concrete.

4.2 Grade of Concrete and Cover to the Reinforcement according to the provisions of the Indian Code

The appropriate grade of concrete and nominal cover to reinforcement is governed by the following main considerations:

i) Durability of Concrete
ii) Corrosion Protection of the Reinforcement
iii) Bar Size
iv) Nominal maximum aggregate size
v) Fire Resistance

The Indian Code IS: 456 -2000, permits a minimum grade of concrete for reinforced concrete members as M 20 and the following nominal cover to all reinforcement for "normal" conditions (clause 26.4 of the code).

i) Beams	:	30 mm or bar dia whichever is greater
ii) Slabs	:	25 mm or bar dia whichever is greater
iii) Columns	:	40 mm or bar dia whichever is greater
iv) Foundation	:	50 mm

We have used M-20 concrete for all structural elements namely the foundations, columns, beams, staircases and slabs, keeping in mind the durability considerations.

4.3 Reinforcement

The following types of reinforcement bars are used:

1. High Yield Strength Deformed Bars (TMT) (fy = 500 N/sq mm)	To conform to IS: 1786:2008

Reinforcement Bars of 8, 10, 12, 16, 20 and 25 & 32 mm dia only are used for the project. Only lapped splices shall be used. Welded splices or mechanical couplers shall not be used for splicing of reinforcement. Except for 32 mm dia, this shall be welded or mechanically splices as per IS 456, Amendment No. 3.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS
No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

4.4 Structural Dimensioning

In addition to the requirements governed by loads and forces the minimum structural dimensions are also governed by other considerations like size of aggregates, reinforcement detailing, etc.

The minimum thickness of any structural element shall be 100 mm with the proposed nominal maximum aggregate size of 20 mm in view of clause 5.3.3 of IS: 456: 2000. The maximum thickness of floor/roof slabs shall be 125 mm. Minimum thickness at the edge of isolated/ strip footings shall be restricted to 200 mm from the point of view of detailing of reinforcement.

The slope at the top of the footings shall not be steeper than 1:2:5 in order to obtain well compacted concrete throughout the footing.

5. Soil Data:

Foundation shall be designed considering safe bearing capacity as 30.00 MT at a depth 7.5 m below EGL.

5.1 Foundation System:

The foundation for all buildings shall be pile foundation based on the soil report and the reactions obtained from the model. It is designed for critical Un-factored load combinations.

6. Load Data

6.1 Dead Load:

Self weight if the materials shall be calculated on the basis of unit weights given in **(IS:875 Part I).**

- Unit weight of reinforced concrete - 25.0 kN / m^3.
- Unit weight of plain concrete - 24.0 kN / m^3.
- Unit weight of block wall with plastering - 24.0 kN / m^3.
- Unit weight of brick wall with plastering - 21.0 kN / m^3.
- Unit weight of steel - 78.5 kN / m^3.
- Rubble masonry - 26.0 kN / m^3.
- Ducts and False ceiling - 1.00 kN / m^2.
- Floor finish
  Floor finish including plastering - 1.50 kN / m^2.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

For Conventional slab:

- Self weight of slab - As per thick of slab
- Floor Finish (50 mm) - 2.00 kN / m^2
- Ducts and False ceiling - 1.00 kN / m^2

For Toilet slab:

- Self weight of slab - As per thick of slab
- Floor Finish (50 mm) - 1.50 kN / m^2
- Sunken load (300 mm sunk) - 5.00 kN / m^2

For Terrace floor slab:

- Self weight of slab - As per thick of slab
- Weathering Coarse - 1.5 kN / m^2
  (Cement based water proofing over roof slab avg 150 mm thk including brickbat coba)

6.2 Live Load:

On the basis of intended occupancy and use the loading shall be based on **(IS: 875 PART II)** and client requirement.

- Living room, Bed room - 2.00 kN / m^2.
- Terraces with approach -1.50 kN / m^2.
- Office -2.50 kN / m^2.
- Assembly areas:
  With fixed seats - 4.00 kN / m^2.
  Without fixed seats - 5.00 kN / m^2.
- Restaurants (subject to assembly), Museums and art galleries and Gymnasia - 4.00 kN / m^2.
- Projection rooms - 5.00 kN / m^2.
- Stages - 5.00 kN / m^2.
- Office rooms, kitchens and laundries - 3.00 kN / m^2.
- Dressing rooms - 2.00 kN / m^2.
- Lounges and billiards rooms - 2.00 kN / m^2.
- Corridors, passages, staircases Including fire escapes - 4.00 kN / m^2.
- Balconies - 4.00 kN / m^2.
- Boiler rooms and plant rooms including weight of machinery - 7.50 kN / m^2.
- Corridors, passages subject to loads greater than from crowds, such as wheeled vehicles, trolleys and the like. Corridors, staircases and passages in grand stands - 5.00 kN / m^2.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS
No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

7. Design Load Combinations:

The value is to be considered when stability against overturning and stress reversal is critical. Where DL/LL denotes;

The building is designed using the limit state method with appropriate load factors as per **IS: 456 – 2000.**

The load combinations are as follows:

- 1.5 DL + 1.5 LL

Where

- DL - Dead Load
- LL - Live Load

8. Detailing for Ductility

Ductile detailing of Frames viz. beam-column junctions is an important aspect. The ductility provision as laid down in IS: 13920 -1993 and IS: 4326 -1993 are followed in order to improve Seismic Response of the structure. The ductility requirements mainly result into increase in stirrups/ ties in beams and columns at and near their junction and some increase in compression reinforcement provided for flexure. In some of the lightly loaded small span beams the tensile reinforcement is governed by the minimum requirement. Stirrups and ties for columns and beams are provided as per codal provisions.

It may be specifically noted that the norms of ductility detailing impose a few additional problems during construction. Due to the placement of closely spaced stirrups and ties passing through the beam column junctions, the placement of reinforcement and concreting needs to be done with utmost care. Since, lapping of longitudinal reinforcement of up to 1 ½ storey heights (up to about 5m) above the level of concreting. The constructor will be required to make suitable arrangement for the same.

9. Control of Deflection

In order to control deflection of structural elements, two alternative methods in the Serviceability Limit State Design are envisaged in the code. The first is by way of calculating the actual deflection as per clause 23.2 (a), (b) of IS: 456 -2000 and restricting it to be specified values. The second method envisages "deemed- to- satisfy" provisions such as limiting the span/ depth ratio as per 23.2.1 of IS:456 -2000.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS
No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

The first method indicated above is possible as the output in terms of joint displacements can be and are obtained from STAAD PRO and checked to satisfy that deflection is under control.

As per client requirement following deflection criteria will be checked wherever applicable;

Permissible Horizontal Deflection

1.	On Building under Seismic loads	0.04% of Total Height
2.	On Building under Wind loads	Height/500

10. Control of Cracking

In order to avoid excessive cracking in the flexural members, maximum diameter and spacing of the reinforcement is restricted as per the detailing rules indicated in clause 26.3 of IS: 456-2000, The detailing rules incorporated in the design are considered as "deemed – to- satisfy" provision. Therefore, no separate calculations relating to crack width shall be made.

11. Analysis:

1. The structure is idealized as 3D frame and analyzed using Software Package (STAAD-ProV8i) for both Vertical and Lateral loads.

2. Forces and moments from the 3 dimensional analysis output for the critical combination are used for the design of the structure. The foundation is designed for critical un-factored load combinations.

5. The super structure members are designed for actual flexure, shear and other forces.
6. The structure is analyzed for specific loads (Dead and Live loads) and for the load combinations as given in the relevant codes.
7. The bottoms of all the columns are assumed to be fixed.

12. Results

From the analysis the bending moment acting on beams, axial force and bending moment acting on columns and the reaction on the footings are obtained and the members are designed for the appropriate load combinations.

The design has been done after detailed soil test and we are satisfied as to the adequacy of soil test carried and the information given therein is factually correct to the best of our knowledge and understanding.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

FORM – B

Structural report

(Form of Certificate of structural soundness under sub-section (4) of section 4 of the Tamilnadu public Buildings (Licensing) Act, 1965 (Tamilnadu Act, 13 of 1965) referred to in rule 4 of the Tamilnadu public buildings (Licensing) Rules 1966)

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

STATEMENT OF ACCOMPANY THE CERTIFICATE OF STRUCTURAL SOUNDNESS

	Location of the building door number,	:	
	Street and name of the place Age of the Building	:	Thaiyur-A Village, Proposed Building
1.	Purpose for which the building will Structurally sound	:	Proposed Building
2.	The period for which the building will be structurally sound	:	Proposed Building
3.	Number of persons to be accommodate	:	
4.	Remarks	:	Proposed Building

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

Station : Chennai

Date: 05.05.2025

Signature of the Engineer

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

FORM – C Structural report.

(Form of Certificate of structural soundness under sub-section (4) of section 4 of the Tamilnadu public Buildings (Licensing) Act, 1965 (Tamilnadu Act, 13 of 1965) referred to in rule 4 of the Tamilnadu public buildings (Licensing) Rules 1966)

1.	Foundation	:	Pile foundation
	i) Depth below ground level	:	7.50 m From EGL
	ii) Nature of soil mmet with at Foundation	:	Weathered Rock
	iii) Probable safe bearing capacity of the soil	:	30.00 MT
	iv) Pressure at Foundation	:	29.00 MT
2.	Superstructure		
	i) Maximum stress in the most critical Section of masonry and concrete	:	For Concrete 13 N/mm^2 For Brick Masonry 0.5 N/m^2
	ii) Naure of masonry and concrete and its safe permissible stresses	: :	M20 Grade Concrete 20 N/nm^2 Brick Masonry in CM 0.75 N/nm^2

This is stated that the building will be designed to take seismic forces and other loads as per the relevant Indian standard codes.

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGI DIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

Station : Chennai

Date: 13.05.2025

Signature of the Engineer

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

STABILITY CERTIFICATE

(Form of Certificate of structural soundness under sub-section (4) of section 4 of the Tamilnadu public Buildings (Licensing) Act, 1965 (Tamilnadu Act, 13 of 1965) referred to in rule 4 of the Tamilnadu Public buildings (Licensing) Rules 1966)

1. Door Number of building :

   Location (Street number, Panchayat : Thaiyur-A village

2. Union / Township / Cantonment) :

3. Year of Construction : Proposed Residential Building

4. Approximate cost of construction : -

5. Purpose for which the building is Being used or proposed to be used : Proposed Residential Building (G + 01)

7. Purpose for which the building has hither to been used :

8. Details of Construction of the Building (particulars of the Foundations soil specification of the various parts under) :

   (1) Foundation : RCC framed structure, With Column Foundation
   (2) Basement : Plinth beam with brick in CM
   (3) Super structure : RCC frame with slab and beam
   (4) Floor and roof :
   a) Still Floor : RCC roof Tile flooring
   b) F.F, S.F & T.F : RCC roof, Tile flooring

9. Period for which license required : Proposed Building

10. No. of person to be accomodated : -

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

Station : Chennai

Date: 13.05.2025

Signature of the Engineer

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

District Town and Country Planning Office.
Chengalpattu District,
No.124, Municipal Commercial Complex,
G.S.T.Raod, Chengalpattu - 603 001
E-mail : ddcgldistrict@gmail.com, Phone : 044 - 27422144

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that **Thiru. S.VARUN KUMAR** has enrolled as **Structural Engineer Grade-I (SE)** with Department of Town and Country Planning who has the qualification of **M.Tech., (Structural Engineering)** and experience in the relevant field for more than **08 years**.

He has been given the Registration No. **CGLDIST/SE/Gr-I/2021/03/005** on **10.03.2021**. He shall be required to comply with the duties and responsibilities prescribed by the Government of Tamil Nadu in Part V, "Registration of Professionals", Tamil Nadu Combined Development and Building Rules, 2019 approved vide G.O.(Ms) No.18 MAWS (MA1) Dept. Dated 04.02.2019.

This Registration is valid upto **09.03.2026**.

10.3.21

Deputy Director(I/c),
Chengalpattu District

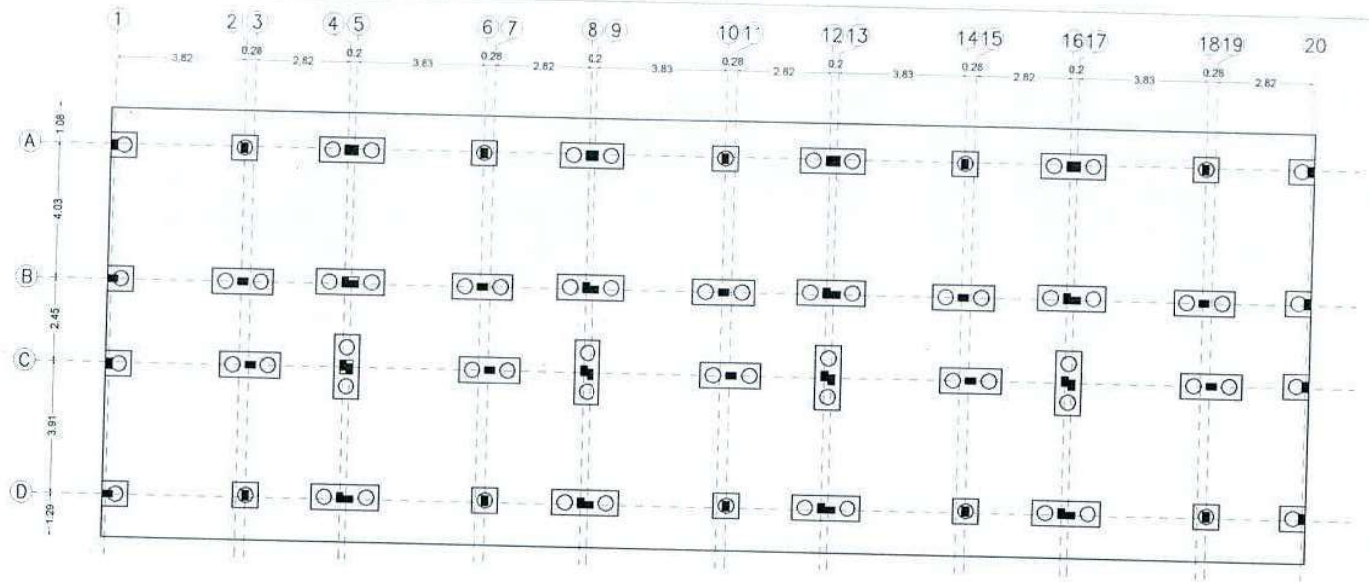


10 MAR 2021

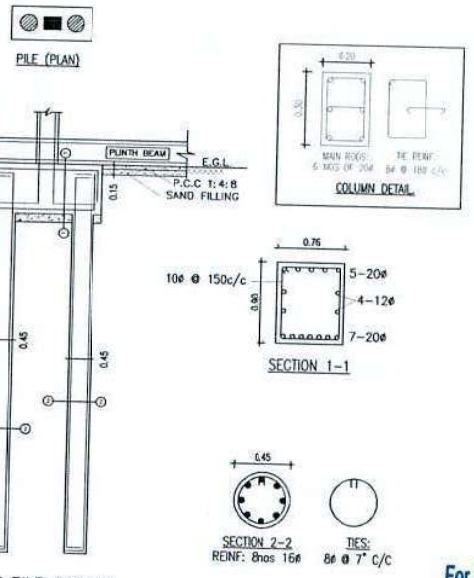
S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory



FOUNDATION DRAWING



Pile layout

N
W E
S

NOTES:

1. ALL DIMENSIONS ARE IN METER AND MILLIMETER, UNLESS SPECIFIED
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION
4. CEMENT USED SHOULD BE 53 GRADE
5. STEEL USED SHOULD BE TMT
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION

G+1 STORIES	
R.C.C GRADE	M20 1:1.5:3
P.C.C GRADE	M7.5 1:4:8
STEEL GRADE	Fe 500
CLEAR COVER TO REINF.	
FOOTING	50 mm
COLUMN	40 mm
PLINTH BEAM	30 mm
ROOF BEAM	25 mm
SLAB	20 mm

CONSULTANT SEAL

DATE	REV NO	DESCRIPTION	CHECKED	APPROVED

PROJECT:
PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BULDING IN S.NO:148/3B1 & 3B2 OF THAIYUR-A VILLAGE.

TITLE: FOUNDATION DRAWING

	NAME	DATE	SIGNATURE
DSGN	S.VARUN KUMAR	05/05/25	
DRWN	S.MAHESHWARI	13/05/25	
CHKD	S.VARUN KUMAR	13/05/25	
APPD	S.VARUN KUMAR	13/05/25	

SCALE NOT TO PROJECTION

DRAWING NO: PRO 1647-B-STR-ITDN-00-1/1 | SHEET 1 OF 1 | SIZE A3 | REV 00

CLIENT

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

ARCHITECTS / STRUCTURAL CONSULTANTS
BHAVANI FOUNDATION
BUILDERS & STRUCTURAL CONSULTANTS

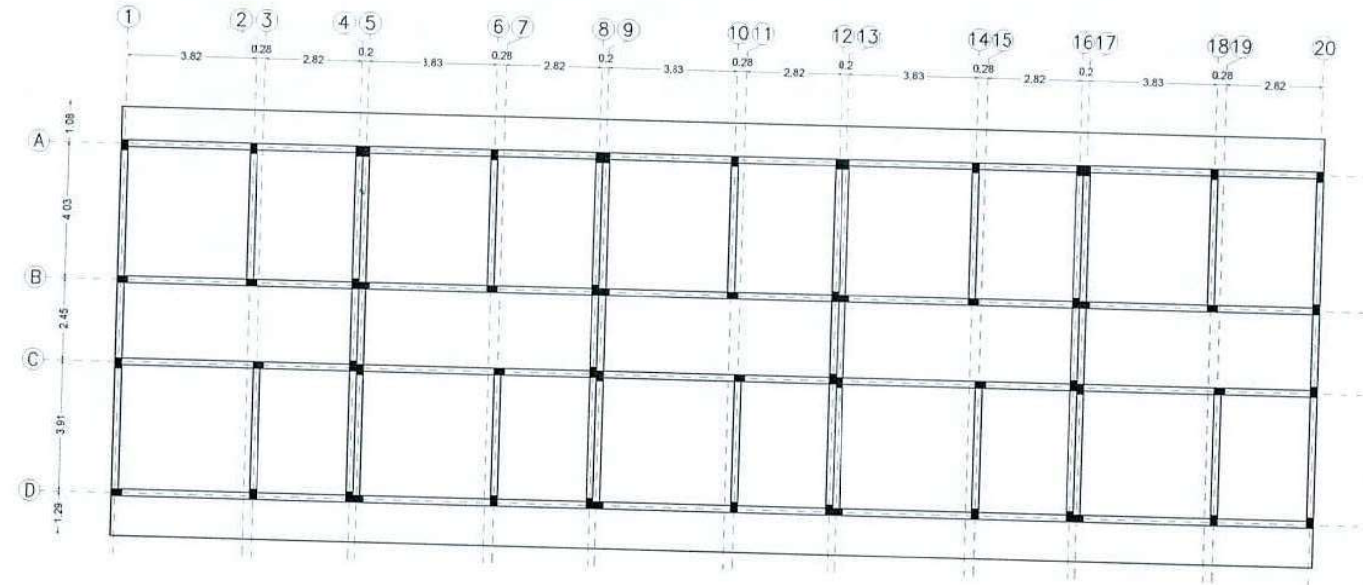
OFFICE : BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile: +91- 97911 07670

For SUGAL AND DAMANI SHARE BROKERS LTD.

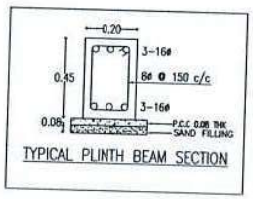
Authorised Signatory

Floor roof

not received.



PLINTH BEAM DRAWING



TYPICAL PLINTH BEAM SECTION

NOTES:

1. ALL DIMENSIONS ARE IN METER AND MILLIMETER UNLESS SPECIFIED.
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION.
4. CEMENT USED SHOULD BE 53 GRADE.
5. STEEL USED SHOULD BE TMT.
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS.
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION.

G+1 STORIES	
R.C.C. GRADE	M20 1:1.5:3
P.C.C. GRADE	M7.5 1:4:8
STEEL GRADE	Fe 500
CLEAR COVER TO REINF.	
FOOTING	50 mm
COLUMN	40 mm
PLINTH BEAM	30 mm
ROOF BEAM	25 mm
SLAB	20 mm

CONSULTANT SEAL

DATE	REV. NO.	DESCRIPTION	CHECKED	APPROVED

PROJECT:

PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO:1483/3B1 & 3B2 OF THAIYUR-A VILLAGE.

TITLE: PLINTH BEAM DRAWING

	NAME	DATE	SIGNATURE
DSGN.	S.VARUN KUMAR	05/05/25	
DRWN.	M.V.PADMAVATHI	12/05/25	
CHKD.	S.VARUN KUMAR	13/05/25	
APPD.	S.VARUN KUMAR	13/05/25	

SCALE: NOT TO SCALE
PROJECTION:

DRAWING NO: PRO 1847-B-STR-PB-00-1/1

SHEET	SIZE	REV.
1 OF 1	A1	00

CLIENT

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

STRUCTURAL CONSULTANTS

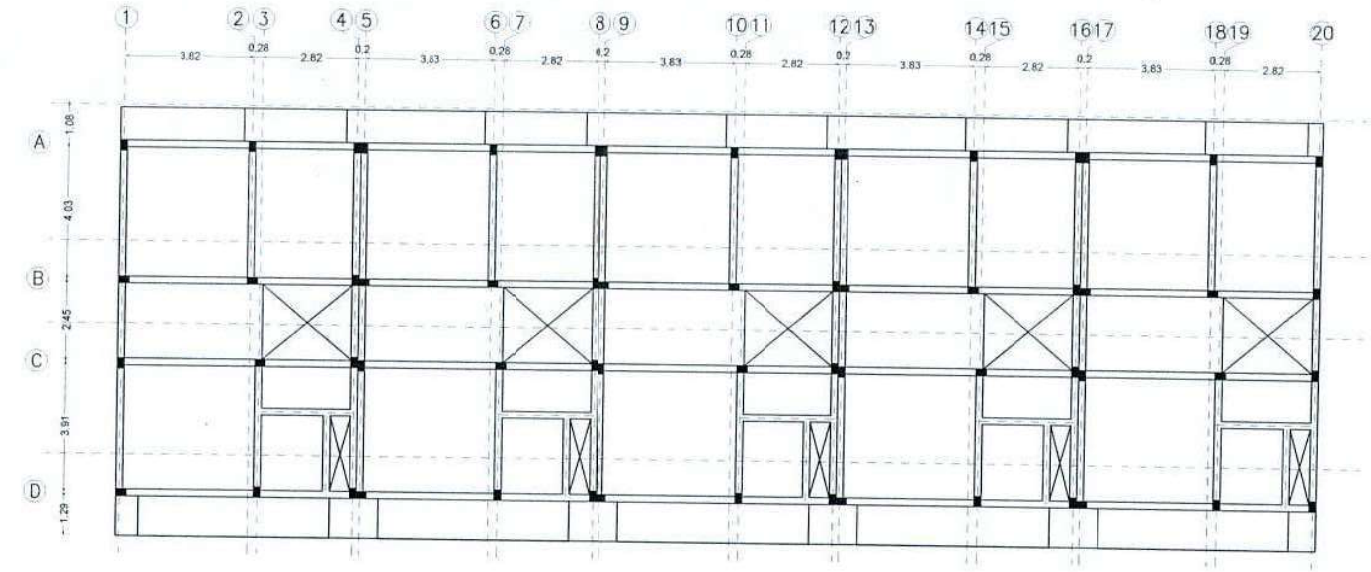
BHAVANI FOUNDATION
BUILDERS & STRUCTURAL CONSULTANTS

OFFICE : BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile: +91- 97911 07670

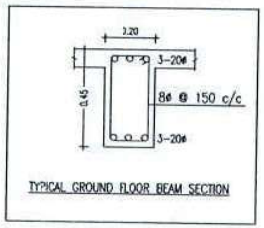
For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

Floor roof



GROUND FLOOR ROOF SLAB & BEAM DRAWING



TYPICAL GROUND FLOOR BEAM SECTION

SLAB 150 THK TYP.

SLAB REINF 10ϕ @ 150 C/C TYP
(For other then mentioned)

NOTES:

1. ALL DIMENSIONS ARE IN METER AND MILLIMETER UNLESS SPECIFIED.
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION.
4. CEMENT USED SHOULD BE 53 GRADE.
5. STEEL USED SHOULD BE TMT.
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS.
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION.

G+1 STORIES	
R.C.C GRADE	M20 1:1:2:3
P.C.C GRADE	M7.5 1:4:8
STEEL GRADE	Fe 500
CLEAR COVER TO REINF	
FOOTING	50 mm
COLUMN	40 mm
PLINTH BEAM	30 mm
ROOF BEAM	25 mm
SLAB	20 mm

CONSULTANT SEAL

DATE	REV. NO.	DESCRIPTION	CHECKED	APPROVED

PROJECT:
PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BULDING IN S.NO:1483/2B1 & 3B2 OF THAIYUR-A VILLAGE.

TITLE: GROUND FLOOR ROOF SLAB & BEAM DRAWING

	NAME	DATE	SIGNATURE
DSGN	S.VARUN KUMAR	05/05/25	
DRWN	R.V.PADMAVATHY	13/05/25	
CHKD	S.VARUN KUMAR	13/05/25	
APPD	S.VARUN KUMAR	13/05/25	

SCALE: NO.
PROJECTION

DRAWING No. PRO 1647-B-STR-GFB-00-1/1

SHEET	SIZE	REV.
1 OF 1	A1	00

CLIENT

ARCHITECT

STRUCTURAL CONSULTANT

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCCC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

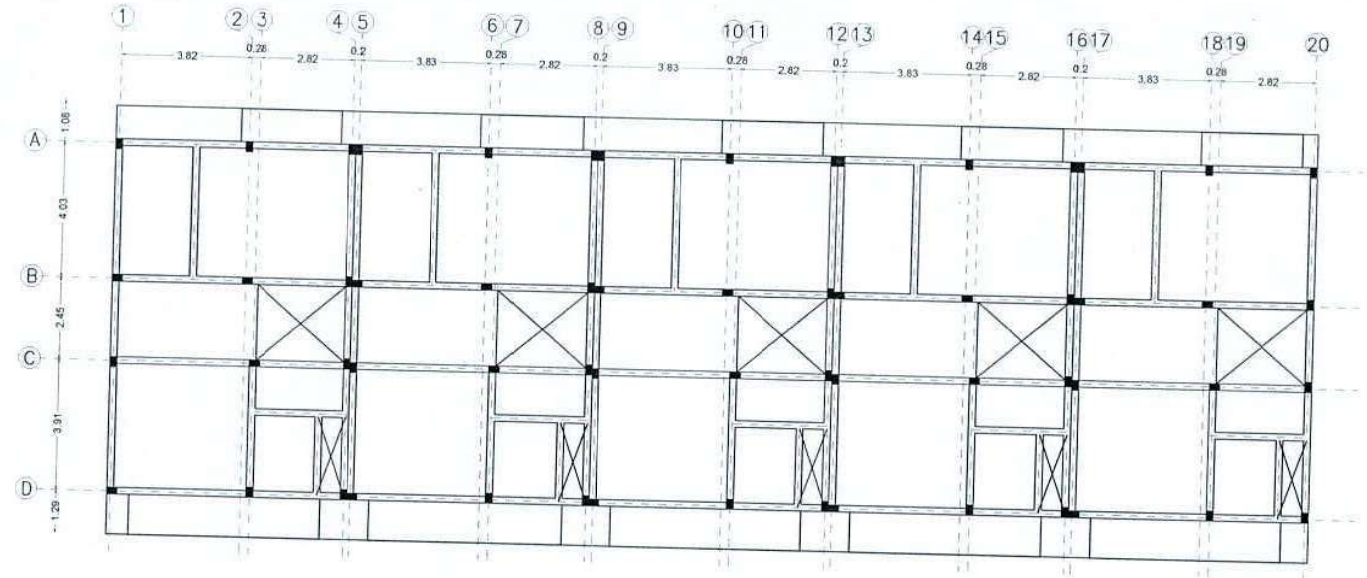
BHAVANI FOUNDATION
BUILDERS & STRUCTURAL CONSULTANTS

OFFICE : BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile. +91- 97911 07671

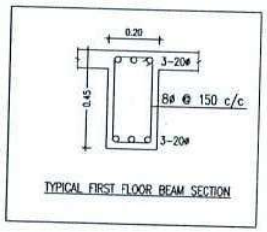
For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

Floor roof.



FIRST FLOOR ROOF SLAB & BEAM DRAWING



TYPICAL FIRST FLOOR BEAM SECTION

SLAB 150 THK TYP.

SLAB REINF 10@ 150 C/C TYP
(For other then mentioned)

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

NOTES:

1. ALL DIMENSIONS ARE IN METER AND MILLIMETER , UNLESS SPECIFIED.
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION.
4. CEMENT USED SHOULD BE 53 GRADE.
5. STEEL USED SHOULD BE TMT.
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS.
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION.

G+1 STORIES		CONSULTANT SEAL
R.C.C. GRADE	M20 1:1.5:3	
P.C.C. GRADE	M7.5:1:4:8	
STEEL GRADE	Fe 500	
CLEAR COVER TO REINF.		
FOOTING	50 mm	
COLUMN	40 mm	
PLINTH BEAM	30 mm	
ROOF BEAM	25 mm	
SLAB	20 mm	

DATE	REV NO	DESCRIPTION	CHECKED	APPROVED

PROJECT:

PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO:1483/3B1 & 3B2 OF THAIYUR-A VILLAGE.

TITLE: FIRST FLOOR ROOF SLAB & BEAM DRAWING

	NAME	DATE	SIGNATURE
DSGN	S.VARUN KUMAR	05/05/25	
DRWN	M.V.PADMAVATHY	13/05/25	
CHKD	S.VARUN KUMAR	13/05/25	
APPD	S.VARUN KUMAR	13/05/25	

SCALE: NTS
PROJECTION:

DRAWING No: PRO 1842-B-STR-FFB-00-1/1

SHEET: 1 OF 1 | SIZE: A3 | REV: 00

CLIENT

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

BHAVANI FOUNDATION
BUILDERS & STRUCTURAL CONSULTANTS

OFFICE : BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile: +91- 97911 07670

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

Block - 3 Design Calculation.

DESIGN BASIS REPORT

PROJECT

PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO: 1483/3B1 & 3B2 OF THAIYUR-A VILLAGE AND PANCHAYAT, THIRUPORUR TALUK, CHENGALPATTU DISTRICT, THIRUPORUR PANCHAYAT UNION LIMIT.

CLIENT

STRUCTURAL CONSULTANT

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

INDEX

Contents

STRUCTURAL DESIGN BASIS REPORT .....

1. Introduction .....
2. Structural Scheme.....
3. Structural Design Standards and codes.....
   Indian codes.....
4. Design Basis.....
   4.1 General.....
   4.2 Grade of Concrete and Cover to the Reinforcement accoprding to the provisions of the Indian code.....
   4.3 Reinforcement.....
   4.4 Strucutural Dimensioning.....
5. Soil Data:.....
   5.1 Foundation System.....
6. Load Data.....
   6.1 Dead Load:.....
   6.2 Live Load:.....
7. Design Load Combinations.....
8. Detailing for Ductility.....
9. Control of Deflection.....
10. Control of Cracking.....
11. Analysis.....
12. Results.....

Revision History

Rev	Date	Purpose/Status	Document Ref.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

STRUCTURAL DESIGN BASIS REPORT

1. Introduction

This report describes in brief the Structural aspects and Design Philosophy. The structural design is primarily based on the current Indian Codes of practice.

The objective of this document is to present an abstractive view about the structural engineering aspects of the project, like building system its analysis and design methodology. The document highlights the structural concept and the adopted design philosophy.

The structural design of the project has been governed by the architectural concept and the requirement for services. The design of the structure takes the following into consideration:

- Most cost effective constructional system
- Effective functioning of the building
- Speed of construction
- Client Functional requirement
- Contractual provision

2. Structural Scheme

The structural system adopted is as below, based on preliminary analysis and design, which have been elucidated later in this report: The buildings are RC framed structures are as follows,

Sr No.	Building Name	Configuration	Structure type
1.	Residential Building	G+01	Framed –RCC Structure

- The analysis and design are done using STAAD Pro
- The foundation is designed as open foundation
- Slabs and beam are designed as conventional beam & slabs arrangement

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

2.1 Building Description

- Commercial & Residential Building

This is a G+01 floor building having no future expansion. The building is designed as Reinforced concrete Structure.

3. Structural Design Standards and codes

Following Indian codes will be used for analysis and detailed design

- **Indian codes**

IS -875-1987 (re-affirmed 2003)	Code of practice for Design loads
Part I	Dead load
Part II	Imposed loads
Part III (2015)	Wind loads
Part IV	Snow loads
Part V	Special loads and load combinations
IS 1893-2016	Criteria for earthquake resistance design of structures
IS – 4326-2008	Code of practice for earthquake resistant design & Construction of building.
IS-13920-1993 (re-affirmed 2003)	Ductility detailing of RCC Structure subjected to Seismic forces
IS: 3414	Code of practice for design and installation of joints in Buildings

Concrete Design

IS-456-2000	Plain and Reinforced Concrete
SP-16	Design Aids to IS 456
IS-3370	Design of Liquid retaining structures

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

Part I - 2009	
Part II - 2009	
Part III – 1999	
Part IV -1999	
IS-4971 -2007	Industrial floor finishes

Foundation Engineering

IS – 1080-2007	Design and construction of shallow foundation on soils
IS-6403-2007	Determination of bearing capacity on shallow foundations.
IS-2011-1979 (Part I to IV)	Design and Construction of Pile Foundations
IS-8009	Calculation of settlement of foundations
Part I-2008 Part II -2006	
IS-1904	Code of practice for design & construction of foundations In soil general requirements
IS 2950, Part I	Code of practice for design & construction of raft Foundations, Part I- Design
IS-6403	Code of Practice for determination of bearing capacity of shallow foundations

Design Aids

SP-7-2005	National Building Code of India
SP -16-1980	Design aids for reinforcement Concrete to IS 456
SP-23	Hand Book on Concrete mixes. Explanatory hand book on Indian standard code of for plain and reinforced concrete (IS:456)
SP-24	
SP-34-1987	Handbook on concrete reinforcement and detailing

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

4. DESIGN BASIS

4.1 General

The structure of the project is designed in accordance with the Indian Code IS: 456-2000, which is considered mandatory for concrete.

4.2 Grade of Concrete and Cover to the Reinforcement according to the provisions of the Indian Code

The appropriate grade of concrete and nominal cover to reinforcement is governed by the following main considerations:

i) Durability of Concrete
ii) Corrosion Protection of the Reinforcement
iii) Bar Size
iv) Nominal maximum aggregate size
v) Fire Resistance

The Indian Code IS: 456 -2000, permits a minimum grade of concrete for reinforced concrete members as M 20 and the following nominal cover to all reinforcement for "normal" conditions (clause 26.4 of the code).

i) Beams	:	30 mm or bar dia whichever is greater
ii) Slabs	:	25 mm or bar dia whichever is greater
iii) Columns	:	40 mm or bar dia whichever is greater
iv) Foundation	:	50 mm

We have used M-20 concrete for all structural elements namely the foundations, columns, beams, staircases and slabs, keeping in mind the durability considerations.

4.3 Reinforcement

The following types of reinforcement bars are used:

1. High Yield Strength Deformed Bars (TMT) (fy = 500 N/sq mm)	To conform to IS: 1786:2008

Reinforcement Bars of 8, 10, 12, 16, 20 and 25 & 32 mm dia only are used for the project. Only lapped splices shall be used. Welded splices or mechanical couplers shall not be used for splicing of reinforcement. Except for 32 mm dia, this shall be welded or mechanically splices as per IS 456, Amendment No. 3.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

4.4 Structural Dimensioning

In addition to the requirements governed by loads and forces the minimum structural dimensions are also governed by other considerations like size of aggregates, reinforcement detailing, etc.

The minimum thickness of any structural element shall be 100 mm with the proposed nominal maximum aggregate size of 20 mm in view of clause 5.3.3 of IS: 456: 2000. The maximum thickness of floor/roof slabs shall be 125 mm. Minimum thickness at the edge of isolated/ strip footings shall be restricted to 200 mm from the point of view of detailing of reinforcement.

The slope at the top of the footings shall not be steeper than 1:2:5 in order to obtain well compacted concrete throughout the footing.

5. Soil Data:

Foundation shall be designed considering safe bearing capacity as 30.00 MT at a depth 7.5 m below EGL.

5.1 Foundation System:

The foundation for all buildings shall be pile foundation based on the soil report and the reactions obtained from the model. It is designed for critical Un-factored load combinations.

6. Load Data

6.1 Dead Load:

Self weight if the materials shall be calculated on the basis of unit weights given in **(IS:875 Part I).**

- Unit weight of reinforced concrete - 25.0 kN / m^3.
- Unit weight of plain concrete - 24.0 kN / m^3.
- Unit weight of block wall with plastering - 24.0 kN / m^3.
- Unit weight of brick wall with plastering - 21.0 kN / m^3.
- Unit weight of steel - 78.5 kN / m^3.
- Rubble masonry - 26.0 kN / m^3.
- Ducts and False ceiling - 1.00 kN / m^2.
- Floor finish
  Floor finish including plastering - 1.50 kN / m^2.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

For Conventional slab:

- Self weight of slab - As per thick of slab
- Floor Finish (50 mm) - 2.00 kN / m^2
- Ducts and False ceiling - 1.00 kN / m^2

For Toilet slab:

- Self weight of slab - As per thick of slab
- Floor Finish (50 mm) - 1.50 kN / m^2
- Sunken load (300 mm sunk) - 5.00 kN / m^2

For Terrace floor slab:

- Self weight of slab - As per thick of slab
- Weathering Coarse - 1.5 kN / m^2
  (Cement based water proofing over roof slab avg 150 mm thk including brickbat coba)

6.2 Live Load:

On the basis of intended occupancy and use the loading shall be based on **(IS: 875 PART II)** and client requirement.

- Living room, Bed room - 2.00 kN / m^2.
- Terraces with approach -1.50 kN / m^2.
- Office -2.50 kN / m^2.
- Assembly areas:
  With fixed seats - 4.00 kN / m^2.
  Without fixed seats - 5.00 kN / m^2.
- Restaurants (subject to assembly), Museums and art galleries and Gymnasia - 4.00 kN / m^2.
- Projection rooms - 5.00 kN / m^2.
- Stages - 5.00 kN / m^2.
- Office rooms, kitchens and laundries - 3.00 kN / m^2.
- Dressing rooms - 2.00 kN / m^2.
- Lounges and billiards rooms - 2.00 kN / m^2.
- Corridors, passages, staircases Including fire escapes - 4.00 kN / m^2.
- Balconies - 4.00 kN / m^2.
- Boiler rooms and plant rooms including weight of machinery - 7.50 kN / m^2.
- Corridors, passages subject to loads greater than from crowds, such as wheeled vehicles, trolleys and the like. Corridors, staircases and passages in grand stands - 5.00 kN / m^2.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

7. Design Load Combinations:

The value is to be considered when stability against overturning and stress reversal is critical. Where DL/LL denotes;

The building is designed using the limit state method with appropriate load factors as per **IS: 456 – 2000.**

The load combinations are as follows:

- 1.5 DL + 1.5 LL

Where

- DL - Dead Load
- LL - Live Load

8. Detailing for Ductility

Ductile detailing of Frames viz. beam-column junctions is an important aspect. The ductility provision as laid down in IS: 13920 -1993 and IS: 4326 -1993 are followed in order to improve Seismic Response of the structure. The ductility requirements mainly result into increase in stirrups/ ties in beams and columns at and near their junction and some increase in compression reinforcement provided for flexure. In some of the lightly loaded small span beams the tensile reinforcement is governed by the minimum requirement. Stirrups and ties for columns and beams are provided as per codal provisions.

It may be specifically noted that the norms of ductility detailing impose a few additional problems during construction. Due to the placement of closely spaced stirrups and ties passing through the beam column junctions, the placement of reinforcement and concreting needs to be done with utmost care. Since, lapping of longitudinal reinforcement of up to 1 ½ storey heights (up to about 5m) above the level of concreting. The constructor will be required to make suitable arrangement for the same.

9. Control of Deflection

In order to control deflection of structural elements, two alternative methods in the Serviceability Limit State Design are envisaged in the code. The first is by way of calculating the actual deflection as per clause 23.2 (a), (b) of IS: 456 -2000 and restricting it to be specified values. The second method envisages "deemed- to- satisfy" provisions such as limiting the span/ depth ratio as per 23.2.1 of IS:456 -2000.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

The first method indicated above is possible as the output in terms of joint displacements can be and are obtained from STAAD PRO and checked to satisfy that deflection is under control.

As per client requirement following deflection criteria will be checked wherever applicable;

Permissible Horizontal Deflection

1.	On Building under Seismic loads	0.04% of Total Height
2.	On Building under Wind loads	Height/500

10. Control of Cracking

In order to avoid excessive cracking in the flexural members, maximum diameter and spacing of the reinforcement is restricted as per the detailing rules indicated in clause 26.3 of IS: 456-2000. The detailing rules incorporated in the design are considered as "deemed – to- satisfy" provision. Therefore, no separate calculations relating to crack width shall be made.

11. Analysis:

1. The structure is idealized as 3D frame and analyzed using Software Package (STAAD-ProV8i) for both Vertical and Lateral loads.

2. Forces and moments from the 3 dimensional analysis output for the critical combination are used for the design of the structure. The foundation is designed for critical un-factored load combinations.

5. The super structure members are designed for actual flexure, shear and other forces.
6. The structure is analyzed for specific loads (Dead and Live loads) and for the load combinations as given in the relevant codes.
7. The bottoms of all the columns are assumed to be fixed.

12. Results

From the analysis the bending moment acting on beams, axial force and bending moment acting on columns and the reaction on the footings are obtained and the members are designed for the appropriate load combinations.

The design has been done after detailed soil test and we are satisfied as to the adequacy of soil test carried and the information given therein is factually correct to the best of our knowledge and understanding.

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

FORM – B Structural report -

(Form of Certificate of structural soundness under sub-section (4) of section 4 of the Tamilnadu public Buildings (Licensing) Act, 1965 (Tamilnadu Act, 13 of 1965) referred to in rule 4 of the Tamilnadu public buildings (Licensing) Rules 1966)

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

STATEMENT OF ACCOMPANY THE CERTIFICATE OF STRUCTURAL SOUNDNESS

	Location of the building door number,	:	
	Street and name of the place Age of the Building	:	Thaiyur-A Village, Proposed Building
1.	Purpose for which the building will Structurally sound	:	Proposed Building
2.	The period for which the building will be structurally sound	:	Proposed Building
3.	Number of persons to be accommodate	:	
4.	Remarks	:	Proposed Building

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

Station : Chennai

Date: 05.05.2025

Signature of the Engineer

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

FORM – C Structural Report

(Form of Certificate of structural soundness under sub-section (4) of section 4 of the Tamilnadu public Buildings (Licensing) Act, 1965 (Tamilnadu Act. 13 of 1965) referred to in rule 4 of the Tamilnadu public buildings (Licensing) Rules 1966)

1.	Foundation	:	Pile foundation
	i) Depth below ground level	:	7.50 m From EGL
	ii) Nature of soil mmet with at Foundation	:	Weathered Rock
	iii) Probable safe bearing capacity of the soil	:	30.00 MT
	iv) Pressure at Foundation	:	29.00 MT
2.	Superstructure		
	i) Maximum stress in the most critical Section of masonry and concrete	:	For Concrete 13 N/mm^2 For Brick Masonry 0.5 N/m^2
	ii) Naure of masonry and concrete and its safe permissible stresses	: :	M20 Grade Concrete 20 N/nm^2 Brick Masonry in CM 0.75 N/nm^2

This is stated that the building will be designed to take seismic forces and other loads as per the relevant Indian standard codes.

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

Station : Chennai

Date: 13.05.2025

Signature of the Engineer

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

BHAVANI FOUNDATION
STRUCTURAL CONSULTANTS

No. 3177, Medavakkam Main Road, Kovilambakkam, Chennai -600129.
Ph- 9791107970
E-mail: bhavanifoundation@gmail.com

STABILITY CERTIFICATE

(Form of Certificate of structural soundness under sub-section (4) of section 4 of the Tamilnadu public Buildings (Licensing) Act, 1965 (Tamilnadu Act, 13 of 1965) referred to in rule 4 of the Tamilnadu Public buildings (Licensing) Rules 1966)

1.	Door Number of building	:
	Location (Street number, Panchayat	: Thaiyur-A village
2.	Union / Township / Cantonment)	:
3.	Year of Construction	: Proposed Residential Building
4.	Approximate cost of construction	: -
5.	Purpose for which the building is Being used or proposed to be used	: Proposed Residential Building (G + 01)
7.	Purpose for which the building has hither to been used	:
8.	Details of Construction of the Building (particulars of the Foundations soil specification of the various parts under)	:
	(1) Foundation	: RCC framed structure, With Column Foundation
	(2) Basement	: Plinth beam with brick in CM
	(3) Super structure	: RCC frame with slab and beam
	(4) Floor and roof	:
	a) Still Floor	: RCC roof Tile flooring
	b) F.F, S.F & T.F	: RCC roof, Tile flooring
9.	Period for which license required	: Proposed Building
10.	No. of person to be accomodated	: -

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

Station : Chennai

Date: 13.05.2025

Signature of the Engineer

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

District Town and Country Planning Office,
Chengalpattu District,
No.124, Municipal Commercial Complex,
G.S.T.Raod, Chengalpattu - 603 001
E-mail : ddcgldistrict@gmail.com, Phone : 044 - 27422144

Structural Reports

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that **Thiru. S.VARUN KUMAR** has enrolled as **Structural Engineer Grade-I (SE)** with Department of Town and Country Planning who has the qualification of **M.Tech., (Structural Engineering)** and experience in the relevant field for more than **08 years**.

He has been given the Registration No. **CGLDIST/SE/Gr-I/2021/03/005** on **10.03.2021**. He shall be required to comply with the duties and responsibilities prescribed by the Government of Tamil Nadu in Part V, "Registration of Professionals", Tamil Nadu Combined Development and Building Rules, 2019 approved vide G.O.(Ms) No.18 MAWS (MA1) Dept. Dated 04.02.2019.

This Registration is valid upto **09.03.2026**.

10.3.21

Deputy Director(I/c),
Chengalpattu District

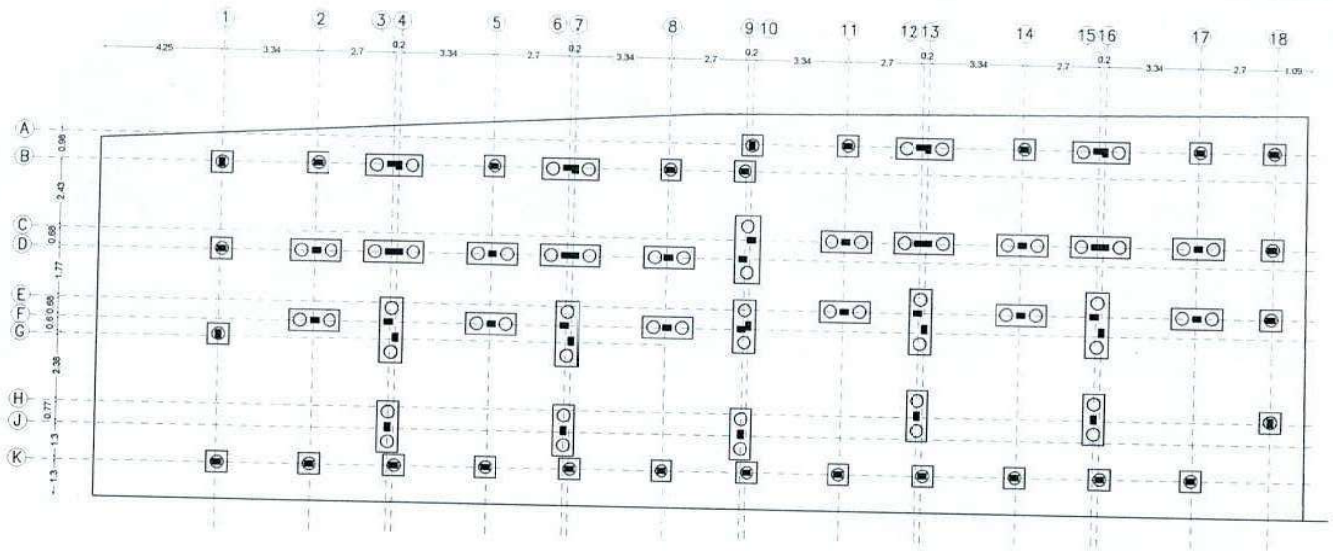


மாவட்ட நகர் ஊரமைப்பு அலுவலர்
10 MAR 2021
செங்கல்பட்டு மாவட்டம்

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

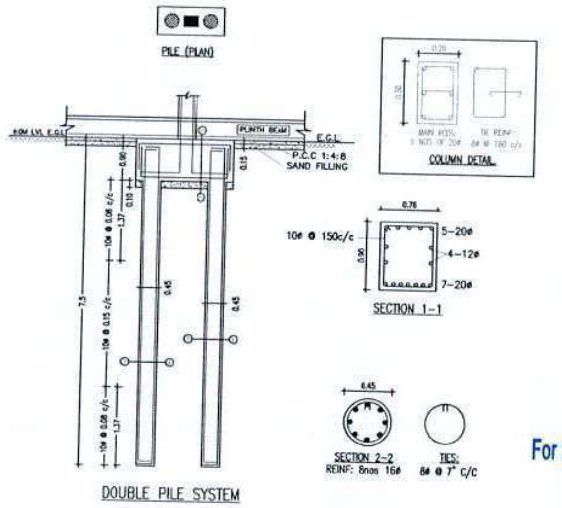
For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory



FOUNDATION DRAWING

Pile layout



N
W E
S

NOTES:

1. ALL DIMENSIONS ARE IN METER AND MILLIMETER UNLESS SPECIFIED.
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION.
4. CEMENT USED SHOULD BE 53 GRADE.
5. STEEL USED SHOULD BE TMT.
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS.
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION.

G+1 STORIES		CONSULTANT SEAL
R.C.C GRADE	M30 1:1.5:3	
P.C.C GRADE	M7.5 1:4:8	
STEEL GRADE	Fe 500	
CLEAR COVER TO REINF		
FOOTING	50 mm	
COLUMN	40 mm	
PLINTH BEAM	30 mm	
ROOF BEAM	25 mm	
SLAB	20 mm	

DATE	REV NO	DESCRIPTION	CHECKED	APPROVED

PROJECT:
PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO:1483/3B1 & 3B2 OF THAIYUR-A VILLAGE.

TITLE: FOUNDATION DRAWING

	NAME	DATE	SIGNATURE
DSGN.	S.VARUN KUMAR	25/05/22	
DRGN.	D.MAGESHWARI	25/05/22	
CHKD.	S.VARUN KUMAR	25/05/22	
APPD.	S.VARUN KUMAR	25/05/22	

SCALE: NTS
PROJECTION:

DRAWING No: PRO 1847-C-STR-FDN-00-1/1	SHEET	SIZE	REV.
CLIENT	1 OF 1	A3	00

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E-mail: bhavanifoundation@gmail.com

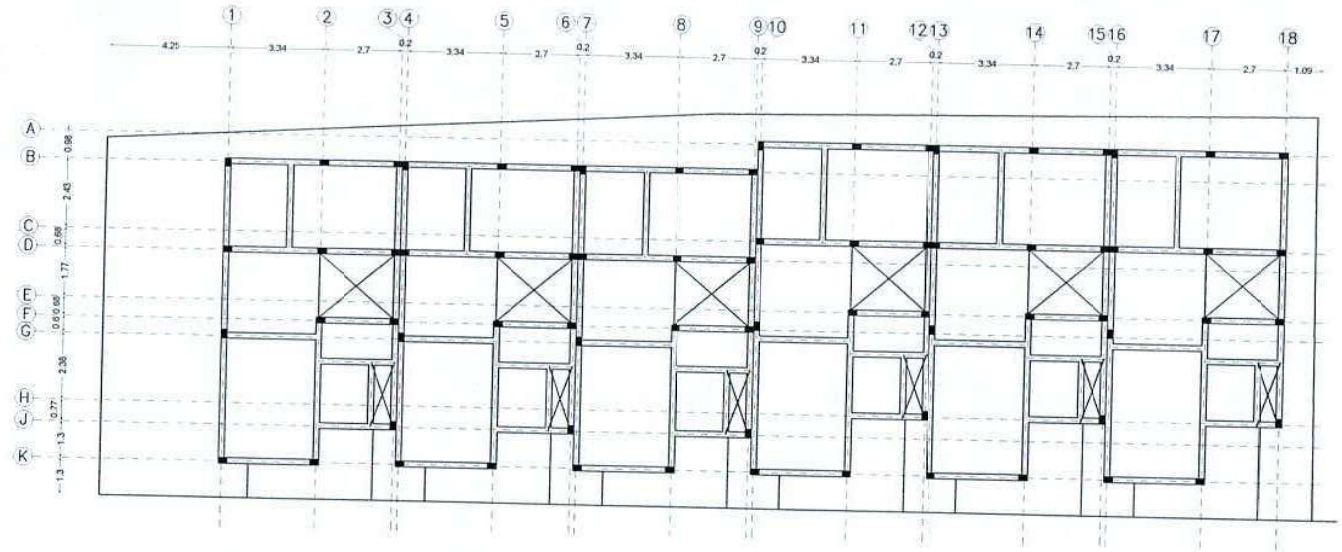
ARCHITECTS:
STRUCTURAL CONSULTANTS: BHAVANI FOUNDATIONS
BUILDERS & STRUCTURAL CONSULTANTS

OFFICE : BHAVANI COMPLEX
NO:3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile: +91- 97911 07670

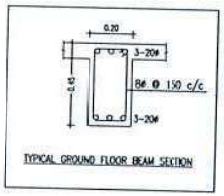
For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

Floor roof.



GROUND FLOOR ROOF SLAB & BEAM DRAWING



TYPICAL GROUND FLOOR BEAM SECTION

SLAB 150 THK TYP.

SLAB REINF 10ϕ @ 150 C/C TYP
(For other then mentioned)

NOTES

1. ALL DIMENSIONS ARE IN METER AND MILLIMETER, UNLESS SPECIFIED.
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION.
4. CEMENT USED SHOULD BE 53 GRADE.
5. STEEL USED SHOULD BE TMT.
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS.
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION.

G+1 STORIES		CONSULTANT SEAL
R.C.C. GRADE	M30 (1:1:2:3)	
P.C.C. GRADE	M7.5 (1:4:8)	
STEEL GRADE	Fe 500	
CLEAR COVER TO REINF		
FOOTING	50 mm	
COLUMN	40 mm	
PLINTH BEAM	30 mm	
ROOF BEAM	25 mm	
SLAB	20 mm	

DATE	REV. NO.	DESCRIPTION	CHECKED	APPROVED

PROJECT

PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO:1483/3B1 & 3B2 OF THAIYUR-A VILLAGE.

TITLE: GROUND FLOOR ROOF SLAB & BEAM DRAWING

	NAME	DATE	SIGNATURE
DSGN.	S.VARUN KUMAR	05/05/25	
DRWN.	M.YADAMANJHI	13/05/25	
CHKD.	S.VARUN KUMAR	13/05/25	
APPD.	S.VARUN KUMAR	13/05/25	

SCALE: NTS
PROJECTION:

DRAWING No. PRO 1847-C-STR-GFB-00-1/1

SHEET	SIZE	REV.
1 OF 1	A3	00

CLIENT

For SUGAL AND DAMANI SHARE BROKERS LTD.

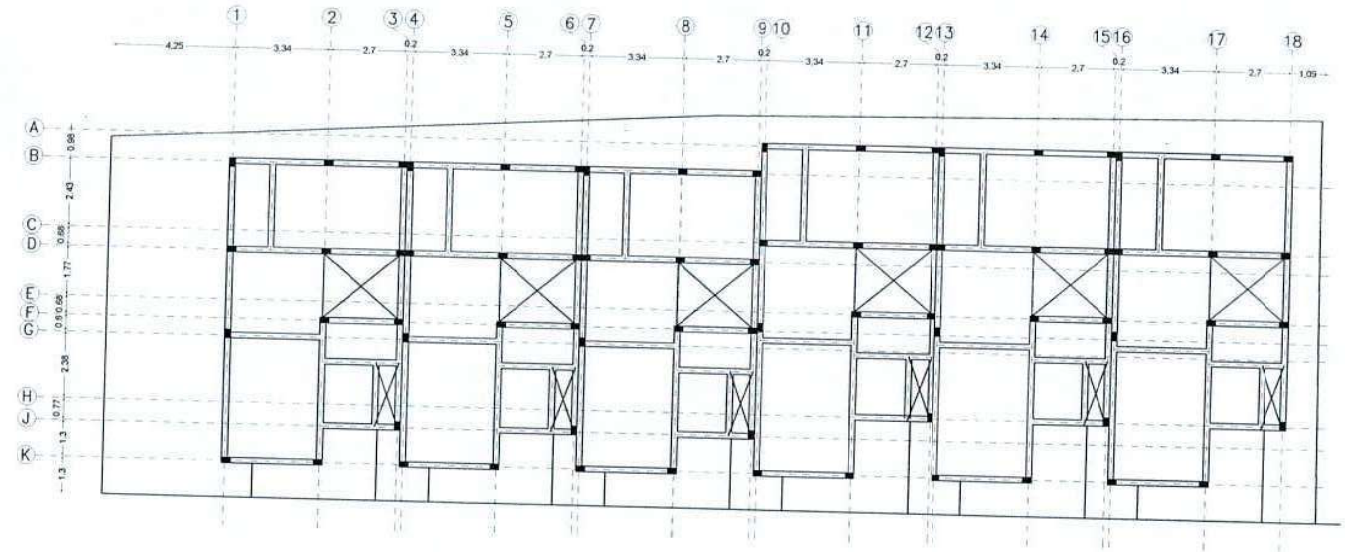
Authorised Signatory

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CONSULTANT
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: bhavanifoundation@gmail.com

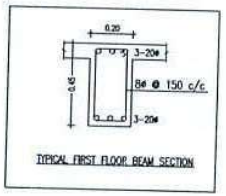
BHAVANI FOUNDATION
BUILDERS & STRUCTURAL CONSULTANTS

OFFICE : BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile: +91- 97911 07670

Floors - Roof



FIRST FLOOR ROOF SLAB & BEAM DRAWING



TYPICAL FIRST FLOOR BEAM SECTION

SLAB 150 THK TYP.

SLAB REINF 10 @ 150 C/C TYP
(For other then mentioned)

NOTES:

1. ALL DIMENSIONS ARE IN METER AND MILLIMETER UNLESS SPECIFIED.
2. ALL DIMENSIONS ARE TO BE READ AND NOT TO BE MEASURED.
3. ALL DIMENSIONS ARE TO BE CHECKED WITH ARCHITECTURAL DRAWINGS BEFORE EXECUTION.
4. CEMENT USED SHOULD BE 53 GRADE.
5. STEEL USED SHOULD BE TMT.
6. ALL LAP LENGTH AND ANCHORAGE LENGTH SHOULD BE 50 TIMES THE DIAMETER OF REINFORCING BARS.
7. NECESSARY STOOL RODS SHALL BE PROVIDED TO KEEP THE TOP ROD IN POSITION.

G+1 STORIES

R.C.C. GRADE	M20 1:1.5:3
P.C.C. GRADE	M7.5 1:4:8
STEEL GRADE	Fe 500
CLEAR COVER TO REINF	
FOOTING	50 mm
COLUMN	40 mm
PLINTH BEAM	30 mm
ROOF BEAM	25 mm
SLAB	20 mm

CONSULTANT SEAL

DATE	REV NO.	DESCRIPTION	CHECKED	APPROVED

PROJECT:
PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP HOUSE BUILDING IN S.NO:1483/3B1 & 3B2 OF THAYUR-A VILLAGE.

TITLE: FIRST FLOOR ROOF SLAB & BEAM DRAWING

	NAME	DATE	SIGNATURE
DSGN.	S.VARUN KUMAR	13/05/22	
DRWN.	N.V.PADMAVATHY	13/05/22	
CHKD.	S.VARUN KUMAR	13/05/22	
APPD.	S.VARUN KUMAR	13/05/22	

SCALE: NTS
PROJECTION:

DRAWING NO: PRO 1847-C-STR-FFR-00-1/1

SHEET	SIZE	REV.
1 OF 1	A3	00

CLIENT

For SUGAL AND DAMANI SHARE BROKERS LTD.

Authorised Signatory

S. VARUN KUMAR, M.Tech, AMIE
STRUCTURAL ENGINEER
CMDA Reg. No. SE/GR-I/19/04/082
GCOC Reg No. RSE 100832019
CGLDIST/SE/Gr-I/2021/03/005
No.3177, Medavakkam Main Road,
Kovilambakkam, Chennai - 600 129.
Mobile: 9841112220
E.mail: BHAVANIFOUNDATION.COM

STRUCTURAL CONSULTANTS
BUILDERS & STRUCTURAL CONSULTANTS
OFFICE : BHAVANI COMPLEX
NO.3177, Medavakkam Main Road, Kovilambakkam, Chennai - 600129.
Website : http://www.bhavanigroup.org/
E-mail : bhavanifoundation@gmail.com
Office Mobile: +91- 97911 07670

THE LANDLENS SUITE

Eight ways to know a piece of land before you pay for it.

This report covers one part of the picture. These cover the rest, drawn from the same government records, for any property in Tamil Nadu.

LandLens One
Ask anything about a property and get an answer grounded in live government records, with the sources shown.
/landlens/one

Verify My Land
Every record check run on one property and returned as a single report.
/landlens/verify-my-land

Legal Opinion
An advocate's written opinion on the title, built on the records we pull for it.
/landlens

One Map
Every layer on one map: the parcel, its boundary, zoning, water bodies and what sits around it.
/landlens/one/map

PriceMap
What land actually changed hands for around this plot, taken from the registered deeds.
/landlens/pricemap

Build Scope
What you are allowed to build here: floor space, height, coverage and setbacks.
/landlens/build-scope

Property Tracker
Watch a property and hear about it when something new is registered against it.
/landlens/property-tracker

Deal Room
Run the transaction in one place: documents, stamping, signatures and the parties.
/landlens/deal-room

FREE TOOLS · NO ACCOUNT NEEDED

Twenty-four checks you can run yourself, at no cost.

Records and verification

The registers themselves, read for you.

- Encumbrance Certificate
- Patta and Chitta
- Field Measurement Sketch
- EC Analyzer
- Bank charge check
- Court case search
- Seller background check
- Approval check by survey

Value and duty

What it is worth and what it costs to register.

- Guideline value by street
- Guideline value by survey
- Stamp duty and registration fees
- Capital gains
- Floor space index
- Area unit converter

Zoning and land use

What the plan says can happen on this land.

- Land use zone finder
- CMDA land use check
- Coastal regulation zone
- Master plan check
- Water bodies finder
- Airport height clearance

Registers and directories

Who holds it, and which office keeps the record.

- Find your registering office
- Temple property check
- Waqf property check
- RERA register

Every free tool
/tools

Services we run for you
/services

The LandLens suite
/landlens/one

Verified RealEstate™

Every claim in this document traces back to a government record.

- Legal opinions, due diligence and title verification
- Building plan, layout and sub-division approvals
- Completion and occupancy certificates, regularisation
- Escrow, negotiation and NRI property management
- Land survey, soil testing, architecture and construction

Verified RealEstate
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India
hello@verified.realestate
+91 9996 12 9996

Prepared from the registers named on the page each finding sits on. Where a register could not be read, this document says so in its place rather than leaving the gap to be read as a clean result.