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Er. M.SANJEEVA MOORTHY, B,E.,
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❖ Approval Drawings ❖ Estimates ❖ Valuation ❖ Vastu Plans ❖ 3D Elevation ❖ All type of Construction Works

DATE :- 12.09.2024

STABILITY CERTIFICATE

'NS PROMOTORS' Proposed Project"AGASTHYA TOWER", of Stilt Floor + 4 floors Residential Building (Height - 15.34m) with 32 Dwelling Units Availing Premium FSI at SF.No.445/3B2,Nathan Nagar,Mookondapalli Village,Hosur City Municipal Corporation & Taluk,Krishnagiri Dt.

The structural design for above said building is done by Mr. SANJEEVAMOORTHY B.E Civil Engg Registered structural engineer Grade - II KDTCP Regisration No.SE/GR-II 14/2019, noH144.Opp.Railway Station, Hosur,Krishnagiri Dt.

The Building in the above site have been designed as per National Building Code,IS 456,IS 1893-2016 and other IS codes. The Building is Designed for Gravity loads and Lateral loads (wind and earthquake Forces) refer to latest seismic code design"criteria for earthquake resistant design of structures IS 1893-2016", I hereby certify that the proposed building is structurally safe and sound as per National Building Code.

BASE LINE

Er. M. SANJEEVA MOORTHY, M.E. (Struct. Engg)., AMIE.,
Consulting Civil Engineer & Chartered Engineer,
Govt. Regd. Engineer Grade-II (RE)
(HNTDA No. 09/2019, HCMC 00015/2019),
Construtuion Engineer,
(HNTDA Reg. No. 12/2019, HCMC No. 016/2020,
No. H-144, TNHB, Opp. Railway Station,
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DESIGN BASIS REPORT FOR CIVIL WORKS

1.0 GENERAL

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1.0 GENERAL

1.1 Introduction

The proposed project is contruction of RCC building for Nursary Farm at Naagondapalli village and Panchayat, Hosur Taluk.

This document covers the applicable design codes and standards, specific design criteria, design loads and combinations, and recommended design characteristics of construction materials to be used for the civil works associated with the material handling system in this project. The mean probable design life of structure is assumed as 100 years as per Table 1 of IS 875 (part 3) - 2015.

1.2 SITE INFORMATION

1.2.1 Site Location

The plant site is located in Naagondpalli Village and Panchayat, Hosur, Krishnagiri DT. The proposed location is well connected with National highway. The nearest airport is Bengaluru International airport and the nearest railway station is Hosur railwaystation.

1.2.3 Soil Condition and Ground Water Level

The detailed Geotechnical Investigation is carried out in the proposed area by the Owner Mr. Chidambaram and based on the borelog data furnished at building locations, the soil strata at site can be generalized as having three layers: Medium to fine sandy soil on top followed by clay/sandy clay/silt and then rock. Top sandy layer extended about 4 to 7m depth, followed by clay/sandy clay and then rock. The entire site has the same soil layers throughout.

From the soil investigation report, isolated foundation is recommended.

However, the type of foundation may change during detailed Engineering as per the design requirement.

The water table will be considered up to the Finish grade level for the design purpose.

1.2.4 Seismic Location

The project site lies in **Zone III** as defined in IS: 1893 (Part 1). All the structures will be designed complying with the requirements specified in IS: 1893 (Part-1) and IS: 1893(Part 4).

1.2.5 Wind Pressure

Wind force on structures will be considered as per the provisions of IS: 875-2015 (Part-3). The basic wind speed of **39m/sec** at a height of 10m above the ground level and wind will be assumed to blow in any direction and the most unfavourable condition will be considered for design.

2.0 REFERENCES, CODES AND STANDARDS

The design will be developed on the basis of the latest standard codes and documents listed below.

2.1 BIS CODES AND REFERENCES

The analysis, design and construction for civil works will be in accordance with the BIS codes/standards or equivalent International codes, applicable at the time of design.

All the Bureau of Indian Standards referred to will be the latest revision (including all amendments issued thereto).

Where British / American / DIN or other codes and standards are referred to in this document, equivalent Indian Standards will be substituted if available.

2.1.1 Earthwork

a) IS-1498 : Classification and identification of soils for General Engineering purposes.

b) IS-3764 : Safety Code for excavation work.

c) IS-7293 : Safety Code for working with construction machinery.

2.1.2 Reinforced Cement Concrete

a) IS-269 : Specification for 33 grade ordinary Portland cement.

b) IS-383 : Coarse and fine aggregate from natural sources for concrete.

c) IS-432 : Mild Steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement.

d) IS-455 : Portland Slag Cement.

e) IS-456 : Code of Practice for Plain and reinforced concrete.

f) IS-460 : Test Sieves (all parts).

g) IS-516 : Methods of test for strength of concrete.

h) IS-1199 : Methods of sampling and analysis of concrete.

i) IS-1566 : Hard drawn steel wire fabric for concrete Reinforcement.

j) IS-1786 : High strength deformed steel bars and wires for concrete reinforcement.

k) IS-1834 : Hot applied sealing compounds for joints in concrete.

l) IS-2386 : Methods of test for aggregates for concrete (all parts).

m) IS-2502 : Code of practice for bending and fixing of bars for concrete reinforcement.

n) IS-3370 : Code of practice for concrete structures for storage of liquids (all parts).

o) IS-3414 : Code of practice for design and installation of joints in buildings.

p) IS-4948 : Welded steel wire fabrics for general use.

q) IS-6452 : High Alumina Cement for Structural use.

r) IS-7320 : Concrete slump test apparatus.

s) IS-7861 : Code of practice for extreme weather concreting (all parts).

t) IS-8041 : Rapid Hardening Portland Cement.

u) IS-8112 : Specification for 43 grade ordinary Portland cement.

v) IS-10262 : Recommended guidelines for concrete mix design.

w)	IS-11384	:	Code of practice for composite construction in structural steel and concrete.
x)	IS-11682	:	Criteria for design of RCC staging for overhead water tanks.
y)	IS-13920	:	Code of practice for ductile detailing of reinforced concrete structures subjected to seismic forces.

2.1.3 Foundations

a)	IS-1080	:	Code of practice for design and construction of shallow foundation on soils (other than raft, ring and shell).
a)	IS-1904	:	Code of practice for design and construction of foundations in soils general requirement.
b)	IS-2950	:	Code of practice for design and construction of raft foundations.
c)	IS-2974	:	Code of practice for design and construction of Machine foundations (all parts).
d)	IS-8009	:	Code of practice for calculation of settlement of foundations (all parts)
e)	IS-11089	:	Code of practice for design and construction of ring foundation.
f)	IS-13301	:	Guidelines for vibrations isolation of machine foundations.
g)	IS-2911 (all parts)	:	Code of practice for design and construction of Pile foundations

2.1.4 Loading

a)	IS-875	:	Code of practice for Structural safety of buildings - loading standards.
c)	IS-1893	:	Criteria for earthquake resistant design of structures.

2.1.5 Masonry

a)	IS-712	:	Building limes.
b)	IS-2572	:	Specification for Laterite stone block for Masonry.
c)	IS-2185	:	Concrete masonry units. (all parts - Hollow and Solid concrete blocks).
d)	IS-2250	:	Code of practice for preparation and use of masonry mortars.
e)	IS-2572	:	Code of practice for construction of hollow & solid concrete block masonry.
f)	IS-4860	:	Acid Resistant Bricks.

2.1.6 Soil Engineering

a)	IS-1498	:	Classification and identification of soils for general engineering purposes.
b)	IS-1892	:	Code of practice for sub-surface investigation for foundations.
c)	IS-2131	:	Method for standard penetration test for soils.
d)	IS-2720	:	Methods of test for soils (all parts).

2.1.7 Paving and Road works

a) IS-73 : Paving bitumen

b) IS-702 : Industrial Bitumen

c) IS-1201 : Method of testing tar and bituminous materials. thru' 1220

d) Practice followed by Indian Road Congress (all parts).

2.1.8 Miscellaneous

a) IRC-37 : Guidelines for design of flexible pavements.

b) IRC-73 : Geometric design of roads.

c) IS-1038 : Specification for Steel doors, windows and ventilators.

d) IS-1172 : Code of basic requirements for water supply, drainage and sanitation.

e) IS-1346 : Code of practice for water proofing of roofs with bitumen felts.

f) IS-1742 : Code of practice for building drainage.

g) IS-1905 : Code of practice for structural use of unreinforced masonry.

h) IS-2470 : Code of practice for installation of septictank:

1. Part 1 – Design criteria andconstruction
2. Part 2 – Secondary treatment and disposal of septic tank effluent.

i) IS-3067 : Code of practice for general design details and preparatory works for damp proofing and water proofing ofbuildings.

j) SP-6 : Handbook of structural engineers(all parts)

k) SP-7 : National Building Code of India.

l) SP-16 : Design Aids for reinforced concrete to IS: 456-1978.

m) SP-20 : Handbook on masonry design andconstruction.

n) SP-22 : Explanatory Handbook on codes on earthquake engineering.

o) SP-24 : Explanatory Handbook on Indian Standard code of practice – For plain and reinforced concrete.

p) SP-25 : Handbook on causes and prevention of cracks in buildings.

q) SP-32 : Handbook on functional requirements of industrial buildings (Lighting and Ventilation)

r) SP-34 : Handbook of concrete reinforcement anddetailing.

3.0 LOADS AND LOAD COMBINATIONS

The building will be designed for the most critical combinations of dead loads, Imposed loads, wind loads, seismic loads, temperature loads and any other loading condition which can occur during the design life of the facility.

3.1 DEAD LOADS (DL)

Dead loads consist of the weights of the structure complete with floors, roofs, finishes, fixtures, partitions, wall panels, etc.

The following unit weight of material will be considered for computation of loads. Loads given in IS: 875 (part-I) will be made use of for material not listed below.

Materials	:	**Unit weight**
Plain cement concrete	:	24 kN/m^3
Reinforced cement concrete	:	25 kN /m^3
Density of Soil	:	16.09 kN /m^3
Structural steel	:	78.5 kN /m^3
Cement plaster	:	21 kN /m^3
Floor Finish	:	24 kN /m^3

Following will be considered for evaluation of dead loads:

- Load of RCC slab wherever concrete floors are provided
- A uniform floor finish of 75 mm laid over RCC Slab
- Other area flooring will consist of removable grating/chequered plate
- Beams & Columns as per actual size
- Wall cladding loads.
- Self weight of supporting structure/facilities

The vertical and lateral pressures of liquids and soil surcharge will be treated as dead loads.

3.2 IMPOSED LOADS (IL)

Imposed loads are considered as uniformly distributed loads. The loads considered shall not be less than that specified in IS: 875 (Part II).

a)	Stairs, Landings, Balconies and Corridors	:	4.0 kN/m^2
b)	RCC floors of Junction towers	:	5.0 kN/m^2
c)	Toilets	:	3.0 kN/m^2
d)	Roof	:	1.5 kN/m2

Live loads reduction shall be in accordance with the provisions of IS: 875 & IS: 1893 in case of seismic analysis.

3.3 WIND LOAD

The building will be designed to resist the pressures due to wind in any direction in accordance with IS: 875 (Part-3) and as specified in this document.

The evaluation of the design wind speed and pressures will be made on the basis of the following parameters:

As per IS 875 (Part – 3) the basic wind speed (V_b) at the proposed site location shall be considered as 39 m/sec at a height of 10m above general ground/graded level for design.

Design wind pressure will be calculated as per latest IS 875 (Part – 3):2015.

Risk coefficient, K1 from Table 1 of IS 875(Part-3):2015 shall be taken as 1.06.
Terrain will be considered as Category 2, and factor K2 will vary with height and referred from Table 2.
Topographic factor K3 shall be taken as unity.
Importance factor K4 shall be taken as one.

Design wind speed Vz = Vb x K1 x K2 x K3 x K4 and corresponding wind pressure $Pz=0.6Vz^2$.

Design wind pressure Pd = Kd x Ka x Kc x Pz

Where, Wind directionality factor, Kd is considered as 0.9.
Area averaging factor, Ka is considered as per Table 4.
Combination factor, Kc is considered as 0.9.

The Wind analysis shall consider the wind direction relative to the structure and both external and internal pressures as applied to the windward and leeward sides of the structure.

3.4 SEISMIC LOADS

All buildings will be designed for earthquake loads considering the Importance Factor and Response Spectra as per IS: 1893 (Part-4) -2005, to compute the base shear coefficient.

The non-plant buildings of generally regular configuration seismic forces and distribution of base shear will be carried out as per relevant clauses of IS 1893 without performing dynamic analysis.

3.5 EARTH PRESSURE LOADS

Earth pressure means the horizontal pressure of the soil acting on the underground structure and foundation. Earth pressure for all underground structures will be calculated using coefficient of earth pressure at rest, coefficient of active or passive earth pressure (whichever is applicable). A surcharge load of $20kN/m^2$ will be considered for the design of underground structures including sumps, cable and pipe trenches etc to take into the vehicular traffic in the vicinity of the structure wherever required.

The earth pressure including the surcharge load will be calculated as follows:
$p = K (h + q)$

Where,

	=	Unit soil weight (kN/m^3)
h	=	position of earth pressure p_0 from ground surface (m)
q	=	surcharge load (kN/m^2)
K	=	Earth pressure coefficient
Ka	=	$\tan^2 (45° - \Phi/2)$ for active earth pressure
Kp	=	$\tan^2 (45° + \Phi/2)$ for passive earth pressure
Ko	=	1- Sin(Φ) for earth pressure at rest

Where, Φ is the internal friction angle which is considered as 31’ from soil report.

For design of substructure of pump house and underground liquid storage tanks earth pressure at rest will be considered.

3.6 TEMPERATURE LOADS

All RCC buildings will be provided with expansion joints if so required as per codal requirements. Hence as per clause 2.1 of IS:875 (Part-5)-1987 stress analysis due to temperature is not required.

3.9 OTHER LOADS

Apart from the specified live loads any other equipment load or possible overloading during construction / erection / maintenance wiill also be considered in the design.
Design of all structures will also consider any other relevant and consequential load / stress imparted to the structure.
All building/structures will be designed to resist the worst combination of the above loads.

3.10 BASIC LOAD CASES

For Design of RCC Buildings and Foundations

DEAD LOAD	DL
IMPOSED LOAD	LL
WIND LOAD IN +X DIRECTION	W(+X)
WIND LOAD IN -X DIRECTION	W(-X)
WIND LOAD IN +Z DIRECTION	W(+Z)
WIND LOAD IN -Z DIRECTION	W(-Z)
SEISMIC LOAD IN X DIR	SLX
SEISMIC LOAD IN Z DIR	SLZ

3.11 LOAD COMBINATIONS

The load combinations are taken as per IS: 875 (part-V) and other relevant IS codes and as below:

a) Wind and seismic loads will not be considered to act simultaneously.

b) Load combinations to be considered for the design of RCC building superstructure and substructure are given below:

1. 1.5 DL + 1.5 LL
2. 1.5 DL ± 1.5 WLX
3. 1.5 DL ± 1.5 WLZ
4. 1.2 DL + 1.2 LL ± 1.2 WLX
5. 1.2 DL + 1.2 LL ± 1.2 WLZ
6. 1.5 DL ± 1.5 SLX
7. 1.5 DL ± 1.5 SLZ
8. 1.2 DL+1.2 LL ± 1.2 SLX
9. 1.2 DL+1.2 LL ± 1.2 SLZ
10. 0.9 DL ± 1.5 WLX
11. 0.9 DL ± 1.5 WLZ
12. 0.9 DL ± 1.5 SLX
13. 0.9 DL ± 1.5 SLZ

c) Servicebility Load combinations for RCC structures

1. DL + LL
2. DL + LL ± WLX
3. DL + LL ± WLZ
4. DL + LL ± SLZ
5. DL + LL ± SLX
6. DL ± SLX
7. DL ± SLZ
8. DL ± WLX
9. DL ± WLZ
10. 0.9 DL ± SLX
11. 0.9 DL ± SLZ
12. 0.9 DL ± WLX

13. 0.9 DL ± WLZ

4.0 DESIGN CRITERIA

The structure will be analysed as framed structure using 'STAAD PRO' for the loads and their combinations specified in the above section. The design will be done using STAAD PRO or validated in-house software or spreadsheets.

4.1 REINFORCED CONCRETE STRUCTURES

General

Reinforced concrete structures will be moment resisting frames along both longitudinal & transverse directions. The suspended slab will be considered as continuous over secondary beam and will not form part of the framing system. RCC structures/members will be designed as per the provisions of IS: 456 using limit state method, unless use of working stress method is specifically mentioned elsewhere in this document.

Ductile detailing will be provided for reinforced concrete structures as per IS 13920.

Design strength of materials and design loads will be calculated using appropriate partial safety factors over characteristic strength and characteristic loads as per IS: 456.

Deflection criteria will be in accordance with IS: 456.

The Minimum grade of concrete for various structures will be as follows:

i) M-30 : All RCC members in superstructure, foundations including pile foundations, substructures, storm water drain, Trenches, grade slab, paving and all water retaining structures.

ii) M-20 : Plinth protection work.

iii) M-15 : 100 THK. PCC below foundations, pilecap, base slab, grade slab and mass filling.

However the minimum grade of concrete will be increased to the next higher grade based on the design requirement.

Minimum cement content, maximum water cement ratio and minimum grade of concrete will be considered for severe exposure condition as per IS: 456-2000 for structures not mentioned above.

Reinforcement steel will be CRS TMT bars of grade Fe 500D conforming to IS: 1786.

Minimum cover to reinforcement will be as per IS: 456-2000. Minimum fire rating of 2 hours will be considered where fire hazard is expected and accordingly minimum cover will be increased if required to meet the requirements as per Table 16A of IS: 456-2000 and are listed below.

Sl.No.	ITEM	TOP (mm)	BOTTOM (mm)	SIDE (mm)
1	Footings (Raft and Isolated)	50	50	50
3	Grade beam	45	45	45
4	Grade slab	30	35	-
5	Columns and Pedastals	45	45	45
6	Beams above ground level	45	45	45
7	Lintel beams	25	25	25
8	RCC slabs and staircases	30	30	30

The following minimum thickness of structural elements will be followed:

i)	Floor slabs	: 150mm
iv)	All footings (including raft foundations)	: 300mm
v)	Parapets	: 100mm
vi)	Sunshades	: 75mm at edge

4.8 PLINTH PROTECTION

All buildings will be provided with 750 mm wide and 75mm thick plain cement concrete M 20 paving all around on the outside. The plinth protection will be laid over prepared sub-grade and base formed with 100 mm thick compacted sand bed with broken bricks, or rubble laid to a thickness of 75 mm. RCC peripheral drains by the side of plinth protection for catering the storm water from roofs and adjacent area will be provided.

5.0 DAMP PROOFING

Damp proof course in a thickness of 50mm and consisting of cement concrete 1:1.5:3 with admixture of approved water proofing compound will be provided at plinth level for masonry walls in super structure.

6.0 WALLS

All walls will be Laterite stone walls in accordance with IS:2572 and other relevant IS codes as applicable.
All external masonry walls shall be 230mm thickness except for fire walls. All walls will be non-load bearing infilled panel walls.
All internal and partition walls shall be 100mm thickness solid block masonry.

6.1 Plastering

- 12mm thick cement plaster in 1:4 on internal faces of all walls.
- 18mm thick sand face plaster in 1:6 in two coats on all external faces of walls.
- 6mm thick plaster in 1:3 in ceiling.

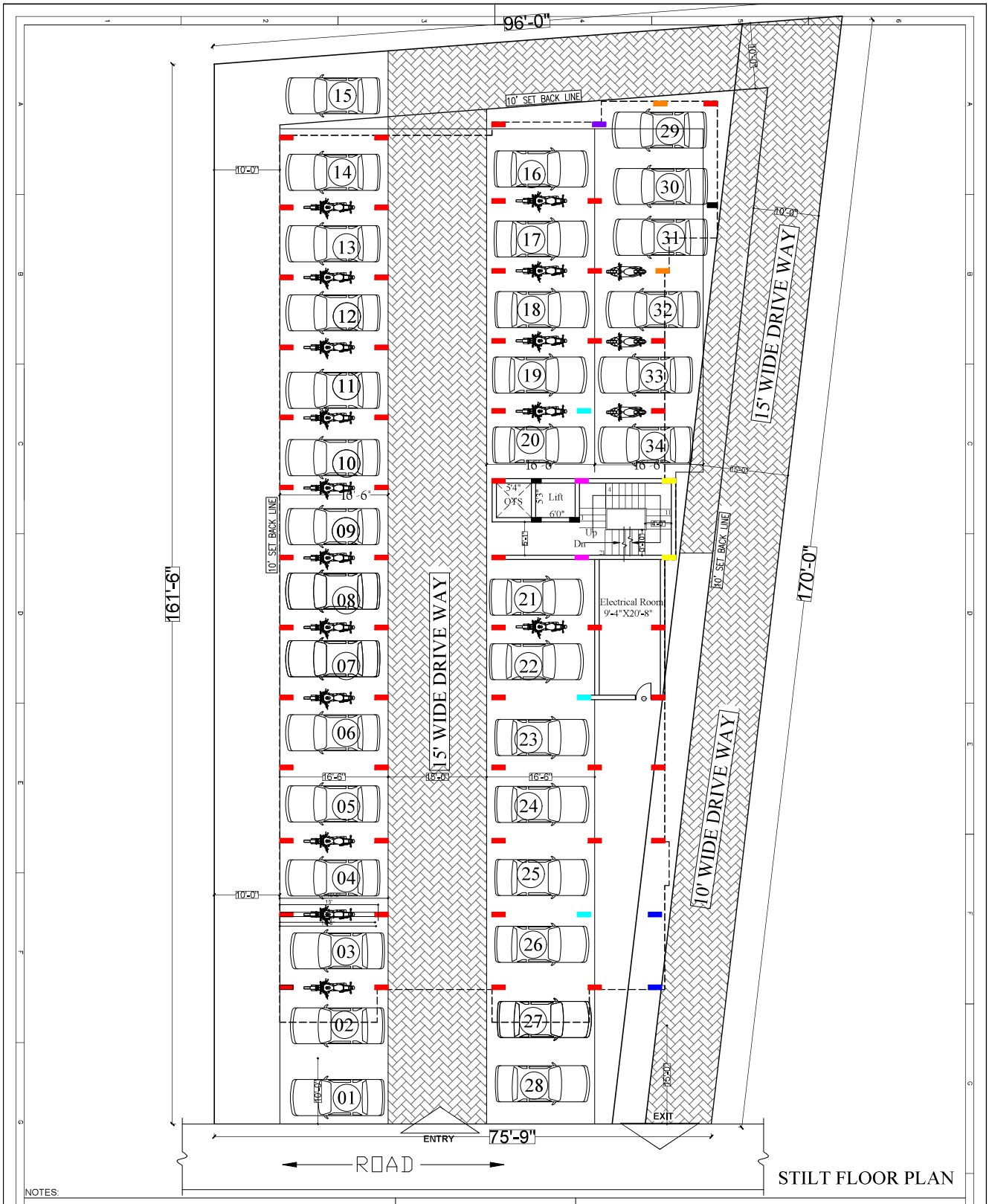
6.2 Cement mortar

All masonry work will be constructed in cement sand mortar 1:6 cement sand mortar, 100thk partition walls which will be constructed in 1:4 cement sand mortar with two numbers of 6mm diameter MS bars provided at every fourth course properly anchored with cross walls or columns.

Signature of Structural Engineer



Er.M.SANJEEVAMOORTHY.ME.(Struct),AMIE.,
Chartered Engineer & Consulting Civil Engineer,
Govt.Regd.Engineer Grade II(RE),
(HNDTA No.09/2019,HCMC No.00015/2019)
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STILT FLOOR PLAN

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN FOOT & INCHES, UNLESS NOTED OTHERWISE.
2. CONTRACTOR TO PHYSICALLY VERIFY SITE CONDITIONS BEFORE COMMENCEMENT OF WORK & CONFIRM WITH THE OWNER'S REPRESENTATIVE. ANY DISCREPANCY TO BE BROUGHT TO THE NOTICE OF THE ENGINEER.
3. ALL LEVELS TO BE CONFIRMED BY THE CONTRACTOR BEFORE COMMENCEMENT OF WORKS WITH RESPECT TO EXISTING ROADS/BUILDINGS. APPROVAL IN WRITING FROM THE ENGINEER-IN-CHARGE.
4. GRADE OF CONCRETE SHALL BE MADE M25, STEEL OF GRADE Fe-500.
5. USE PPC CEMENT CONFORMING TO IS:1489 AND STEEL CONFORMING TO IS:1786
6. CLEAR COVER:SLABS-20mm; BEAMS-25mm; COLUMNS-40mm; FOOTINGS-50mm.
7. DEVELOPMENT LENGTH SHALL BE 50 TIMES DIA OF REINFORCEMENT.
8. FRAME IS ANALYSED USING IS:1893-2000, IS:875-1987 & DESIGNED BY IS:456-2002.
9. THE SBC IS TAKEN FROM SOIL REPORT. THE FOOTING IS DESIGNED FOR S+4 FLOORS.

PROJECT:

PROPOSED CONSTRUCTION OF APARTMENT AT MUNISWAR NAGAR,HOSUR

CLIENT:

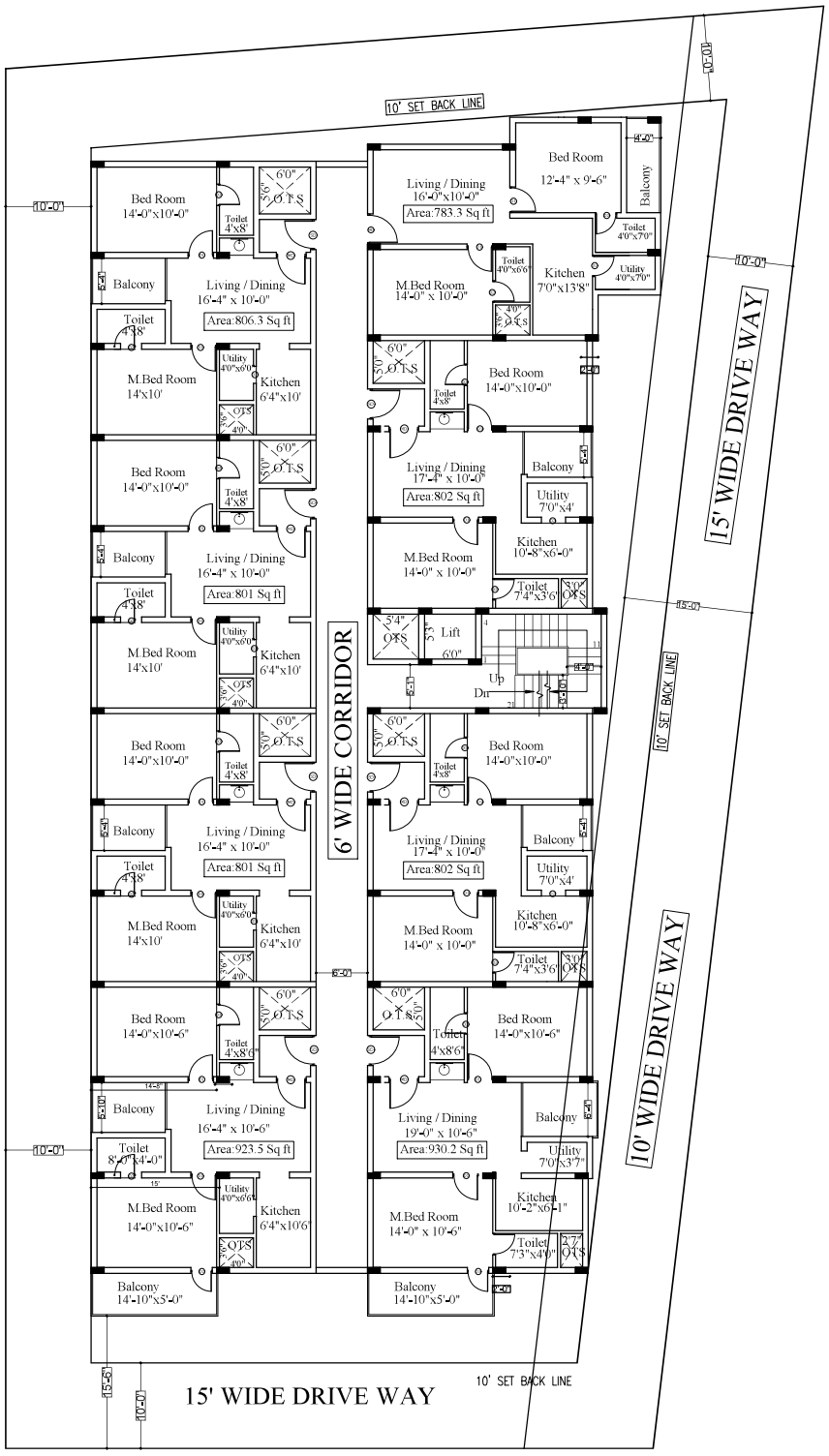
TITLE:

STILT FLOOR PLAN WITH COLUMN POSITIONS

DIRECTION:

DRAWN	RAMESH	DATE	01.08.2023	SHEET NO.	01
CHECKED	RAVIVERMAN	SCALE	NTS	REV.	NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR		

Er.M.SANJEEVAMOORTHY.ME.(Struct),AMIE.,
Chartered Engineer & Consulting Civil Engineer,
Govt. Regd.Engineer Grade III(E),
(HHDTA No.09/2019,/IGBC No.00015/2019)
Govt.Regd.Construction Engineer (CE),
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Govt. Regd.Structural Engineer Grade II(SE),
(HHDTA No.14/2019,
Phone:-919865935393,Email:sanjeev40@gmail.com



TYPICAL GROUND, FIRST ,SECOND &THIRD FLOOR PLAN

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN FOOT & INCHES, UNLESS NOTED OTHERWISE.
2. CONTRACTOR TO PHYSICALLY VERIFY SITE CONDITIONS BEFORE COMMENCEMENT OF WORK & CONFIRM WITH THE OWNER'S REPRESENTATIVE. ANY DISCREPANCY TO BE BROUGHT TO THE NOTICE OF THE ENGINEER.
3. ALL LEVELS TO BE CONFIRMED BY THE CONTRACTOR BEFORE COMMENCEMENT OF WORKS WITH RESPECT TO EXISTING ROADS/BUILDINGS. APPROVAL IN WRITING FROM THE ENGINEER-IN-CHARGE.
4. GRADE OF CONCRETE SHALL BE MADE M25, STEEL OF GRADE Fe-500.
5. USE PPC CEMENT CONFORMING TO IS:1489 AND STEEL CONFORMING TO IS:1786
6. CLEAR COVER:SLABS-20mm; BEAMS-25mm; COLUMNS-40mm; FOOTINGS-50mm.
7. DEVELOPMENT LENGTH SHALL BE 50 TIMES DIA OF REINFORCEMENT.
8. FRAME IS ANALYSED USING IS:1893-2000, IS:875-1987 & DESIGNED BY IS:456-2002.
9. THE SBC IS TAKEN FROM SOIL REPORT. THE FOOTING IS DESIGNED FOR S+4 FLOORS.

PROJECT:

PROPOSED CONSTRUCTION OF APARTMENT AT MUNISWAR NAGAR,HOSUR

CLIENT:

TITLE:

TYP.FLOOR PLAN WITH COLUMN POSITIONS

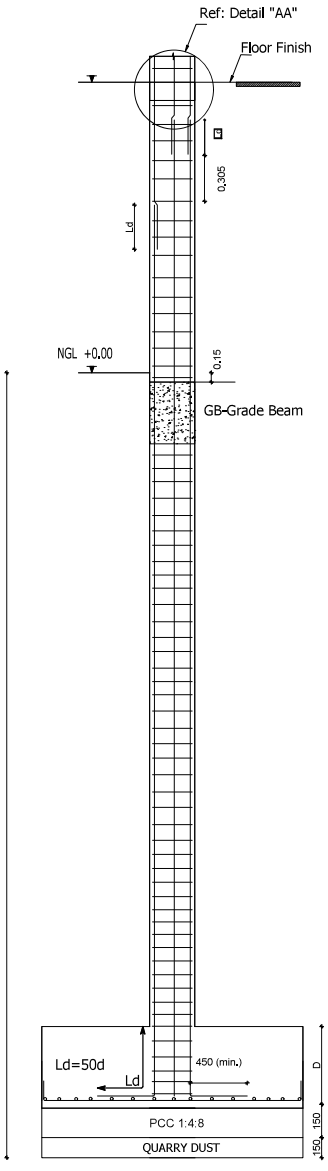
DIRECTION:

DRAWN	RAMESH	DATE	01.08.2023	SHEET NO.	02
CHECKED	RAVIVERMAN	SCALE	NTS	REV.	NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR		

Er.M.SANJEEVAMOORTHY.ME.,(Struct.),AMIE.,
Chartered Engineer & Consulting Civil Engineer,
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FOOTING LAYOUT



TYPICAL SECTION OF FOOTING F1

NOTES:

FOOTING LAYOUT

1. ALL DIMENSIONS AND LEVELS ARE IN FOOT & INCHES, UNLESS NOTED OTHERWISE.
2. CONTRACTOR TO PHYSICALLY VERIFY SITE CONDITIONS BEFORE COMMENCEMENT OF WORK & CONFIRM WITH THE OWNER'S REPRESENTATIVE. ANY DISCREPANCY TO BE BROUGHT TO THE NOTICE OF THE ENGINEER.
3. ALL LEVELS TO BE CONFIRMED BY THE CONTRACTOR BEFORE COMMENCEMENT OF WORKS WITH RESPECT TO EXISTING ROADS/BUILDINGS. APPROVAL IN WRITING FROM THE ENGINEER-IN-CHARGE.
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9. THE SBC IS TAKEN FROM SOIL REPORT. THE FOOTING IS DESIGNED FOR S+4 FLOORS.

PROJECT:

PROPOSED CONSTRUCTION OF APARTMENT AT MUNISWAR NAGAR,HOSUR

CLIENT:

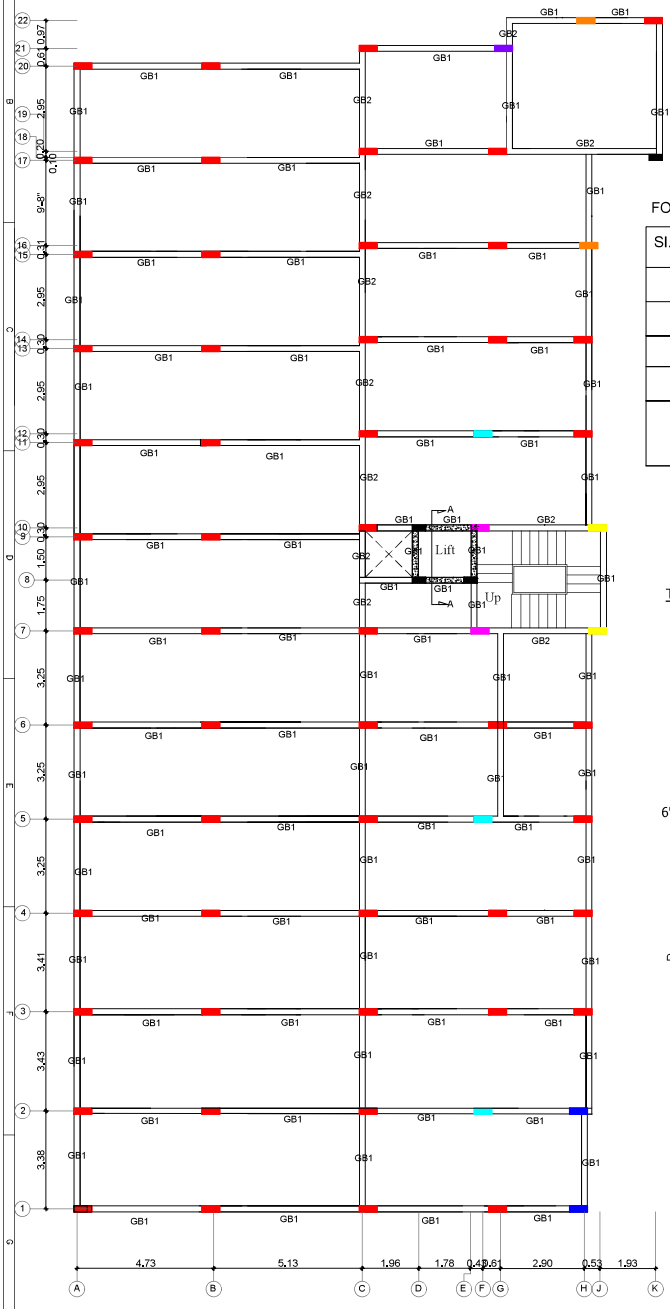
TITLE:

FOOTING LAYOUT AND DETAILS

DIRECTION:

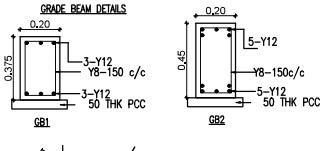
DRAWN	RAMESH	DATE	01.08.2023	SHEET NO.	03
CHECKED	RAVIVERMAN	SCALE	NTS	REV.	NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR		

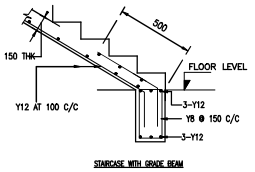
Er.M.SANJEEVAMOORTHY,ME.(Struct),AMIE.,
Chartered Engineer & Consulting Civil Engineer,
Govt. Regd.Engineer Grade II(RE),
(MHDTA No.09/2019,HQNC No.00315/2019)
Govt.Regd.Construction Engineer (CE),
(MHDTA No.12/2019,HQNC No.00316/2019)
Govt. Regd.Structural Engineer Grade II(SE),
(MHDTA No.14/2019,
Phone:+919865935392,Email:sanjeeviv92@gmail.com



STILT FLOOR ROOF BEAM LAYOUT

GRADE BEAM DETAILS



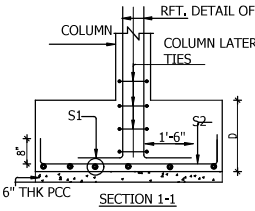


STAIRCASE WITH GRADE BEAM

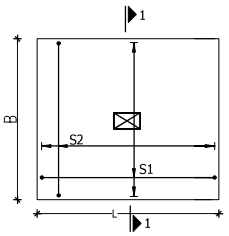
FOOTING DETAILS

SI.NO.	FOOTING DESIGNATION	FOOTING TYPE	FOOTING SIZE(BxL)	FOOTING DEPTH(D)	FOOTING RFT. DETAILS LONGER (L)	SHORTER (B)
1.	F1	ISOLATED	1.83x1.83	0.375	S1-Y12-175 c/c(Bottom)	S2-Y12-175 c/c(Top)
2.	F2	ISOLATED	2.13x2.13	0.40	S1-Y12-150 c/c(Bottom)	S2-Y12-150 c/c(Top)
3.	F3	ISOLATED	2.44x2.44	0.45	S1-Y12-120 c/c(Bottom)	S2-Y12-120 c/c(Top)
4.	F4	ISOLATED	2.59x2.59	0.50	S1-Y12-100 c/c(Bottom)	S2-Y12-100 c/c(Top)
5.	F5	COMBINED	2.44x3.05	0.40	BOTTOM LAYER S1-Y12-150 c/c(Top) S2-Y12-175 c/c(Bottom) TOP LAYER S3-Y12-125 c/c(Top)	S4-Y12-175 c/c(Bottom)

TYP.ISOLATED FOOTING F1,F2,F3,F4

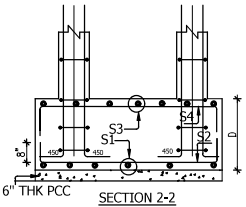


SECTION 1-1

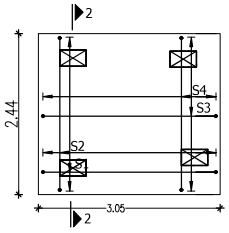


FOOTING F1,F2,F3,F4,F5 (Rft Details)

TYP.COMBINED FOOTING F5



SECTION 2-2



COMBINED FOOTING F5 (Rft Details)

NOTES:

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3. ALL LEVELS TO BE CONFIRMED BY THE CONTRACTOR BEFORE COMMENCEMENT OF WORKS WITH RESPECT TO EXISTING ROADS/BUILDINGS. APPROVAL IN WRITING FROM THE ENGINEER-IN-CHARGE.
4. GRADE OF CONCRETE SHALL BE MADE M25, STEEL OF GRADE Fe-500.
5. USE PPC CEMENT CONFORMING TO IS:1489 AND STEEL CONFORMING TO IS:1786
6. CLEAR COVER:SLABS-20mm; BEAMS-25mm; COLUMNS-40mm; FOOTINGS-50mm.
7. DEVELOPMENT LENGTH SHALL BE 50 TIMES DIA OF REINFORCEMENT.
8. FRAME IS ANALYSED USING IS:1893-2000, IS:875-1987 & DESIGNED BY IS:456-2002.
9. THE SBC IS TAKEN FROM SOIL REPORT. THE FOOTING IS DESIGNED FOR S+4 FLOORS.

PROJECT:

PROPOSED CONSTRUCTION OF APARTMENT AT MUNISWAR NAGAR,HOSUR

CLIENT:

TITLE:

GRADE BEAM LAYOUT AND DETAILS

DIRECTION:

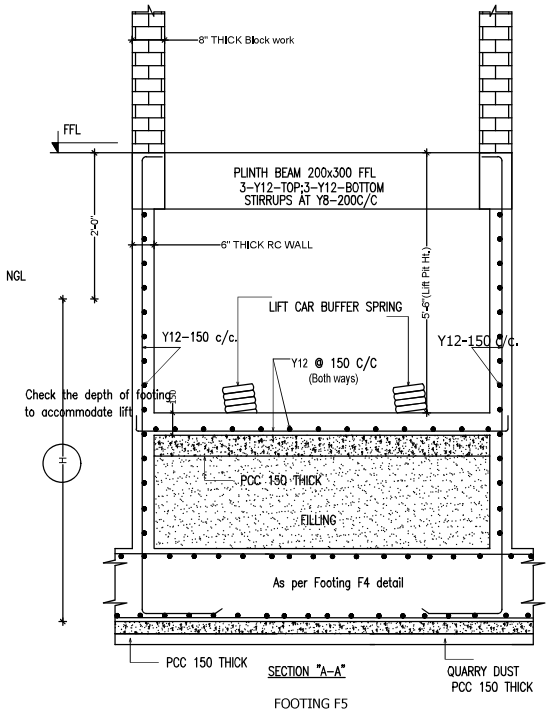
DRAWN	RAMESH	DATE	01.08.2023	SHEET NO.	04
CHECKED	RAVIVERMAN	SCALE	NTS	REV.	NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR		

Er.M.SANJEEVAMOORTHY..ME.(Struct),AMIE.,
Chartered Engineer & Consulting Civil Engineer,
Govt. Regd Engineer Grade II(RE),
(HHDTA No.09/2019,HOAC No.00015/2019)
Govt.Regd.Construction Engineer (CE),
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Phone:-9198605535392,Email-sanjeevi92@gmail.com

COLUMN REINFORCEMENT DETAILS

	C1		C2		C3		C4	
FOURTH & TERRACE FLOOR	SIZE	200x450	SIZE	200x450	SIZE	200x450	SIZE	200x450
	MIX	M20	MIX	M20	MIX	M20	MIX	M20
	MAIN.REINF.	10-Y12	MAIN.REINF.	4-Y16+ 4-Y12	MAIN.REINF.	6-Y16+ 4-Y12	MAIN.REINF.	10-Y16
	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c
THIRD FLOOR	SIZE	200x450	SIZE	200x450	SIZE	200x450	SIZE	200x450
	MIX	M20	MIX	M20	MIX	M20	MIX	M20
	MAIN.REINF.	10-Y12	MAIN.REINF.	4-Y16+ 4-Y12	MAIN.REINF.	6-Y16+ 4-Y12	MAIN.REINF.	10-Y16
	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c
SECOND FLOOR	SIZE	200x450	SIZE	200x450	SIZE	200x450	SIZE	200x450
	MIX	M20	MIX	M20	MIX	M20	MIX	M20
	MAIN.REINF.	10-Y12	MAIN.REINF.	6-Y16+ 4-Y12	MAIN.REINF.	6-Y16+ 4-Y12	MAIN.REINF.	10-Y16
	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c
FIRST FLOOR	SIZE	200x450	SIZE	200x450	SIZE	200x450	SIZE	200x450
	MIX	M20	MIX	M20	MIX	M20	MIX	M20
	MAIN.REINF.	10-Y12	MAIN.REINF.	6-Y16+ 4-Y12	MAIN.REINF.	10-Y16	MAIN.REINF.	10-Y16
	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c
GROUND FLOOR	SIZE	300x600	SIZE	300x600	SIZE	300x600	SIZE	300x600
	MIX	M20	MIX	M20	MIX	M20	MIX	M20
	MAIN.REINF.	10-Y12	MAIN.REINF.	6-Y16+ 4-Y12	MAIN.REINF.	10-Y16	MAIN.REINF.	4-Y20+ 6-Y16
	TIES	Y8 - 100 c/c	TIES	Y8 - 100 c/c	TIES	Y8 - 100 c/c	TIES	Y8 - 100 c/c
COLUMN MARKD.	C1		C2		C3		C4	

	C5		C6	
FOURTH & TERRACE FLOOR	SIZE	200x450	SIZE	200x450
	MIX	M20	MIX	M20
	MAIN.REINF.	10-Y16	MAIN.REINF.	10-Y12
	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c
THIRD FLOOR	SIZE	200x450	SIZE	200x450
	MIX	M20	MIX	M20
	MAIN.REINF.	10-Y16	MAIN.REINF.	10-Y12
	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c
SECOND FLOOR	SIZE	200x450	SIZE	200x450
	MIX	M20	MIX	M20
	MAIN.REINF.	10-Y16	MAIN.REINF.	10-Y12
	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c
FIRST FLOOR	SIZE	200x450	SIZE	200x450
	MIX	M20	MIX	M20
	MAIN.REINF.	4-Y20+ 6-Y16	MAIN.REINF.	10-Y12
	TIES	Y8 - 150 c/c	TIES	Y8 - 150 c/c
GROUND FLOOR	SIZE	300x600	SIZE	200x450
	MIX	M20	MIX	M20
	MAIN.REINF.	6-Y20+ 4-Y16	MAIN.REINF.	10-Y12
	TIES	Y8 - 100 c/c	TIES	Y8 - 100 c/c
COLUMN MARKD.	C5		C6	



FOOTING F5

NOTES:
NOTES:

FOOTING LAYOUT

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PROJECT:

PROPOSED CONSTRUCTION OF APARTMENT AT MUNISWAR NAGAR,HOSUR

CLIENT:

TITLE:

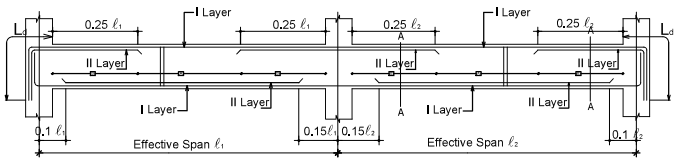
COLUMN AND LIFT PIT DETAILS

DIRECTION:

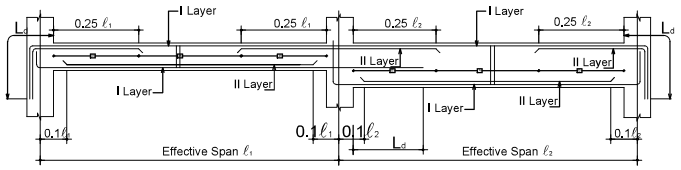
DRAWN	RAMESH	DATE	01.08.2023	SHEET NO.	05
CHECKED	RAVIVERMAN	SCALE	NTS	REV.	NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR		

Er.M.SANJEEVAMOORTHY.,ME.,(Struct.),AMIE.,
Chartered Engineer & Consulting Civil Engineer,
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(MIDITA.No.IV/2019,HOAC No.00315/2019)
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Govt. Regd.Structural Engineer Grade II(SE),
(MIDITA.No.14/2019,
Phone:+919865935393,Email:sanjeev40@gmail.com

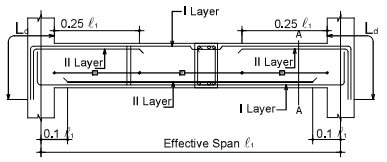
TYPICAL DETAILS



TYP. BEAM DETAILS FOR CONTINUOUS BEAMS

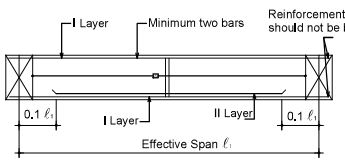


TYPICAL BEAM DETAILS FOR DEFFRENT DEPTH AT BEAMS

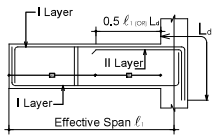


TYPICAL BEAM DETAILS FOR DISCONTINUOUS BEAMS

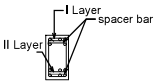
A & B - SPACING OF STIRRUPS



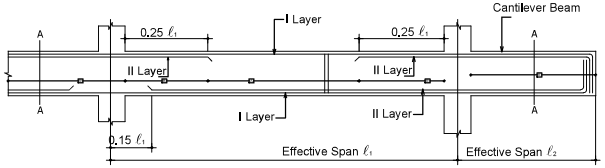
TYPICAL BEAM DETAILS FOR SIMPLY SUPPORTED BEAMS



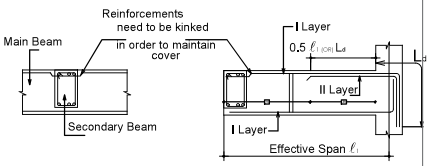
TYPICAL BEAM DETAILS FOR CANTILEVER BEAMS



TYPICAL BEAM CROSS SECTION

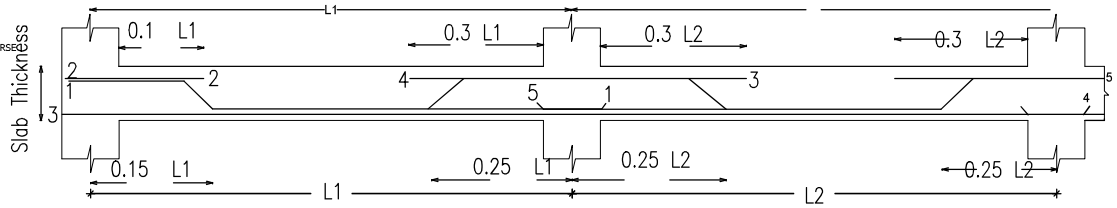


TYPICAL BEAM DETAILS FOR CONTINUOUS/ DISCONTINUOUS BEAMS WITH CANTILEVER BEAM

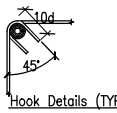


TYPICAL MAIN & SECONDARY BEAM JUNCTION

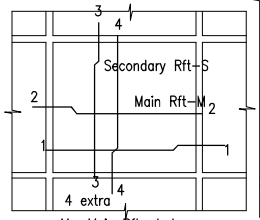
SLAB CURTAILMENT DETAILS



LS OF SLAB WITH CURTAILMENT DETAILS (TYP.)

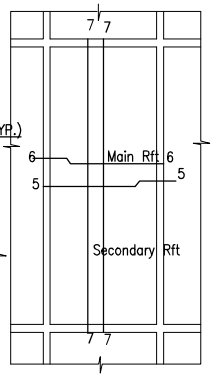


Hook Details (TYP.)

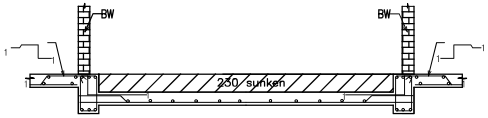


M- Main Rft-shoter span
S- Secondary Rft-longer span

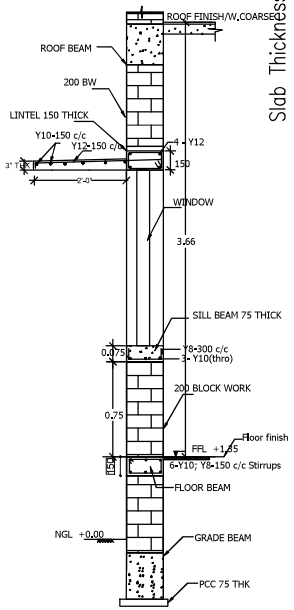
TWO WAY SLAB (TYP.)



ONE WAY SLAB (TYP.)



SUNKEN SLAB DETAILS (TYP.)



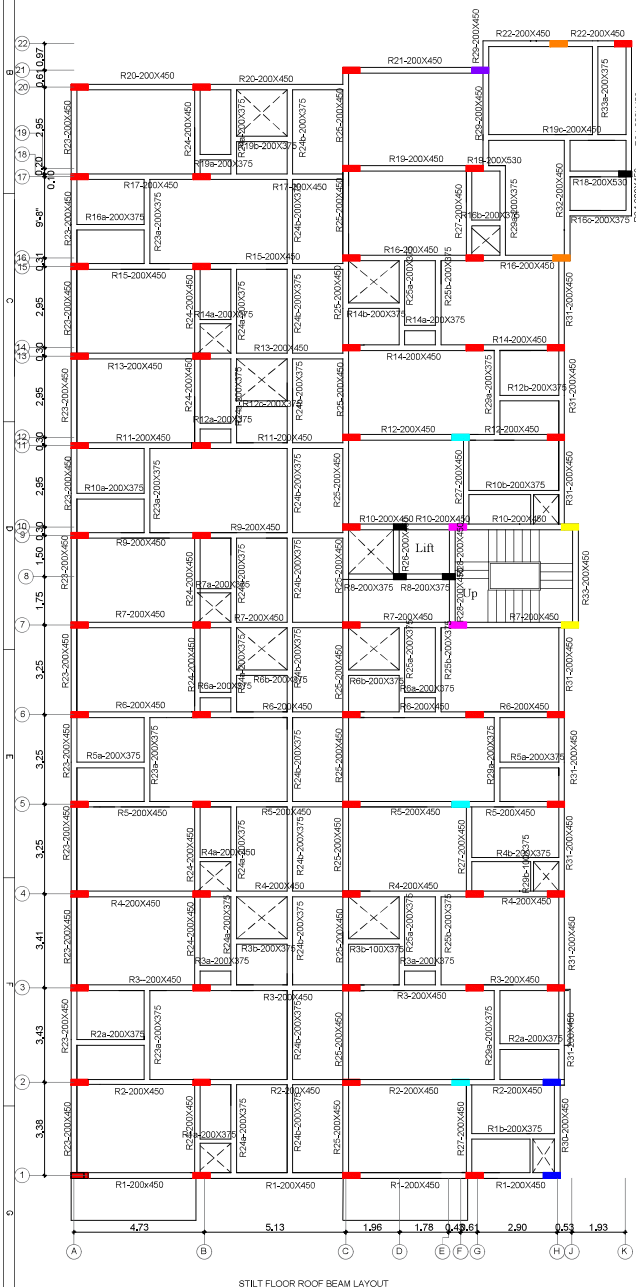
TYP. LINTEL & SUNSHADE DETAIL

HEIGHT OF FLOOR FROM NGL UPTO +0.75

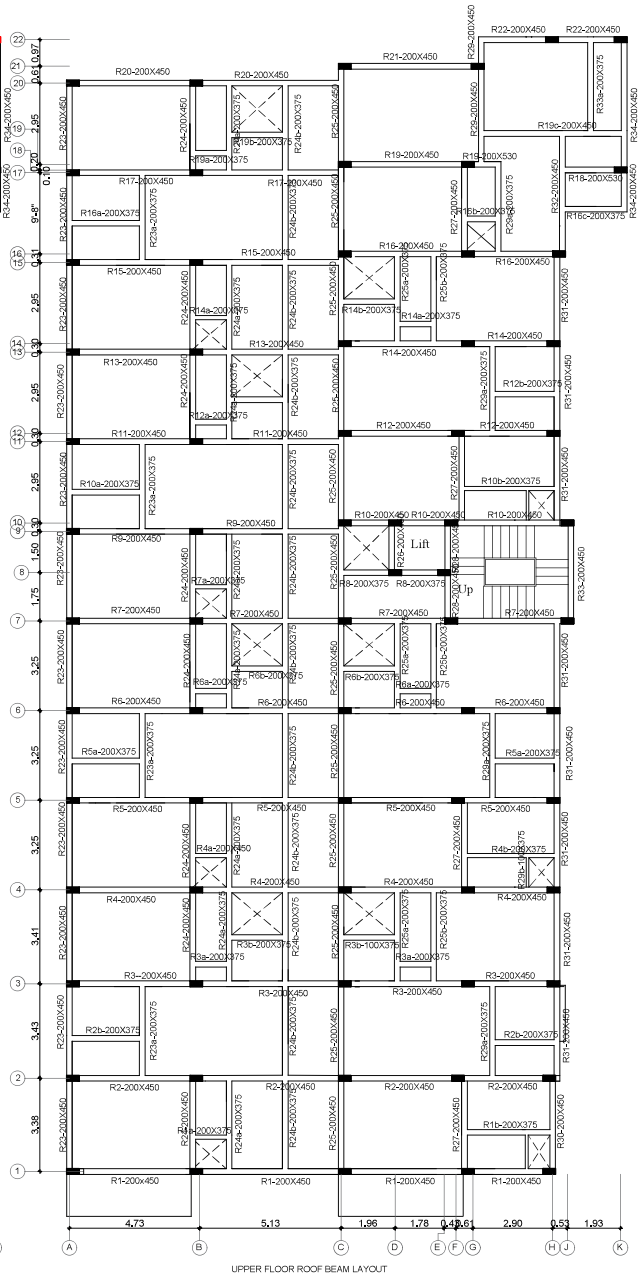
LS OF ROOF BEAM -R13

	TITLE: TYP.CONNECTION DETAILS				DIRECTION:	
PROJECT: PROPOSED CONSTRUCTION OF APARTMENT AT MUNISWAR NAGAR,HOSUR	DRAWN	RAMESH	DATE	01.08.2023	SHEET NO.	06
	CHECKED	RAVIVERMAN	SCALE	NTS	REV.	NIL
	APPROVED	KUMARAN	DRG. NO.	HOSUR		

Er.M.SANJEEVAMOORTHY.ME.(Struct),AMIE.,
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Phone-+919865935393,Email-sanjeevi92@gmail.com



STILT FLOOR ROOF BEAM LAYOUT



UPPER FLOOR ROOF BEAM LAYOUT

NOTES:

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6. CLEAR COVER:SLABS-20mm; BEAMS-25mm; COLUMNS-40mm; FOOTINGS-50mm.
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PROJECT:

PROPOSED CONSTRUCTION OF APARTMENT AT MUNISWAR NAGAR,HOSUR

CLIENT:

TITLE:

ROOF BEAM LAYOUTS

DIRECTION:

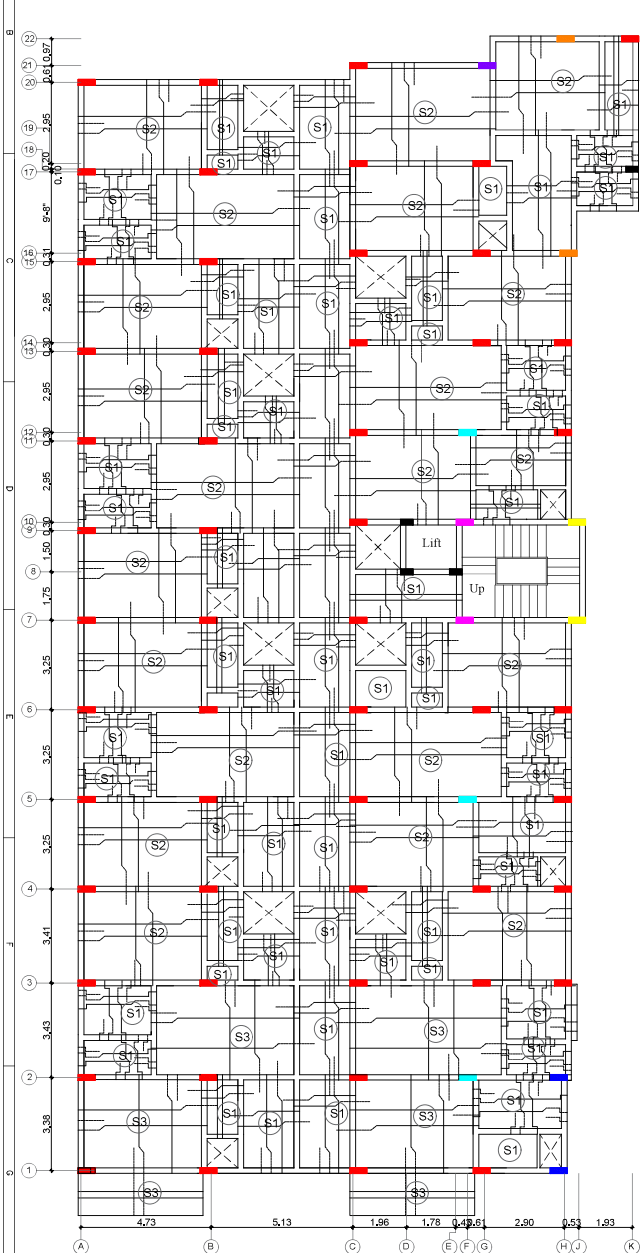
DRAWN	RAMESH	DATE	01.08.2023	SHEET NO.	07
CHECKED	RAVIVERMAN	SCALE	NTS	REV.	NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR		

Er.M.SANJEEVAMOORTHY.ME.(Struct),AMIE.,
Chartered Engineer & Consulting Civil Engineer,
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Govt.Regd.Structural Engineer Grade II(SE),
(INDTA No.14/2019,
Phone-+919865933393,Email-sanjeevi92@gmail.com

(S1) 125 THK 10Y-150 c/c -Main
10Y-165 c/c -Secondary

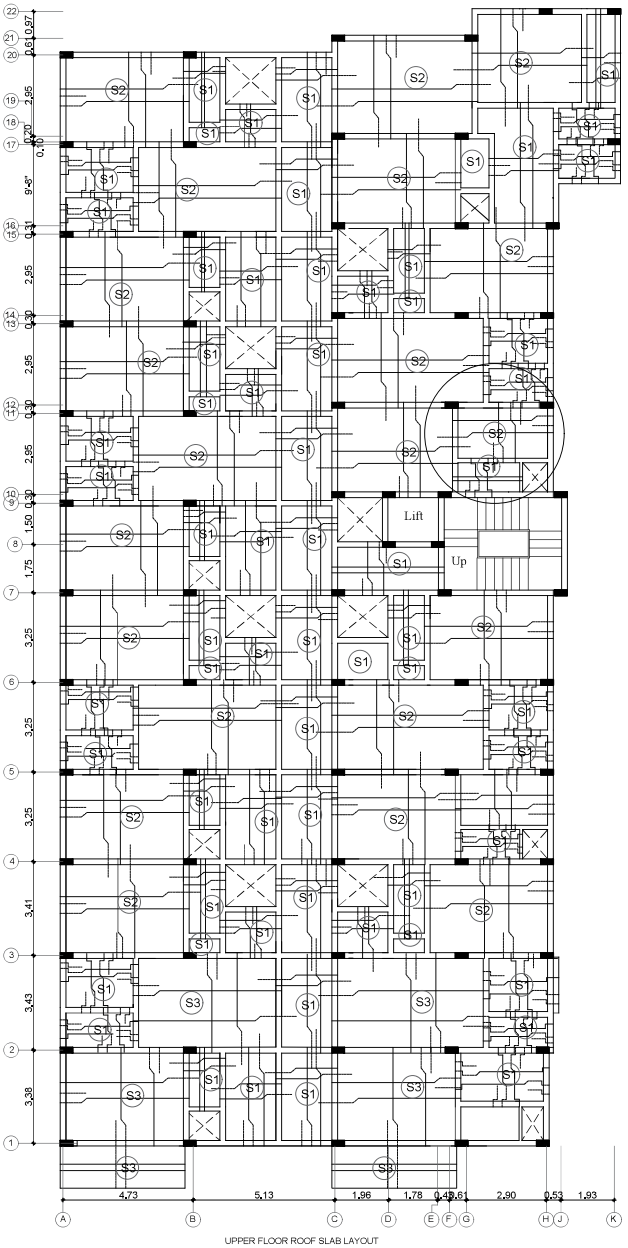
(S2) 125 THK 10Y-135 c/c -Main
10Y-135 c/c -Secondary

(S3) 125 THK 12Y-150 c/c -Main
10Y-150 c/c -Secondary



STILT FLOOR ROOF SLAB LAYOUT

FOOTING LAYOUT



UPPER FLOOR ROOF SLAB LAYOUT

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5. USE PPC CEMENT CONFORMING TO IS:1489 AND STEEL CONFORMING TO IS:1786
6. CLEAR COVER:SLABS-20mm; BEAMS-25mm; COLUMNS-40mm; FOOTINGS-50mm.
7. DEVELOPMENT LENGTH SHALL BE 50 TIMES DIA OF REINFORCEMENT.
8. FRAME IS ANALYSED USING IS:1893-2000, IS:875-1987 & DESIGNED BY IS:456-2002.
9. THE SBC IS TAKEN FROM SOIL REPORT. THE FOOTING IS DESIGNED FOR S+4 FLOORS.

PROJECT:

PROPOSED CONSTRUCTION OF APARTMENT AT MUNISWAR NAGAR,HOSUR

CLIENT:

TITLE:

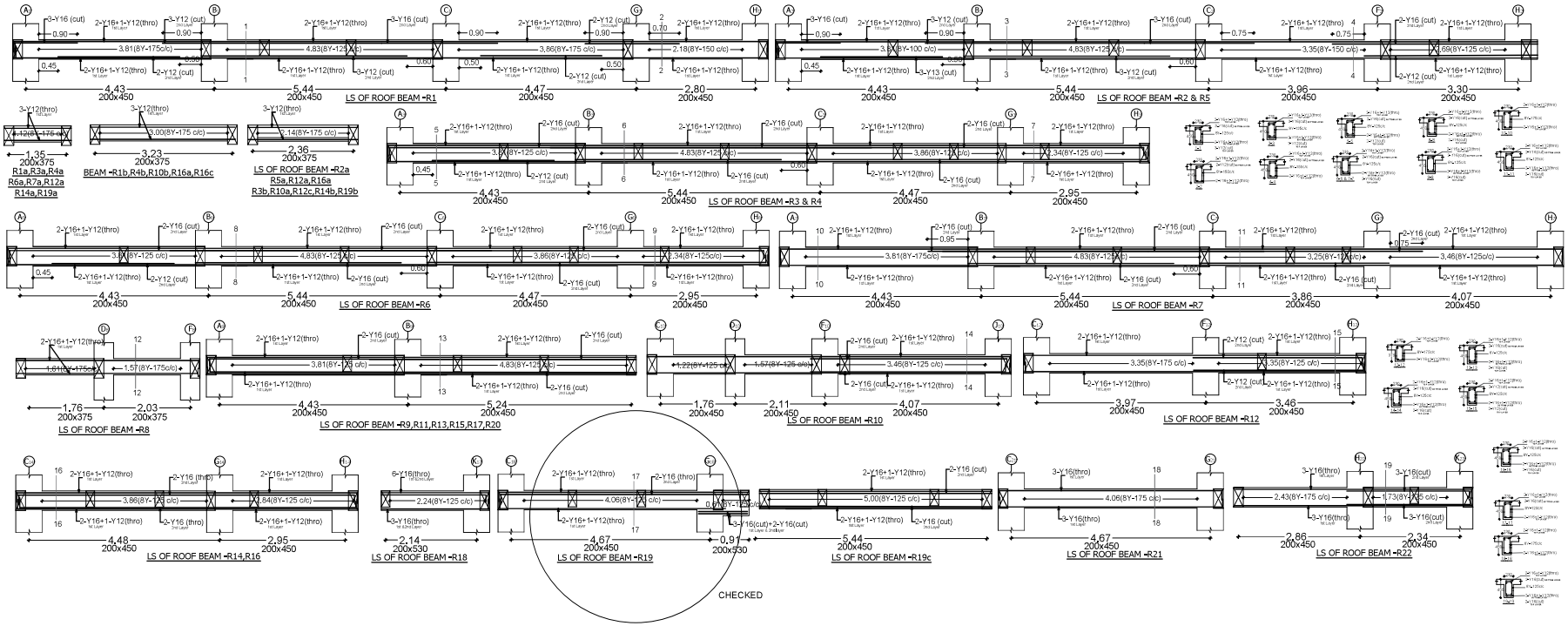
ROOF SLAB LAYOUT AND DETAILS

DIRECTION:

DRAWN	RAMESH	DATE	01.08.2023	SHEET NO.	08
CHECKED	RAVIVERMAN	SCALE	NTS	REV.	NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR		

Er.M.SANJEEVAMOORTHY.,ME.,(Struct),AMIE.,
Chartered Engineer & Consulting Civil Engineer,
Govt. Regd.Engineer Grade I(IE),
(FIDTA No.09/2019,HORC No.00015/2019)
Govt.Regd.Construction Engineer (CE),
(FIDTA No.12/2019, HORC No.00014/2019)
Govt.Regd.Structural Engineer Grade II(SE),
(FIDTA No.14/2019,
Phone:+919865935393,Email:sanjeevi92@gmail.com

GROUND FLOOR ROOF BEAM DETAILS



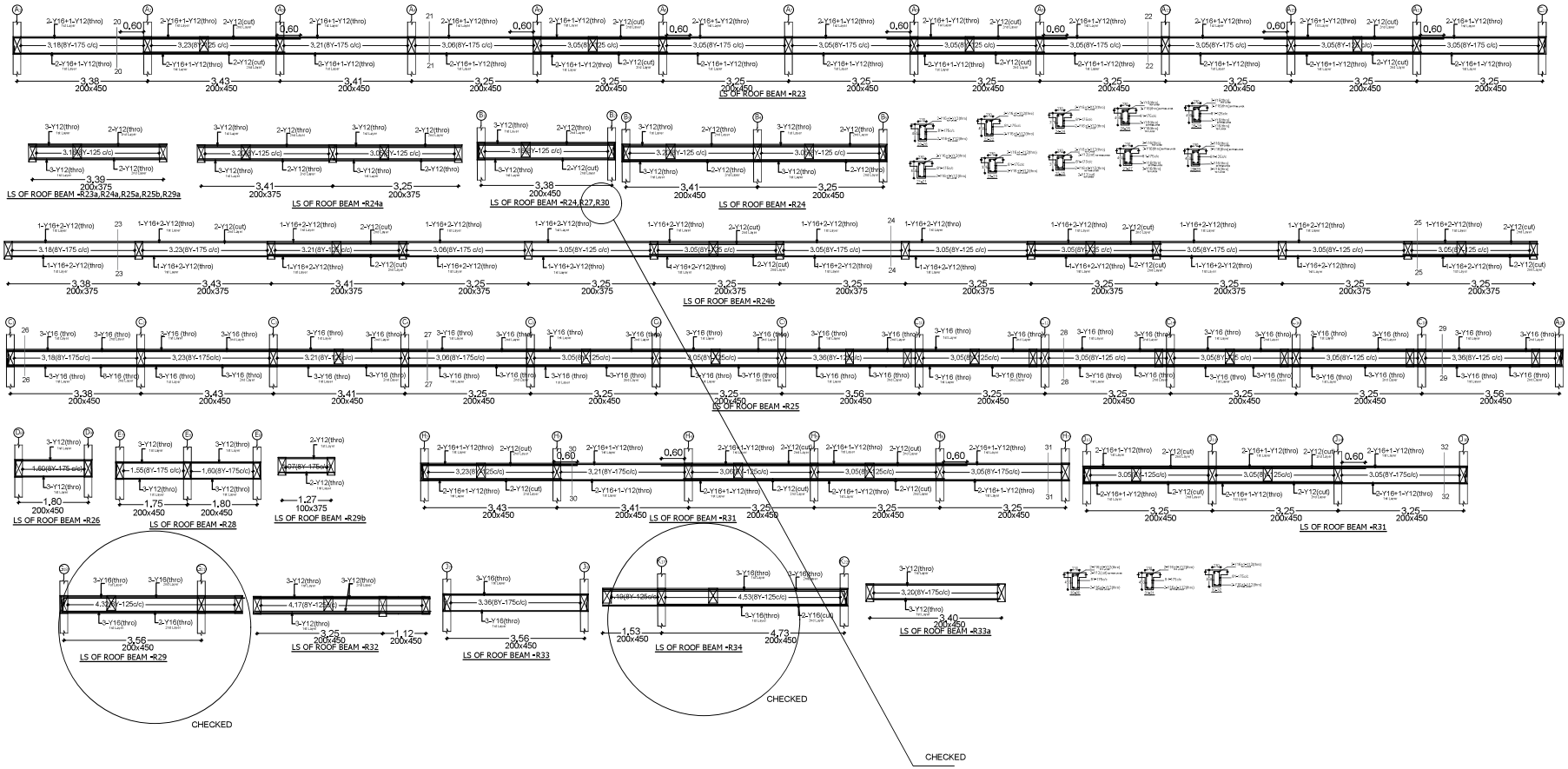
Er.M.SANJEEVAMOORTHY.ME.(Struct),AMIE.,
Chartered Engineer & Consulting Civil Engineer,
Govt. Regd.Engineer Grade II(RE),
(HNDTA No.09/2019, HCMC No.00015/2019)
Govt.Regd.Construction Engineer (CE),
(HNDTA No.12/2019, HCMC No.00016/2019)
Govt. Regd.Structural Engineer Grade II(SE),
(HNDTA No.14/2019,
Phone-+919865935393),Email-sanjeeli92@gmail.com

GROUND FLOOR ROOF BEAM DETAILS				DIRECTION: ^
DRAWN	ARAVIND	DATE	01.08.2023	SHEET NO. 09
CHECKED	ARAVIND	SCALE	NTS	REV. NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR	

PROJECT:

PROPOSED CONSTRUCTION OF APARTMENT
AT MUNISWAR NAGAR,HOSUR

GROUND FLOOR ROOF BEAM DETAILS



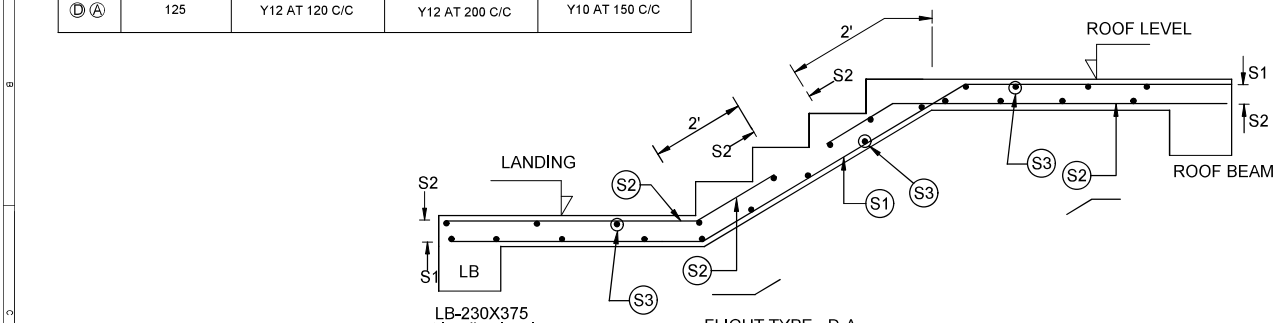
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(HNDTA No.14/2019,
Phone-+919865935393,Email-sanjeeiv92@gmail.com

GROUND FLOOR ROOF BEAM DETAILS				DIRECTION: ^
DRAWN	ARAVIND	DATE	01.08.2023	SHEET NO. 10
CHECKED	ARAVIND	SCALE	NTS	REV. NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR	

PROPOSED CONSTRUCTION OF APARTMENT
AT MUNISWAR NAGAR,HOSUR

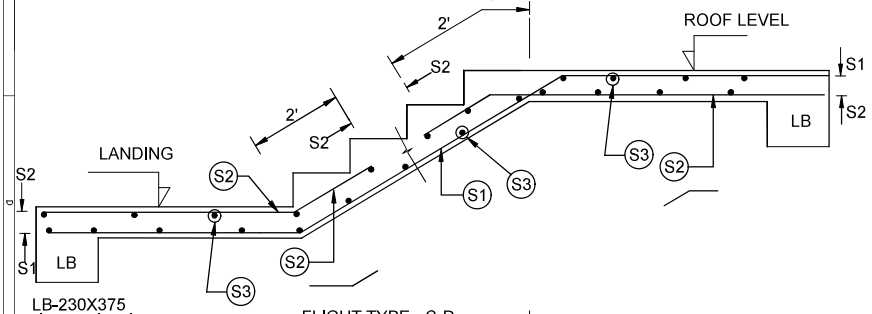
STAIRCASE-1 REBAR SCHEDULE

TYPE	THICKNESS (TW)	MAIN REINFT. (S1)	MAIN REINFT. (S2)	DISTRIBUTION REINFT. (S3)
Ⓐ Ⓑ	125	Y12 AT 120 C/C	Y12 AT 200 C/C	Y10 AT 150 C/C
Ⓑ Ⓒ	125	Y12 AT 120 C/C	Y12 AT 200 C/C	Y10 AT 150 C/C
Ⓒ Ⓓ	125	Y12 AT 120 C/C	Y12 AT 200 C/C	Y10 AT 150 C/C
Ⓓ Ⓐ	125	Y12 AT 120 C/C	Y12 AT 200 C/C	Y10 AT 150 C/C



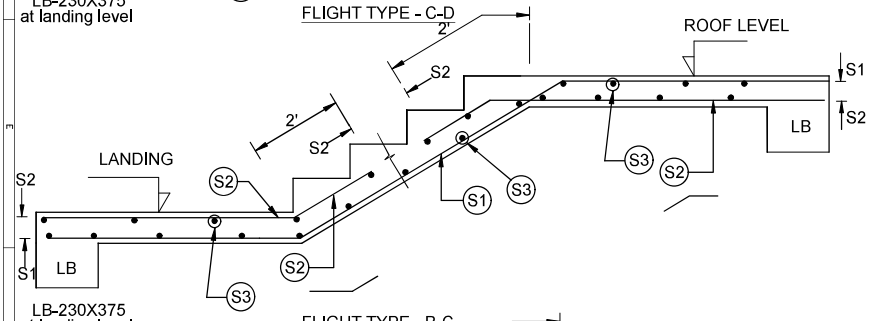
LB-230X375 at landing level

FLIGHT TYPE - D-A



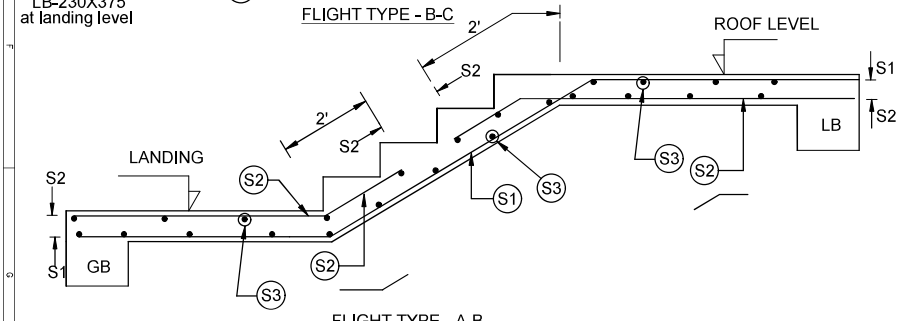
LB-230X375 at landing level

FLIGHT TYPE - C-D



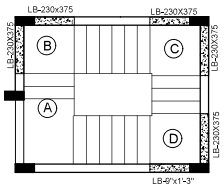
LB-230X375 at landing level

FLIGHT TYPE - B-C



FLIGHT TYPE - A-B

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(HNDTA No.14/2019,
Phone-+919865935393,Email-sanjeeiv92@gmail.com



STAIRCASE LAYOUT

LB-9'x1'-3" Beam at Landing level

BEAM LB-9'x1'-3"
TOP-3-Y16 (thro)
BOTTOM-3-Y16 (thro)
STIRRUPS- 8Y-4" C/C

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PROJECT:

PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING at Chennai

CLIENT:

TITLE:

STAIRCASE LAYOUT AND DETAILS

DIRECTION:

DRAWN	RAMESH	DATE	01.08.2023	SHEET NO.	11
CHECKED	RAVIVERMAN	SCALE	NTS	REV.	NIL
APPROVED	KUMARAN	DRG. NO.	HOSUR		



our services doesn't just end there

Buying & Selling Services

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Legal & Documentation Services

Certified EC, Patta, legal opinions, property verification, due diligence, litigation solutions, and legal heir certificates.

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NRI & Investment Services

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Compliance & Special Services

Demolition, Vaasthu checks, regularization of unauthorized buildings, and office space solutions.



empowering your real estate decisions with smart tools

Property Valuation & Cost Estimation

Guideline Value, Apartment Composite Value, Stamp Duty & Registration Fees Calculator, Building Value Calculator, Capital Gains Calculator, Area Unit Converter, Length Unit Converter

Ownership, Compliance & Legal Verification

Encumbrance Certificate (EC) Search, Find Your SRO, Temple Property Check, WAQF Property Check, View Patta/Chitta, View FMB, Patta Analyzer, EC Analyzer

Zoning & Land Use Analysis

Land Use Zone Finder, CRZ Zone Check, Aquifer Zone Check, CBA Check, EWS Check, Road Width Check, Proposed Road Widening Check, FSI Calculator

Property Documentation & Workflow Tools

Forms & Templates, Document Generator, Document Translation, Dictionary

Vastu & Property Management Tools

Home Vastu Shastra, Plot Vastu Shastra, Property Management

Verified RealEstate™

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

3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai, India

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