

**PROPOSED CONSTRUCTIONS OF RESIDENTIAL NON HIGH RISH GROUP
DEVELOPMENT BUILDING AT PONGUPALAYAYAM VILLAGE, TIRUPUR
DISTRICT**

DESIGN BASIS REPORT

General:

This Report describes Design Philosophy including selected construction aspects for the The detailed engineering and structure design of the proposed construction of Residential Non-High Rise Group Development consists of 114 Blocks, Block 1 to 113: Ground +First Floor Totally 113 D/U, Block 114: (Amenity Block) - Ground Floor + First Floor with Swimming pool on the Ground level comprised in S.Nos . 177/1, 177/2, 177/3, 177/4, 177/5, 177/6, 177/7, 178/1A1, 178/1A2, 178/1A3, 178/1A4, 178/1A5, 178/1A6, 178/1A7A, 178/1B, 179/3A1, 179/3A2, 185/1A, 185/1B, 185/1C, 185/1D, 185/2A, 185/2B & 185/2C of Pongupalayam Village & Panchayat, Tiruppur North Taluk, Tiruppur District.

1. Introduction:

The proposed building is a residential Non high rise group villas. The building has Ground plus one floors with adequate stair to access. Each floor height is 3.0 m The foundation of the building is adopted as isolated Foundation as per soil report.

TYPE OF VILLAS	NOs.
TYPE-A	9 Units
TYPE-B	45 Units
TYPE-C	57 Units
TYPE-D	1 Unit
TYPE E	1 Unit
CLUB HOUSE	1 Unit
TOTAL	114 Units

P. SENTHIL KUMAR M.E. (STRUCT), AIV
Reg. No: CSE LPA/SEIOR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97566 00478

2. Structural System:

The structural system chosen for the buildings consists of Moment Resisting R.C.C. Frames at appropriate locations. Columns and beams have been laid out in plain in coordination with architectural and services drawings. Foundation at 2.5m depth has been provided for an S.B.C. of 31.00 t/sq.m. as per recommendations given in the Soil Investigation Report.

3. Design Codes:

The R.C.C. design has been based on provisions laid down in IS: 456-2000. Code of practice for plain and reinforced concrete, following Limit State Philosophy.

Other codes of practices to be referred are as follows:

1. IS: 875-1987 Part (I to IV) code of practice for design loads (Other than Earthquake) for buildings and structures.
2. IS: 1893-2002 Criteria for Earthquake Resistant Construction of Buildings.
3. IS: 13920-1993 Ductile Detailing of Criteria Reinforced Concrete Structures subjected to Seismic Force.
4. IS: 4326-1993 Earthquake Resistant construction of buildings.
5. IS: 1084-1985 Design and construction of shallow foundation in soils.
6. IS: 1904-1986 Design and construction of foundations in soils General Requirements.
7. IS: 2950-1981 Design and Construction of Raft foundations.
8. IS: 8009-1976 Calculation and Settlement of shallow Foundations.
9. IS: 3370- Part I, II, III, IV for water retaining structures.
10. IS: 1905 Code of practice for Structural use of masonry.
11. SP 24: Explanatory hand book on IS: 456
12. SP 22: Explanatory Handbook on Codes for Earthquake.
13. SP 34: Handbook on concrete reinforcement and detailing.
14. SP 16: Handbook on Design Aids for Reinforced concrete to IS: 456-1978.
15. SP 20: Explanatory Handbook on Masonry code

4. Materials:

Grade of concrete:

P. Senthil Kumar
P. SENTHIL KUMAR M.E. (STRUCT), AIV
Reg. No: CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97566 00478

The Indian Code IS: 456-2000 permits a minimum grade of concrete for reinforced concrete members as M20 and the following concrete grades have been used for various Structural Elements.

- a) M-20 grade concrete has been used for Foundation.
- b) M-20 grade concrete has been used for Columns.
- c) M-20 grade concrete has been used for beams and slabs of all floors. All concrete shall be conforming IS: 456-2000.

Reinforcement:

All the reinforcement to be used in the structural elements shall be High Yield Strength Deformed Thermo-Mechanically Treated bars with yield stress of 500 MPa and minimum elongation of 18.0% conforming to IS: 17860-1985.

5. Cover to the reinforcements:

Minimum values for the nominal cover to be provided to all reinforcement, including links of normal weight aggregate concrete depend on the condition of exposure and minimum specified period of fire resistance.

Environmental exposure conditions considered are 'moderate' for sub-structure, and 'mild' for super-structure. Minimum fire rating considered is four hours for columns, two hours for beams and one hour for slabs.

Clear cover to the main reinforcement in the various structural elements depends on above criteria shall be:

a) Footing(Bottom)	50 mm
b) Footings(Top and Sides)	50 mm
c) Columns	40 mm
d) Pedestals	40 mm
e) Beams	30 mm or bar diameter whichever is greater
f) Slabs	20 mm
g) Staircase waist slab	20 mm
h) Water tank walls and slabs	30 mm
i) Retaining walls(Earth face)	25 mm
j) Retaining walls(Other face)	20 mm


P. SENTHIL KUMAR M.E. (STRUCT), AN
Reg. No: CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97866 00478

6. Loads:

a) Dead Loads:

Following unit weights of building materials have been considered in accordance with IS: 875 (Part I)-1987 and IS: 1911.

Reinforced cement concrete	: 25 kN/m ³
Plain cement concrete	: 25 kN/m ³
Brick masonry	: 19 kN/m ³
Light weight Filling in sunken area	: 10 kN/m ³
Cement mortar/plaster	: 20 kN/m ³
Floor finish	: 20 kN/m ³
Brick bat coba for terracing	: 20 kN/m ³

b) Live loads:

Following live loads have been considered in design in accordance with IS: 875(Part II)-1987.

All rooms	: 2 kN/m ²
Passages & Balconies	: 3 kN/m ²
Staircases & Corridors	: 3 kN/m ²
Roof (with solar heaters)	: 2 kN/m ²

c) Seismic Loads:

Tirupur falls in Seismic Zone-III. The buildings have been designed as 'Earthquake Resistant' structures as per the guidelines given in IS: 1893(Part-I)-2002 (Criteria for earthquake resistant design of structures, Part-I-General Provisions and Buildings).

Seismic Coefficient method is used for Seismic Analysis. Space frame analysis using STADD Pro 2006 shall be conducted finally to obtain design seismic forces in combination with other forces.

P. Senthil Kumar

P. SENTHIL KUMAR M.E.(STRUCT), AIV
Reg. No: CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97866 00478

As per IS 1893 (Part-I)-2002

Design Seismic Base shear $V_B = A_h * W$

Where

A_h = Design Horizontal Seismic Coefficient.

W = Seismic weight of the building.

Design Horizontal Seismic Coefficient $A_h = Z/2 * I/R * S_a/g$

Where

Z = Zone Factor = **0.16** as applicable for structures built in **Zone III**

I = Importance factor for the buildings = **1.0**

R = Response Reduction factor = **5 (SMRF)**

S_a/g = Average Response Acceleration Coefficient is taken for Soil Type-2 and 5% Damping.

Seismic forces are calculated for full Dead load plus Percentage of Imposed Load. The Imposed load upto and including 2 kN/m^2 - Percentage of Live load considered is 25% and Imposed load above 2 kN/m^2 - Percentage of Live Load considered is 50%.

d) Wind Loads:

Wind and seismic loads shall not taken to act simultaneously. In Coimbatore Seismic Forces are expected to govern and hence wind load not been considered in design.

e) Other loads:

Following effects expected to be insignificant shall be ignored:

Shrinkage, creep and temperature stresses, expecting special cantilevers. Erection loads (for usual cast-in-situ framed structure D.L.+L.L.) shall be more severe.

f) Load Combinations:

P. Senthil Kumar

P. SENTHIL KUMAR M.E. (STRUCT), AIV
Reg. No: CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97866 00478

23. 0.9DL+1.5WLZ)

24. 0.9DL-1.5WLX)

25. 0.9DL-1.5WLZ)

6. Analysis Procedure:

The framing systems (including the sizes of various structural elements) have been worked out, on the basis of a preliminary structural analysis and also in co-ordination with relevant architectural & services requirements.

Space frame analysis using STADD Pro software has been undertaken to obtain refined results for all load combinations in accordance with IS: 1893.

7. Design Procedure:

The R.C.C. design shall be based on provisions laid down in IS: 456-2000 Code of practice for plain and reinforced concrete, following Limit State philosophy. Structural design for typical members has been done for the combinations of loads that produces maximum stress in the structural elements, and in turn requires maximum reinforcing steel provisions. The design of Beams, columns, Slab is done in Excel Worksheets. foundation is analyzed as plates with spring constant and designed for maximum top and bottom moment in excel worksheet.

8. Serviceability Requirements (Control of Deflection)

In order to control deflection of structural elements, two alternative methods in the serviceability Limit State Design are envisaged in Indian 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 specify to specified values. The second method envisages "deemed-to-satisfy" provisions such as limiting the span/depth ratio as per clause 23.2.1 of IS: 456-2000.

The structural design shall satisfy the following requirements of limit state of serviceability:

- a) IS: 456-2000 limits final deflection of slab or beam from as cast level to $L/250$, L being the effective span of the member. The deflection after erection of partitions and completion of finishes is limited to lesser of $L/325$ to 20 mm
- b) IS: 1893-2002 limits the storey drift to 0.004 times the storey height with partial load factor of 1.

P. Senthil Kumar

P. SENTHIL KUMAR M.E. (STRUCT), AIV
Reg. No: CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97866 00478

The building shall be designed for following Load Combinations as indicated in IS: 456-2000:

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

1. $1.0(DL+LL)$
2. $1.5(DL+LL)$
3. $1.2(DL+LL+EQX)$
4. $1.2(DL+LL+EQZ)$
5. $1.2(DL+LL-EQX)$
6. $1.2(DL+LL-EQZ)$
7. $1.5(DL+EQX)$
8. $1.5(DL+EQZ)$
9. $1.5(DL-EQX)$
10. $1.5(DL-EQZ)$
11. $0.9DL+1.5EQX)$
12. $0.9DL+1.5EQZ)$
13. $0.9DL-1.5EQX)$
14. $0.9DL-1.5EQZ)$
15. $1.2(DL+LL+WLX)$
16. $1.2(DL+LL+WLZ)$
17. $1.2(DL+LL-WLX)$
18. $1.2(DL+LL-WLZ)$
19. $1.5(DL+WLX)$
20. $1.5(DL-WLX)$
21. $1.5(DL-WLZ)$
22. $0.9DL+1.5WLX)$

P. Senthil Kumar

P. SENTHIL KUMAR M.E.(STRUCT),AIV
Reg. No: CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97866 00478

c) Separation between adjacent Units:

As per IS: 1893-2002, two adjacent buildings or two adjacent units of the same building with separation joint I between shall be separated by a distance equal to the amount R times the sum of the calculated storey displacements of each of them, to avoid damaging contact when the two units deflect towards each other. When floor levels of two similar adjacent units or buildings are at the same elevation levels, factor R can be replaced by R/2.

9. Ductile Detailing:

Detailing provisions of IS: 13920 have been followed as applicable for a special moment resisting frames with shear walls, in order to provide appropriate ductile properties to the structure and improve seismic response of the structure.

Special confinement zone adjacent to each beam column is defined, for beams the length is equal to twice the beam effective depth and for columns it is largest of:

- I. Largest sectional dimensions of the column.
- II. One-sixth of clear height.
- III. 450 mm

Length of laterally unsupported tie shall not exceed 300 mm.

Minimum sectional area (A_{sh}) of ties is related to unsupported length (s), grade of materials (f_{ck} and f_y) and ratio of core area (A_c) to actual gross sectional area (A_g) of column as $A_{sh} = 0.18 * s * h * f_{ck} / f_y (A_g / A_c - 1)$.

Spacing of ties shall not exceed 100 mm, shall not exceed one-fourth of the smallest column sectional dimension and need not be less than 75 mm

Shear strength with ties shall not be less than 1.4 times ratio of sum of moment of resistance (top tension for one and bottom tension for the other) of beams framing into the column to the distance between mid heights of column in adjacent storey's.

Laps in columns shall be permitted only within a specified zone near mid storey height. Tie spacing in the lap splice zones shall not be less than 150 mm.

For beams, within the confinement zone:


P. SENTHIL KUMAR M.E. (STRUCT), AN
Reg. No: CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97000 00478

Stirrup spacing shall not exceed one fourth the effective depth.

Shear strength shall be at least the gravity load plus 1.4 times ratio of sum of moments of resistance (top tension for one end and bottom tension for the other end) to the span of beam.

Lap splices shall not be provided within:

- a) A joint,
- b) The special confinement zone,
- c) 25% of span length adjacent to joint, where flexural yielding may occur under seismic forces. Stirrup spacing over the lap splices shall not be less than 150 mm.

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.



P. SENTHIL KUMAR M.E.(STRUCT),AIV
Reg.No:CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97866 00478

Job No.	Sheet No.	Rev
	2	
Job Title	Part	Ref
Client	By	Date 25-Aug-25 Chd
File 4bhk.std	Date Time	09-Sep-2025 15:20

Sections Cont...

Prop	Name	Area (cm2)	I _{yy} (cm4)	I _{zz} (cm4)	J (cm4)	Material	Source
5	Rect 0.45x0.23	1,035.000	45,626.25 0	174,656.2 50	124,072.5 86	CONCRET E	Parametric
6	Rect 0.75x0.23	1,725.000	76,043.75 0	808,593.7 50	245,451.7 19	CONCRET E	Parametric

Materials

Mat	Name	E (kN/mm2)	v	Density (kg/m3)	α (/°C)
1	CONCRETE	21.719	0.170	2,402.615	0.000

Supports

Node	X (kN/mm)	Y (kN/mm)	Z (kN/mm)	rX (kN-m/deg)	rY (kN-m/deg)	rZ (kN-m/deg)
21	Fixed	Fixed	Fixed	-	-	-
22	Fixed	Fixed	Fixed	-	-	-
23	Fixed	Fixed	Fixed	-	-	-
24	Fixed	Fixed	Fixed	-	-	-
25	Fixed	Fixed	Fixed	-	-	-
26	Fixed	Fixed	Fixed	-	-	-
27	Fixed	Fixed	Fixed	-	-	-
29	Fixed	Fixed	Fixed	-	-	-
30	Fixed	Fixed	Fixed	-	-	-
32	Fixed	Fixed	Fixed	-	-	-
33	Fixed	Fixed	Fixed	-	-	-
34	Fixed	Fixed	Fixed	-	-	-
35	Fixed	Fixed	Fixed	-	-	-
86	Fixed	Fixed	Fixed	-	-	-
92	Fixed	Fixed	Fixed	-	-	-
113	Fixed	Fixed	Fixed	-	-	-

Basic Load Cases

Primary Load Cases

Number	Name	Type
1	DEAD	Dead
2	LIVE	Live

P. Senthil Kumar
P. SENTHIL KUMAR M.E.(STRUCT),AIV
Reg.No:CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97066 00478



Software licensed to only @::LAVteam::A@
Connected User: user@edu Non commercial

Job No.

Sheet No.

Rev

1

Job Title

Part

Re
f

Client

B
y

Date 25-Aug-25

Chd

File 4bhk.std

Date Time 09-Sep-2025 15:20

Job Information

	Engineer	Checked	Approved
Name:			
Date:	25-Aug-25		

Comments:

Structure Type: SPACE FRAME

Geometry

Entity Type	Count	Highest
Nodes	90	127
Analytical Members	149	246

Load Cases

Load Case Type	Count
Primary	2
Combination	2

Included in this printout are data for:

All The Whole Structure

Load Case Table

Included in this printout are results for load cases:

L/C	Type	Name
1	Primary	DEAD
2	Primary	LIVE
3	Combination	DL+LL
4	Combination	1.5 (DL+LL)

P. Senthil Kumar

P. SENTHIL KUMAR M.E.(STRUCT), AM
Reg. No: CBE LPA/SE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641 009.
Cell: 97650 00470

Sections

Prop	Name	Area (cm2)	I _{yy} (cm4)	I _{zz} (cm4)	J (cm4)	Material	Source
1	Rect 0.30x0.23	690.000	30,417.50 4	51,750.00 4	64,595.30 5	CONCRET E	Parametric
2	Rect 0.38x0.23	874.000	38,528.83 6	105,171.3 28	96,005.96 9	CONCRET E	Parametric
3	Rect 0.45x0.23	1,035.000	45,626.25 0	174,656.2 50	124,072.5 86	CONCRET E	Parametric
4	Rect 0.38x0.23	874.000	38,528.83 6	105,171.3 28	96,005.96 9	CONCRET E	Parametric

Combination Load Cases

Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
3	DL+LL	1	DEAD	1.000
		2	LIVE	1.000
4	1.5 (DL+LL)	1	DEAD	1.500
		2	LIVE	1.500

SelfWeights

L/C	Direction	Factor	Assigned Geometry
1	Y	-1.000	ALL

Floor Loads

L/C	Direction	Load (N/mm2)	Min X (m)	Max X (m)	Min Y (m)	Max Y (m)	Min Z (m)	Max Z (m)
1	GY	-0.006	0.000	0.000	3.350	3.350	0.000	0.000
	GY	-0.006	0.000	0.000	6.700	6.700	0.000	0.000
	GY	-0.006	0.000	0.000	10.050	10.050	0.000	0.000
	GY	-0.002	0.000	0.000	0.000	0.000	0.000	0.000
2	GY	-0.002	0.000	0.000	3.350	3.350	0.000	0.000
	GY	-0.002	0.000	0.000	6.700	6.700	0.000	0.000
	GY	-0.002	0.000	0.000	10.050	10.050	0.000	0.000

Static Check

L/C		FX (kN)	FY (kN)	FZ (kN)	MX (kN-m)	MY (kN-m)	MZ (kN-m)
1	Loads	0.000	5,737.599	0.000	43,117.352	0.000	26,857.977
	Reactions	0.000	5,737.599	0.000	43,117.352	0.000	26,857.977
	Difference	0.000	0.000	0.000	0.000	0.000	0.000
2	Loads	0.000	-588.697	0.000	4,746.187	0.000	2,996.586
	Reactions	0.000	588.697	0.000	4,746.187	0.000	2,996.586
	Difference	0.000	0.000	0.000	0.000	0.000	0.000

Reaction Summary

	Node	L/C	Horizontal FX (kN)	Vertical FY (kN)	Horizontal FZ (kN)	Moment MX (kN-m)	MY (kN-m)	MZ (kN-m)
Max FX	92	4	6.283	454.317	-0.447	0.000	0.000	0.000
Min FX	34	4	-5.620	772.230	-1.782	0.000	0.000	0.000
Max FY	26	4	-3.894	842.153	-1.483	0.000	0.000	0.000
Min FY	21	2	-0.050	7.320	0.027	0.000	0.000	0.000
Max FZ	23	4	-3.814	455.915	10.403	0.000	0.000	0.000
Min FZ	113	4	-3.438	308.140	-4.451	0.000	0.000	0.000
Max MX	21	1	2.686	143.840	0.051	0.000	0.000	0.000
Min MX	21	1	2.686	143.840	0.051	0.000	0.000	0.000
Max MY	21	1	2.686	143.840	0.051	0.000	0.000	0.000
Min MY	21	1	2.686	143.840	0.051	0.000	0.000	0.000
Max MZ	21	1	2.686	143.840	0.051	0.000	0.000	0.000
Min MZ	21	1	2.686	143.840	0.051	0.000	0.000	0.000

Reaction Envelope

Node			Max +ve	L/C	Max -ve	L/C
21	Horizontal	FX (kN)	3.954	4	-0.050	2
	Vertical	FY (kN)	226.740	4	0.000	
	Horizontal	FZ (kN)	0.117	4	0.000	
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
22	Horizontal	FX (kN)	0.226	4	-0.030	2
	Vertical	FY (kN)	649.069	4	0.000	
	Horizontal	FZ (kN)	0.996	4	-0.019	2
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
23	Horizontal	FX (kN)	0.014	2	-3.814	4
	Vertical	FY (kN)	455.915	4	0.000	
	Horizontal	FZ (kN)	10.403	4	0.000	
	Moment	MX (kN-m)	0.000		0.000	

P. SENTHIL KUMAR M.E. (STRUCT), AIV
Reg. No: CBE LPA/SE/GR-11050/2024
30-A, 1st Floor, Kalidas Street,
Coimbatore - 641 009.
Cell. 97566 00478

Reaction Envelope Cont...

Node			Max +ve	L/C	Max -ve	L/C
30	Horizontal	FZ (kN)	3.389	4	0.000	
		MX (kN-m)	0.000		0.000	
	Moment	MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
32	Horizontal	FX (kN)	4.507	4	-0.083	2
	Vertical	FY (kN)	426.437	4	0.000	
	Horizontal	FZ (kN)	0.029	2	-3.436	4
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
33	Horizontal	FX (kN)	0.000		-1.634	4
	Vertical	FY (kN)	603.599	4	0.000	
	Horizontal	FZ (kN)	0.000		-3.544	4
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
34	Horizontal	FX (kN)	0.041	2	-5.620	4
	Vertical	FY (kN)	772.230	4	0.000	
	Horizontal	FZ (kN)	0.120	2	-1.782	4
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
35	Horizontal	FX (kN)	0.115	2	-1.832	4
	Vertical	FY (kN)	711.018	4	0.000	
	Horizontal	FZ (kN)	0.130	2	-1.335	4
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
86	Horizontal	FX (kN)	3.536	4	0.000	
	Vertical	FY (kN)	546.495	4	0.000	
	Horizontal	FZ (kN)	2.381	4	-0.069	2
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	

P. Senthil Kumar M.E. (STRUCTURAL)
Reg. No: CBE LPA/SE/GR-I/050/2024
307, Kalidas Street,
Ram Nagar, Coimbatore - 641009.
Cell: 97866 00478

Reaction Envelope Cont...

Node			Max +ve	L/C	Max -ve	L/C
23	Moment	MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
24	Horizontal	FX (kN)	0.398	4	-0.035	2
	Vertical	FY (kN)	783.256	4	0.000	
	Horizontal	FZ (kN)	1.354	4	0.000	
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
25	Horizontal	FX (kN)	5.338	4	-0.171	2
	Vertical	FY (kN)	618.012	4	0.000	
	Horizontal	FZ (kN)	0.000		-1.763	4
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
26	Horizontal	FX (kN)	0.097	2	-3.894	4
	Vertical	FY (kN)	842.153	4	0.000	
	Horizontal	FZ (kN)	0.000		-1.483	4
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
27	Horizontal	FX (kN)	0.132	2	-3.746	4
	Vertical	FY (kN)	819.538	4	0.000	
	Horizontal	FZ (kN)	1.577	4	-0.062	2
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
29	Horizontal	FX (kN)	0.042	2	-0.671	4
	Vertical	FY (kN)	792.367	4	0.000	
	Horizontal	FZ (kN)	0.000		-1.975	4
	Moment	MX (kN-m)	0.000		0.000	
		MY (kN-m)	0.000		0.000	
		MZ (kN-m)	0.000		0.000	
30	Horizontal	FX (kN)	0.407	4	-0.104	2
	Vertical	FY (kN)	480.159	4	0.000	

P. Senthil Kumar M.E. (STRUCT), A/V
Reg. No: CBE L/ASE/GR-I/050/2024
30-A, 1st Floor, Kalidas Street,
Ram Nagar, Coimbatore - 641009
Cell: 97886 00478