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DIGITALLY VERIFIED RECORD

Client	**M/s.Maniram Promoters and Developers Pvt Ltd**
Project	PROPOSED APARTMENT BUILDING, Thavasinagar, Coimbatore.
Structural Consultant	**LOGON STRUCTURES** Coimbatore - 641025
Title :	Design Report

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Chapter 1

1.1 INTRODUCTION:-

The purpose of this report is to outline the design philosophy and loading calculation along with analysis and design of the proposed Apartment building at the Coimbatore.

The building includes the size of 30.32 m x34.69 m.

1.2 General

This document details the input data, principles, methods and performance criteria to be used in the structural engineering design of the project for M/s.Maniram Promoters and Developers Pvt Ltd.

1.3 Scope

The structure is a ground and five floor for residential area. This report presents details of structural analysis and design of the structure. The sizes and details of the sections of structural elements are based on detailed analysis. This report specifies the details of structural layout, mathematical model, material properties, loads , load combinations and design of members.

Chapter 2

LOADS & LOAD COMBINATIONS

2.1 General

This chapter discusses applicable loading for structural analysis & design of the proposed building. The loading is classified and described in the following paragraph

2.2.1 Dead load (DL)

This comprises of self-weight of various structural elements indicated below:

- Self-weight of columns and beam members.of the modeled elements is calculated by STAAD Pro through SELF WEIGHT command.

- Self-weight of slab, floor finish and wall is applied explicitly as floor and member load.

Slab load :-

Slab load (125mm Tk) - 0.125x25 = 3.125 kN/sq.m,

Floor finish = 1.5 kN/sq.m,

Total load = 4.625 kN/sq.m.

2.2.2 Live Loads (LL)

Loads are considered slab area is 2.0 kN/sq.m.

2.3 LOAD COMBINATIONS

2.3.1 LOAD NAME AND COMBINATIONS ADOPTED FOR DESIGN

Number	Name	Type
1	DEAD LOAD	Dead
2	LIVE LOAD	Live Load

Strength combination:-

Comb	Combination L/C Name	Primary	Primary L/C Name	Factor
3	1.5(D.L+L.L)	1	DEAD LOAD	1.5
		2	LIVE LOAD	1.5

Serviceability combination:-

Comb	Combination L/C Name	Primary	Primary L/C Name	Factor
4	1.0(D.L+L.L)	1	DEAD LOAD	1.0
		2	LIVE LOAD	1.0

Chapter 3

ANALYSIS

3.1 General

The analysis of the structure is carried out by mathematical modeling of the structure in STAAD Pro and performing an analysis run.

3.2 Mathematical Modeling of Structure

The Proposed structure is modeled and analyzed using STAAD Pro. The physical structure of building is transformed into a mathematical model for structural analysis using 3D frame elements. Entire structure is framed of integrated three dimensional structure of columns and beams forming frames tied together to act as one unit responding to the loading on the structure. The discretization of the structure involves structural components such as Column, and beams.

Chapter 4

DESIGN OF MEMBERS

4.1 General

Elements are designed as per IS: 456-2000 for combination of loads in the analysis of STAAD Pro.

Chapter 5

Analysis and Design

STAAD SPACE

START JOB INFORMATION

ENGINEER DATE 17-Apr-25

END JOB INFORMATION

INPUT WIDTH 79

UNIT METER KN

JOINT COORDINATES

1 0 -2.5 0; 2 3.1 -2.5 0; 5 3.1 -2.5 3.5; 7 -1.7 -2.5 3.5; 8 5.95 -2.5 3.5;

9 8.25 -2.5 3.5; 10 3.1 -2.5 7; 11 -1.7 -2.5 7; 12 6.75 -2.5 7;

13 13.05 -2.5 7; 14 3.1 -2.5 10.9; 15 -1.7 -2.5 10.9; 16 6.75 -2.5 10.6;

17 13.75 -2.5 10.6; 18 3.1 -2.5 13.95; 19 -1.7 -2.5 13.95; 20 6.75 -2.5 14;

21 13.75 -2.5 12.6; 22 16.4 -2.5 12.6; 23 13.75 -2.5 15.25; 24 16.4 -2.5 15.25;

25 17.9 -2.5 15.25; 26 13.75 -2.5 18.45; 27 17.9 -2.5 18.45;

28 20.2 -2.5 18.45; 29 6.75 -2.5 17.6; 30 3.1 -2.5 17.6; 31 -1.7 -2.5 17.6;

32 3.1 -2.5 20.7; 33 -1.7 -2.5 20.7; 34 7.78 -2.5 20.7; 35 13.75 -2.5 21.05;

36 20.2 -2.5 21.05; 37 17.35 -2.5 21.05; 38 16.65 -2.5 24.65;

39 21.95 -2.5 24.65; 40 24.7 -2.5 24.65; 41 13.75 -2.5 26.7; 42 3.1 -2.5 24.15;

43 -1.7 -2.5 24.15; 44 6.75 -2.5 24.15; 45 3.1 -2.5 27.55; 46 -1.7 -2.5 27.55;

47 6.75 -2.5 27.55; 48 19.35 -2.5 26.7; 49 19.35 -2.5 30.05;

50 21.25 -2.5 29.83; 53 13.75 -2.5 34.65; 54 3.1 -2.5 31.15;

55 -1.7 -2.5 31.15; 56 6.75 -2.5 31.15; 57 3.1 -2.5 34.65; 58 -1.7 -2.5 34.65;

59 6.75 -2.5 34.65; 60 16.35 -2.5 34.65; 61 21.25 -2.5 34.65;

62 23.75 -2.5 34.65; 63 26.65 -2.5 34.65; 64 28.45 -2.5 34.65;

65 28.45 -2.5 31.25; 66 0 0 0; 67 3.1 0 0; 68 8.25 0 0; 69 3.1 0 3.5;

70 -1.7 0 3.5; 71 5.95 0 3.5; 72 8.25 0 3.5; 73 3.1 0 7; 74 -1.7 0 7;

75 6.75 0 7; 76 13.05 0 7; 77 3.1 0 10.9; 78 -1.7 0 10.9; 79 6.75 0 10.6;

80 13.75 0 10.6; 81 3.1 0 13.95; 82 -1.7 0 13.95; 83 6.75 0 14;

84 13.75 0 12.6; 85 16.4 0 12.6; 86 13.75 0 15.25; 87 16.4 0 15.25;

88 17.9 0 15.25; 89 13.75 0 18.45; 90 17.9 0 18.45; 91 20.2 0 18.45;

92 6.75 0 17.6; 93 3.1 0 17.6; 94 -1.7 0 17.6; 95 3.1 0 20.7; 96 -1.7 0 20.7;

97 7.78 0 20.7; 98 13.75 0 21.05; 99 20.2 0 21.05; 100 17.35 0 21.05;

101 16.65 0 24.65; 102 21.95 0 24.65; 103 24.7 0 24.65; 104 13.75 0 26.7;

105 3.1 0 24.15; 106 -1.7 0 24.15; 107 6.75 0 24.15; 108 3.1 0 27.55;

109 -1.7 0 27.55; 110 6.75 0 27.55; 111 19.35 0 26.7; 112 19.35 0 30.05;

113 21.25 0 29.83; 114 23.75 0 28.03; 115 26.65 0 28.03; 116 13.75 0 34.65;

117 3.1 0 31.15; 118 -1.7 0 31.15; 119 6.75 0 31.15; 120 3.1 0 34.65;

121 -1.7 0 34.65; 122 6.75 0 34.65; 123 16.35 0 34.65; 124 21.25 0 34.65;

125 23.75 0 34.65; 126 26.65 0 34.65; 127 28.45 0 34.65; 128 28.45 0 31.25;

129 0 3.2 0; 130 3.1 3.2 0; 132 3.1 3.2 3.5; 133 -1.7 3.2 3.5;

134 5.95 3.2 3.5; 135 8.25 3.2 3.5; 136 3.1 3.2 7; 137 -1.7 3.2 7;

138 6.75 3.2 7; 139 13.05 3.2 7; 140 3.1 3.2 10.9; 141 -1.7 3.2 10.9;

142 6.75 3.2 10.6; 143 13.75 3.2 10.6; 144 3.1 3.2 13.95; 145 -1.7 3.2 13.95;

146 6.75 3.2 14; 147 13.75 3.2 12.6; 148 16.4 3.2 12.6; 149 13.75 3.2 15.25;

150 16.4 3.2 15.25; 151 17.9 3.2 15.25; 152 13.75 3.2 18.45;

153 17.9 3.2 18.45; 154 20.2 3.2 18.45; 155 6.75 3.2 17.6; 156 3.1 3.2 17.6;

157 -1.7 3.2 17.6; 158 3.1 3.2 20.7; 159 -1.7 3.2 20.7; 160 7.78 3.2 20.7;

161 13.75 3.2 21.05; 162 20.2 3.2 21.05; 163 17.35 3.2 21.05;

164 16.65 3.2 24.65; 165 21.95 3.2 24.65; 166 24.7 3.2 24.65;

167 13.75 3.2 26.7; 168 3.1 3.2 24.15; 169 -1.7 3.2 24.15; 170 6.75 3.2 24.15;

171 3.1 3.2 27.55; 172 -1.7 3.2 27.55; 173 6.75 3.2 27.55; 174 19.35 3.2 26.7;

175 19.35 3.2 30.05; 176 21.25 3.2 29.83; 179 13.75 3.2 34.65;

180 3.1 3.2 31.15; 181 -1.7 3.2 31.15; 182 6.75 3.2 31.15; 183 3.1 3.2 34.65;

184 -1.7 3.2 34.65; 185 6.75 3.2 34.65; 186 16.35 3.2 34.65;

187 21.25 3.2 34.65; 188 23.75 3.2 34.65; 189 26.65 3.2 34.65;

190 28.45 3.2 34.65; 191 28.45 3.2 31.25; 192 0 6.4 0; 193 3.1 6.4 0;

195 3.1 6.4 3.5; 196 -1.7 6.4 3.5; 197 5.95 6.4 3.5; 198 8.25 6.4 3.5;

199 3.1 6.4 7; 200 -1.7 6.4 7; 201 6.75 6.4 7; 202 13.05 6.4 7;

203 3.1 6.4 10.9; 204 -1.7 6.4 10.9; 205 6.75 6.4 10.6; 206 13.75 6.4 10.6;

207 3.1 6.4 13.95; 208 -1.7 6.4 13.95; 209 6.75 6.4 14; 210 13.75 6.4 12.6;

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425 6.75 16 27.55; 426 19.35 16 26.7; 427 19.35 16 30.05; 428 21.25 16 29.83;

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505 28.45 19.2 34.65; 506 28.45 19.2 31.25; 507 -1.7 0 0;

508 2.22045e-16 0 3.5; 512 4.75 0 7; 515 4.75 0 4.5; 517 3.1 0 4.5;

518 5.95 0 0; 519 5.95 0 4.5; 520 3.1 0 1.4; 521 5.95 0 1.4; 522 13.75 0 8.1;

525 10.6265 0 3.5; 529 11.69 0 10.6; 537 11.69 0 5.06618; 538 11.69 0 7;

539 -0.0500001 0 7; 540 -0.0500001 0 10.9; 541 13.75 0 14; 542 11.69 0 14;

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1566 164 165; 1567 227 228; 1568 290 291; 1569 353 354; 1570 416 417;

1571 479 480; 1572 102 103; 1573 165 166; 1574 228 229; 1575 291 292;
1576 354 355; 1577 417 418; 1578 480 481; 1579 105 587; 1580 168 809;
1581 231 916; 1582 294 1023; 1583 357 1130; 1584 420 1237; 1585 483 695;
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1916 176 909; 1917 239 1016; 1918 302 1123; 1919 365 1230; 1920 428 1337;
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1941 1312 1314; 1942 770 772; 1943 590 117; 1944 808 180; 1945 915 243;
1946 1022 306; 1947 1129 369; 1948 1236 432; 1949 694 495; 1950 591 119;
1951 872 182; 1952 979 245; 1953 1086 308; 1954 1193 371; 1955 1300 434;
1956 758 497; 1957 648 113; 1958 907 176; 1959 1014 239; 1960 1121 302;
1961 1228 365; 1962 1335 428; 1963 793 491; 1964 649 647; 1965 677 909;
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1986 903 904; 1987 1010 1011; 1988 1117 1118; 1989 1224 1225; 1990 1331 1332;
1991 789 790; 1992 648 649; 1993 907 677; 1994 1014 678; 1995 1121 679;
1996 1228 680; 1997 1335 681; 1998 793 682; 1999 118 586; 2000 181 877;
2001 244 984; 2002 307 1091; 2003 370 1198; 2004 433 1305; 2005 496 763;

2006 586 117; 2007 877 180; 2008 984 243; 2009 1091 306; 2010 1198 369;
2011 1305 432; 2012 763 495; 2013 119 610; 2014 182 883; 2015 245 990;
2016 308 1097; 2017 371 1204; 2018 434 1311; 2019 497 769; 2020 610 606;
2021 883 840; 2022 990 947; 2023 1097 1054; 2024 1204 1161; 2025 1311 1268;
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2183 914 246; 2184 1021 309; 2185 1128 372; 2186 1235 435; 2187 693 498;
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2198 312 1111; 2199 375 1218; 2200 438 1325; 2201 501 783; 2202 641 643;
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2213 376 1219; 2214 439 1326; 2215 502 784; 2216 121 120; 2217 184 183;
2218 247 246; 2219 310 309; 2220 373 372; 2221 436 435; 2222 499 498;
2223 120 122; 2224 183 185; 2225 246 248; 2226 309 311; 2227 372 374;
2228 435 437; 2229 498 500; 2230 122 612; 2231 185 816; 2232 248 923;
2233 311 1030; 2234 374 1137; 2235 437 1244; 2236 500 702; 2237 612 116;
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2243 702 494; 2251 116 123; 2252 179 186; 2253 242 249; 2254 305 312;
2255 368 375; 2256 431 438; 2257 494 501; 2258 123 641; 2259 186 815;
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2275 313 314; 2276 376 377; 2277 439 440; 2278 502 503; 2279 125 126;
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2285 503 504; 2286 126 127; 2287 189 190; 2288 252 253; 2289 315 316;
2290 378 379; 2291 441 442; 2292 504 505;

START GROUP DEFINITION

FLOOR

_SUNKEN1WAY 515 536 543 550 718 788 795 837 886 922 980 1015 1066 1608 1650 -

1741 1825 1895 1916 1923 1930 1958 1965 1979 1986 1993 2042 2049 2147 2154 -
2182 2189 2196 2203 2224 2259
_SUNKEN2WAY 655 683 690 732 1202 1230 1279 1286 1300 1307 1335 1377 1384 -
1405 1412 1426 2035 2063 2070 2105
_SUNKEN2WAY1 656 684 691 733 1203 1231 1280 1287 1301 1308 1336 1378 1385 -
1406 1413 1427 2036 2064 2071 2106
_SUNKEN2WAY2 658 686 693 735 1205 1233 1282 1289 1303 1310 1338 1380 1387 -
1408 1415 1429 2038 2066 2073 2108
_SUNKEN2WAY3 657 685 692 734 1204 1232 1281 1288 1302 1309 1337 1379 1386 -
1407 1414 1428 2037 2065 2072 2107
_SUNKEN2WAY5 659 687 694 736 1206 1234 1283 1290 1304 1311 1339 1381 1388 -
1409 1416 1430 2039 2067 2074 2109
_SUNKEN1WAY1 516 537 544 551 719 789 796 838 887 923 981 1016 1067 1609 1651 -
1742 1826 1896 1917 1924 1931 1959 1966 1980 1987 1994 2043 2050 2148 2155 -
2183 2190 2197 2204 2225 2260
_SUNKEN1WAY2 517 538 545 552 720 790 797 839 888 924 982 1017 1068 1610 1652 -
1743 1827 1897 1918 1925 1932 1960 1967 1981 1988 1995 2044 2051 2149 2156 -
2184 2191 2198 2205 2226 2261
_SUNKEN1WAY3 518 539 546 553 721 791 798 840 889 925 983 1018 1069 1611 1653 -
1744 1828 1898 1919 1926 1933 1961 1968 1982 1989 1996 2045 2052 2150 2157 -
2185 2192 2199 2206 2227 2262
_SUNKEN1WAY5 519 540 547 554 722 792 799 841 890 926 984 1019 1070 1612 1654 -
1745 1829 1899 1920 1927 1934 1962 1969 1983 1990 1997 2046 2053 2151 2158 -
2186 2193 2200 2207 2228 2263
END GROUP DEFINITION
DEFINE MATERIAL START
ISOTROPIC CONCRETE
E 2.17185e+07
POISSON 0.17

DENSITY 23.5616

ALPHA 1e-05

DAMP 0.05

G 9.28139e+06

TYPE CONCRETE

STRENGTH FCU 27579

END DEFINE MATERIAL

MEMBER PROPERTY

1 TO 7 22 TO 42 57 TO 77 85 TO 120 136 TO 157 181 TO 210 225 TO 238 -

253 TO 259 267 TO 301 323 TO 329 351 TO 357 372 TO 378 407 TO 413 -

428 TO 434 442 TO 448 PRIS YD 0.6 ZD 0.23

8 TO 21 43 TO 56 129 TO 135 174 TO 180 218 TO 224 246 TO 252 260 TO 266 316 -

317 TO 322 344 TO 350 358 TO 371 386 TO 406 PRIS YD 0.45 ZD 0.23

121 TO 128 158 TO 173 211 TO 217 435 TO 441 449 TO 455 PRIS YD 0.38 ZD 0.23

570 TO 576 647 TO 653 710 TO 716 745 752 759 766 TO 772 815 TO 835 -

986 TO 1006 1123 TO 1150 1523 TO 1550 1628 1664 TO 1669 1671 TO 1697 1726 -

1733 1761 TO 1781 1803 1817 TO 1823 1859 1964 1985 TO 1991 2013 TO 2033 -

2097 TO 2103 2195 TO 2201 2230 2237 2258 2265 PRIS YD 0.6 ZD 0.23

536 TO 541 578 TO 583 605 612 626 TO 632 640 682 TO 688 696 718 TO 723 725 -

726 TO 730 732 TO 737 739 TO 744 746 TO 751 753 TO 758 760 TO 765 774 TO 779 -

802 TO 807 850 TO 863 921 TO 934 1014 TO 1027 1086 TO 1099 1172 TO 1178 -

1180 TO 1192 1230 TO 1235 1237 TO 1242 1244 TO 1249 1299 TO 1305 -

1307 TO 1319 1335 TO 1361 1404 TO 1410 1412 TO 1424 1426 TO 1431 -

1433 TO 1438 1440 TO 1445 1488 TO 1494 1496 TO 1508 1579 TO 1592 -

1649 TO 1662 1719 TO 1725 1727 TO 1732 1782 TO 1802 1804 TO 1816 -

1824 TO 1837 1860 TO 1872 1887 TO 1893 1908 TO 1914 1943 TO 1963 -

1965 TO 1970 2055 TO 2068 2076 TO 2096 2111 TO 2117 2167 TO 2173 -

2181 TO 2194 2202 TO 2215 2217 TO 2222 2224 TO 2229 2231 TO 2236 -

2238 TO 2243 2252 TO 2257 2259 TO 2264 2266 TO 2271 2273 TO 2278 -

2280 TO 2285 2287 TO 2292 PRIS YD 0.45 ZD 0.23

500 TO 520 522 TO 535 542 TO 548 550 TO 555 557 TO 562 564 TO 569 577 584 -

585 TO 604 606 TO 611 613 TO 625 634 TO 639 641 TO 646 654 TO 681 689 TO 695 -

697 TO 709 717 724 731 738 773 780 TO 801 808 836 TO 849 871 TO 905 -

942 TO 955 958 TO 963 965 TO 985 1044 TO 1078 1101 TO 1122 1158 TO 1171 -

1193 TO 1221 1229 1236 1243 1250 TO 1256 1264 TO 1277 1279 TO 1284 -

1286 TO 1298 1306 1320 TO 1333 1369 TO 1403 1411 1425 1432 1439 -

1446 TO 1466 1475 TO 1480 1482 TO 1487 1509 TO 1522 1558 TO 1578 -

1593 TO 1620 1629 TO 1641 1698 TO 1711 1734 TO 1760 1839 TO 1844 -

1852 TO 1858 1873 TO 1886 1894 TO 1907 1916 TO 1921 1923 TO 1928 -

1971 TO 1977 1993 TO 2012 2035 TO 2040 2049 TO 2054 2069 TO 2075 -

2105 TO 2110 2118 TO 2124 2126 TO 2131 2146 TO 2152 2154 TO 2159 -

2161 TO 2166 2174 TO 2180 2216 2223 2251 2272 2279 -

2286 PRIS YD 0.38 ZD 0.23

521 549 556 563 633 864 906 TO 920 957 964 1028 TO 1043 1179 1222 TO 1228 -

1278 1285 1334 1474 1481 1495 1642 TO 1648 1838 1915 1922 1936 TO 1942 1992 -

2034 2048 2104 2125 2153 2160 PRIS YD 0.3 ZD 0.23

935 956 1007 1079 1100 1151 1257 1362 1467 1551 1621 1663 1670 1712 1845 -

1929 1978 2041 2139 PRIS YD 0.75 ZD 0.23

302 TO 308 PRIS YD 0.75 ZD 0.38

78 TO 84 239 TO 245 309 TO 315 330 TO 343 379 TO 385 414 TO 427 809 TO 814 -

865 TO 870 936 TO 941 1008 TO 1013 1080 TO 1085 1152 TO 1157 1258 TO 1263 -

1363 TO 1368 1468 TO 1473 1552 TO 1557 1622 TO 1627 1713 TO 1718 -

1846 TO 1851 1930 TO 1935 1979 TO 1984 2042 TO 2047 2140 TO 2144 -

2145 PRIS YD 0.6 ZD 0.3

CONSTANTS

BETA 90 MEMB 1 TO 21 166 TO 173 337 TO 343 351 TO 364 400 TO 455

BETA 304 MEMB 22 TO 28

MATERIAL CONCRETE ALL

SUPPORTS

1 2 5 7 TO 50 53 TO 65 654 662 669 676 PINNED

MEMBER RELEASE

549 TO 562 640 TO 646 654 TO 660 689 TO 695 794 TO 800 885 TO 891 914 TO 920 -

942 TO 948 979 TO 985 1051 TO 1057 1065 TO 1071 1179 TO 1185 1222 TO 1235 -

1264 TO 1270 1278 TO 1291 1306 TO 1312 1425 TO 1431 1453 TO 1459 -

1474 TO 1487 1558 TO 1564 1593 TO 1599 1607 TO 1613 1642 TO 1648 -

1740 TO 1746 1789 TO 1795 1838 TO 1844 1880 TO 1886 1894 TO 1900 -

1922 TO 1928 1936 TO 1942 1971 TO 1977 1992 TO 1998 2034 TO 2040 -

2048 TO 2054 2104 TO 2110 2125 TO 2131 2146 TO 2159 2202 TO 2207 -

2208 START MP 0.95

549 TO 555 563 TO 569 633 TO 639 668 TO 674 689 TO 709 794 TO 800 871 TO 877 -

892 TO 898 914 TO 920 979 TO 985 1000 TO 1006 1051 TO 1057 1072 TO 1078 -

1144 TO 1150 1158 TO 1164 1186 TO 1192 1222 TO 1228 1243 TO 1249 -

1278 TO 1284 1334 TO 1340 1355 TO 1361 1411 TO 1417 1439 TO 1445 -

1453 TO 1459 1495 TO 1508 1544 TO 1550 1614 TO 1620 1642 TO 1648 -

1691 TO 1704 1719 TO 1732 1740 TO 1746 1775 TO 1781 1817 TO 1823 -

1838 TO 1844 1880 TO 1886 1901 TO 1928 1936 TO 1942 2027 TO 2033 -

2048 TO 2054 2104 TO 2110 2125 TO 2131 2146 TO 2152 2160 TO 2165 -

2166 END MP 0.95

LOAD 1 LOADTYPE Dead TITLE DEAD LOAD

SELFWEIGHT Y -1

MEMBER LOAD

1079 TO 1085 1101 TO 1107 1151 TO 1157 UNI GY -23

513 520 527 534 569 576 597 653 681 716 772 793 814 870 905 913 956 964 1043 -

1050 1100 1108 1200 1221 1256 1298 1403 1452 1487 1578 1634 1641 1739 1809 -

1879 1914 2040 2075 2124 2180 2222 2229 2236 2243 2257 2264 2271 2278 2285 -

2292 UNI Y -4.85

203 507 TO 512 514 TO 519 521 TO 526 528 TO 533 563 TO 568 570 TO 575 591 -

592 TO 596 647 TO 652 675 TO 680 703 TO 708 710 TO 715 717 TO 722 724 TO 729 -

731 TO 736 738 TO 743 745 TO 750 752 TO 757 759 TO 764 766 TO 771 -

780 TO 785 787 TO 792 808 TO 813 864 TO 869 878 TO 883 899 TO 904 -

906 TO 912 935 TO 947 949 TO 954 957 TO 963 1007 TO 1013 1028 TO 1034 1036 -

1037 TO 1042 1044 TO 1049 1058 TO 1063 1101 TO 1107 1165 TO 1170 -

1193 TO 1199 1201 TO 1220 1250 TO 1255 1257 TO 1262 1264 TO 1269 -

1271 TO 1276 1292 TO 1297 1362 TO 1367 1397 TO 1402 1446 TO 1451 -

1460 TO 1465 1467 TO 1472 1481 TO 1486 1551 TO 1556 1558 TO 1563 -

1565 TO 1570 1572 TO 1577 1600 TO 1605 1628 TO 1633 1635 TO 1640 -

1663 TO 1668 1670 TO 1675 1677 TO 1682 1684 TO 1689 1691 TO 1696 -

1698 TO 1703 1705 TO 1710 1712 TO 1717 1733 TO 1738 1761 TO 1766 -

1782 TO 1787 1803 TO 1808 1845 TO 1850 1852 TO 1857 1873 TO 1878 -

1887 TO 1892 1908 TO 1913 1936 TO 1941 1971 TO 1976 1978 TO 1983 -

2020 TO 2025 2034 TO 2039 2041 TO 2046 2055 TO 2060 2069 TO 2074 -

2118 TO 2123 2125 TO 2130 2139 TO 2144 2174 TO 2179 2209 TO 2214 -

2216 TO 2221 2223 TO 2228 2230 TO 2235 2237 TO 2242 2251 TO 2256 -

2258 TO 2263 2265 TO 2270 UNI GY -15.8

2272 TO 2277 UNI GY -15.8

2279 TO 2284 2286 TO 2291 UNI GY -15.8

535 TO 540 542 TO 547 549 TO 554 577 TO 582 584 TO 589 598 TO 603 605 TO 610 -

612 TO 617 619 TO 624 647 TO 652 654 TO 659 661 TO 666 668 TO 673 -

682 TO 687 689 TO 694 696 TO 701 710 TO 715 766 TO 771 794 TO 799 -

801 TO 806 815 TO 820 822 TO 827 836 TO 841 843 TO 848 857 TO 862 -

871 TO 876 885 TO 890 892 TO 897 914 TO 919 921 TO 926 928 TO 933 -

965 TO 970 972 TO 977 979 TO 984 986 TO 991 993 TO 998 1014 TO 1019 1021 -

1022 TO 1026 1051 TO 1056 1065 TO 1070 1072 TO 1077 1086 TO 1091 -

1093 TO 1098 1101 TO 1107 1109 TO 1114 1116 TO 1121 1123 TO 1128 -

1130 TO 1135 1137 TO 1142 1144 TO 1149 1158 TO 1163 1172 TO 1177 -

1186 TO 1191 1222 TO 1227 1229 TO 1234 1236 TO 1241 1243 TO 1248 -

1278 TO 1283 1285 TO 1290 1299 TO 1304 1306 TO 1311 1313 TO 1318 -

1320 TO 1325 1327 TO 1332 1334 TO 1339 1341 TO 1346 1348 TO 1353 -

1369 TO 1374 1376 TO 1381 1383 TO 1388 1390 TO 1395 1404 TO 1409 -

1411 TO 1416 1418 TO 1423 1425 TO 1430 1432 TO 1437 1439 TO 1444 -

1453 TO 1458 1474 TO 1479 1488 TO 1493 1502 TO 1507 1509 TO 1514 -

1516 TO 1521 1523 TO 1528 1530 TO 1535 1537 TO 1542 1579 TO 1584 -

1586 TO 1591 1593 TO 1598 1607 TO 1612 1614 TO 1619 1642 TO 1647 -

1649 TO 1654 1656 UNI GY -8

500 TO 506 556 TO 562 1657 TO 1661 1719 TO 1724 1726 TO 1731 1740 TO 1745 -

1747 TO 1752 1754 TO 1759 1761 TO 1766 1768 TO 1773 1810 TO 1815 -

1817 TO 1822 1824 TO 1829 1831 TO 1836 1838 TO 1843 1859 TO 1864 -

1866 TO 1871 1880 TO 1885 1894 TO 1899 1901 TO 1906 1915 TO 1920 -

1922 TO 1927 1943 TO 1948 1950 TO 1955 1957 TO 1962 1964 TO 1969 -

1985 TO 1990 1992 TO 1997 1999 TO 2004 2006 TO 2011 2013 TO 2018 -

2048 TO 2053 2062 TO 2067 2076 TO 2081 2083 TO 2088 2090 TO 2095 -

2097 TO 2102 2104 TO 2109 2111 TO 2116 2146 TO 2151 2153 TO 2158 -

2160 TO 2165 2181 TO 2186 2188 TO 2193 2195 TO 2200 2202 TO 2207 UNI GY -8

FLOOR LOAD

YRANGE 3.2 19.2 FLOAD -4.625 XRANGE -1.7 3.1 ZRANGE 0 7 GY

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YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 5.95 10.627 ZRANGE 0 3.5 GY

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YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 3.1 6.75 ZRANGE 7 12 GY

YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 6.75 13.75 ZRANGE 7 10.6 GY

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YRANGE 3.2 19.2 FLOAD -4.625 XRANGE -1.7 3.1 ZRANGE 17.6 20.7 GY

YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 3.1 5.7 ZRANGE 19.1 22.11 GY

YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 6.75 7.78 ZRANGE 17.6 19.1 GY

YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 7.78 13.75 ZRANGE 17.6 20.7 GY

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YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 3.1 6.75 ZRANGE 29.41 33.15 GY

YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 21.25 23.75 ZRANGE 28.03 29.83 GY

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YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 13.75 16.35 ZRANGE 31.45 34.65 GY

YRANGE 3.2 19.2 FLOAD -4.625 XRANGE 6.75 10.15 ZRANGE 31.15 34.65 GY

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_SUNKEN2WAY2 FLOAD -2.3 GY

_SUNKEN2WAY3 FLOAD -2.3 GY

_SUNKEN2WAY5 FLOAD -2.3 GY

ONEWAY LOAD

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YRANGE 3.2 19.2 ONE -4.625 XRANGE 3.1 4.55 ZRANGE 12 15.95 GY

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YRANGE 3.2 19.2 ONE -4.625 XRANGE 13.75 24.7 ZRANGE 24.65 26.7 GY

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YRANGE 3.2 19.2 ONE -4.625 XRANGE 21.25 23.75 ZRANGE 29.83 31.13 GY

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_SUNKEN1WAY1 ONE -2.3 GY

_SUNKEN1WAY2 ONE -2.3 GY

_SUNKEN1WAY3 ONE -2.3 GY

_SUNKEN1WAY5 ONE -2.3 GY

LOAD 2 LOADTYPE Live TITLE LIVE LOAD

FLOOR LOAD

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YRANGE 3.2 19.2 FLOAD -2 XRANGE 13.75 21.95 ZRANGE 21.05 24.65 GY

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YRANGE 22.4 22.4 FLOAD -2 XRANGE 13.75 17.9 ZRANGE 12.6 18.45 GY

ONEWAY LOAD

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YRANGE 3.2 19.2 ONE -2 XRANGE 13.75 24.7 ZRANGE 24.65 26.7 GY

YRANGE 3.2 19.2 ONE -2 XRANGE -1.7 -0.3 ZRANGE 27.55 31.15 GY

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YRANGE 3.2 19.2 ONE -2 XRANGE 23.75 26.65 ZRANGE 28.03 34.65 GY

YRANGE 3.2 19.2 ONE -2 XRANGE 21.25 23.75 ZRANGE 29.83 31.13 GY

LOAD COMB 3 1.5 D.L+L.L

1 1.5 2 1.5

LOAD COMB 4 1 D.L+L.L

1 1.0 2 1.0

PERFORM ANALYSIS PRINT ALL

LOAD LIST 3 4

START CONCRETE DESIGN

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FC 25000 ALL

FYMAIN 500000 ALL

RATIO 4 ALL

TRACK 2 ALL

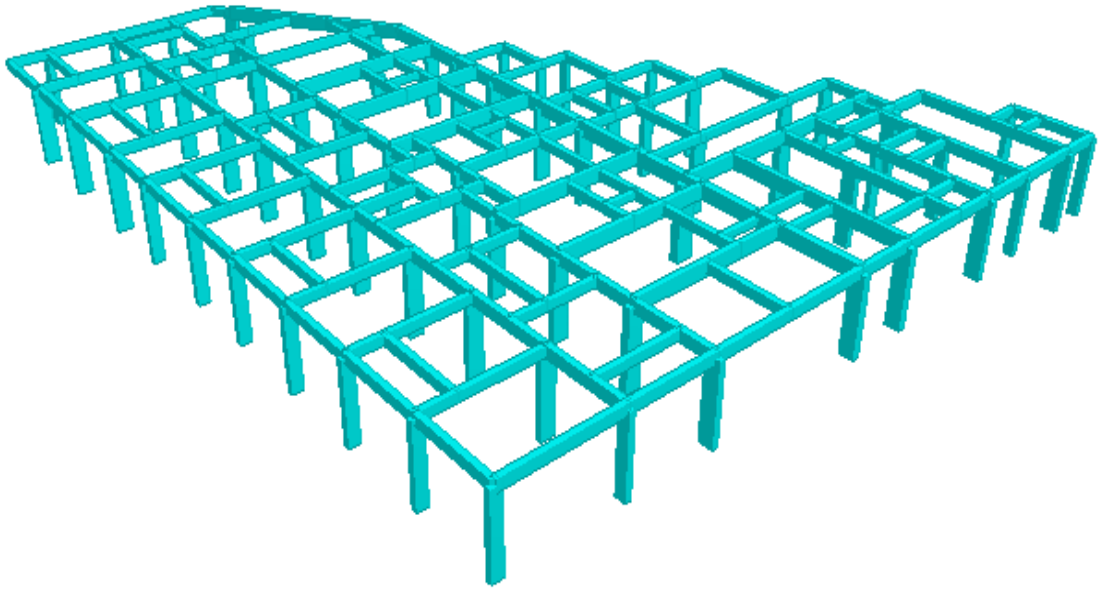
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DESIGN COLUMN 1 TO 455

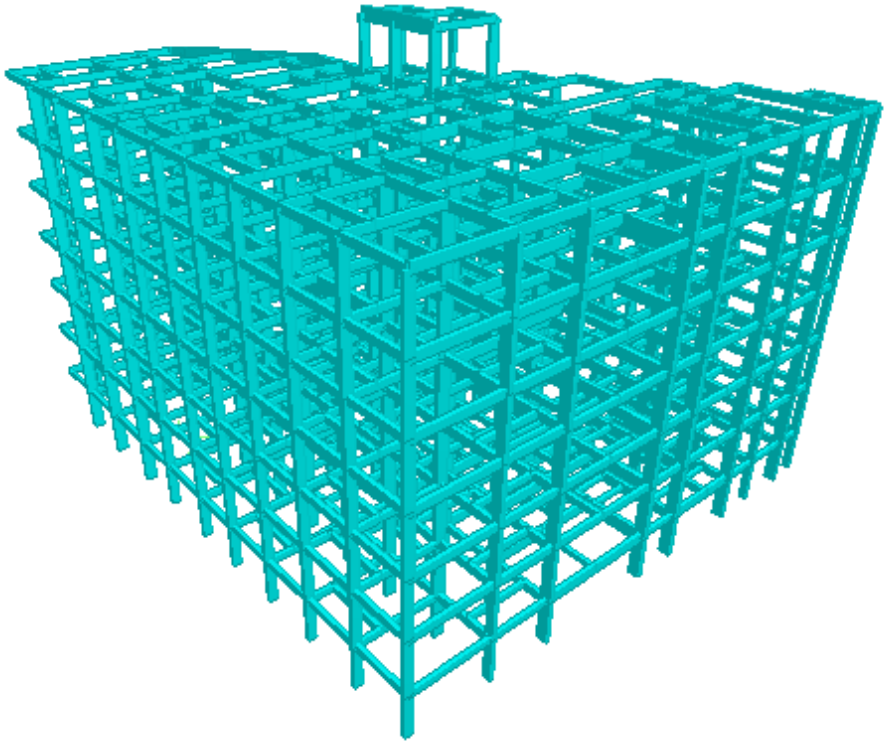
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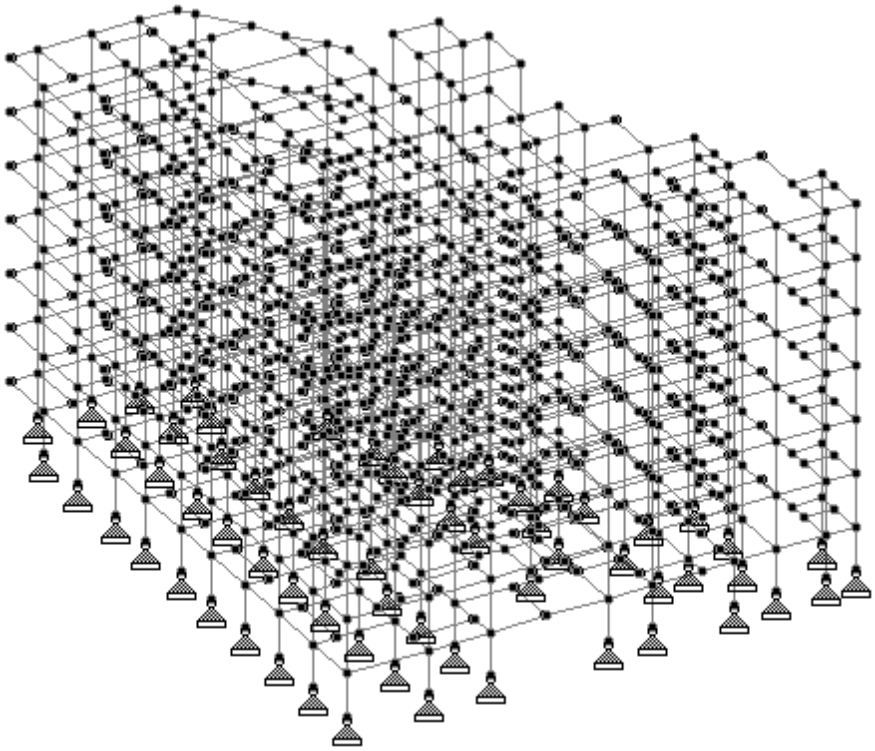
END CONCRETE DESIGN

FINISH



3-D Floor Plan





3-D View

Chapter 7

7.1 Footing Design - F2:-

Factored load on the column	Pu	=	3350	kN	
Safe bearing capacity of soil	SBC	=	300	kN/m2	
Grade of concrete	fck	=	25	N/mm2	
Grade of steel	fy	=	500	N/mm2	
Size of column					
	b	=	300	mm	
	D	=	600	mm	
Area of footing	A	=	7.4	m2	
Footing dimensions	l	=	2.80	m	
	b	=	2.80	m	
Ultimate pressure below foundation		=	427.3	kN/m2	
Depth for Punching shear					
Design shear strength	tc	=	1.25	N/mm2	
		=	d2	d	const
Actual punching shear eqn.			-0.4	-384.57	3273086.7
Allowable punching shear eqn.		=	d2	d	const
			5.0	2250.0	0
Depth required for punching shear	d	=	570.9	mm	
Depth for Bending moment					
BM about minor axis of column	mu	=	333.8	kN.m	
Depth required for bending moment	d	=	*310.1*	mm	
Depth taken for iteration calculations	D	=	625.0	mm	
Depth for one-way shear					
Iterated Percentage of steel	pt	=	0.17	%	

Design shear strength	tc	=	0.31	N/mm2	
Depth required for One way shear	d	=	*636.3*	mm	
	D	=	700.0	mm	
Governing depth of footing	D	=	*725*	mm	
Size of footing required		=	2.8 m x 2.8 m x 0.725 m		
			9'3" x 9'3" x 2'5"		
Area of steel calculation			Ast2	Ast	Const
			8.7	-293625	33382493
	Ast	=	3298	mm2	
Size of footing provide		=	2.9 m x 2.9 m x 0.84m		
			9'6" x 9'6" x 2'9"		
Reinforcement required		=	Diameter	Spacing	
			16	155 mm	
Reinforcement provide		=	Diameter	Spacing	
			16	133 mm	
Hence safe					

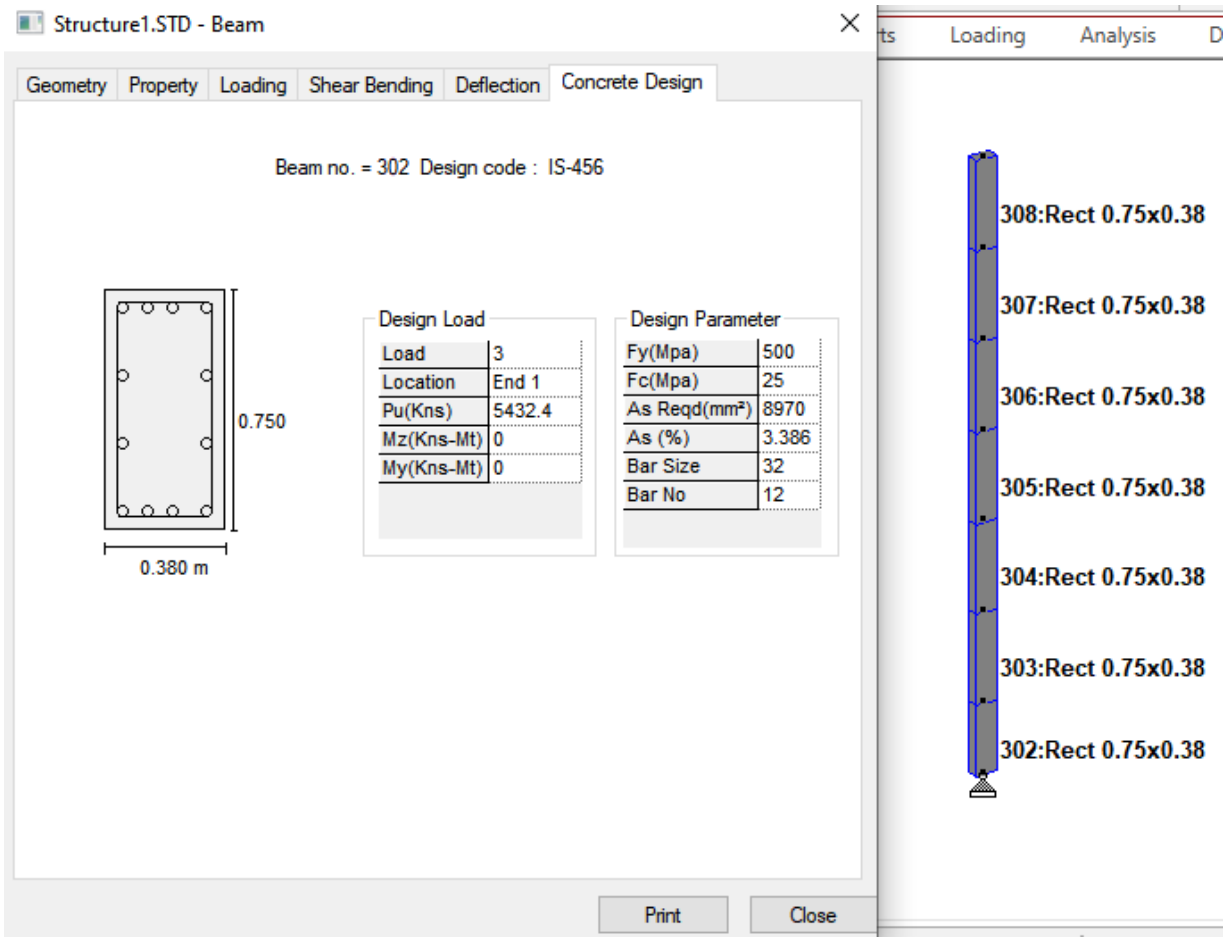
7.2 Column Design- C1 (380x750):-

Area of steel required : 8970 mm2

Required Percentage of Reinforcement ; 3.38 %

Area of steel provided : 9651 mm2

Provided Percentage of Reinforcement : 3.4 %



Hence Safe

7.3 Beam Design :-

Input data :			
Over all Depth		**600**	mm
Breadth(b) mm		**300**	mm
Factored Momemt(Mu) kN.m		470	kNm
Grade of Steel (fy) Mpa		500	N/mm2

Grade of Concrete (fck) Mpa		25	N/mm2
Effective cover Bottom(d')		60	mm
Effective cover Top(dc)		45	mm
Amount of redistribution (%)		20	%
Solution :			
Effective depth		540	mm
Xu.max		246.3	mm
Ku.max		0.5	
Moment		290.3	kNm
Area of steel-1		1525.5	mm2
Area of steel-2		834.7	mm2
Area of steel required Ast		**2360.2**	mm2
Percentage of reinforcement Pt		1.5	%
Depth ratio d'/d		0.1	
Stress in compression fsc		353.7	
Area of steel in compression Asc		**1026.6**	mm2
Result :			
Area of steel required Ast		**2340.0**	mm2
Area of steel provided Ast provided		3-25 Diameter(Ast.1-1472.63) + 3-20 Diameter(Ast.2-942.48)	
Ast pr = Ast.1+ Ast.2		= 1472+942 = **2415** mm2	
Ast reqired < Ast provided		2360< 2415	
Hence safe			

Provided		
Top reinforcement :3-20 diameter + 3-20 diameter		
Bottom reinforcement : 3-25 diameter + 3-25 diameter		
Design for Shear		
Breadth (b)	**300**	mm
Depth (D)	**600**	mm
Effective depth	540	mm
Percentage of reinforcement Pt	1.50	%
Diameter of stirrups	12	mm
No of leg	2	
Shear V	490	kN
Nominal shear stress Tv	3.04	kN/m2
Maximum nominal shear stress tc max	3.10	kN/m2
If tv < tc max	3.04 < 3.10	kN/m2
τcmax check	ok	
Permissible nominal shear stress tc	0.71	kN/m2
Total Shear Vus	375263	kN/m2
Spacing		
Reinforcement Required in mm	**110**	mm
Reinforcement Provided in mm	**100**	mm
Hence safe		

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.