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05.08.2025

STABILITY CERTIFICATE

(To be furnished while filing application for registration of building)

The detailed engineering and structure design of the proposed building comprising of **Extended Double Basement Floor + Stilt Floor (Part) + Ground Floor (Part) + 12 Floors** at **Plot No.6, New Door No. 47/C, Old No.30. Gandhi Mandapam Road & Ambadi Road, Kotturpuram, Chennai 600085 Block No. 16, Adyar Village, Guindy Taluk, Chennai District, Greater Chennai Corporation, Zone: 13 & Div: New No. 170 (Old No. 172) S.No.5 / 21, 6/31 & 6/ 63** has been done by me/us based on the report of geotechnical investigation (soil test) done by **M/s.Geo Marine Consultants (P) Ltd** Report No. **GT-2337** Dated **02.03.2022** and considering the functional requirement of the building.

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

3. I further certify that:

(i) The minimum grade of concrete is M-30.

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

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



(Dr.ALEX JACOB)

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REG No. SE/GR-I/24/02/001

REG No. RSE100392025

**THE PROPOSED CONSTRUCTION DOUBLE BASEMENT +
GROUND FLOOR + 11 FLOORS AT DOOR NO. OLD NO: 30 & NEW
NO: 47/C, GANDHI MANDAPAM ROAD, KOTTURPURAM, CHENNAI
– 600 085 T.S.NO. 6/31 & 5/21 OF BLOCK NO. 16, ADYAR VILLAGE,
GUINDY TALUK, CHENNAI DISTRICT, GREATER CHENNAI
CORPORATION ZONE: 13 & DIVISION: 172**

GENERAL NOTE ON STRUCTURAL DESIGN

1.0 GENERAL

1.1 DESIGN BASIS

The design of this building is carried out based on frame analysis using STAAD Pro V8i.

1.2 CODES AND STANDARDS

All structural design is carried out conforming to the provisions in National Building Code of India and other relevant Indian Codes and Standards.

1. I.S. 456
2. I.S. 875 - Part I to V
3. I.S.1893
4. I.S.13920
5. I.S.800

2.0 BASIC CIVIL DESIGN LOADS

2.0 DEAD LOADS & LIVE LOADS

Typical slab dead load is calculated as follows

Residential Building

Self weight of slab	=	2.0kN/m ²
Floor finish	=	2.0kN/m ²
Live load	=	3.0kN/m ²

		7.0kN/m ²


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3.0 SOIL DETAILS

Based on Soil Test Report Raft Foundation is adopted.

4.0 DESIGN METHODS

General design and detailing of concrete members/elements are done conforming to the provisions of I.S: 456 and other relevant I.S codes. Limit State method is followed for the design.

Seismic Zone III load is taken into account for the analysis. The predominant direction of vibration is horizontal. Relevant combination of forces has been taken into account.

4.1

Load Combination	Ultimate Limit Load	Serviceability Limit State
DL+LL+WL Or DL+LL+EL	1.2DL+1.2LL+1.2WL Or 1.2DL+1.2LL+1.2EL	DL+LL+WL Or DL+LL+EL

-

4.2.1 MINIMUM COVER

Slab	20 mm
Beam	25 mm
Columns	40 mm
Foundations	50 mm

Structure will be sound and stable when used for the purpose for which it is designed.


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*          Version 20.07.11.82
*          Proprietary Program of
*          Bentley Systems, Inc.
*          Date=    MAR 9, 2022
*          Time=    12:21:39
*
*          USER ID:
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1. STAAD SPACE
INPUT FILE: D:\STADD\Skc1- KOTTURPURAM.STD
2. START JOB INFORMATION
3. JOB NAME THE PROPOSED CONSTRUCTION DOUBLE BASEMENT + GROUND FLOOR + 11
4. *FLOORS AT DOOR NO. OLD NO: 30 _NEW NO: 47/C, GANDHI MANDAPAM ROAD,
5. *KOTTURPURAM, CHENNAI - 600 085 T.S.NO. 6/31 _5/21 OF BLOCK NO. 16,
6. *ADYAR VILLAGE, GUINDY TALUK, CHENNAI DISTRICT, GREATER CHENNAI CORPORATION
7. *ZONE: 13 _DIVISION: 172
8. ENGINEER NAME SURESH
9. CHECKER NAME ALEX JACOB
10. APPROVED NAME ALEX JACOB
11. ENGINEER DATE 9-3-22
12. CHECKER DATE 9-3-22
13. APPROVED DATE 9-3-22
14. END JOB INFORMATION
15. INPUT WIDTH 79
16. UNIT METER KN
17. JOINT COORDINATES
18. 1 0 0 0; 25 0 -4 0; 32 0 4 0; 36 0 8 0; 40 0 12 0; 44 0 16 0; 48 0 20 0
19. 52 0 24 0; 77 10.5 0 0; 78 10.5 -4 0; 79 10.5 4 0; 80 10.5 8 0; 81 10.5 12 0
20. 82 10.5 16 0; 83 10.5 20 0; 84 10.5 24 0; 91 21 0 0; 92 21 -4 0; 93 21 4 0
21. 94 21 8 0; 95 21 12 0; 96 21 16 0; 97 21 20 0; 98 21 24 0; 99 26 0 0
22. 100 26 -4 0; 101 26 4 0; 102 26 8 0; 103 26 12 0; 104 26 16 0; 105 26 20 0
23. 106 26 24 0; 107 36 0 0; 108 36 -4 0; 109 36 4 0; 110 36 8 0; 111 36 12 0
24. 112 36 16 0; 113 36 20 0; 114 36 24 0; 115 0 28 0; 116 10.5 28 0; 117 21 28 0
25. 118 26 28 0; 119 36 28 0; 120 0 32 0; 121 10.5 32 0; 122 21 32 0; 123 26 32 0
26. 124 36 32 0; 125 0 36 0; 126 10.5 36 0; 127 21 36 0; 128 26 36 0; 129 36 36 0
27. 130 0 40 0; 131 10.5 40 0; 132 21 40 0; 133 26 40 0; 134 36 40 0; 135 0 44 0
28. 136 10.5 44 0; 137 21 44 0; 138 26 44 0; 139 36 44 0; 140 0 48 0
29. 141 10.5 48 0; 142 21 48 0; 143 26 48 0; 144 36 48 0; 145 0 52 0
30. 146 10.5 52 0; 147 21 52 0; 148 26 52 0; 149 36 52 0
31. MEMBER INCIDENCES
32. 39 1 25; 49 1 32; 56 32 36; 63 36 40; 70 40 44; 77 44 48; 84 48 52; 127 1 77
33. 128 25 78; 129 32 79; 130 36 80; 131 40 81; 132 44 82; 133 48 83; 134 52 84
34. 141 77 78; 142 77 79; 143 79 80; 144 80 81; 145 81 82; 146 82 83; 147 83 84
35. 154 77 91; 155 78 92; 156 79 93; 157 80 94; 158 81 95; 159 82 96; 160 83 97
36. 161 84 98; 168 91 92; 169 91 93; 170 93 94; 171 94 95; 172 95 96; 173 96 97
37. 174 97 98; 175 91 99; 176 92 100; 177 93 101; 178 94 102; 179 95 103
38. 180 96 104; 181 97 105; 182 98 106; 183 99 100; 184 99 101; 185 101 102

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STAAD SPACE

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39. 186 102 103; 187 103 104; 188 104 105; 189 105 106; 190 99 107; 191 100 108
 40. 192 101 109; 193 102 110; 194 103 111; 195 104 112; 196 105 113; 197 106 114
 41. 198 107 108; 199 107 109; 200 109 110; 201 110 111; 202 111 112; 203 112 113
 42. 204 113 114; 205 52 115; 206 115 116; 207 84 116; 208 116 117; 209 98 117
 43. 210 117 118; 211 106 118; 212 118 119; 213 114 119; 214 115 120; 215 120 121
 44. 216 116 121; 217 121 122; 218 117 122; 219 122 123; 220 118 123; 221 123 124
 45. 222 119 124; 223 120 125; 224 125 126; 225 121 126; 226 126 127; 227 122 127
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 50. 252 136 141; 253 141 142; 254 137 142; 255 142 143; 256 138 143; 257 143 144
 51. 258 139 144; 259 140 145; 260 145 146; 261 141 146; 262 146 147; 263 142 147
 52. 264 147 148; 265 143 148; 266 148 149; 267 144 149
 53. DEFINE MATERIAL START
 54. ISOTROPIC CONCRETE
 55. E 2.17185E+007
 56. POISSON 0.17
 57. DENSITY 23.5616
 58. ALPHA 1E-005
 59. DAMP 0.05
 60. END DEFINE MATERIAL
 61. MEMBER PROPERTY INDIAN
 62. 39 49 56 63 70 77 84 141 TO 147 168 TO 174 183 TO 189 198 TO 205 207 209 211 -
 63. 213 214 216 218 220 222 223 225 227 229 231 232 234 236 238 240 241 243 245 -
 64. 247 249 250 252 254 256 258 259 261 263 265 267 PRIS YD 0.75 ZD 0.75
 65. 127 TO 134 154 TO 161 175 TO 182 190 TO 197 206 208 210 212 215 217 219 221 -
 66. 224 226 228 230 233 235 237 239 242 244 246 248 251 253 255 257 260 262 264 -
 67. 266 PRIS YD 0.9 ZD 0.3
 68. CONSTANTS
 69. MATERIAL CONCRETE MEMB 39 49 56 63 70 77 84 127 TO 134 141 TO 147 154 TO 161 -
 70. 168 TO 267
 71. SUPPORTS
 72. 25 78 92 100 108 FIXED
 73. DEFINE 1893 LOAD
 74. ZONE 0.16 RF 3 I 1 SS 2 ST 1 DM 0.5
 75. MEMBER WEIGHT
 76. 39 127 TO 134 141 154 TO 161 168 183 198 206 208 215 217 224 226 233 235 242 -
 77. 244 251 253 260 262 UNI -14.5
 78. DEFINE WIND LOAD

*** NOTE: If any floor diaphragm is present in the model Wind Load definition
 should be defined after Floor Diaphragm definition. Otherwise wind
 load generation may be unsuccessful during analysis.

79. TYPE 1
 80. INT 0.673 1.03335 1.3537 1.65375 HEIG 10 30 50 100
 81. EXP 1 JOINT 1 25 32 36 40 44 48 52 77 TO 84 91 TO 98 100 108
 82. LOAD 1 LOADTYPE SEISMIC TITLE SLX1
 83. 1893 LOAD X 1
 84. LOAD 2 LOADTYPE SEISMIC TITLE SLZ1
 85. 1893 LOAD Z 1


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STAAD SPACE

-- PAGE NO. 3

86. LOAD 3 LOADTYPE DEAD TITLE DL
 87. SELFWEIGHT Y -1
 88. MEMBER LOAD
 89. 127 TO 134 154 TO 161 175 TO 182 190 TO 197 206 208 210 212 215 217 219 221 -
 90. 224 226 228 230 233 235 237 239 242 244 246 248 251 253 255 257 260 262 264 -
 91. 266 UNI GY -35
 92. LOAD 4 LOADTYPE LIVE TITLE LL
 93. MEMBER LOAD
 94. 127 TO 134 154 TO 161 175 TO 182 190 TO 197 206 208 210 212 215 217 219 221 -
 95. 224 226 228 230 233 235 237 239 242 244 246 248 251 253 255 257 260 262 264 -
 96. 266 UNI GY -20
 97. LOAD 7 LOADTYPE WIND TITLE WLZ1
 98. WIND LOAD Z 1 TYPE 1
 99. LOAD 8 LOADTYPE WIND TITLE WLZ2
 100. WIND LOAD Z -1 TYPE 1
 101. LOAD COMB 9 1.5 (DL+LL)
 102. 3 1.5 4 1.5
 103. LOAD COMB 10 1.2 (DL+LL+SLX)
 104. 3 1.2 4 1.2 1 1.2
 105. LOAD COMB 11 1.2 (DL+LL+SLZ)
 106. 3 1.2 4 1.2 2 1.2
 107. LOAD COMB 14 1.2 (DL+LL+WLZ1)
 108. 3 1.2 4 1.2 7 1.2
 109. LOAD COMB 15 1.2 (DL+LL+WLZ2)
 110. 3 1.2 4 1.2 8 1.2
 111. LOAD COMB 16 1.5 (DL+SLX)
 112. 3 1.5 1 1.5
 113. LOAD COMB 17 1.5 (DL+SLZ)
 114. 3 1.5 2 1.5
 115. LOAD COMB 20 1.5 (DL+WLZ1)
 116. 3 1.5 7 1.5
 117. LOAD COMB 21 1.5 (DL+WLZ2)
 118. 3 1.5 8 1.5
 119. LOAD COMB 22 0.9DL+1.5SLX
 120. 3 0.9 1 1.5
 121. LOAD COMB 23 0.9DL+1.5SLZ
 122. 3 0.9 2 1.5
 123. LOAD COMB 26 0.9DL+1.5WLZ1
 124. 3 0.9 7 1.5
 125. LOAD COMB 27 0.9DL+1.5WLZ2
 126. 3 0.9 8 1.5
 127. PERFORM ANALYSIS


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STAAD SPACE

-- PAGE NO. 4

P R O B L E M S T A T I S T I C S

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NUMBER OF JOINTS      75  NUMBER OF MEMBERS      130
NUMBER OF PLATES      0  NUMBER OF SOLIDS        0
NUMBER OF SURFACES     0  NUMBER OF SUPPORTS      5

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SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

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ORIGINAL/FINAL BAND-WIDTH=  33/      5/      36 DOF
TOTAL      PRIMARY LOAD CASES =      6, TOTAL DEGREES OF FREEDOM =      420
TOTAL LOAD COMBINATION CASES =      13 SO FAR.
SIZE OF STIFFNESS MATRIX =      16 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE =      12.4/ 136057.7 MB

```

**WARNING: IF THIS UBC/IBC ANALYSIS HAS TENSION/COMPRESSION
OR REPEAT LOAD OR RE-ANALYSIS OR SELECT OPTIMIZE, THEN EACH
UBC/IBC CASE SHOULD BE FOLLOWED BY PERFORM ANALYSIS _CHANGE.

```

*****
* UNITS - KN      METE                               *
* TIME PERIOD FOR X 1893 LOADING =      1.53533 SEC  *
* SA/G PER 1893=      0.443, LOAD FACTOR= 1.000      *
* VB PER 1893=      0.0118 X      4857.50=      57.37 KN *
*                                                       *
*****

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*****
* UNITS - KN      METE                               *
* TIME PERIOD FOR Z 1893 LOADING =      1.53533 SEC  *
* SA/G PER 1893=      0.443, LOAD FACTOR= 1.000      *
* VB PER 1893=      0.0118 X      4857.50=      57.37 KN *
*                                                       *
*****

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128. FINISH


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***** END OF THE STAAD.Pro RUN *****

**** DATE= MAR 9,2022 TIME= 12:21:40 ****

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* *
* Details about additional assistance from *
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1

Rev

Part

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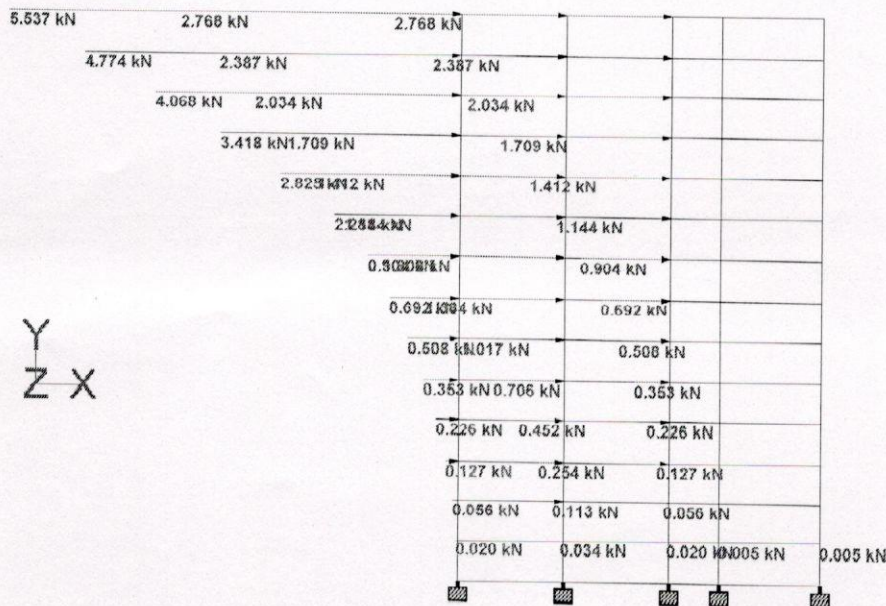
Date 9-3-22

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Client

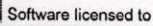
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Rev

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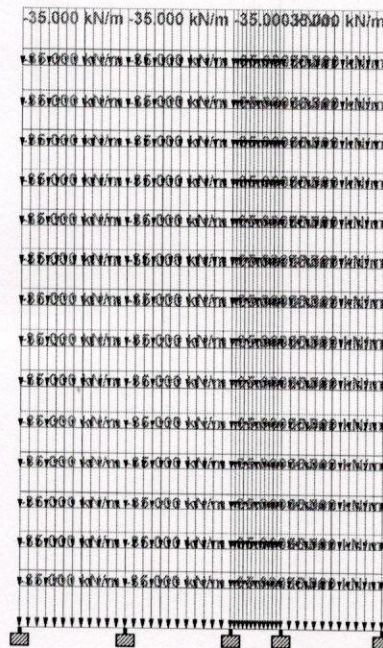
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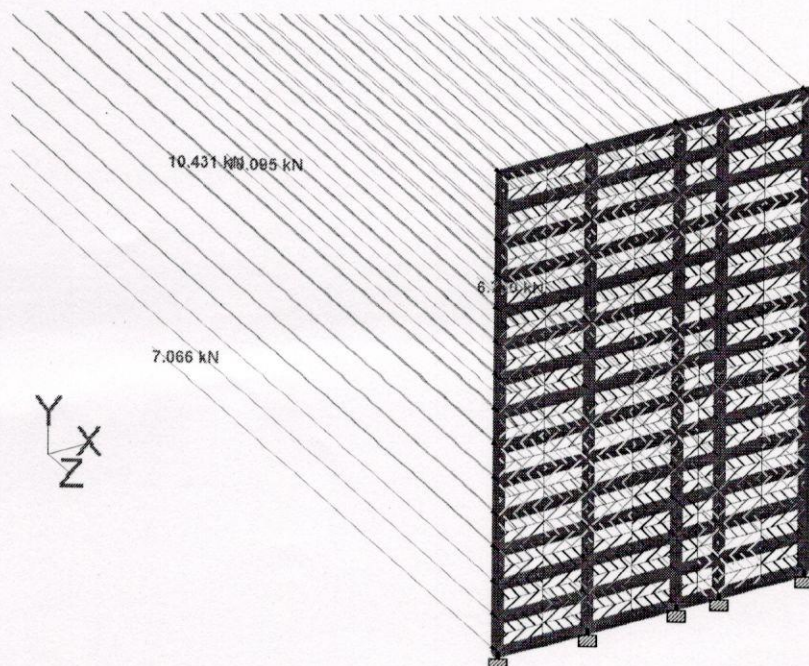
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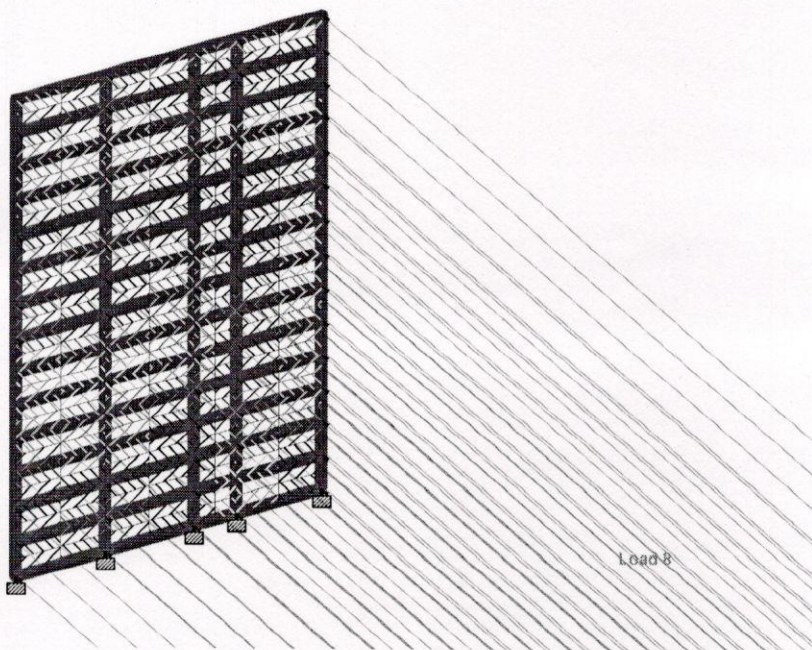
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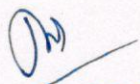
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Y
X
Z



Load 8


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