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C.KANNAN, M.E. (Structure)
STRUCTURAL ENGINEER

Door .21, plot No. 257- W, Flat No. 2B
"Utopia Apartments" 2nd Floor,
4th Main Road, Indira Nagar,
Chennai- 600 020
Mobile: 9841249815
Email: kannankds2007@gmail.com

13-06-2024

STRUCTURAL STABILITY CERTIFICATE

It is certified that the Proposed Residential Building at Plot No. 154A, 154B, 158, 160A, 160B, Old S. No. 11/2, New S. No: 10/1B4A1, 10/1C2A1, 10/1B4B, 10/1C2B, 10/1B4A2, 10/1C2A2, 11/1A1D, 11/2B1C, 11/20, 11/22 Ram Nagar South Extension 7th Main Road Pallikaranai Village. Zone- XIV, Division- 188, Corporation of Chennai. Having Stilt plus Five upper floors is designed to resist earthquake. Check has been made safe and sound, I hereby certify that,

1. The minimum column width is 300 in stilt floor areas
2. The minimum grade of concrete is M25.
3. The design analysis using the code of practice for loading Standards as per IS-875 Part I to III and seismic force as per one code IS 1893, is carried out.

The Structure is safe and sound when used for the purpose for which it is designed.

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Structural Engineer,
CMDA Reg. No: SE/I/2024/2/0047
Door No: 21, 4th Main Road,
Indira Nagar, Chennai-600 020.

PROPOSED RESIDENTIAL BUILDING AT PLOT NO. 154A, 154B, 158, 160A, 160B, OLD S. NO. 11/2, NEW S. NO: 10/1B4A1, 10/1C2A1, 10/1B4B, 10/1C2B, 10/1B4A2, 10/1C2A2, 11/1A1D, 11/2B1C, 11/20, 11/22 RAM NAGAR SOUTH EXTENSION 7TH MAIN ROAD PALLIKARANAI VILLAGE. ZONE- XIV, DIVISION- 188, CORPORATION OF CHENNAI

GENERAL NOTE ON STRUCTURAL DESIGN.

1.0 GENERAL.

1.1 DESIGN BASIS

The proposed residential building consists of Stilt plus Five upper floors.

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

1.2 CODES AND STANDARDS

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

1. I.S. 456 - 2000
2. I.S. 875 - Part I to III
3. I.S.1893 - 2016

2.0 BASIC CIVIL DESIGN LOADS

2.1 DEAD LOADS & LIVE LOADS

Typical slab dead load is calculated as follows

Self weight of slab	=	3.25kN/m²
Floor finish	=	2.0kN/m²
Live load	=	2.0kN/m²
		7.25kN/m²

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3.0 SOIL DETAILS

Based on soil test report Pile Foundation is adopted.

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

4.3 **MINIMUM COVER**

Slab	15 mm
Beam	25 mm
Columns	40 mm
Foundations	50 mm

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```
**************************************************
*                                                *
*          STAAD.Pro CONNECT Edition             *
*          Version  22.12.00.142                 *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    JUN 13, 2024                 *
*          Time=    15: 8:11                     *
*                                                *
*  Licensed to: C.Kannan                         *
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     4. JOB NAME PROPOSED RESIDENTIAL BUILDING AT PLOT NO. 154A, 154B, 158, 160A, -
     5. 160B, OLD S. NO. 11/2, NEW S. NO: 10/1B4A1, 10/1C2A1, 10/1B4B, 10/1C2B, -
     6. 10/1B4A2, 10/1C2A2, 11/1A1D, 11/2B1C, 11/20, 11/22 RAM NAGAR SOUTH EXTENSION -
     7. 7TH MAIN ROAD PALLIKARANAI VILLAGE. ZONE- XIV, DIVISION- 188, CORPORATION OF -
     8. CHENNAI
     9. ENGINEER NAME KANNAN
    10. CHECKER NAME KANNAN
    11. APPROVED NAME KANNAN
    12. CHECKER DATE 6/13/2024
    13. APPROVED DATE 6/13/2024
    14. END JOB INFORMATION
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    16. SET NL 250
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    38. 1488 1.5893E-06 18000 -16150; 1500 0.031036 18000 -17600; 1682 0 -2000 0
```



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```
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44. 337 257 258; 367 258 298; 377 298 310; 667 492 493; 668 493 494; 669 494 495
45. 670 495 496; 700 496 536; 710 536 548; 1000 730 731; 1001 731 732
46. 1002 732 733; 1003 733 734; 1033 734 774; 1043 774 786; 1333 968 969
47. 1334 969 970; 1335 970 971; 1336 971 972; 1366 972 1012; 1376 1012 1024
48. 1666 1206 1207; 1667 1207 1208; 1668 1208 1209; 1669 1209 1210; 1699 1210 1250
49. 1709 1250 1262; 1999 1444 1445; 2000 1445 1446; 2001 1446 1447; 2002 1447 1448
50. 2032 1448 1488; 2042 1488 1500; 2332 1 254; 2333 2 255; 2334 4 256; 2335 6 257
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57. 2836 1210 1448; 2851 1250 1488; 2932 1 1682; 2933 2 1683; 2934 4 1684
58. 2935 6 1685; 2936 8 1686; 2951 50 1701; 2952 50 1702
59. DEFINE MATERIAL START
60. ISOTROPIC CONCRETE
61. E 21.7185
62. POISSON 0.17
63. DENSITY 2.35616E-08
64. ALPHA 1E-05
65. DAMP 0.05
66. G 9.28309
67. TYPE CONCRETE
68. STRENGTH FCU 0.027579
69. END DEFINE MATERIAL
70. MEMBER PROPERTY
71. 1 TO 4 34 334 TO 337 367 377 667 TO 670 700 710 1000 TO 1003 1033 1043 1333 -
72. 1334 TO 1336 1366 1376 1666 TO 1669 1699 1709 1999 TO 2002 2032 2042 -
73. 2952 PRIS YD 500 ZD 200
74. 2334 TO 2336 2351 2432 TO 2436 2451 2532 TO 2536 2551 2632 TO 2636 2651 2732 -
75. 2733 TO 2736 2751 2832 TO 2836 2851 2932 TO 2936 2951 PRIS YD 500 ZD 200
76. CONSTANTS
77. BETA 90 MEMB 2332 TO 2336 2351 2432 TO 2436 2451 2532 TO 2536 2551 -
78. 2632 TO 2636 2651 2732 TO 2736 2751 2832 TO 2836 2851 2932 TO 2936 2951
79. MATERIAL CONCRETE ALL
80. SUPPORTS
81. 1682 TO 1686 1701 FIXED
82. DEFINE IS1893 2016 LOAD
83. ZONE 0.16 RF 5 I 1.2 SS 1 ST 1 DM 0.05 DT 2000
84. SELFWEIGHT 1
85. MEMBER WEIGHT
86. 1 TO 4 34 334 TO 337 367 377 667 TO 670 700 710 1000 TO 1003 1033 1043 1333 -
87. 1334 TO 1336 1366 1376 1666 TO 1669 1699 1709 1999 TO 2002 2032 2042 -
88. 2952 UNI 0.035 0 0
89. 1 TO 4 34 334 TO 337 367 377 667 TO 670 700 710 1000 TO 1003 1033 1043 1333 -
90. 1334 TO 1336 1366 1376 1666 TO 1669 1699 1709 1999 TO 2002 2032 2042 -
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92. UNIT METER KN
93. DEFINE WIND LOAD
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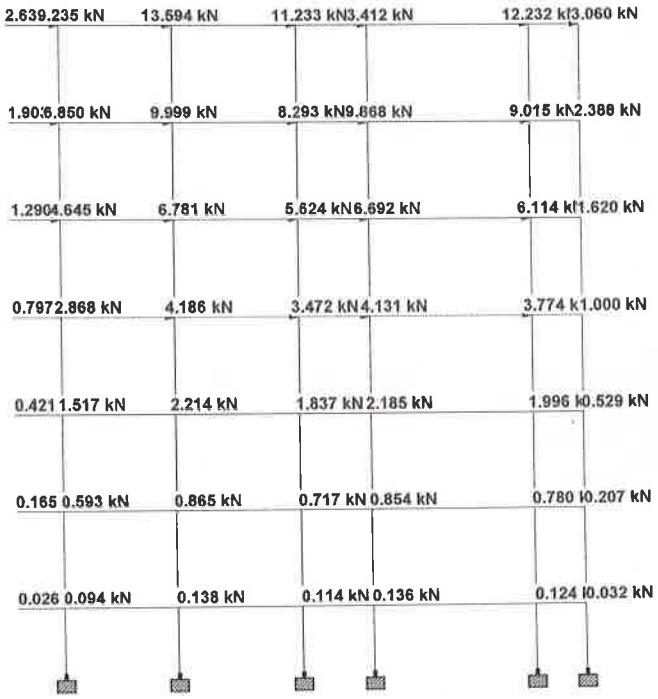
*** NOTE: If any floor diaphragm is present in the model Wind Load definition
should be defined after Floor Diaphragm definition, Otherwise wind
load generation may be unsuccessful during analysis.

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 96. CUSTOM:PARAMS
 97. !> END GENERATED DATA BLOCK
 98. INT 1.35 1.45 1.68 HEIG  10  15  18
 99. EXP 1 JOINT 1 2 4 6 8 50 254 TO 258 298 310 492 TO 496 536 548 730 TO 734 -
100. 774 786 968 TO 972 1012 1024 1206 TO 1210 1250 1262 1444 TO 1448 1488 1500 -
101. 1682 TO 1686 1701 1702
102. LOAD 1 LOADTYPE SEISMIC-H  TITLE EQ +X
103. 1893 LOAD X 1
104. LOAD 2 LOADTYPE SEISMIC-H  TITLE EQ -X
105. 1893 LOAD X -1.
106. LOAD 3 LOADTYPE SEISMIC-H  TITLE EQ +Z
107. 1893 LOAD Z 1
108. LOAD 4 LOADTYPE SEISMIC-H  TITLE EQ -Z
109. 1893 LOAD Z -1.
110. LOAD 5 LOADTYPE WIND  TITLE WIND +X
111. WIND LOAD X 1 TYPE 1
112. LOAD 6 LOADTYPE WIND  TITLE WIND -X
113. WIND LOAD -X 1 TYPE 1
114. LOAD 7 LOADTYPE WIND  TITLE WIND +Z
115. WIND LOAD Z 1 TYPE 1
*WARNING- NO MEMBERS LOADED FOR A WIND LOAD GENERATION.
116. LOAD 8 LOADTYPE WIND  TITLE WIND -Z
117. WIND LOAD -Z 1 TYPE 1
*WARNING- NO MEMBERS LOADED FOR A WIND LOAD GENERATION.
118. LOAD 9 LOADTYPE LIVE  TITLE LIVE LOAD
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STAAD SPACE -- PAGE NO. 4

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119. MEMBER LOAD
120. 1 TO 4 34 334 TO 337 367 377 667 TO 670 700 710 1000 TO 1003 1033 1043 1333 -
121. 1334 TO 1336 1366 1376 1666 TO 1669 1699 1709 1999 TO 2002 2032 2042 -
122. 2952 UNI GY -15
123. LOAD 10 LOADTYPE DEAD  TITLE DEAD LOAD
124. SELFWEIGHT Y -1
125. MEMBER LOAD
126. 1 TO 4 34 334 TO 337 367 377 667 TO 670 700 710 1000 TO 1003 1033 1043 1333 -
127. 1334 TO 1336 1366 1376 1666 TO 1669 1699 1709 1999 TO 2002 2032 2042 -
128. 2952 UNI GY -35
129. LOAD COMB 11 1.5(DL+IL)
130. 9 1.5 10 1.5
131. LOAD COMB 12 1.2(DL+IL+ELX)
132. 9 1.5 10 1.2 1 1.2
133. LOAD COMB 13 1.2(DL+IL-ELX)
134. 9 1.2 10 1.2 2 1.2
135. LOAD COMB 14 1.2(DL+IL+ELZ)
136. 9 1.2 10 1.2 3 1.2
137. LOAD COMB 15 1.2(DL+IL-ELZ)
138. 9 1.2 10 1.2 4 1.2
139. LOAD COMB 16 1.2(DL+IL+WLX)
140. 9 1.2 10 1.2 5 1.2
141. LOAD COMB 17 1.2(DL+IL-WLX)
142. 10 1.2 6 1.2
143. LOAD COMB 18 1.2(DL+IL+WLZ)
144. 9 1.2 10 1.2 7 1.2
145. LOAD COMB 19 1.2(DL+IL-WLZ)
146. 9 1.2 10 1.2 8 1.2
147. LOAD COMB 20 1.5(DL+ELX)
148. 9 1.5 10 1.5 1 1.5
149. LOAD COMB 21 1.5(DL-ELX)
150. 9 1.5 10 1.5 2 1.5
151. LOAD COMB 22 1.5(DL+ELZ)
152. 9 1.5 10 1.5 3 1.5
153. LOAD COMB 23 1.5(DL-ELZ)
154. 10 1.5 4 1.5
155. LOAD COMB 24 1.5(DL+WLX)
156. 10 1.5 5 1.5
157. LOAD COMB 25 1.5(DL-WLX)
158. 10 1.5 6 1.5
159. LOAD COMB 26 1.5(DL+WLZ)
160. 10 1.5 7 1.5
161. LOAD COMB 27 1.5(DL-WLZ)
162. 10 1.5 8 1.5
163. LOAD COMB 28 0.9 DL+ELX
164. 10 0.9 1 1.5
165. LOAD COMB 29 0.9 DL-ELX
166. 10 0.9 2 1.5
167. LOAD COMB 30 0.9 DL+ELZ
168. 10 0.9 3 1.5
169. LOAD COMB 31 0.9 DL-ELZ
170. 10 0.9 4 1.5
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172. 10 0.9 5 1.5
173. LOAD COMB 33 0.9 DL-WLX
174. 10 0.9 6 1.5
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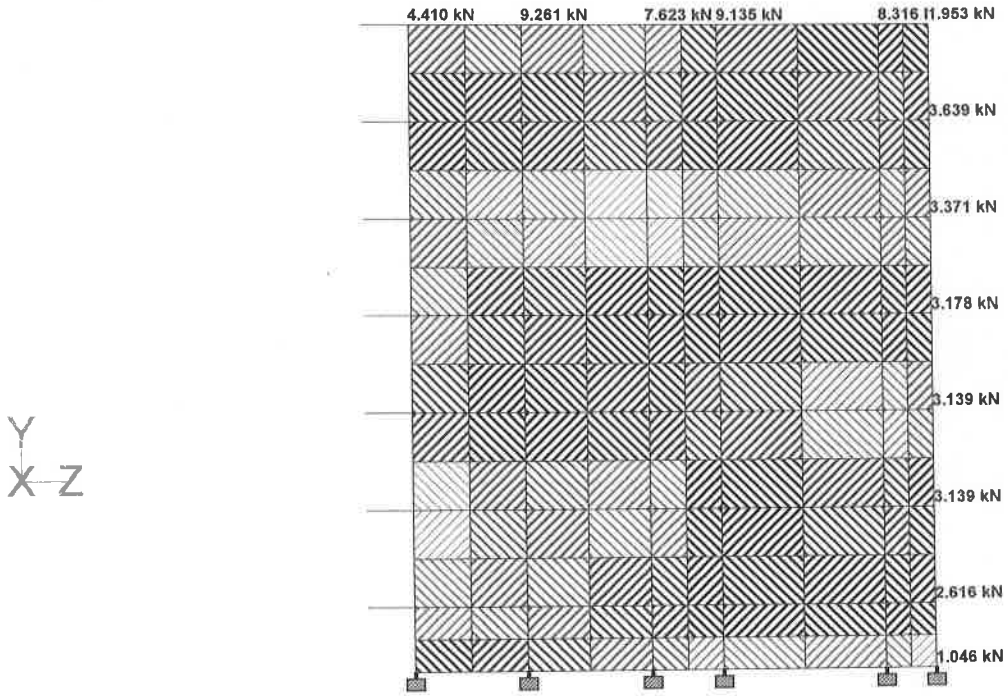
C. KANNAN, B.E., M.E, (Structure)
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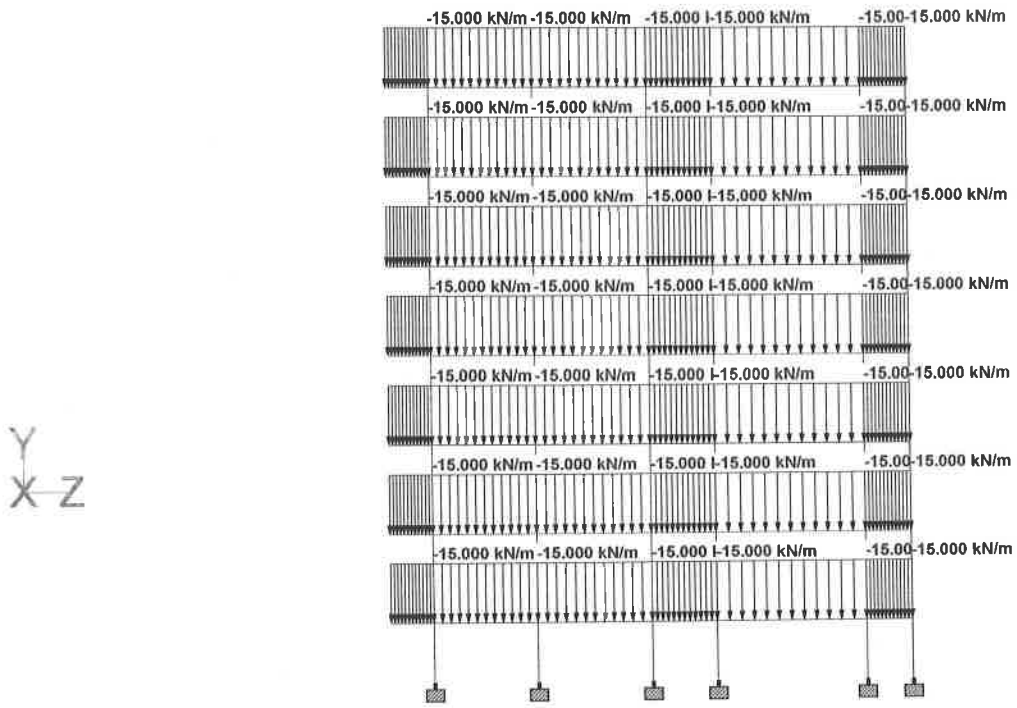


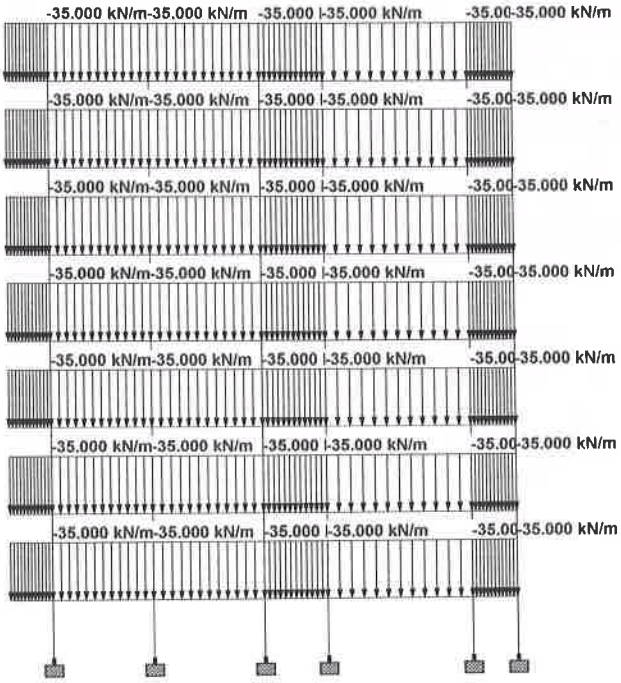




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9.261 kN
7.623 kN
9.135 kN
8.316 kN
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3.139 kN
2.616 kN
1.046 kN
Y
X
Z


-15.000 kN/m -15.000 kN/m -15.000 kN/m -15.000 kN/m
Y
X Z



Y
X Z

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