289

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

STRUCTURAL STABILITY CERTIFICATE

It is certified that the Proposed Residential Building at Plot -01, Old Door No. 96, New Door No: 140, Karpagam Avenue, Santhome High Road, Raja Annamalai Puram, Chennai- 600028. And Comprised in R. S. No: 4297/24 Of Mylapore Village, Mylapore Taluk and Within the Limits of Greater Chennai Corporation. Zone: XIII, Division: 173. Having Basement plus Stilt plus Nine upper floors is designed to resist earthquake. Check has been made and found safe and 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.

C. KANNAN, B.E., M.E., (Structure)
Structural Engineer,
CMDA Reg. No: SE/GR-I/19/02/002.
Door No: 21, 4th Main Road,
Indira Nagar, Chennai-600 020.

For ETICA DEVELOPERS PVT. LTD.

Managing Director.

for ETICA DEVELOPERS PVT. LTD.

Managing Director

PROPOSED RESIDENTIAL BUILDING AT PLOT -01, OLD DOOR NO. 96, NEW DOOR NO: 140, KARPAGAM AVENUE, SANTHOME HIGH ROAD, RAJA ANNAMALAI PURAM, CHENNAI-600028. AND COMPRISED IN R. S. NO: 4297/24 OF MYLAPORE VILLAGE, MYLAPORE TALUK AND WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION. ZONE: XIII, DIVISION: 173

GENERAL NOTE ON STRUCTURAL DESIGN.

1.0 GENERAL.

1.1 DESIGN BASIS

The proposed residential building consists of Basement plus Stilt plus Nine 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

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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

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

For ETICA DEVELOPERS PVT. LTD.

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*****************************************************
*                                                   *
*          STAAD.Pro CONNECT Edition                *
*          Version  22.12.00.142                    *
*          Proprietary Program of                   *
*          Bentley Systems, Inc.                    *
*          Date=    JUN  6, 2023                    *
*          Time=    16:33:56                        *
*                                                   *
*  Licensed to: C.Kannan                            *
*****************************************************
```

```
     1. STAAD SPACE
INPUT FILE: C:\Users\Dhanush\Desktop\LOGESH\STABILITY CERTIFICATE\ETICA.. .STD
     2. START JOB INFORMATION
     3. ENGINEER DATE 5/26/2023
     4. JOB NAME PROPOSED RESIDENTIAL BUILDING AT PLOT-01, OLD DOOR NO. 96,NEW DOOR -
     5. NO:140, KARPAGAM AVENUE, SANTHOME HIGH ROAD, RAJA ANNAMALAI PURAM, -
     6. CHENNAI-600 028
     7. ENGINEER NAME KANNAN
     8. CHECKER NAME KANNAN
     9. APPROVED NAME KANNAN
    10. CHECKER DATE 5/26/2023
    11. APPROVED DATE 5/26/2023
    12. END JOB INFORMATION
    13. INPUT WIDTH 79
    14. UNIT MMS KN
    15. JOINT COORDINATES
    16. 1 0 0 0; 2 4697.95 0 0; 3 9615.37 0 0; 4 14850 0 0; 5 16425 0 0; 6 0 3000 0
    17. 7 4697.95 3000 0; 8 9615.37 3000 0; 9 14850 3000 0; 10 16425 3000 0
    18. 11 0 6000 0; 12 4697.95 6000 0; 13 9615.37 6000 0; 14 14850 6000 0
    19. 15 16425 6000 0; 16 0 9000 0; 17 4697.95 9000 0; 18 9615.37 9000 0
    20. 19 14850 9000 0; 20 16425 9000 0; 21 0 12000 0; 22 4697.95 12000 0
    21. 23 9615.37 12000 0; 24 14850 12000 0; 25 16425 12000 0; 26 0 15000 0
    22. 27 4697.95 15000 0; 28 9615.37 15000 0; 29 14850 15000 0; 30 16425 15000 0
    23. 31 0 18000 0; 32 4697.95 18000 0; 33 9615.37 18000 0; 34 14850 18000 0
    24. 35 16425 18000 0; 36 0 21000 0; 37 4697.95 21000 0; 38 9615.37 21000 0
    25. 39 14850 21000 0; 40 16425 21000 0; 41 0 24000 0; 42 4697.95 24000 0
    26. 43 9615.37 24000 0; 44 14850 24000 0; 45 16425 24000 0; 46 0 27000 0
    27. 47 4697.95 27000 0; 48 9615.37 27000 0; 49 14850 27000 0; 50 16425 27000 0
    28. 51 0 30000 0; 52 4697.95 30000 0; 53 9615.37 30000 0; 54 14850 30000 0
    29. 55 16425 30000 0; 56 0 33000 0; 57 4697.95 33000 0; 58 9615.37 33000 0
    30. 59 14850 33000 0; 60 16425 33000 0; 66 0 -2000 0; 67 4697.95 -2000 0
    31. 68 9615.37 -2000 0; 69 14850 -2000 0
    32. MEMBER INCIDENCES
    33. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 1 6; 6 2 7; 7 3 8; 8 4 9; 10 6 7; 11 7 8; 12 8 9
    34. 13 9 10; 14 6 11; 15 7 12; 16 8 13; 17 9 14; 19 11 12; 20 12 13; 21 13 14
    35. 22 14 15; 23 11 16; 24 12 17; 25 13 18; 26 14 19; 28 16 17; 29 17 18; 30 18 19
    36. 31 19 20; 32 16 21; 33 17 22; 34 18 23; 35 19 24; 37 21 22; 38 22 23; 39 23 24
    37. 40 24 25; 41 21 26; 42 22 27; 43 23 28; 44 24 29; 46 26 27; 47 27 28; 48 28 29
    38. 49 29 30; 50 26 31; 51 27 32; 52 28 33; 53 29 34; 55 31 32; 56 32 33; 57 33 34
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39. 58 34 35; 59 31 36; 60 32 37; 61 33 38; 62 34 39; 64 36 37; 65 37 38; 66 38 39
40. 67 39 40; 68 36 41; 69 37 42; 70 38 43; 71 39 44; 73 41 42; 74 42 43; 75 43 44
41. 76 44 45; 77 41 46; 78 42 47; 79 43 48; 80 44 49; 82 46 47; 83 47 48; 84 48 49
42. 85 49 50; 86 46 51; 87 47 52; 88 48 53; 89 49 54; 91 51 52; 92 52 53; 93 53 54
43. 94 54 55; 95 51 56; 96 52 57; 97 53 58; 98 54 59; 100 56 57; 101 57 58
44. 102 58 59; 103 59 60; 113 1 66; 114 2 67; 115 3 68; 116 4 69
45. DEFINE MATERIAL START
46. ISOTROPIC CONCRETE
47. E 21.7185
48. POISSON 0.17
49. DENSITY 2.35616E-08
50. ALPHA 1E-05
51. DAMP 0.05
52. G 9.28139
53. TYPE CONCRETE
54. STRENGTH FCU 0.027579
55. END DEFINE MATERIAL
56. MEMBER PROPERTY
57. 1 TO 4 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 -
58. 73 TO 76 82 TO 85 91 TO 94 100 TO 103 PRIS YD 500 ZD 200
59. 5 TO 8 14 TO 17 23 TO 26 32 TO 35 41 TO 44 50 TO 53 59 TO 62 68 TO 71 -
60. 77 TO 80 86 TO 89 95 TO 98 113 TO 116 PRIS YD 500 ZD 200
61. CONSTANTS
62. MATERIAL CONCRETE ALL
63. SUPPORTS
64. 66 TO 69 FIXED
65. UNIT METER KN
66. 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.

67. TYPE 1 WIND 1
68. <! STAAD PRO GENERATED DATA DO NOT MODIFY !!!
69. CUSTOM:PARAMS
70. !> END GENERATED DATA BLOCK
71. INT 1.25 1.342 1.48 1.5 1.56 1.6 HEIG  10  15  20  25  30  33
72. EXP 1 JOINT 1 TO 60 66 TO 69
73. DEFINE IS1893 2016 LOAD
74. ZONE 0.16 RF 5 I 1.2 SS 1 ST 1 DM 0.05 DT 2
75. SELFWEIGHT 1
76. MEMBER WEIGHT
77. 1 TO 4 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 -
78. 73 TO 76 82 TO 85 91 TO 94 100 TO 103 UNI 12 0 0
79. 1 TO 4 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 -
80. 73 TO 76 82 TO 85 91 TO 94 100 TO 103 UNI 25 0 0
81. LOAD 1 LOADTYPE SEISMIC-H  TITLE EQ X
82. 1893 LOAD X 1
83. LOAD 2 LOADTYPE SEISMIC-H  TITLE EQ -X
84. 1893 LOAD X -1.
```

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```
  85. LOAD 3 LOADTYPE SEISMIC-H  TITLE EQ +Z
  86. 1893 LOAD Z 1
  87. LOAD 4 LOADTYPE SEISMIC-H  TITLE EQ -Z
  88. 1893 LOAD Z -1.
  89. LOAD 5 LOADTYPE WIND  TITLE WIND +X
  90. WIND LOAD X 1 TYPE 1
*WARNING- NO MEMBERS LOADED FOR A WIND LOAD GENERATION.
  91. LOAD 6 LOADTYPE WIND  TITLE WIND -X
  92. WIND LOAD -X 1 TYPE 1
*WARNING- NO MEMBERS LOADED FOR A WIND LOAD GENERATION.
  93. LOAD 7 LOADTYPE WIND  TITLE WIND +Z
  94. WIND LOAD Z 1 TYPE 1
  95. LOAD 8 LOADTYPE WIND  TITLE WIND -Z
  96. WIND LOAD -Z 1 TYPE 1
  97. LOAD 9 LOADTYPE LIVE  TITLE LIVE LOAD
  98. MEMBER LOAD
  99. 1 TO 4 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 -
 100. 73 TO 76 82 TO 85 91 TO 94 100 TO 103 UNI GY -12
 101. LOAD 10 LOADTYPE DEAD  TITLE DEAD LOAD
 102. SELFWEIGHT Y -1
 103. MEMBER LOAD
 104. 1 TO 4 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 -
 105. 73 TO 76 82 TO 85 91 TO 94 100 TO 103 UNI GY -25
 106. LOAD COMB 11 1.5(DL+IL)
 107. 9 1.5 10 1.5
 108. LOAD COMB 12 1.2(DL+IL+ELX)
 109. 9 1.5 10 1.2 1 1.2
 110. LOAD COMB 13 1.2(DL+IL-ELX)
 111. 9 1.2 10 1.2 2 1.2
 112. LOAD COMB 14 1.2(DL+IL+ELZ)
 113. 9 1.2 10 1.2 3 1.2
 114. LOAD COMB 15 1.2(DL+IL-ELZ)
 115. 9 1.2 10 1.2 4 1.2
 116. LOAD COMB 16 1.2(DL+IL+WLX)
 117. 9 1.2 10 1.2 5 1.2
```

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```
118. LOAD COMB 17 1.2(DL+IL-WLX)
119. 10 1.2 6 1.2
120. LOAD COMB 18 1.2(DL+IL+WLZ)
121. 9 1.2 10 1.2 7 1.2
122. LOAD COMB 19 1.2(DL+IL-WLZ)
123. 9 1.2 10 1.2 8 1.2
124. LOAD COMB 20 1.5(DL+ELX)
125. 9 1.5 10 1.5 1 1.5
126. LOAD COMB 21 1.5(DL-ELX)
127. 9 1.5 10 1.5 2 1.5
128. LOAD COMB 22 1.5(DL+ELZ)
129. 9 1.5 10 1.5 3 1.5
130. LOAD COMB 23 1.5(DL-ELZ)
131. 10 1.5 4 1.5
132. LOAD COMB 24 1.5(DL+WLX)
133. 10 1.5 5 1.5
134. LOAD COMB 25 1.5(DL-WLX)
135. 10 1.5 6 1.5
136. LOAD COMB 26 1.5(DL+WLZ)
137. 10 1.5 7 1.5
138. LOAD COMB 27 1.5(DL-WLZ)
139. 10 1.5 8 1.5
140. LOAD COMB 28 0.9 DL+ELX
141. 10 0.9 1 1.5
142. LOAD COMB 29 0.9 DL-ELX
143. 10 0.9 2 1.5
144. LOAD COMB 30 0.9 DL+ELZ
145. 10 0.9 3 1.5
146. LOAD COMB 31 0.9 DL-ELZ
147. 10 0.9 4 1.5
148. LOAD COMB 32 0.9 DL+WLX
149. 10 0.9 5 1.5
150. LOAD COMB 33 0.9 DL-WLX
151. 10 0.9 6 1.5
152. LOAD COMB 34 0.9 DL+WLZ
153. 10 0.9 7 1.5
154. LOAD COMB 35 0.9 DL-WLZ
155. 10 0.9 8 1.5
156. PERFORM ANALYSIS PRINT ALL
```

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

NUMBER OF JOINTS	64	NUMBER OF MEMBERS	96
NUMBER OF PLATES	0	NUMBER OF SOLIDS	0
NUMBER OF SURFACES	0	NUMBER OF SUPPORTS	4

Using 64-bit analysis engine.

SOLVER USED IS THE IN-CORE ADVANCED MATH SOLVER

C. KANNAN, B.E., M.E., (Structural)
Structural Engineer,
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Door No: 21, 4th Main Road,
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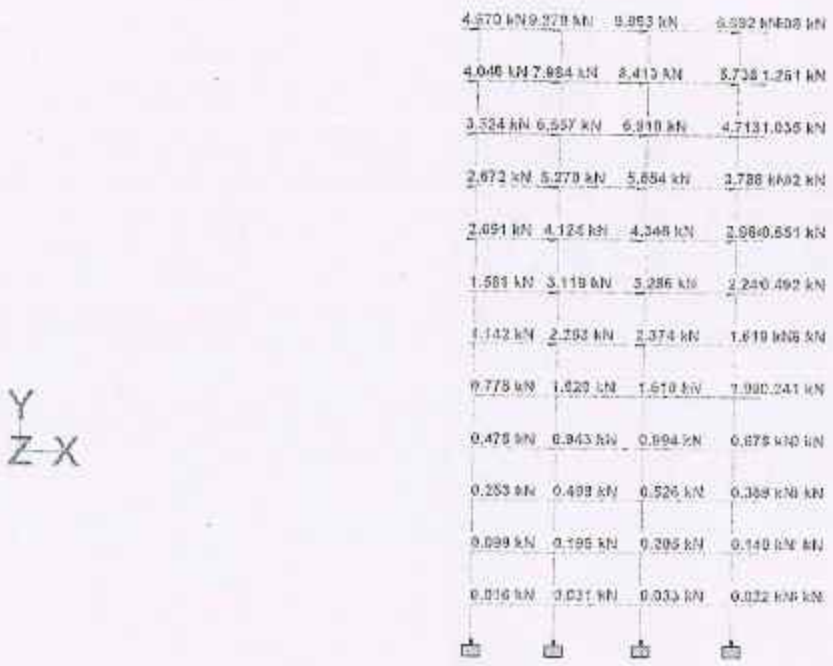
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Managing Director.

Bentley

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CONNECTED User: Kannan Chinnasamy

Job No		Sheet No 1	Rev
Part			
Job Title: Proposed Residential Building at Plot-01, Old Door No. 96,New Door No:140, Karpagam Avenue, Santhome High Road, Raja Annamalai Puram, Chennai-600	Ref		
	By Kannan	Date 5/26/2023	Chd Kannan
Client	File ETICA - MRC NAGAR_T	Date/Time 06-Jun-2023 16:33	



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Load 3

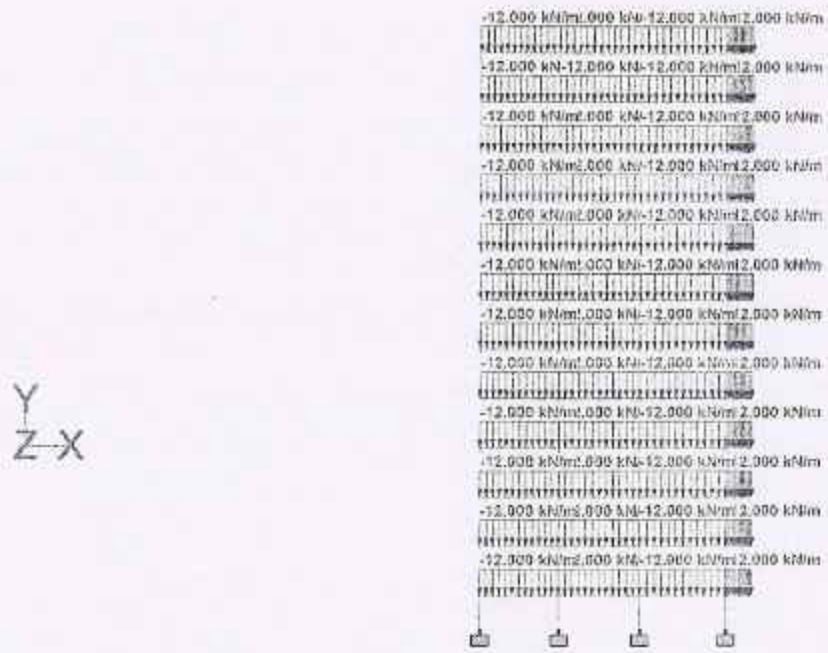
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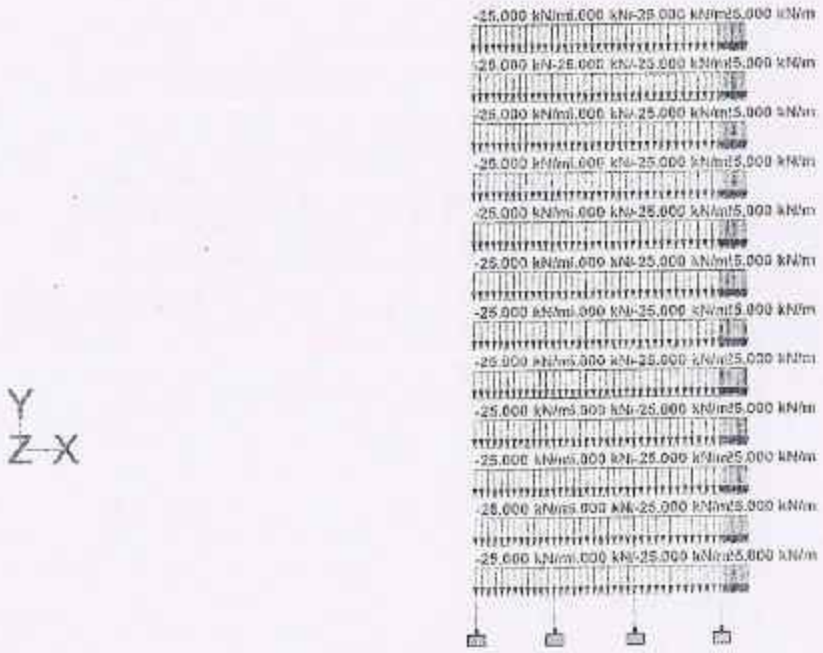
Job No	Sheet No 1	Rev	
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