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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

STABILITY CERTIFICATE

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

The detailed engineering and structure design of the proposed building comprising of Stilt Floor + 5 Floors (Height 18.3M) at New Door No.25, Old Door No.14, 15th Main Road & 11th Main Road, H-Block, Anna Nagar, Chennai – 600 040, Comprised In Old S.No.207/1A1A PART, T.S. No:10, Block No. 14 Of Koyambedu Village, Aminjikarai Taluk, Chennai District Within The Limits Of Greater Chennai Corporation has been done by me/us (**MR.C.KANNAN**) based on the report of geotechnical investigation (soil test) done by **Dr.C.V.PRASAD** Report No.: GT-2717, Dated 07/02/2024 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/We. Further certify that

(i) The minimum grade of concrete is M25

(ii) The design and analysis has been done using the code of practice for plan and reinforced concrete as per IS 456, design loads as per IS Code No IS-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.

C. KANNAN, B.E., M.E, (Structure)
Structural Engineer,
CMDA Reg. No: SE/I/2024/2/0047
Door No: 21, 4th Main Road,
Indira Nagar, Chennai-600 020.

Stamp and Signature

Encl.: Structural Design Calculation

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 Old Door No. 14, New Door No. 25, Ranganathan Gardens, H- Block, 15th Main Road & 11th Main Road, Anna Nagar West, Chennai- 600 040, Comprised in Old S. No. 207/1A1A part, T. S. No. 10, Block No. 14 of Koyambedu Village, Amjikarai Taluk, Chennai District. Within the Limits of Greater Chennai Corporation. Division- 99, Zone- 8. Having Stilt plus Five 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.

PROPOSED RESIDENTIAL BUILDING AT OLD DOOR NO. 14, NEW DOOR NO. 25, RANGANATHAN GARDENS, H- BLOCK, 15TH MAIN ROAD & 11TH MAIN ROAD, ANNA NAGAR WEST, CHENNAI- 600 040, COMPRISED IN OLD S. NO. 207/1A1A PART, T. S. NO. 10, BLOCK NO. 14 OF KOYAMBEDU VILLAGE, AMJIKARAI TALUK, CHENNAI DISTRICT. WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION. DIVISION-99, ZONE- 8

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

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

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Structural Engineer,
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Door No: 21, 4th Main Road,
Indira Nagar, Chennai-600 020.

```
**************************************************
*                                                *
*          STAAD.Pro CONNECT Edition             *
*          Version  22.12.00.142                 *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    MAR 10, 2025                 *
*          Time=    14:56: 3                     *
*                                                *
*  Licensed to: C.Kannan                         *
**************************************************
```

```
     1. STAAD SPACE
INPUT FILE: D:\AGAN\4.STABILITY\Pushkar-Ranganathan\Staad\Pushkar- Rang.. .STD
     2. START JOB INFORMATION
     3. ENGINEER DATE 3/10/2024
     4. JOB NAME PROPOSED RESIDENTIAL BUILDING AT OLD DOOR NO. 14, NEW DOOR NO. 25, -
     5. RANGANATHAN GARDENS, H- BLOCK, 15TH MAIN ROAD & 11TH MAIN ROAD, ANNA NAGAR -
     6. WEST, CHENNAI- 600 040, COMPRISED IN OLD S. NO. 207/1A1A PART, T. S. NO. 10, -
     7. BLOCK NO. 14 OF KOYAMBEDU VILLAGE, AMJIKARAI TALUK, CHENNAI DISTRICT. WITHIN -
     8. THE LIMITS OF GREATER CHENNAI CORPORATION. DIVISION- 99, ZONE- 8
     9. ENGINEER NAME KANNAN
    10. CHECKER NAME KANNAN
    11. APPROVED NAME KANNAN
    12. CHECKER DATE 3/10/2024
    13. APPROVED DATE 3/10/2024
    14. END JOB INFORMATION
    15. INPUT WIDTH 79
    16. SET NL 250
    17. UNIT MMS KN
    18. JOINT COORDINATES
    19. 1 0 0 0; 2 5200 0 0; 4 12205.3 0 0; 5 14250 0 0; 6 15050 0 0; 7 0 3000 0
    20. 8 5200 3000 0; 9 12205.3 3000 0; 10 14250 3000 0; 11 15050 3000 0; 12 0 6000 0
    21. 13 5200 6000 0; 14 12205.3 6000 0; 15 14250 6000 0; 16 15050 6000 0
    22. 17 0 9000 0; 18 5200 9000 0; 19 12205.3 9000 0; 20 14250 9000 0
    23. 21 15050 9000 0; 22 0 12000 0; 23 5200 12000 0; 24 12205.3 12000 0
    24. 25 14250 12000 0; 26 15050 12000 0; 27 0 15000 0; 28 5200 15000 0
    25. 29 12205.3 15000 0; 30 14250 15000 0; 31 15050 15000 0; 32 0 18000 0
    26. 33 5200 18000 0; 34 12205.3 18000 0; 35 14250 18000 0; 36 15050 18000 0
    27. 37 0 -2000 0; 38 5200 -2000 0; 39 12205.3 -2000 0; 40 14250 -2000 0
    28. MEMBER INCIDENCES
    29. 1 1 2; 2 2 4; 4 4 5; 5 5 6; 6 7 8; 7 8 9; 8 9 10; 9 10 11; 10 12 13; 11 13 14
    30. 12 14 15; 13 15 16; 14 17 18; 15 18 19; 16 19 20; 17 20 21; 18 22 23; 19 23 24
    31. 20 24 25; 21 25 26; 22 27 28; 23 28 29; 24 29 30; 25 30 31; 26 32 33; 27 33 34
    32. 28 34 35; 29 35 36; 30 37 1; 31 1 7; 32 7 12; 33 12 17; 34 17 22; 35 22 27
    33. 36 27 32; 37 38 2; 38 2 8; 39 8 13; 40 13 18; 41 18 23; 42 23 28; 43 28 33
    34. 44 39 4; 45 4 9; 46 9 14; 47 14 19; 48 19 24; 49 24 29; 50 29 34; 51 40 5
    35. 52 5 10; 53 10 15; 54 15 20; 55 20 25; 56 25 30; 57 30 35
    36. UNIT METER KN
    37. DEFINE MATERIAL START
    38. ISOTROPIC CONCRETE
```

C. KANNAN, B.E., M.E, (Structure)
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Door No: 21, 4th Main Road,
Indira Nagar, Chennai-600 020.

```
39. E 2.17185E+07
40. POISSON 0.17
41. DENSITY 23.5616
42. ALPHA 1E-05
43. DAMP 0.05
44. G 9.28139E+06
45. TYPE CONCRETE
46. STRENGTH FCU 27579
47. END DEFINE MATERIAL
48. MEMBER PROPERTY
49. 30 TO 57 PRIS YD 0.5 ZD 0.2
50. 1 2 4 TO 29 PRIS YD 0.5 ZD 0.2
51. CONSTANTS
52. MATERIAL CONCRETE ALL
53. UNIT MMS KN
54. SUPPORTS
55. 37 TO 40 FIXED
56. UNIT METER KN
57. 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.

58. TYPE 1 WIND 1
59. <! STAAD PRO GENERATED DATA DO NOT MODIFY !!!
60. CUSTOM:PARAMS
61. !> END GENERATED DATA BLOCK
62. INT 1.22 1.35 1.48 HEIG  10  15  18
63. EXP 1 JOINT 1 2 4 TO 40
64. DEFINE IS1893 2016 LOAD
65. ZONE 0.16 RF 5 I 1.2 SS 1 ST 1 DM 0.05 DT 2
66. SELFWEIGHT 1
67. MEMBER WEIGHT
68. 1 2 4 TO 29 UNI 12 0 0
69. 1 2 4 TO 29 UNI 25 0 0
70. LOAD 1 LOADTYPE SEISMIC-H  TITLE EQX
71. 1893 LOAD X 1
72. LOAD 2 LOADTYPE SEISMIC-H  TITLE EQX
73. 1893 LOAD X -1.
74. LOAD 3 LOADTYPE SEISMIC-V  TITLE EQZ
75. 1893 LOAD Z 1
76. LOAD 4 LOADTYPE SEISMIC-V  TITLE EQZ
77. 1893 LOAD Z -1.
```



C. KANNAN, B.E., M.E, (Structure)
Structural Engineer,
CMDA Reg. No: SE/I/2024/2/0047
Door No: 21, 4th Main Road,
Indira Nagar, Chennai-600 020.

STAAD SPACE -- PAGE NO. 3

```
  78. LOAD 5 LOADTYPE WIND  TITLE WIND +X
  79. WIND LOAD X 1 TYPE 1
*WARNING- NO MEMBERS LOADED FOR A WIND LOAD GENERATION.
  80. LOAD 6 LOADTYPE WIND  TITLE WIND -X
  81. WIND LOAD -X 1 TYPE 1
*WARNING- NO MEMBERS LOADED FOR A WIND LOAD GENERATION.
  82. LOAD 7 LOADTYPE WIND  TITLE WIND +Z
  83. WIND LOAD Z 1 TYPE 1
  84. LOAD 8 LOADTYPE WIND  TITLE WIND -Z
  85. WIND LOAD -Z 1 TYPE 1
  86. LOAD 9 LOADTYPE LIVE  TITLE L.L
  87. MEMBER LOAD
  88. 1 2 4 TO 29 UNI GY -12
  89. LOAD 10 LOADTYPE DEAD  TITLE D.L
  90. SELFWEIGHT Y -1
  91. MEMBER LOAD
  92. 1 2 4 TO 29 UNI GY -25
  93. LOAD COMB 11 1.5(DL+IL)
  94. 9 1.5 10 1.5
  95. LOAD COMB 12 1.2(DL+IL+ELX)
  96. 9 1.5 10 1.2 1 1.2
  97. LOAD COMB 13 1.2(DL+IL-ELX)
  98. 9 1.2 10 1.2 2 1.2
  99. LOAD COMB 14 1.2(DL+IL+ELZ)
 100. 9 1.2 10 1.2 3 1.2
 101. LOAD COMB 15 1.2(DL+IL-ELZ)
 102. 9 1.2 10 1.2 4 1.2
 103. LOAD COMB 16 1.2(DL+IL+WLX)
 104. 9 1.2 10 1.2 5 1.2
 105. LOAD COMB 17 1.2(DL+IL-WLX)
 106. 10 1.2 6 1.2
 107. LOAD COMB 18 1.2(DL+IL+WLZ)
 108. 9 1.2 10 1.2 7 1.2
 109. LOAD COMB 19 1.2(DL+IL-WLZ)
 110. 9 1.2 10 1.2 8 1.2
 111. LOAD COMB 20 1.5(DL+ELX)
 112. 9 1.5 10 1.5 1 1.5
 113. LOAD COMB 21 1.5(DL-ELX)
 114. 9 1.5 10 1.5 2 1.5
 115. LOAD COMB 22 1.5(DL+ELZ)
 116. 9 1.5 10 1.5 3 1.5
 117. LOAD COMB 23 1.5(DL-ELZ)
 118. 10 1.5 4 1.5
 119. LOAD COMB 24 1.5(DL+WLX)
```

C. KANNAN, B.E., M.E, (Structure)
Structural Engineer,
CMDA Reg. No: SE/I/2024/2/0047
Door No: 21, 4th Main Road,
Indira Nagar, Chennai-600 020.

```
120. 10 1.5 5 1.5
121. LOAD COMB 25 1.5(DL-WLX)
122. 10 1.5 6 1.5
123. LOAD COMB 26 1.5(DL+WLZ)
124. 10 1.5 7 1.5
125. LOAD COMB 27 1.5(DL-WLZ)
126. 10 1.5 8 1.5
127. LOAD COMB 28 0.9 DL+ELX
128. 10 0.9 1 1.5
129. LOAD COMB 29 0.9 DL-ELX
130. 10 0.9 2 1.5
131. LOAD COMB 30 0.9 DL+ELZ
132. 10 0.9 3 1.5
133. LOAD COMB 31 0.9 DL-ELZ
134. 10 0.9 4 1.5
135. LOAD COMB 32 0.9 DL+WLX
136. 10 0.9 5 1.5
137. LOAD COMB 33 0.9 DL-WLX
138. 10 0.9 6 1.5
139. LOAD COMB 34 0.9 DL+WLZ
140. 10 0.9 7 1.5
141. LOAD COMB 35 0.9 DL-WLZ
142. 10 0.9 8 1.5
143. PERFORM ANALYSIS PRINT ALL


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

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  NUMBER OF PLATES           0  NUMBER OF SOLIDS         0
  NUMBER OF SURFACES         0  NUMBER OF SUPPORTS       4

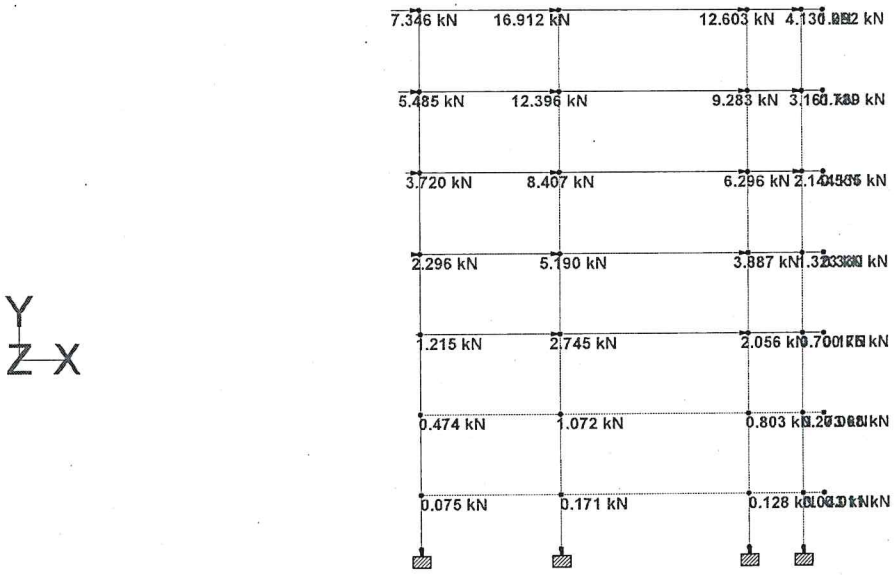
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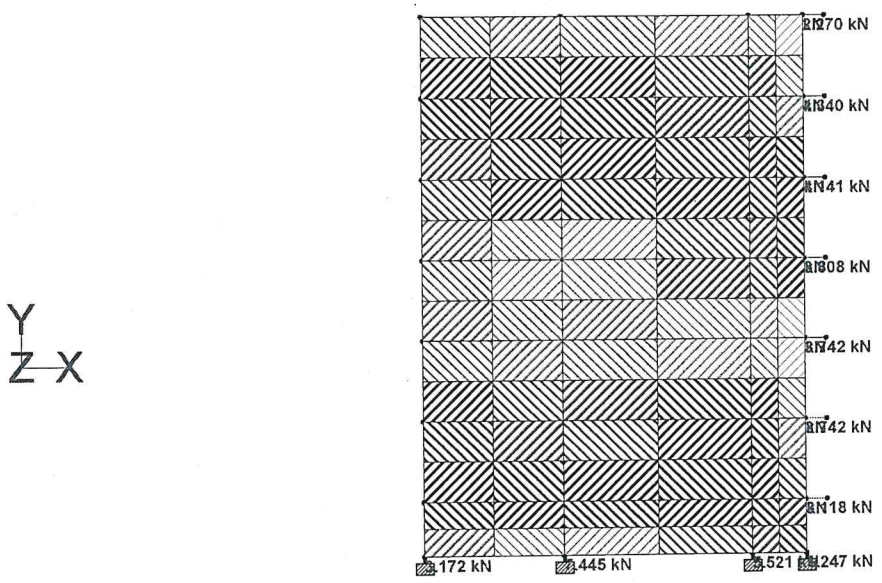
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TOTAL LOAD COMBINATION  CASES =     25  SO FAR.
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C. KANNAN, B.E.,M.E, (Structure)
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CMDA Reg. No: SE/I/2024/2/0047
Door No: 21, 4th Main Road,
Indira Nagar, Chennai-600 020.

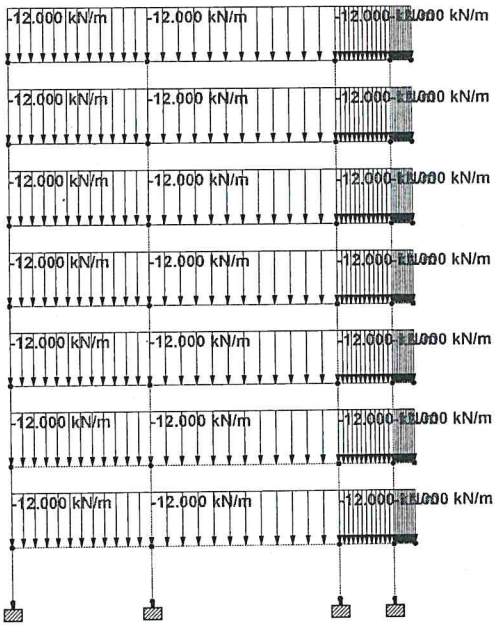


C. KANNAN, B.E., M.E, (Structure)
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Door No: 21, 4th Main Road,
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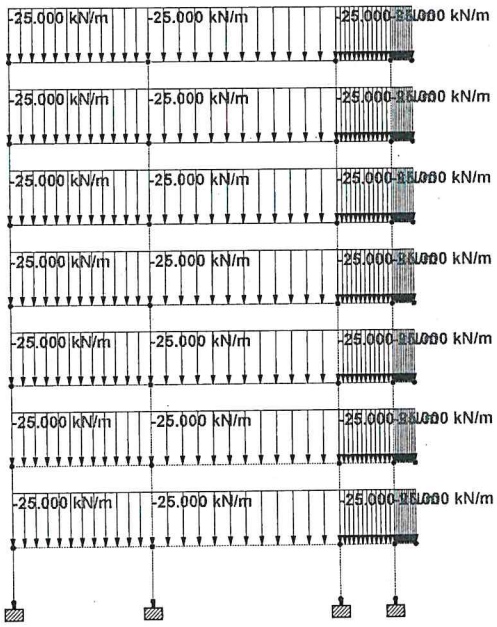
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C. KANNAN, B.E., M.E, (Structure)
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Indira Nagar, Chennai - 600 020.



Load 9

C. KANNAN, B.E., M.E, (Structure)
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Load 10

C. KANNAN, B.E., M.E, (Structure)
Structural Engineer,
CMDA Reg. No: SE/I/2024/2/0047
Door No: 21, 4th Main Road,
Indira Nagar, Chennai-600 020.

CHENNAI METROPOLITAN DEVELOPMENT AUTHORITY
Thalamuthu Natarajan Building, No.1, Gandhi Irwin Road, Egmore,
Chennai - 600 008
Phone : 28414855 Fax: 91-044-28548416
E-mail: mscmda@tn.gov.in
Web site: www.cmdachennai.gov.in.

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that the Thiru / Tmt. / M/s. **C.KANNAN** has enrolled as **Registered Structural Engineer Grade-I(SE)** with Chennai Metropolitan Development Authority (CMDA) who has the qualification of **M.E Structures** and experience in the relevant field for **15** years.

He/She has been given the Registration No. **SE/I/2024/2/0047** on **28-Feb-2024** He/She shall be required to comply with the duties and responsibilities prescribed by the Government of Tamil Nadu in Part V, “Registration of Professionals”, Tamil Nadu Combined Development and Building Rules, 2019 approved vide G.O.(ms) No.18 MAWS (MA1) Dept. Dated. 04.02.2019.

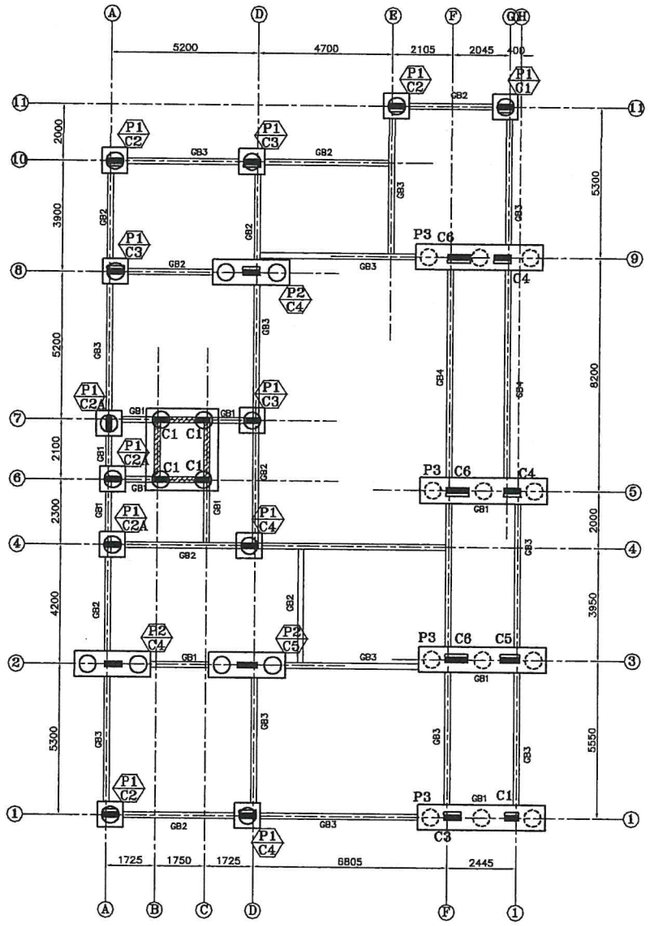
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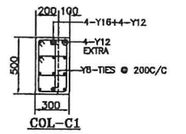
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Name :A Meganathan
Designation :Superintendent
Date :02/28/2024 12:50:37 PM



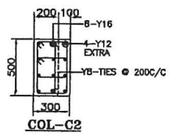
A Meganathan

Superintendent

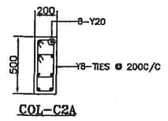




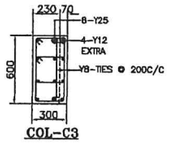
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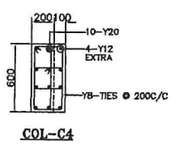
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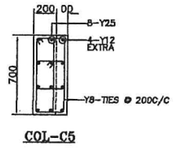
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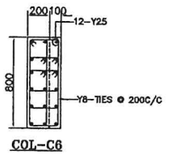
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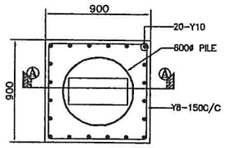
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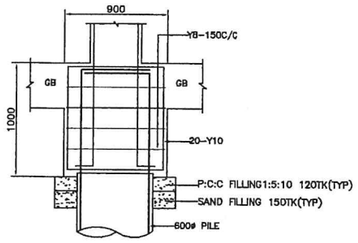
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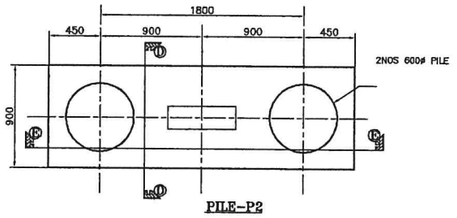
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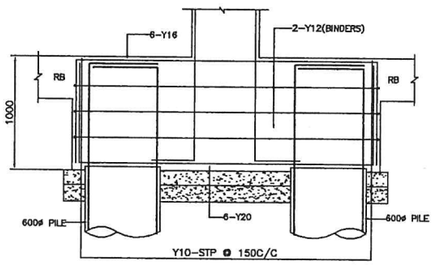
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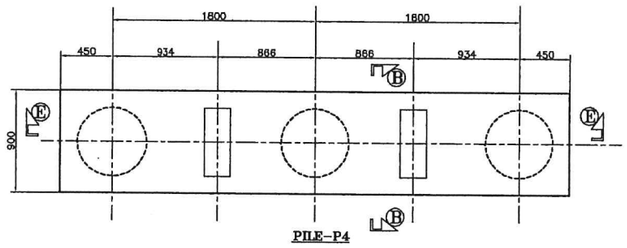
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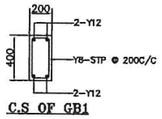
PILE-P2



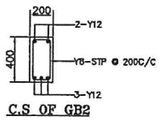
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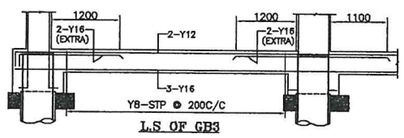
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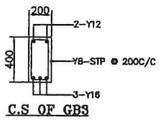
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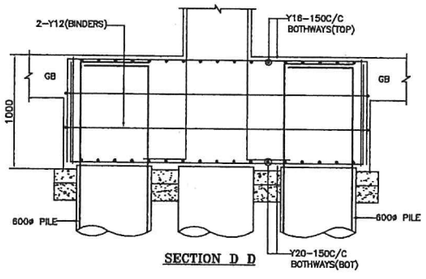
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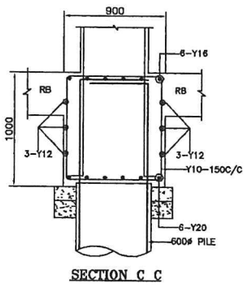
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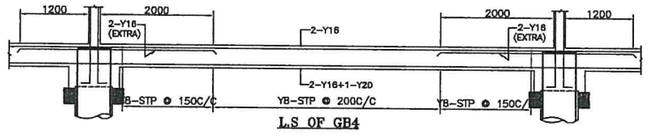
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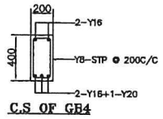
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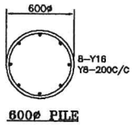
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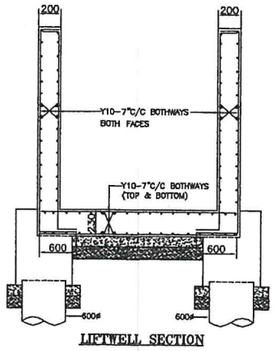
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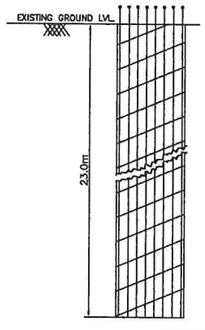
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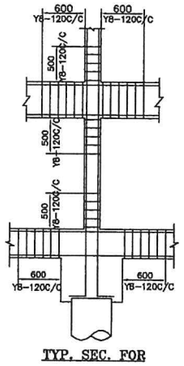
600ø PILE



LIFTWELL SECTION



TYP. SEC. OF PILE
(BORED CAST-IN-SITU PILE)



TYP. SEC. FOR
STP. DETAILS

Notes:-

1. This drawing should be read along with architectural drawings.
2. Grade of R.C.C. Items shall be M30 for column & M25 for all other R.C.C works
3. Y Denotes TOR50 Steel confirming to I.S. 1786 – 2008. Grade – Fe 500
4. Clear cover to the main steel
   50 for Footings , Raft Slabs & Raft Beams.
   40 for Columns.
   25 for Lintel & Beams.
   20 for Sunshade & Slab.
5. Lap length shall be 50 d (Max. dia) for all bars.
6. —— Bottom Reinforcement
7. ----- Top Reinforcement
8. Provide Continuous Chairs to keep the top Reinforcement in position
9. Provide Y 8 at 200 as Distribution steel for all top Reinforcement.
10. Spacer Bar to be Provided in Between Two Layers Of Reinforcement of Same Dia at Every 1000 C/ C.
11. Not more than 40% of Reinforcement shall be Lapped at any particular junction.
12. Cantilever props should not be released until the roof is concreted.
13. Foundation is designed for Stilt plus five upper floor only.
14. For Earthquake analysis Zone III is taken as per IS : 1893-2016 code.
15. Removal of formworks :
    I) For Slabs :
    a. Slabs spanning upto 4.5 m (15'-0") – 7 days
    b. Slabs spanning over 4.5 m (15'-0") – 14 days
    II) For Beams and Arches :
    c. Beams and Arches spanning upto 6 m (20'-0") –14days
    d. Beams and Arches spanning over 6 m (20'-0") –21days

NO	DATE	DESCRIPTION

PROJECT

PROPOSED RESIDENTIAL BUILDING AT OLD DOOR NO. 14, NEW DOOR NO. 25, RANGANATHAN GARDENS, H- BLOCK, 15TH MAIN ROAD & 11TH MAIN ROAD, ANNA NAGAR WEST, CHENNAI- 600 040, COMPRISED IN OLD S. NO. 207/1A1A PART, T. S. NO. 10, BLOCK NO. 14 OF KOYAMBEDU VILLAGE, AMJIKARAI TALUK, CHENNAI DISTRICT. WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.DIVISION- 99, ZONE- 8.

FOUNDATION DETAIL

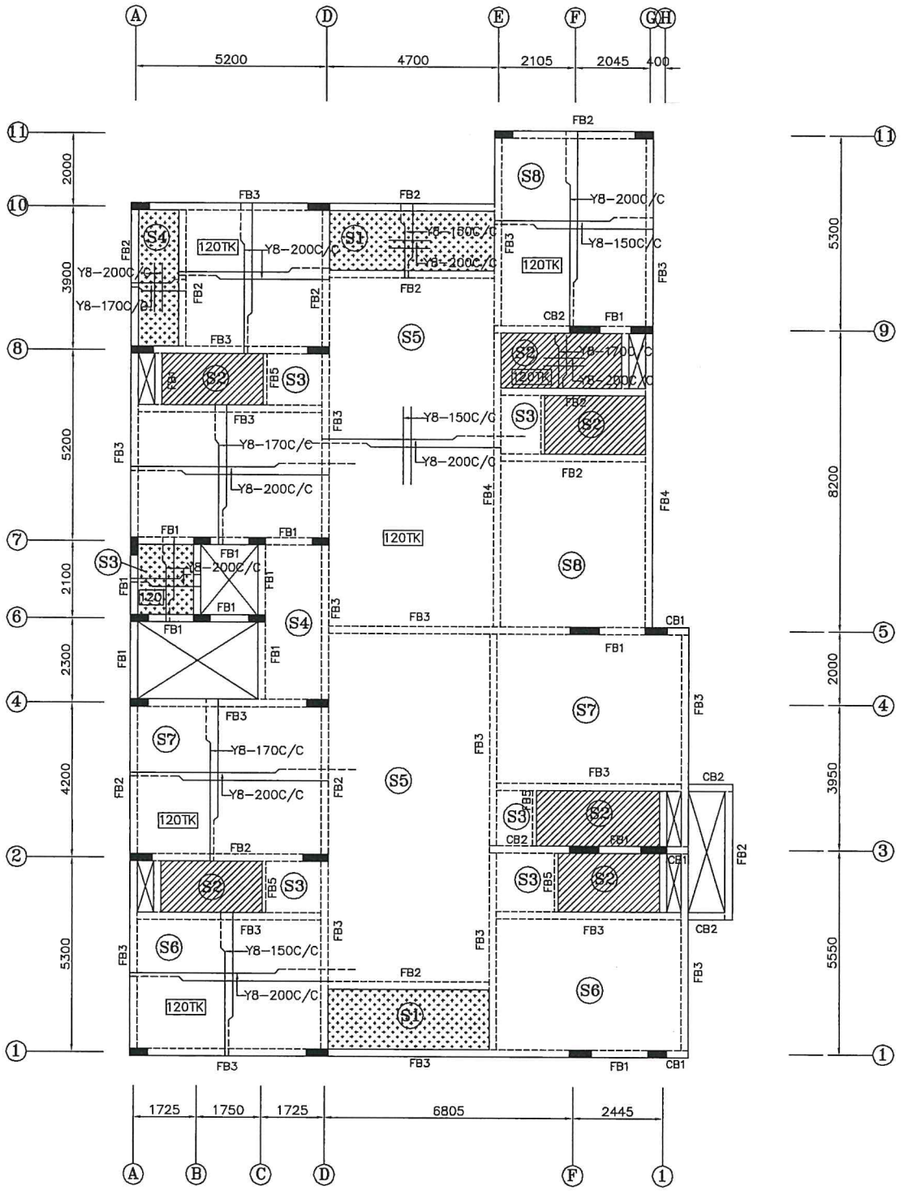
DESIGNED	KANNAN		SCALE	1 : 100
DRAWN	SEETHA		DATE	09-02-2024

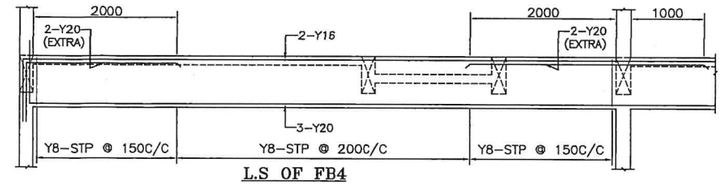
STRUCTURAL CONSULTANTS:

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.

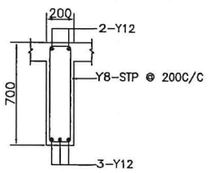
C.KANNAN B.E., M.E(STRUCTURE)
DOOR NO:21, PLOT NO:257-W,
FLAT NO:2B, "UTOPIA APARTMENTS".
2nd FLOOR, 4th MAIN ROAD,
INDIRA NAGAR, CHENNAI-20.
MOBILE NO: 098412 49815.
E-MAIL:kannankda2007@gmail.com

FILE NAME : D/SEETHA/PUSHKAR RANGANATHAN GARDEN

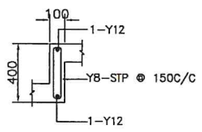




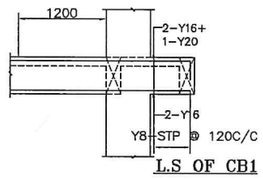
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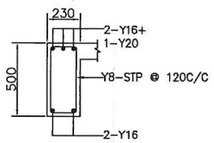
C.S OF FB4



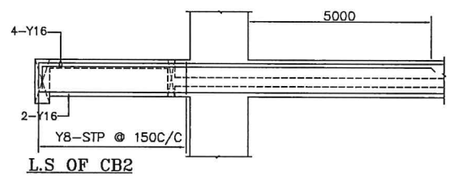
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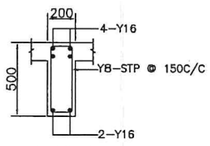
L.S OF CB1



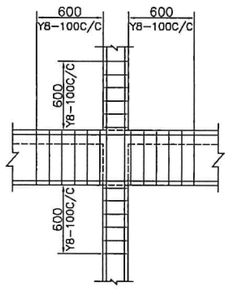
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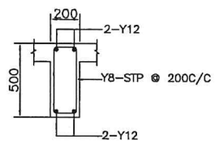
L.S OF CB2



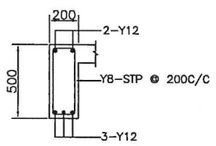
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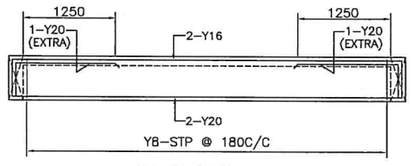
TYP. SEC. FOR STP. DETAILS



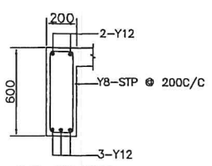
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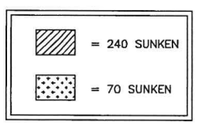
C.S OF FB2



L.S OF FB3



C.S OF FB3



Notes:–

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R.NO	DATE	DESCRIPTION

PROJECT

PROPOSED RESIDENTIAL BUILDING AT OLD DOOR NO. 14, NEW DOOR NO. 25, RANGANATHAN GARDENS, H– BLOCK, 15TH MAIN ROAD & 11TH MAIN ROAD, ANNA NAGAR WEST, CHENNAI– 600 040, COMPRISED IN OLD S. NO. 207/1A1A PART, T. S. NO. 10, BLOCK NO. 14 OF KOYAMBEDU VILLAGE, AMJIKARAI TALUK, CHENNAI DISTRICT. WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.DIVISION– 99, ZONE– 8.

TYPICAL FLOOR ROOF DETAIL

DESIGNED	KANNAN		SCALE	1 : 100
DRAWN	SEETHA		DATE	09–02–2024

STRUCTURAL CONSULTANTS:

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.

C.KANNAN B.E., M.E(STRUCTURE)
DOOR NO:21, PLOT NO:257–W,
FLAT NO:2B, "UTOPIA APARTMENTS",
2nd FLOOR, 4th MAIN ROAD,
INDIRA NAGAR, CHENNAI–20.
MOBILE NO: 098412 49815.
E–MAIL:kannankds2007@gmail.com

FILE NAME : D/SEETHA/PUSHKAR RANGANATHAN GARDEN



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