Verified RealEstate™

RE REGULATORY RECORD

RERA Document

The document as the regulator published it, reproduced in full behind this page.

Published for reference. The authority's own register is the operative record.

Verified RealEstate™
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India

hello@verified.realestate
+91 9996 12 9996
verified.realestate

DIGITALLY VERIFIED RECORD

```
*****************************************************
*                                                   *
*           STAAD.Pro CONNECT Edition               *
*           Version  22.12.00.142                   *
*           Proprietary Program of                  *
*           Bentley Systems, Inc.                   *
*           Date=    JUL  8, 2025                   *
*           Time=    13: 4:13                       *
*                                                   *
*  Licensed to: United Consultanta                  *
*****************************************************
```

```
     1. STAAD SPACE
INPUT FILE: D:\NEDUNCHEZHIAN\STABLITY REPORT\AJ-3712-OPERA HOUSING- CHOOLAIMEDU\AJ-3712-OPERA HOUSING-.. .STD
     2. START JOB INFORMATION
     3. JOB NAME DOOR NO 54/224, CHOOLAIMEDU HIGH ROAD, CHOOLAIMEDU, CHENNAI 600 094 -
     4. BEARING T.S.NO 138, BLOCK NO 20 IN PULIYUR VILLAGE, EGMORE TALUK, CHENNAI -
     5. DISTRICT
     6. JOB CLIENT OPERA HOUSING
     7. JOB NO AJ-3712
     8. CHECKER NAME DR. ALEX JACOB
     9. CHECKER DATE 7/8/2025
    10. ENGINEER DATE 08-JUL-25
    11. END JOB INFORMATION
    12. INPUT WIDTH 79
    13. UNIT METER KN
    14. JOINT COORDINATES
    15. 1 0 0 0; 2 3.9 0 0; 3 8.3 0 0; 4 11.3 0 0; 5 18.8 0 0; 6 0 1.5 0; 7 3.9 1.5 0
    16. 8 8.3 1.5 0; 9 11.3 1.5 0; 10 18.8 1.5 0; 11 0 4.6 0; 12 3.9 4.6 0
    17. 13 8.3 4.6 0; 14 11.3 4.6 0; 15 18.8 4.6 0; 16 0 7.7 0; 17 3.9 7.7 0
    18. 18 8.3 7.7 0; 19 11.3 7.7 0; 20 18.8 7.7 0; 21 0 10.8 0; 22 3.9 10.8 0
    19. 23 8.3 10.8 0; 24 11.3 10.8 0; 25 18.8 10.8 0; 26 0 13.9 0; 27 3.9 13.9 0
    20. 28 8.3 13.9 0; 29 11.3 13.9 0; 30 18.8 13.9 0; 31 0 17 0; 32 3.9 17 0
    21. 33 8.3 17 0; 34 11.3 17 0; 35 18.8 17 0; 36 0 20.1 0; 37 3.9 20.1 0
    22. 38 8.3 20.1 0; 39 11.3 20.1 0; 40 18.8 20.1 0
    23. MEMBER INCIDENCES
    24. 5 1 6; 6 2 7; 7 3 8; 8 4 9; 9 5 10; 10 6 7; 11 7 8; 12 8 9; 13 9 10; 14 6 11
    25. 15 7 12; 16 8 13; 17 9 14; 18 10 15; 19 11 12; 20 12 13; 21 13 14; 22 14 15
    26. 23 11 16; 24 12 17; 25 13 18; 26 14 19; 27 15 20; 28 16 17; 29 17 18; 30 18 19
    27. 31 19 20; 32 16 21; 33 17 22; 34 18 23; 35 19 24; 36 20 25; 37 21 22; 38 22 23
    28. 39 23 24; 40 24 25; 41 21 26; 42 22 27; 43 23 28; 44 24 29; 45 25 30; 46 26 27
    29. 47 27 28; 48 28 29; 49 29 30; 50 26 31; 51 27 32; 52 28 33; 53 29 34; 54 30 35
    30. 55 31 32; 56 32 33; 57 33 34; 58 34 35; 59 31 36; 60 32 37; 61 33 38; 62 34 39
    31. 63 35 40; 64 36 37; 65 37 38; 66 38 39; 67 39 40
    32. DEFINE MATERIAL START
    33. ISOTROPIC CONCRETE
    34. E 2.17185E+07
    35. POISSON 0.17
    36. DENSITY 23.5616
    37. ALPHA 1E-05
    38. DAMP 0.05
```

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

```
39. G 9.28139E+06
40. TYPE CONCRETE
41. STRENGTH FCU 27579
42. END DEFINE MATERIAL
43. MEMBER PROPERTY
44. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 66 -
45. 67 PRIS YD 0.6 ZD 0.2
46. 5 TO 9 14 TO 18 23 TO 27 32 TO 36 41 TO 45 50 TO 54 59 TO 62 -
47. 63 PRIS YD 0.2 ZD 0.45
48. CONSTANTS
49. MATERIAL CONCRETE ALL
50. SUPPORTS
51. 1 TO 5 FIXED
52. DEFINE IS1893 2016 LOAD
53. ZONE 0.16 RF 3 I 1.2 SS 2 ST 1 DM 0.05
54. SELFWEIGHT 1
55. MEMBER WEIGHT
56. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 UNI -17 0 0
57. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 UNI -15 0 0
58. 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.

59. TYPE 1 WIND 1
60. <! STAAD PRO GENERATED DATA DO NOT MODIFY !!!
61. IS875-2015:PARAMS 0 0 0 20.100 0.000 5.000 0 CHENNAI 50.000 0 1.000 2 6 -
62. 0.910 0.910 0.910 0.970 1.010 1.010 1.050 2 1.000 0.200 0 18.800 0.000 -
63. 20.100 0 0 0 1.000 0 0 0.200 1.000 0 1.000 1.000 1.000
64. !> END GENERATED DATA BLOCK
65. INT 1.369 1.369 1.369 1.556 1.687 1.689 HEIG  0  5  10  15  20  20.1
66. EXP 1 JOINT 1 TO 40
67. LOAD 1 LOADTYPE SEISMIC-H  TITLE EQ X
68. 1893 LOAD X 1
69. LOAD 2 LOADTYPE SEISMIC-H  TITLE EQ -X
70. 1893 LOAD X -1.
71. LOAD 3 LOADTYPE SEISMIC-H  TITLE EQ Z
72. 1893 LOAD Z 1
73. LOAD 4 LOADTYPE SEISMIC-H  TITLE EQ -Z
74. 1893 LOAD Z -1.
75. LOAD 5 LOADTYPE DEAD  TITLE DL
76. MEMBER LOAD
77. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 UNI GY -15
```

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

```
78. SELFWEIGHT Y -1 LIST ALL
79. LOAD 6 LOADTYPE LIVE  TITLE LL
80. MEMBER LOAD
81. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 UNI GY -15
82. LOAD 7 LOADTYPE WIND  TITLE WL Z
83. WIND LOAD Z 1 TYPE 1
84. LOAD 8 LOADTYPE WIND  TITLE WL -Z
85. WIND LOAD -Z -1 TYPE 1
86. LOAD COMB 9 1.5(DL+LL)
87. 5 1.5 6 1.5
88. LOAD COMB 10 1.2(DL+LL+EQX)
89. 1 1.2 5 1.2 6 1.2
90. LOAD COMB 11 1.2(DL+LL-EQX)
91. 2 1.2 5 1.2 6 1.2
92. LOAD COMB 12 1.2(DL+LL+EQZ)
93. 3 1.2 5 1.2 6 1.2
94. LOAD COMB 13 1.2(DL+LL-EQZ)
95. 4 1.2 5 1.2 6 1.2
96. LOAD COMB 14 1.2(DL+LL+WLZ)
97. 5 1.2 6 1.2 7 1.2
98. LOAD COMB 15 1.2(DL+LL-WLZ)
99. 5 1.2 6 1.2 8 1.2
100. LOAD COMB 16 1.5(DL+EQX)
101. 1 1.5 5 1.5
102. LOAD COMB 17 1.5(DL-EQX)
103. 2 1.5 5 1.5
104. LOAD COMB 18 1.5(DL+EQZ)
105. 3 1.5 5 1.5
106. LOAD COMB 19 1.5(DL-EQZ)
107. 4 1.5 5 1.5
108. LOAD COMB 20 1.5(DL+WLZ)
109. 5 1.5 7 1.5
110. LOAD COMB 21 1.5(DL-WLZ)
111. 5 1.5 8 1.5
112. LOAD COMB 22 0.9DL+1.5EQX
113. 1 1.5 5 0.9
114. LOAD COMB 23 0.9DL-1.5EQX
115. 5 0.9 2 1.5
116. LOAD COMB 24 0.9DL+1.5EQZ
117. 5 0.9 3 1.5
118. LOAD COMB 25 0.9DL-1.5EQZ
119. 5 0.9 4 1.5
120. LOAD COMB 26 0.9DL+1.5WLZ
121. 5 0.9 7 1.5
122. LOAD COMB 27 0.9DL-1.5WLZ
123. 5 0.9 8 1.0
124. PERFORM ANALYSIS
```

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

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

NUMBER OF JOINTS	40	NUMBER OF MEMBERS	63
NUMBER OF PLATES	0	NUMBER OF SOLIDS	0
NUMBER OF SURFACES	0	NUMBER OF SUPPORTS	5

Using 64-bit analysis engine.

SOLVER USED IS THE IN-CORE ADVANCED MATH SOLVER

TOTAL PRIMARY LOAD CASES = 8, TOTAL DEGREES OF FREEDOM = 210
TOTAL LOAD COMBINATION CASES = 19 SO FAR.

**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.

***NOTE: Equivalent Static Analysis should preferably be performed for regular
structures with approximate natural time period less than 0.4s and regular
structures with height less than 15m in Seismic Zone II. Ref Cl.6.4.3 and 7.6
BASE SHEAR AND TIME PERIOD IN X

```
*********************************************************
* UNITS - KN    METE                                    *
* TIME PERIOD FOR X 1893 LOADING =    0.71196 SEC       *
* SA/G PER 1893=    1.910, LOAD FACTOR= 1.000           *
* VB PER 1893=    0.0611 X     4796.40=     293.19 KN   *
* VB Act Based on Clause 7.2.1 =      293.19 KN         *
* VB Min based on Clause 7.2.2 =       52.76 KN         *
*                                                       *
*********************************************************
```

***NOTE: Equivalent Static Analysis should preferably be performed for regular
structures with approximate natural time period less than 0.4s and regular
structures with height less than 15m in Seismic Zone II. Ref Cl.6.4.3 and 7.6
BASE SHEAR AND TIME PERIOD IN X

```
*********************************************************
* UNITS - KN    METE                                    *
* TIME PERIOD FOR X 1893 LOADING =    0.71196 SEC       *
* SA/G PER 1893=    1.910, LOAD FACTOR=-1.000           *
* VB PER 1893=    0.0611 X     4796.40=    -293.19 KN   *
* VB Act Based on Clause 7.2.1 =     -293.19 KN         *
* VB Min based on Clause 7.2.2 =      -52.76 KN         *
*                                                       *
*********************************************************
```

***NOTE: Equivalent Static Analysis should preferably be performed for regular
structures with approximate natural time period less than 0.4s and regular
structures with height less than 15m in Seismic Zone II. Ref Cl.6.4.3 and 7.6

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

BASE SHEAR AND TIME PERIOD IN Z

```
**********************************************************
* UNITS - KN    METE                                     *
* TIME PERIOD FOR Z 1893 LOADING =    0.71196 SEC        *
* SA/G PER 1893=    1.910, LOAD FACTOR= 1.000            *
* VB PER 1893=    0.0611 X     4796.40=     293.19 KN    *
* VB Act Based on Clause 7.2.1 =      293.19 KN          *
* VB Min based on Clause 7.2.2 =       52.76 KN          *
*                                                        *
**********************************************************
```

***NOTE: Equivalent Static Analysis should preferably be performed for regular structures with approximate natural time period less than 0.4s and regular structures with height less than 15m in Seismic Zone II. Ref Cl.6.4.3 and 7.6

BASE SHEAR AND TIME PERIOD IN Z

```
**********************************************************
* UNITS - KN    METE                                     *
* TIME PERIOD FOR Z 1893 LOADING =    0.71196 SEC        *
* SA/G PER 1893=    1.910, LOAD FACTOR=-1.000            *
* VB PER 1893=    0.0611 X     4796.40=    -293.19 KN    *
* VB Act Based on Clause 7.2.1 =     -293.19 KN          *
* VB Min based on Clause 7.2.2 =      -52.76 KN          *
*                                                        *
**********************************************************
```

125. FINISH

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

**** DATE= JUL 8,2025 TIME= 13: 4:13 ****

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

STAAD SPACE


```
*************************************************************
*   For technical assistance on STAAD.Pro, please visit     *
*   http://www.bentley.com/en/support/                      *
*                                                           *
*   Details about additional assistance from                *
*   Bentley and Partners can be found at program menu       *
*   Help->Technical Support                                 *
*                                                           *
*          Copyright (c) Bentley Systems, Inc.              *
*              http://www.bentley.com                       *
*************************************************************
```

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER .
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

Dr. ALEX JACOB
B.E.,M.Tech (Str).,Ph.D (Hon).,Dip. Bdg.Sc (Aust)., M.I.E (Aust), M.I.E (Ind)
CONSULTING ENGINEER

Old No.41/A, New No.70, Beach Road,Kalakshetra Colony,
Besant Nagar, Chennai - 600 090.

044 - 24910945
+91-98401 59550
alexjacobuc@gmail.com
www.unitedconsultants.in

19.12.2025

STABILITY CERTIFICATE

The detailed engineering and structure design of the Proposed Construction of (Stilt+5) Residential Building at Door No.54/224, T. S. No. 138, Block No.20, Puliyur Village, Choolaimedu High Road, Choolaimedu , Egmore Taluk, Chennai 600094. Within the Limit of Greater Chennai Corporation has been done by me based on the report of geotechnical investigation (soil test) done by **Veltech Consulting Engineers**. Report No. **VCE/25/GIR/-140** dated **04.04.2025** 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 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 25.

(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 part I to part V and design of earthquake resistant structure as per IS Code No 1896 are carried out.

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

(Dr. ALEX JACOB)
Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

Dr. ALEX JACOB
B.E.,M.Tech (Str).,Ph.D (Hon).,Dip. Bdg.Sc (Aust)., M.I.E (Aust), M.I.E (Ind)
CONSULTING ENGINEER
Old No.41/A, New No.70, Beach Road,Kalakshetra Colony,
Besant Nagar, Chennai - 600 090.

044 - 24910945
+91-98401 59550
alexjacobuc@gmail.com
www.unitedconsultants.in

08.07.2025

STABILITY CERTIFICATE

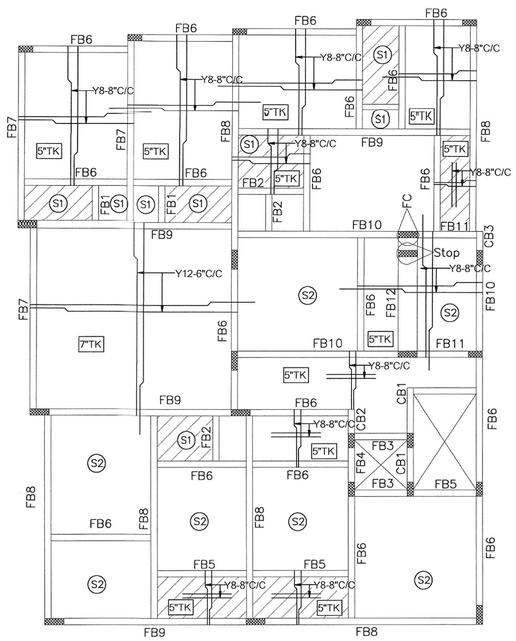
It is certified that the Proposed Construction of (Stilt+5) Residential Building at Door No.54/224, T. S. No. 138, Block No.20, Puliyur Village, Choolaimedu High Road, Choolaimedu , Egmore Taluk, Chennai 600094. is designed to resist earth quake. Check has been made and found safe and I hereby certify that,

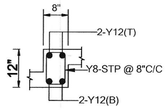
1. The minimum grade of concrete is M 25.

2. The design and analysis using the Code of Practice for Plain and Reinforced concrete as per IS 456, Design Loads as per IS-875 Part I to V and Design of Earthquake Resistant Structures as per IS 1893 are carried out.

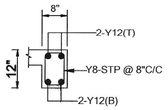
The building will be sound and stable when used for the purpose for which it is designed.

(Dr.ALEX JACOB)
Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

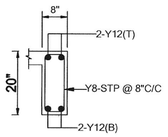




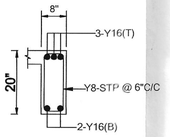
C.S OF FB1



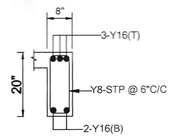
C.S OF FB2



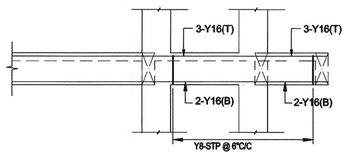
C.S OF FB3



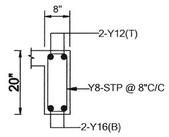
C.S OF FB4



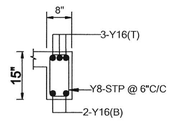
C.S OF CB2



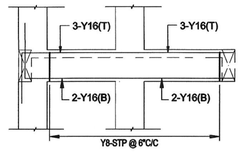
L.S OF FB4 CB2



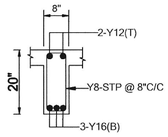
C.S OF FB5



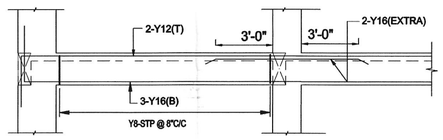
C.S OF CB1



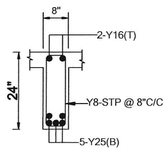
L.S OF CB1 CB1



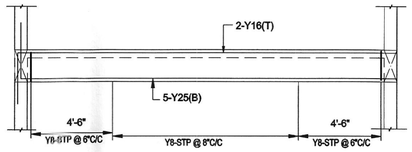
C.S OF FB6



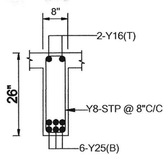
L.S OF FB6



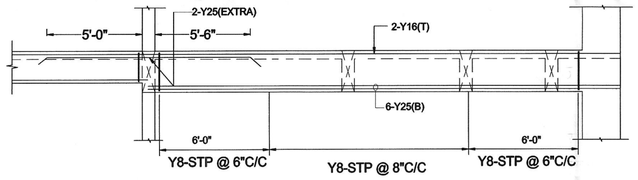
C.S OF FB7



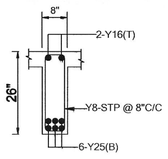
L.S OF FB7



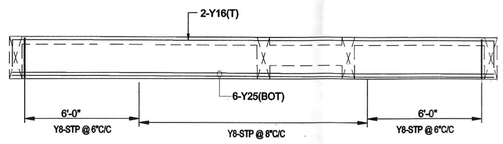
C.S OF FB8



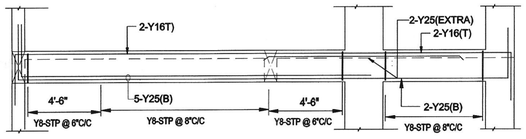
L.S OF FB8



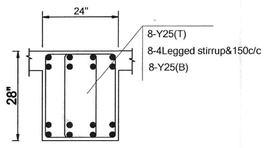
C.S OF FB9



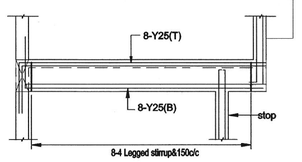
L.S OF FB9



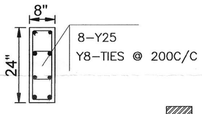
L.S OF FB10 L.S OF FB11

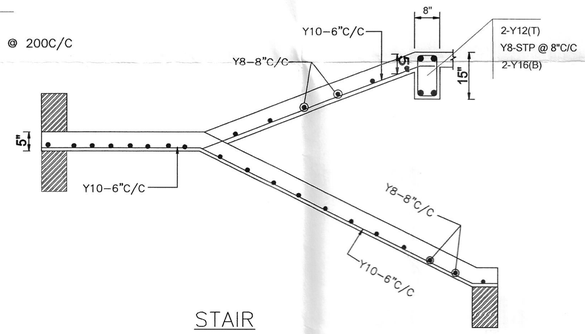


C.S OF FB12



L.S OF FB12





STAIR

NOTES

G+5

- REFER ARCH. DWG. FOR CENTRE LINE DIMENSIONS.
- CONCRETE MIX SHALL BE M30 FOR COLUMN & M25 FOR ALL OTHER R.C.C WORKS,
- CONCRETE MIX SHALL BE M40 FOR PILE WITH MINIMUM CEMENT CONTENT OF 400KG/m^3.
- ALL REINFORCEMENTS ARE OF Fe500 GRADE.
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE
  - (i) PILE 50mm
  - (ii) PILE CAP 50mm
  - (iii) COLUMN 40mm
  - (iv) GRADE BEAM 30mm
  - (v) R.C.C WALL 25mm

LAP LENGTH SHALL BE 50 x DIA OF THE BAR

R.No	Description of Revision	Date	Revised By

STRUCTURAL CONSULTANT

ALEX JACOB
CIVIL & STRUCTURAL CONSULTING ENGINEERS
41/A, BEACH ROAD, DOOR NO. A1
KALAKSHETRA COLONY
BESANT NAGAR, CHENNAI – 600 090.
PH. NO. 044– 2491 09 45, 24464478.
email : alexjacobuc@gmail.com
web site: www.unitedconsultants.in

PROJECT TITLE

PROPOSED RESIDENTIAL BUILDING AT DOOR NO 54/224, CHOOLAIMEDU HIGH ROAD, CHOOLAIMEDU, CHENNAI 600 094 BEARING T.S.NO 138, BLOCK NO 20 IN PULIYUR VILLAGE, EGMORE TALUK, CHENNAI DISTRICT.

DRAWING TITLE

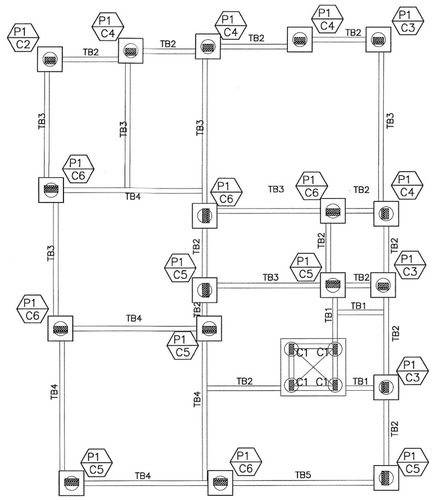
TYPICAL FLOOR ROOF DETAIL

DWG NO

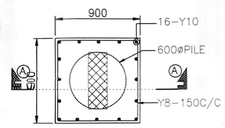
AJ–3712–OPERA HOUSING– CHOOLAIMEDU

DSND	Alex Jacob
DRN	NAVANEETH
DATE	10.07.25
SCALE	1 : 8
FILE NAME	E\NAVU/AJ–3712–OPERA HOUSING–CHOOLAIMEDU–PILE FOUNDATION DETAIL

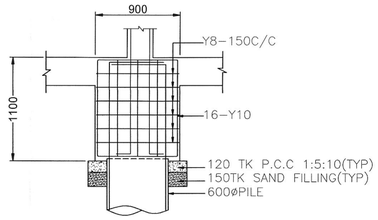
Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER .
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE/10030/2025



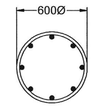
COL–NO	SIZE	REINFORCEMENT		SECTION	SHAPE OF TIES
		MAIN REINF.	TIES		
COL–C1 (LIFT WELL)	8" X 18"	4–Y16+ 2–Y12	Y8–TIES @ 200C/C	8" 18"	
COL–C2	8" X 18"	4–Y16	Y8–TIES @ 200C/C	12" 8" 18" 2-Y12	
COL–C3	8" X 18"	8–Y16	Y8–TIES @ 200C/C	12" 8" 18" 2-Y12	
COL–C4	8" X 18"	4–Y20+ 4–Y16	Y8–TIES @ 200C/C	12" 8" 18" 2-Y12	
COL–C5	8" X 24"	4–Y25+ 4–Y20	Y8–TIES @ 200C/C	12" 8" 24" 2-Y12	
COL–C6	8" X 24"	8–Y25	Y8–TIES @ 200C/C	12" 8" 24" 2-Y12	



PILE – 600ø–P1

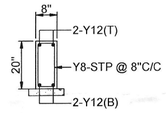


SEC. A A–P1

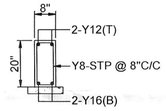


600ø PILE–P1

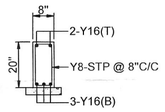
(SAFE LOAD 70 TONNES)



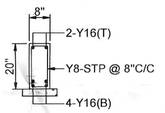
C.S OF TB1



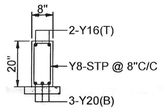
C.S OF TB2



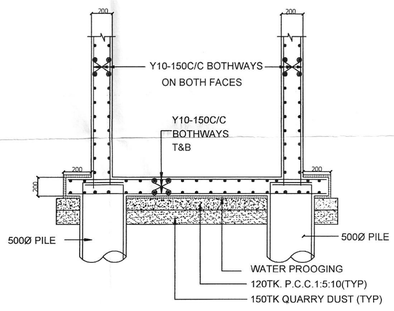
C.S OF TB3



C.S OF TB4



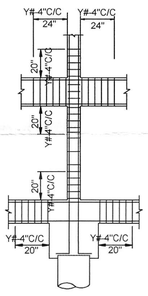
C.S OF TB5



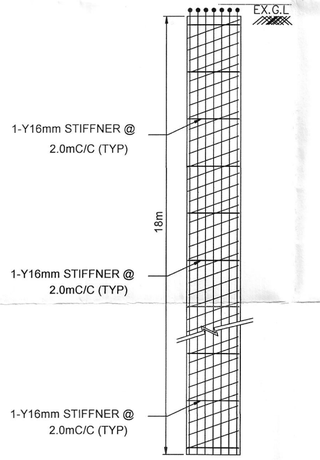
LIFTWELL SECTION

#DENOTES

8 or 10 or 12mm WHICH EVER MAXIMUM DIA OF THE STIRUPPS BAR USED IN BEAM or COLUMN



TYPICAL SECTION FOR STIRRUPS DETAILS



TYPICAL SECTION OF PILE

(BORED CAST IN–SITU PILE)

NOTES

G+5

- REFER ARCH. DWG. FOR CENTRE LINE DIMENSIONS.
- CONCRETE MIX SHALL BE M30 FOR COLUMN & M25 FOR ALL OTHER R.C.C WORKS,
- CONCRETE MIX SHALL BE M40 FOR PILE WITH MINIMUM CEMENT CONTENT OF 400KG/m^3.
- ALL REINFORCEMENTS ARE OF Fe500 GRADE.
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE
  - (i) PILE 50mm
  - (ii) PILE CAP 50mm
  - (iii) COLUMN 40mm
  - (iv) GRADE BEAM 30mm
  - (v) R.C.C WALL 25mm

LAP LENGTH SHALL BE 50 x DIA OF THE BAR

R.No	Description of Revision	Date	Revised By

STRUCTURAL CONSULTANT

ALEX JACOB
CIVIL & STRUCTURAL CONSULTING ENGINEERS
41/A, BEACH ROAD, DOOR NO. A1
KALAKSHETRA COLONY
BESANT NAGAR, CHENNAI – 600 090.
PH. NO. 044– 2491 09 45, 24464478.
email : alexjacobuc@gmail.com
web site: www.unitedconsultants.in

PROJECT TITLE

PROPOSED RESIDENTIAL BUILDING AT DOOR NO 54/224 CHOOLAIMEDU HIGH ROAD, CHOOLAIMEDU, CHENNAI 600 094 BEARING T.S.NO 138, BLOCK NO 20 IN PULIYUR VILLAGE, EGMORE TALUK, CHENNAI DISTRICT.

DRAWING TITLE

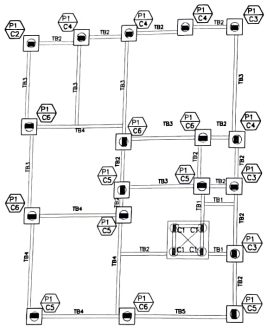
PILE FOUNDATION DETAIL

DWG NO

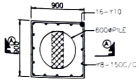
AJ–3712–OPERA HOUSING– CHOOLAIMEDU

DSND	Alex Jacob	
DRN	NAVANEETH	
DATE	05.07.25	
SCALE	1 : 8	
FILE NAME	E\NAVU/AJ–3712–OPERA HOUSING–CHOOLAIMEDU–PILE FOUNDATION DETAIL	

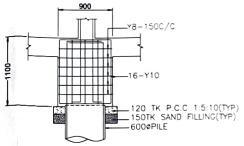
Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/007
REG No. RSE100392025



COL-NO	SIZE	REINFORCEMENT		SECTION	SHAPE OF TIES
		MAIN REINF.	TIES		
COL-C1 (LIFT WELL)	8" X 18"	4-Y16+ 2-Y12	Y8-TIES @ 200C/C	8" 18"	
COL-C2	8" X 18"	4-Y16	Y8-TIES @ 200C/C	12" 8" 18" 2-Y12	
COL-C3	8" X 18"	8-Y16	Y8-TIES @ 200C/C	12" 8" 18" 2-Y12	
COL-C4	8" X 18"	4-Y20+ 4-Y16	Y8-TIES @ 200C/C	12" 8" 18" 2-Y12	
COL-C5	8" X 24"	4-Y25+ 4-Y20	Y8-TIES @ 200C/C	12" 8" 24" 2-Y12	
COL-C6	8" X 24"	8-Y25	Y8-TIES @ 200C/C	12" 8" 24" 2-Y12	



PILE - 600Ø-P1



SEC. A A-P1

NOTES

G+5

- REFER ARCHITECTURAL DRG FOR CENTRE LINE DIMENSIONS.
- CONCRETE MIX SHALL BE M30 FOR COLUMN & M25 FOR ALL OTHER R.C.C. WORKS.
- CONCRETE MIX SHALL BE M40 FOR PILE WITH MINIMUM CEMENT CONTENT OF 400KG/m. 3
- ALL REINFORCEMENTS ARE OF Fe500 GRADE
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE
  - (i) PILE 50mm
  - (ii) PILE CAP 50mm
  - (iii) COLUMN 40mm
  - (iv) GRADE BEAM 30mm
  - (v) R.C.C WALL 25mm

LAP LENGTH SHALL BE 50 x DIA OF THE BAR

R.No	Description of Revision	Date	Revised By

STRUCTURAL CONSULTANT

ALEX JACOB
CIVIL & STRUCTURAL CONSULTING ENGINEERS
41/A, BEACH ROAD, DOOR NO. A1
KALAKSHETRA COLONY
BESANT NAGAR, CHENNAI - 600 090.
PH. NO. 044- 2491 09 45, 24464478.
email : alexjacobuc@gmail.com
web site: www.unitedconsultants.in

PROJECT TITLE

PROPOSED RESIDENTIAL BUILDING AT DOOR NO 54/224 CHOOLAIMEDU HIGH ROAD, CHOOLAIMEDU, CHENNAI 600 094 BEARING T.S.NO 138, BLOCK NO 20 IN PULIYUR VILLAGE, EGMORE TALUK, CHENNAI DISTRICT.

DRAWING TITLE

PILE FOUNDATION DETAIL

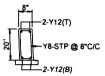
DWG NO

AJ-3712-OPERA HOUSING- CHOOLAIMEDU

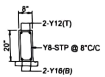
DSND	Alex Jacob
DRN	NAVANEETH
DATE	05.07.25
SCALE	1 : 8

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon.)
M.I.E.(Aust), M.I.E.(Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY
Chennai - 600 090
REG No. SE/GR/124/02/2001
REG No. RSE/100/2015

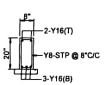
FILE NAME E:\NAVA\AJ-3712-OPERA HOUSING-CHOOLAIMEDU-PILE FOUNDATION DETAIL



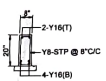
C.S OF TB1



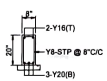
C.S OF TB2



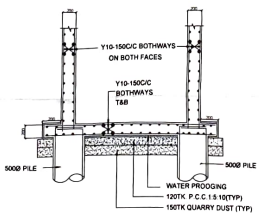
C.S OF TB3



C.S OF TB4

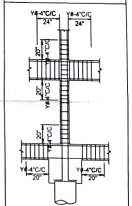


C.S OF TB5

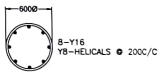


LIFTWELL SECTION

#DENOTES
8 or 10 or 12mm WHICH EVER MAXIMUM DIA OF THE STIRUPPS BAR USED IN BEAM or COLUMN

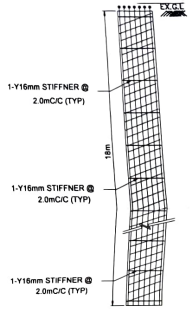


TYPICAL SECTION FOR STIRRUPS DETAILS



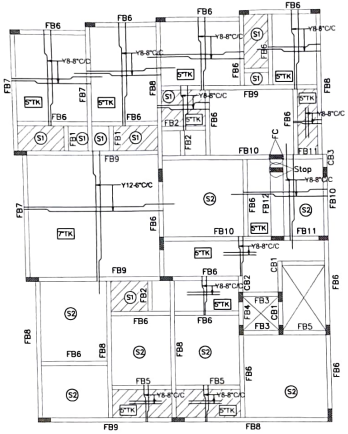
600Ø PILE-P1

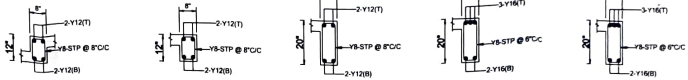
(SAFE LOAD 70 TONNES)



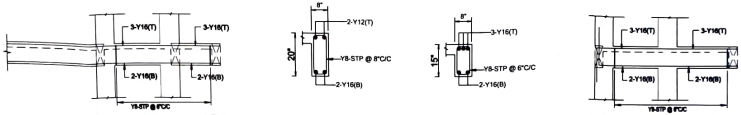
TYPICAL SECTION OF PILE

(BORED CAST IN-SITU PILE)

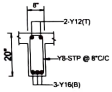




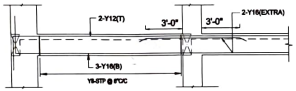
C.S OF FB1 C.S OF FB2 C.S OF FB3 C.S OF FB4 C.S OF CB2



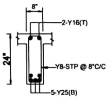
L.S OF FB4 CB2 C.S OF FB5 C.S OF CB1 L.S OF CB1 CB1



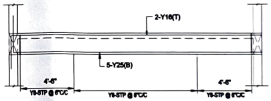
C.S OF FB6



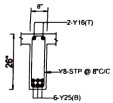
L.S OF FB6



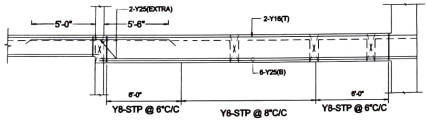
C.S OF FB7



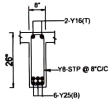
L.S OF FB7



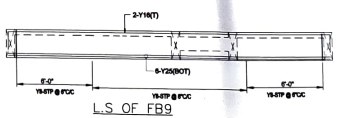
C.S OF FB8



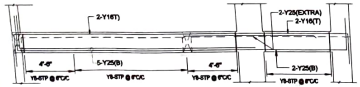
L.S OF FB8



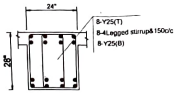
C.S OF FB9



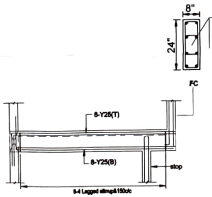
L.S OF FB9



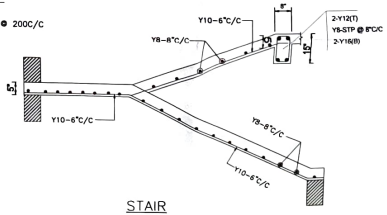
L.S OF FB10 L.S OF FB11



C.S OF FB12



L.S OF FB12



STAIR

NOTES

G+5

- REFER ARCH. DWG. FOR CENTRE LINE DIMENSIONS.
- CONCRETE MIX SHALL BE M30 FOR COLUMN & M25 FOR ALL OTHER R.C.C WORKS.
- CONCRETE MIX SHALL BE M40 FOR PILE WITH MINIMUM CEMENT CONTENT OF 400KG/m. 3
- ALL REINFORCEMENTS ARE OF Fe500 GRADE.
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE
  - (i) PILE 50mm
  - (ii) PILE CAP 50mm
  - (iii) COLUMN 40mm
  - (iv) GRADE BEAM 30mm
  - (v) R.C.C WALL 25mm
- LAP LENGTH SHALL BE 50 x DIA OF THE BAR

R.No	Description of Revision	Date	Revised By

STRUCTURAL CONSULTANT

ALEX JACOB
CIVIL & STRUCTURAL CONSULTING ENGINEERS
41/A, BEACH ROAD, DOOR NO. A1
KALAKSHETRA COLONY
BESANT NAGAR, CHENNAI – 600 090.
PH. NO. 044– 2491 09 45, 24464478.
email : alexjacobuc@gmail.com
web site: www.unitedconsultants.in

PROJECT TITLE

PROPOSED RESIDENTIAL BUILDING AT DOOR NO 54/224 CHOOLAIMEDU HIGH ROAD, CHOOLAIMEDU, CHENNAI 600 094 BEARING T.S.NO 138, BLOCK NO 20 IN PULIYUR VILLAGE, EGMORE TALUK, CHENNAI DISTRICT.

DRAWING TITLE

TYPICAL FLOOR ROOF DETAIL

DWG NO

AJ–3712–OPERA HOUSING– CHOOLAIMEDU

DSND	Alex Jacob
DRN	NAVANEETH
DATE	10.07.25
SCALE	1 : 8
FILE NAME	E:\NAVI\AJ-3712-OPERA HOUSING-CHOOLAIMEDU-PILE FOUNDATION DETAIL

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon), M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/2402/001
REG No. RSE/100/30/035

Dr. ALEX JACOB
B.E.,M.Tech (Str).,Ph.D (Hon).,Dip. Bdg.Sc (Aust)., M.I.E (Aust), M.I.E (Ind)
CONSULTING ENGINEER
Old No.41/A, New No.70, Beach Road,Kalakshetra Colony,
Besant Nagar, Chennai - 600 090.

044 - 24910945
+91-98401 59550
alexjacobuc@gmail.com
www.unitedconsultants.in

19.12.2025

STABILITY CERTIFICATE

The detailed engineering and structure design of the Proposed Construction of (Stilt+5) Residential Building at Door No.54/224, T. S. No. 138, Block No.20, Puliyur Village, Choolaimedu High Road, Choolaimedu , Egmore Taluk, Chennai 600094. Within the Limit of Greater Chennai Corporation has been done by me based on the report of geotechnical investigation (soil test) done by **Veltech Consulting Engineers**. Report No. **VCE/25/GIR/-140** dated **04.04.2025** 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 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 25.

(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 part I to part V and design of earthquake resistant structure as per IS Code No 1896 are carried out.

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

(Dr. ALEX JACOB)
Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

Dr. ALEX JACOB
B.E.,M.Tech (Str).,Ph.D (Hon).,Dip. Bdg.Sc (Aust)., M.I.E (Aust), M.I.E (Ind)
CONSULTING ENGINEER
Old No.41/A, New No.70, Beach Road,Kalakshetra Colony,
Besant Nagar, Chennai - 600 090.

044 - 24910945
+91-98401 59550
alexjacobuc@gmail.com
www.unitedconsultants.in

08.07.2025

STABILITY CERTIFICATE

It is certified that the Proposed Construction of (Stilt+5) Residential Building at Door No.54/224, T. S. No. 138, Block No.20, Puliyur Village, Choolaimedu High Road, Choolaimedu , Egmore Taluk, Chennai 600094. is designed to resist earth quake. Check has been made and found safe and I hereby certify that,

1. The minimum grade of concrete is M 25.
2. The design and analysis using the Code of Practice for Plain and Reinforced concrete as per IS 456, Design Loads as per IS-875 Part I to V and Design of Earthquake Resistant Structures as per IS 1893 are carried out.

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

(Dr.ALEX JACOB)

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

```
*************************************************************
*   For technical assistance on STAAD.Pro, please visit     *
*   http://www.bentley.com/en/support/                      *
*                                                           *
*   Details about additional assistance from                *
*   Bentley and Partners can be found at program menu       *
*   Help->Technical Support                                 *
*                                                           *
*           Copyright (c) Bentley Systems, Inc.             *
*                http://www.bentley.com                     *
*************************************************************
```

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER .
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

STAAD SPACE -- PAGE NO. 5

BASE SHEAR AND TIME PERIOD IN Z

```
*********************************************************
* UNITS - KN    METE                                    *
* TIME PERIOD FOR Z 1893 LOADING =    0.71196 SEC       *
* SA/G PER 1893=    1.910, LOAD FACTOR= 1.000           *
* VB PER 1893=    0.0611 X     4796.40=     293.19 KN   *
* VB Act Based on Clause 7.2.1 =      293.19 KN         *
* VB Min based on Clause 7.2.2 =       52.76 KN         *
*                                                       *
*********************************************************
```

***NOTE: Equivalent Static Analysis should preferably be performed for regular structures with approximate natural time period less than 0.4s and regular structures with height less than 15m in Seismic Zone II. Ref Cl.6.4.3 and 7.6

BASE SHEAR AND TIME PERIOD IN Z

```
*********************************************************
* UNITS - KN    METE                                    *
* TIME PERIOD FOR Z 1893 LOADING =    0.71196 SEC       *
* SA/G PER 1893=    1.910, LOAD FACTOR=-1.000           *
* VB PER 1893=    0.0611 X     4796.40=    -293.19 KN   *
* VB Act Based on Clause 7.2.1 =     -293.19 KN         *
* VB Min based on Clause 7.2.2 =      -52.76 KN         *
*                                                       *
*********************************************************
```

125. FINISH

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

**** DATE= JUL 8,2025 TIME= 13: 4:13 ****

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

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

NUMBER OF JOINTS	40	NUMBER OF MEMBERS	63
NUMBER OF PLATES	0	NUMBER OF SOLIDS	0
NUMBER OF SURFACES	0	NUMBER OF SUPPORTS	5

Using 64-bit analysis engine.

SOLVER USED IS THE IN-CORE ADVANCED MATH SOLVER

TOTAL PRIMARY LOAD CASES = 8, TOTAL DEGREES OF FREEDOM = 210
TOTAL LOAD COMBINATION CASES = 19 SO FAR.

**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.

***NOTE: Equivalent Static Analysis should preferably be performed for regular
structures with approximate natural time period less than 0.4s and regular
structures with height less than 15m in Seismic Zone II. Ref Cl.6.4.3 and 7.6
BASE SHEAR AND TIME PERIOD IN X

```
**********************************************************
* UNITS - KN    METE                                     *
* TIME PERIOD FOR X 1893 LOADING =    0.71196 SEC        *
* SA/G PER 1893=    1.910, LOAD FACTOR= 1.000            *
* VB PER 1893=    0.0611 X     4796.40=     293.19 KN    *
* VB Act Based on Clause 7.2.1 =      293.19 KN          *
* VB Min based on Clause 7.2.2 =       52.76 KN          *
*                                                        *
**********************************************************
```

***NOTE: Equivalent Static Analysis should preferably be performed for regular
structures with approximate natural time period less than 0.4s and regular
structures with height less than 15m in Seismic Zone II. Ref Cl.6.4.3 and 7.6
BASE SHEAR AND TIME PERIOD IN X

```
**********************************************************
* UNITS - KN    METE                                     *
* TIME PERIOD FOR X 1893 LOADING =    0.71196 SEC        *
* SA/G PER 1893=    1.910, LOAD FACTOR=-1.000            *
* VB PER 1893=    0.0611 X     4796.40=    -293.19 KN    *
* VB Act Based on Clause 7.2.1 =     -293.19 KN          *
* VB Min based on Clause 7.2.2 =      -52.76 KN          *
*                                                        *
**********************************************************
```

***NOTE: Equivalent Static Analysis should preferably be performed for regular
structures with approximate natural time period less than 0.4s and regular
structures with height less than 15m in Seismic Zone II. Ref Cl.6.4.3 and 7.6

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

```
 78. SELFWEIGHT Y -1 LIST ALL
 79. LOAD 6 LOADTYPE LIVE  TITLE LL
 80. MEMBER LOAD
 81. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 UNI GY -15
 82. LOAD 7 LOADTYPE WIND  TITLE WL Z
 83. WIND LOAD Z 1 TYPE 1
 84. LOAD 8 LOADTYPE WIND  TITLE WL -Z
 85. WIND LOAD -Z -1 TYPE 1
 86. LOAD COMB 9 1.5(DL+LL)
 87. 5 1.5 6 1.5
 88. LOAD COMB 10 1.2(DL+LL+EQX)
 89. 1 1.2 5 1.2 6 1.2
 90. LOAD COMB 11 1.2(DL+LL-EQX)
 91. 2 1.2 5 1.2 6 1.2
 92. LOAD COMB 12 1.2(DL+LL+EQZ)
 93. 3 1.2 5 1.2 6 1.2
 94. LOAD COMB 13 1.2(DL+LL-EQZ)
 95. 4 1.2 5 1.2 6 1.2
 96. LOAD COMB 14 1.2(DL+LL+WLZ)
 97. 5 1.2 6 1.2 7 1.2
 98. LOAD COMB 15 1.2(DL+LL-WLZ)
 99. 5 1.2 6 1.2 8 1.2
100. LOAD COMB 16 1.5(DL+EQX)
101. 1 1.5 5 1.5
102. LOAD COMB 17 1.5(DL-EQX)
103. 2 1.5 5 1.5
104. LOAD COMB 18 1.5(DL+EQZ)
105. 3 1.5 5 1.5
106. LOAD COMB 19 1.5(DL-EQZ)
107. 4 1.5 5 1.5
108. LOAD COMB 20 1.5(DL+WLZ)
109. 5 1.5 7 1.5
110. LOAD COMB 21 1.5(DL-WLZ)
111. 5 1.5 8 1.5
112. LOAD COMB 22 0.9DL+1.5EQX
113. 1 1.5 5 0.9
114. LOAD COMB 23 0.9DL-1.5EQX
115. 5 0.9 2 1.5
116. LOAD COMB 24 0.9DL+1.5EQZ
117. 5 0.9 3 1.5
118. LOAD COMB 25 0.9DL-1.5EQZ
119. 5 0.9 4 1.5
120. LOAD COMB 26 0.9DL+1.5WLZ
121. 5 0.9 7 1.5
122. LOAD COMB 27 0.9DL-1.5WLZ
123. 5 0.9 8 1.0
124. PERFORM ANALYSIS
```

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

```
39. G 9.28139E+06
40. TYPE CONCRETE
41. STRENGTH FCU 27579
42. END DEFINE MATERIAL
43. MEMBER PROPERTY
44. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 66 -
45. 67 PRIS YD 0.6 ZD 0.2
46. 5 TO 9 14 TO 18 23 TO 27 32 TO 36 41 TO 45 50 TO 54 59 TO 62 -
47. 63 PRIS YD 0.2 ZD 0.45
48. CONSTANTS
49. MATERIAL CONCRETE ALL
50. SUPPORTS
51. 1 TO 5 FIXED
52. DEFINE IS1893 2016 LOAD
53. ZONE 0.16 RF 3 I 1.2 SS 2 ST 1 DM 0.05
54. SELFWEIGHT 1
55. MEMBER WEIGHT
56. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 UNI -17 0 0
57. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 UNI -15 0 0
58. 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.

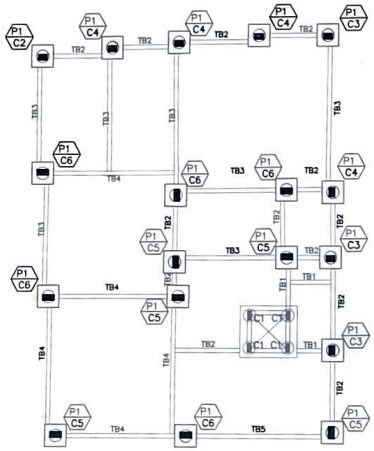
59. TYPE 1 WIND 1
60. <! STAAD PRO GENERATED DATA DO NOT MODIFY !!!
61. IS875-2015:PARAMS 0 0 0 20.100 0.000 5.000 0 CHENNAI 50.000 0 1.000 2 6 -
62. 0.910 0.910 0.910 0.970 1.010 1.010 1.050 2 1.000 0.200 0 18.800 0.000 -
63. 20.100 0 0 0 1.000 0 0 0.200 1.000 0 1.000 1.000 1.000
64. !> END GENERATED DATA BLOCK
65. INT 1.369 1.369 1.369 1.556 1.687 1.689 HEIG  0  5  10  15  20  20.1
66. EXP 1 JOINT 1 TO 40
67. LOAD 1 LOADTYPE SEISMIC-H  TITLE EQ X
68. 1893 LOAD X 1
69. LOAD 2 LOADTYPE SEISMIC-H  TITLE EQ -X
70. 1893 LOAD X -1.
71. LOAD 3 LOADTYPE SEISMIC-H  TITLE EQ Z
72. 1893 LOAD Z 1
73. LOAD 4 LOADTYPE SEISMIC-H  TITLE EQ -Z
74. 1893 LOAD Z -1.
75. LOAD 5 LOADTYPE DEAD  TITLE DL
76. MEMBER LOAD
77. 10 TO 13 19 TO 22 28 TO 31 37 TO 40 46 TO 49 55 TO 58 64 TO 67 UNI GY -15
```

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

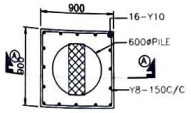
```
**************************************************
*                                                *
*          STAAD.Pro CONNECT Edition             *
*          Version  22.12.00.142                 *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    JUL  8, 2025                 *
*          Time=    13: 4:13                     *
*                                                *
*  Licensed to: United Consultanta               *
**************************************************
```

```
     1. STAAD SPACE
INPUT FILE: D:\NEDUNCHEZHIAN\STABLITY REPORT\AJ-3712-OPERA HOUSING- CHOOLAIMEDU\AJ-3712-OPERA HOUSING-.. .STD
     2. START JOB INFORMATION
     3. JOB NAME DOOR NO 54/224, CHOOLAIMEDU HIGH ROAD, CHOOLAIMEDU, CHENNAI 600 094 -
     4. BEARING T.S.NO 138, BLOCK NO 20 IN PULIYUR VILLAGE, EGMORE TALUK, CHENNAI -
     5. DISTRICT
     6. JOB CLIENT OPERA HOUSING
     7. JOB NO AJ-3712
     8. CHECKER NAME DR. ALEX JACOB
     9. CHECKER DATE 7/8/2025
    10. ENGINEER DATE 08-JUL-25
    11. END JOB INFORMATION
    12. INPUT WIDTH 79
    13. UNIT METER KN
    14. JOINT COORDINATES
    15. 1 0 0 0; 2 3.9 0 0; 3 8.3 0 0; 4 11.3 0 0; 5 18.8 0 0; 6 0 1.5 0; 7 3.9 1.5 0
    16. 8 8.3 1.5 0; 9 11.3 1.5 0; 10 18.8 1.5 0; 11 0 4.6 0; 12 3.9 4.6 0
    17. 13 8.3 4.6 0; 14 11.3 4.6 0; 15 18.8 4.6 0; 16 0 7.7 0; 17 3.9 7.7 0
    18. 18 8.3 7.7 0; 19 11.3 7.7 0; 20 18.8 7.7 0; 21 0 10.8 0; 22 3.9 10.8 0
    19. 23 8.3 10.8 0; 24 11.3 10.8 0; 25 18.8 10.8 0; 26 0 13.9 0; 27 3.9 13.9 0
    20. 28 8.3 13.9 0; 29 11.3 13.9 0; 30 18.8 13.9 0; 31 0 17 0; 32 3.9 17 0
    21. 33 8.3 17 0; 34 11.3 17 0; 35 18.8 17 0; 36 0 20.1 0; 37 3.9 20.1 0
    22. 38 8.3 20.1 0; 39 11.3 20.1 0; 40 18.8 20.1 0
    23. MEMBER INCIDENCES
    24. 5 1 6; 6 2 7; 7 3 8; 8 4 9; 9 5 10; 10 6 7; 11 7 8; 12 8 9; 13 9 10; 14 6 11
    25. 15 7 12; 16 8 13; 17 9 14; 18 10 15; 19 11 12; 20 12 13; 21 13 14; 22 14 15
    26. 23 11 16; 24 12 17; 25 13 18; 26 14 19; 27 15 20; 28 16 17; 29 17 18; 30 18 19
    27. 31 19 20; 32 16 21; 33 17 22; 34 18 23; 35 19 24; 36 20 25; 37 21 22; 38 22 23
    28. 39 23 24; 40 24 25; 41 21 26; 42 22 27; 43 23 28; 44 24 29; 45 25 30; 46 26 27
    29. 47 27 28; 48 28 29; 49 29 30; 50 26 31; 51 27 32; 52 28 33; 53 29 34; 54 30 35
    30. 55 31 32; 56 32 33; 57 33 34; 58 34 35; 59 31 36; 60 32 37; 61 33 38; 62 34 39
    31. 63 35 40; 64 36 37; 65 37 38; 66 38 39; 67 39 40
    32. DEFINE MATERIAL START
    33. ISOTROPIC CONCRETE
    34. E 2.17185E+07
    35. POISSON 0.17
    36. DENSITY 23.5616
    37. ALPHA 1E-05
    38. DAMP 0.05
```

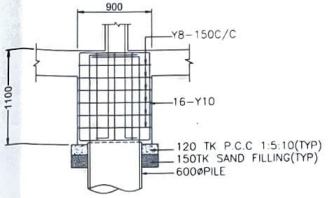
Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-I/24/02/001
REG No. RSE100392025



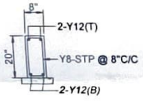
COL-NO	SIZE	REINFORCEMENT		SECTION	SHAPE OF TIES
		MAIN REINF.	TIES		
COL-C1 (LIFT WELL)	8" X 18"	4-Y16+ 2-Y12	Y8-TIES @ 200C/C	8" 18"	
COL-C2	8" X 18"	4-Y16	Y8-TIES @ 200C/C	12" 8" 18" 2-Y12	
COL-C3	8" X 18"	8-Y16	Y8-TIES @ 200C/C	12" 8" 18" 2-Y12	
COL-C4	8" X 18"	4-Y20+ 4-Y16	Y8-TIES @ 200C/C	12" 8" 18" 2-Y12	
COL-C5	8" X 24"	4-Y25+ 4-Y20	Y8-TIES @ 200C/C	12" 8" 24" 2-Y12	
COL-C6	8" X 24"	8-Y25	Y8-TIES @ 200C/C	12" 8" 24" 2-Y12	



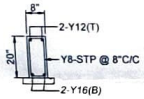
PILE - 600Ø-P1



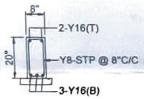
SEC. A A-P1



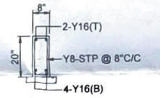
C.S OF TB1



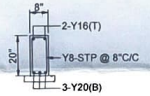
C.S OF TB2



C.S OF TB3



C.S OF TB4

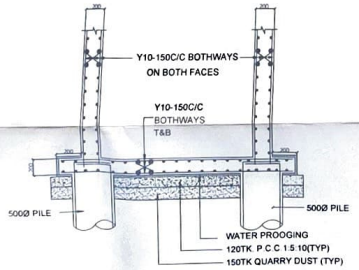


C.S OF TB5



600Ø PILE-P1

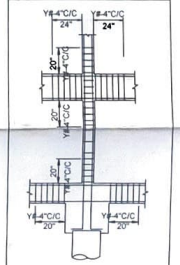
(SAFE LOAD 70 TONNES)



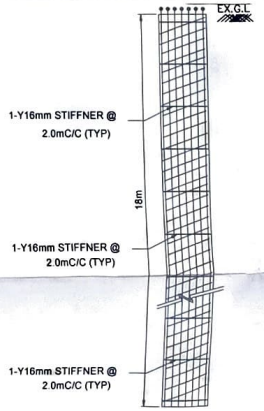
LIFTWELL SECTION

DENOTES

8 or 10 or 12mm WHICH EVER MAXIMUM DIA OF THE STIRUPPS BAR USED IN BEAM or COLUMN



TYPICAL SECTION FOR STIRRUPS DETAILS



TYPICAL SECTION OF PILE

(BORED CAST IN-SITU PILE)

NOTES

G+5

- REFER ARCH. DWG. FOR CENTRE LINE DIMENSIONS.
- CONCRETE MIX SHALL BE M30 FOR COLUMN & M25 FOR ALL OTHER R.C.C WORKS,
- CONCRETE MIX SHALL BE M40 FOR PILE WITH MINIMUM CEMENT CONTENT OF 400KG/m^3.
- ALL REINFORCEMENTS ARE OF Fe500 GRADE.
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE
  - (I) PILE 50mm
  - (II) PILE CAP 50mm
  - (III) COLUMN 40mm
  - (iv) GRADE BEAM 30mm
  - (v) R.C.C WALL 25mm

LAP LENGTH SHALL BE 50 x DIA OF THE BAR

R.No	Description of Revision	Date	Revised By

STRUCTURAL CONSULTANT

ALEX JACOB
CIVIL & STRUCTURAL CONSULTING ENGINEERS
41/A, BEACH ROAD, DOOR NO. A1
KALAKSHETRA COLONY
BESANT NAGAR, CHENNAI - 600 090.
PH NO. 044- 2491 09 45, 24464478.
email : alexjacobuc@gmail.com
web site: www.unitedconsultants.in

PROJECT TITLE

PROPOSED RESIDENTIAL BUILDING AT DOOR NO 54/224 CHOOLAIMEDU HIGH ROAD, CHOOLAIMEDU, CHENNAI 600 094 BEARING T.S.NO 138, BLOCK NO 20 IN PULIYUR VILLAGE, EGMORE TALUK, CHENNAI DISTRICT.

DRAWING TITLE

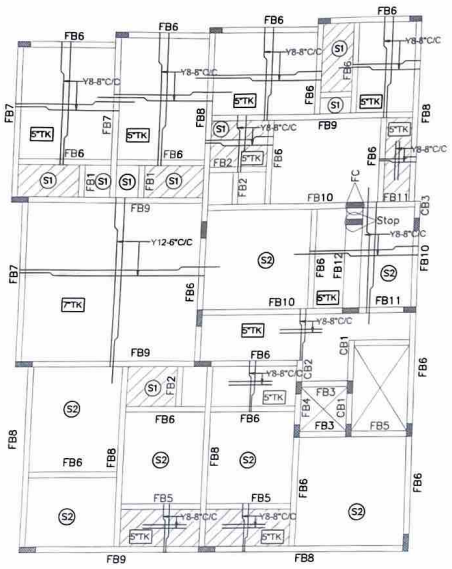
PILE FOUNDATION DETAIL

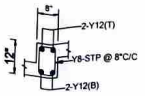
DWG NO

AJ-3712-OPERA HOUSING- CHOOLAIMEDU

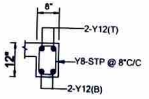
DSND	Alex Jacob
DRN	NAVANEETH
DATE	05.07.25
SCALE	1 : 8
FILE NAME	E:\NAVU\AJ-3712-OPERA HOUSING-CHOOLAIMEDU-PILE FOUNDATION DETAIL

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon), M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090
REG No. SE/GR-I/24/02/001
REG No. RSE100392025

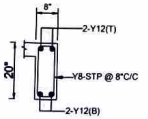




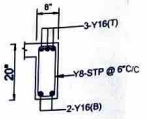
C.S OF FB1



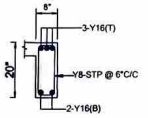
C.S OF FB2



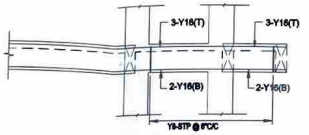
C.S OF FB3



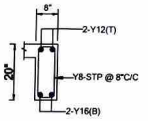
C.S OF FB4



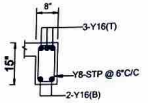
C.S OF CB2



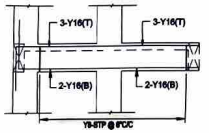
L.S OF FB4 CB2



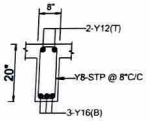
C.S OF FB5



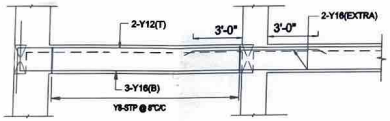
C.S OF CB1



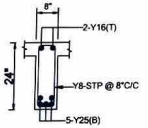
L.S OF CB1 CB1



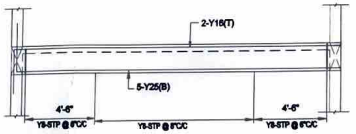
C.S OF FB6



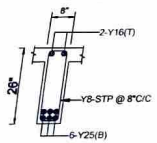
L.S OF FB6



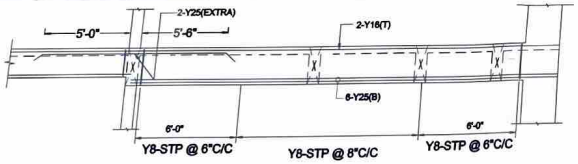
C.S OF FB7



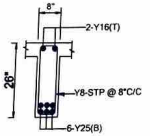
L.S OF FB7



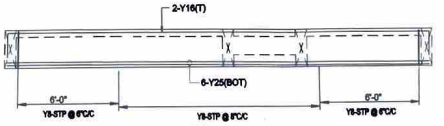
C.S OF FB8



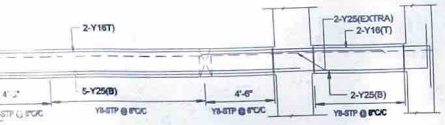
L.S OF FB8



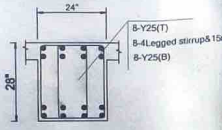
C.S OF FB9



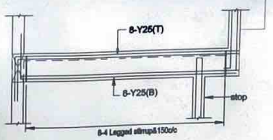
L.S OF FB9



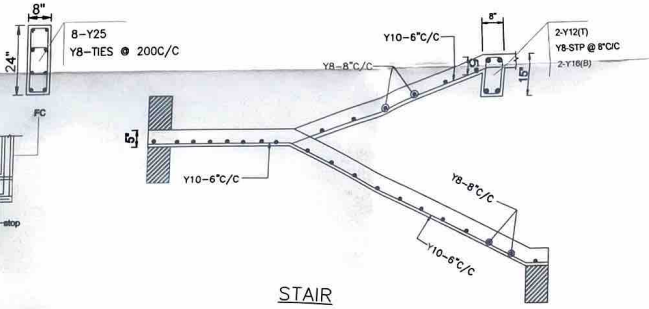
L.S OF FB10 L.S OF FB11



C.S OF FB12



L.S OF FB12



STAIR

NOTES

G+5

- REFER ARCH. DWG. FOR CENTRE LINE DIMENSIONS.
- CONCRETE MIX SHALL BE M30 FOR COLUMN & M25 FOR ALL OTHER R.C.C WORKS.
- CONCRETE MIX SHALL BE M40 FOR PILE WITH MINIMUM CEMENT CONTENT OF 400KG/m. 3
- ALL REINFORCEMENTS ARE OF Fe500 GRADE.
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE
  - (i) PILE 50mm
  - (ii) PILE CAP 50mm
  - (iii) COLUMN 40mm
  - (iv) GRADE BEAM 30mm
  - (v) R.C.C WALL 25mm
- LAP LENGTH SHALL BE 50 x DIA OF THE BAR

R.No	Description of Revision	Date	Revised By

STRUCTURAL CONSULTANT

ALEX JACOB
CIVIL & STRUCTURAL CONSULTING ENGINEERS
41/A, BEACH ROAD, DOOR NO. A1
KALAKSHETRA COLONY
BESANT NAGAR, CHENNAI – 600 090.
PH. NO. 044– 2491 09 45, 24464478.
email : alexjacobuc@gmail.com
web site: www.unitedconsultants.in

PROJECT TITLE

PROPOSED RESIDENTIAL BUILDING AT DOOR NO 54/224 CHOOLAIMEDU HIGH ROAD, CHOOLAIMEDU, CHENNAI 600 094 BEARING T.S.NO 138, BLOCK NO 20 IN PULIYUR VILLAGE, EGMORE TALUK, CHENNAI DISTRICT.

DRAWING TITLE

TYPICAL FLOOR ROOF DETAIL

DWG NO

AJ–3712–OPERA HOUSING– CHOOLAIMEDU

DSND	Alex Jacob
DRN	NAVANEETH
DATE	10.07.25
SCALE	1 : 8
FILE NAME	E\NAVI\AJ–3712–OPERA HOUSING–CHOOLAIMEDU–PILE FOUNDATION DETAIL

Dr. ALEX JACOB
B.E., M.Tech(Str), Ph D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-1/24/02/001
REG No. RSE/1/2018/

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.