

```

*****
*
*      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\STABILITY REPORT\AJ-3712-OPERA HOUSING- CHOO LAIMEDU\AJ-3712-OPERA HOUSING-... .STD
2. START JOB INFORMATION
3. JOB NAME DOOR NO 54/224, CHOO LAIMEDU HIGH ROAD, CHOO LAIMEDU, 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 ENGINEER
 70, BEACH ROAD, KALAKSHETRA COLONY,
 Chennai - 600 090.
 REG No. SE/GR-I/24/02/001
 REG No. RSE100392025

STAAD SPACE

-- PAGE NO. 2

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 ENGINEER
 70, BEACH ROAD, KALAKSHETRA COLONY,
 Chennai - 600 090.
 REG No. SE/GR-I/24/02/001
 REG No. RSE100392025

STAAD SPACE

-- PAGE NO. 3

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 ENGINEER
 70, BEACH ROAD, KALAKSHETRA COLONY,
 Chennai - 600 090.
 REG No. SE/GR-I/24/02/001
 REG No. RSE100392025

STAAD SPACE

-- PAGE NO. 4

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 ENGINEER
 70, BEACH ROAD, KALAKSHETRA COLONY,
 Chennai - 600 090.
 REG No. SE/GR-1/24/02/001
 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 ENGINEER
 70, BEACH ROAD, KALAKSHETRA COLONY,
 Chennai - 600 090.
 REG No. SE/GR-I/24/02/001
 REG No. RSE100392025

STAAD SPACE

-- PAGE NO. 6

```
*****
*   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 ENGINEER
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, Puliur 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 ENGINEER
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,

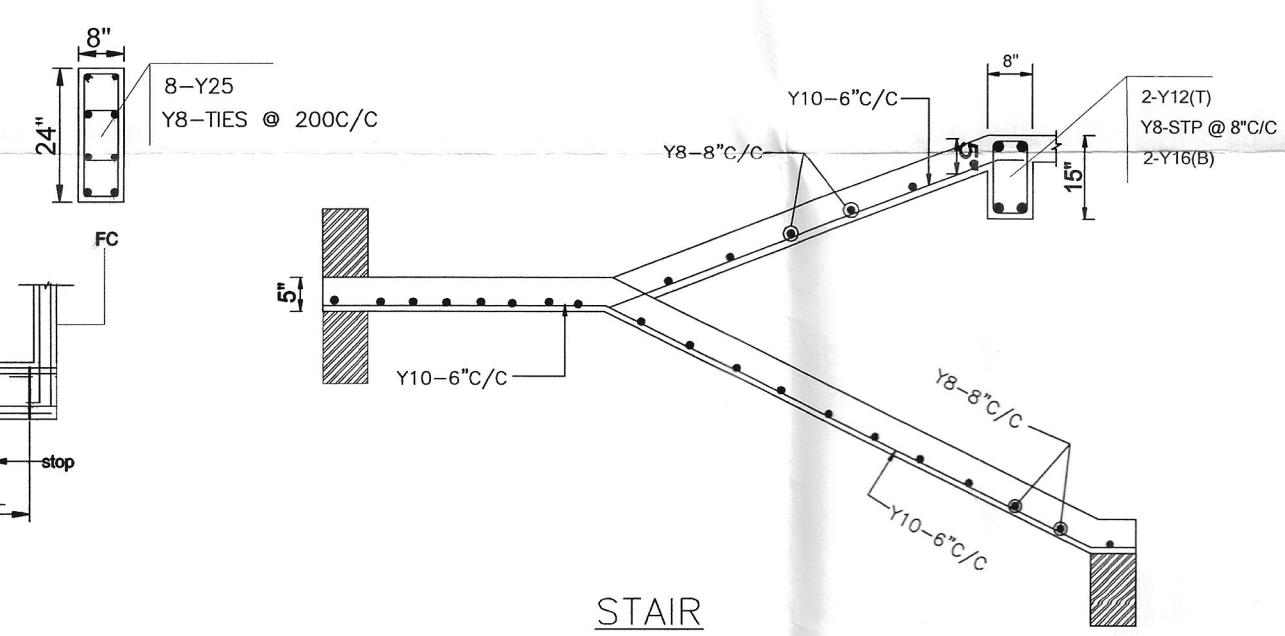
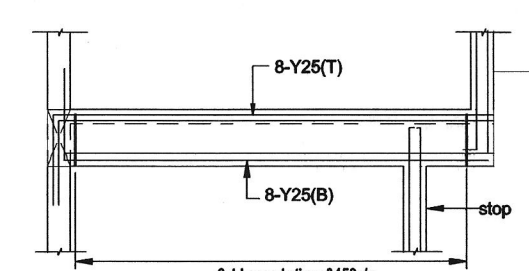
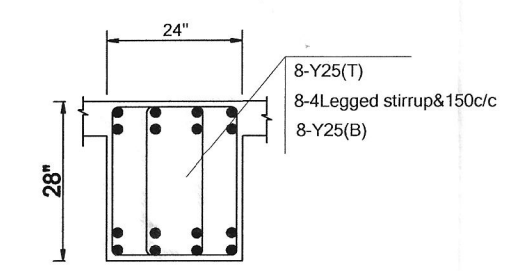
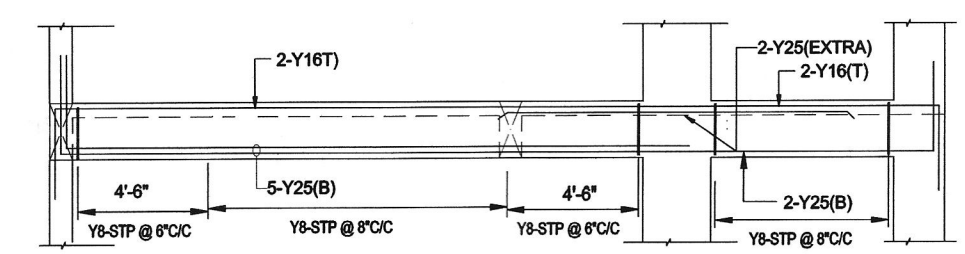
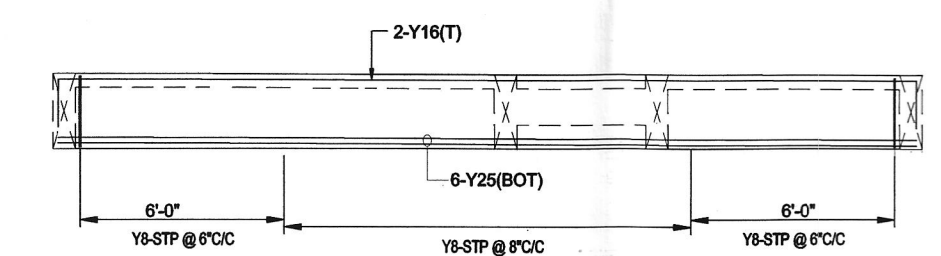
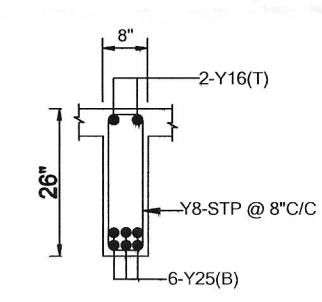
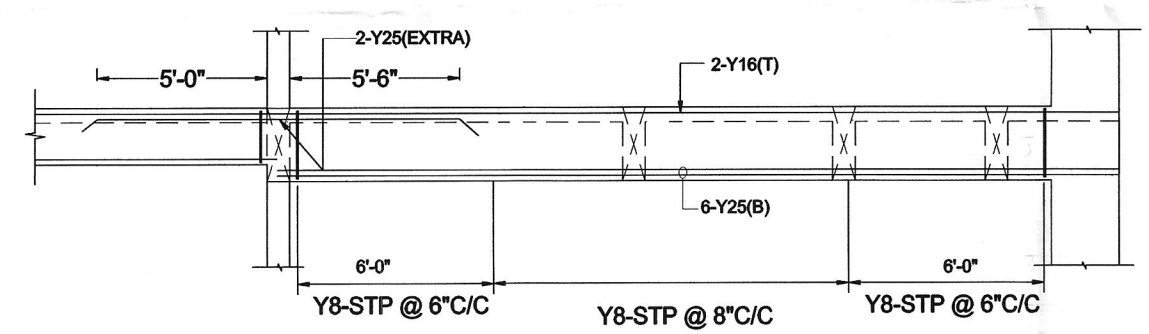
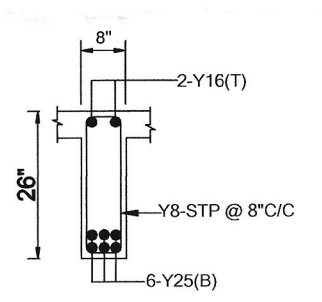
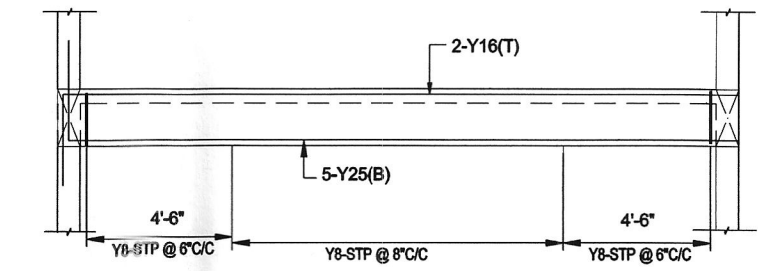
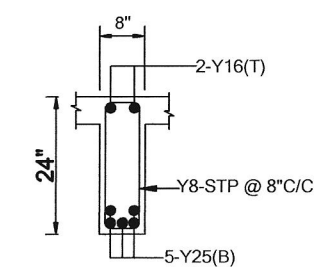
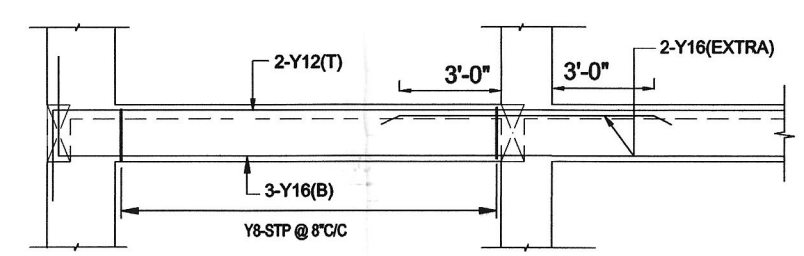
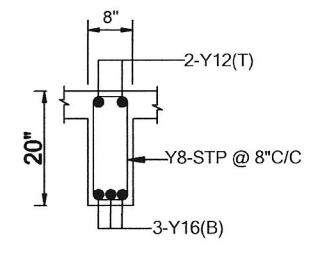
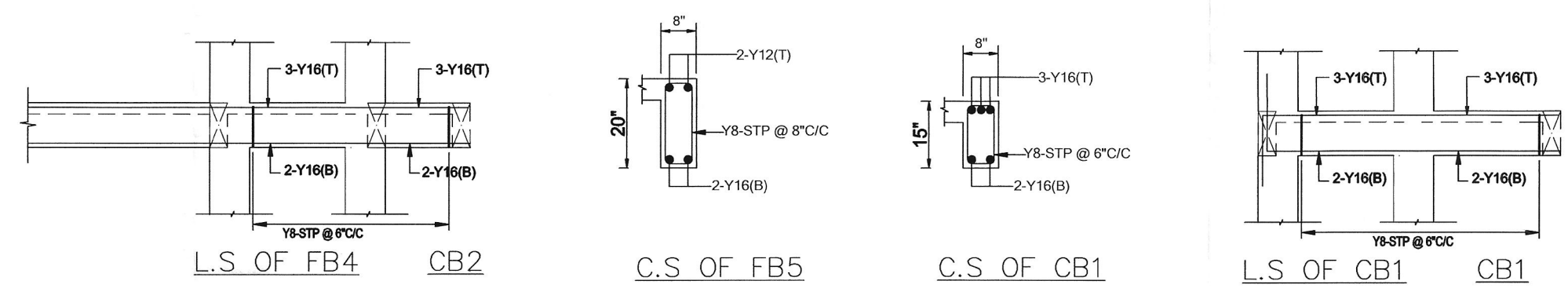
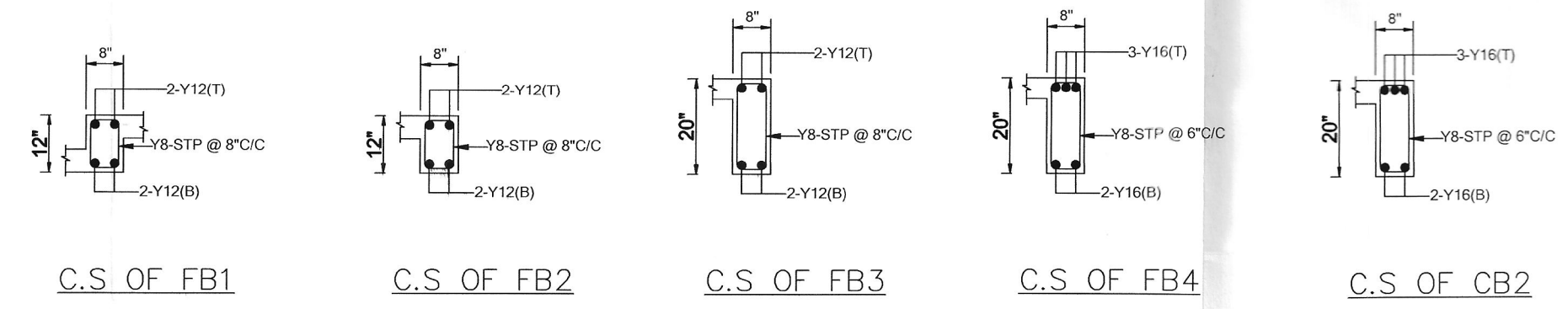
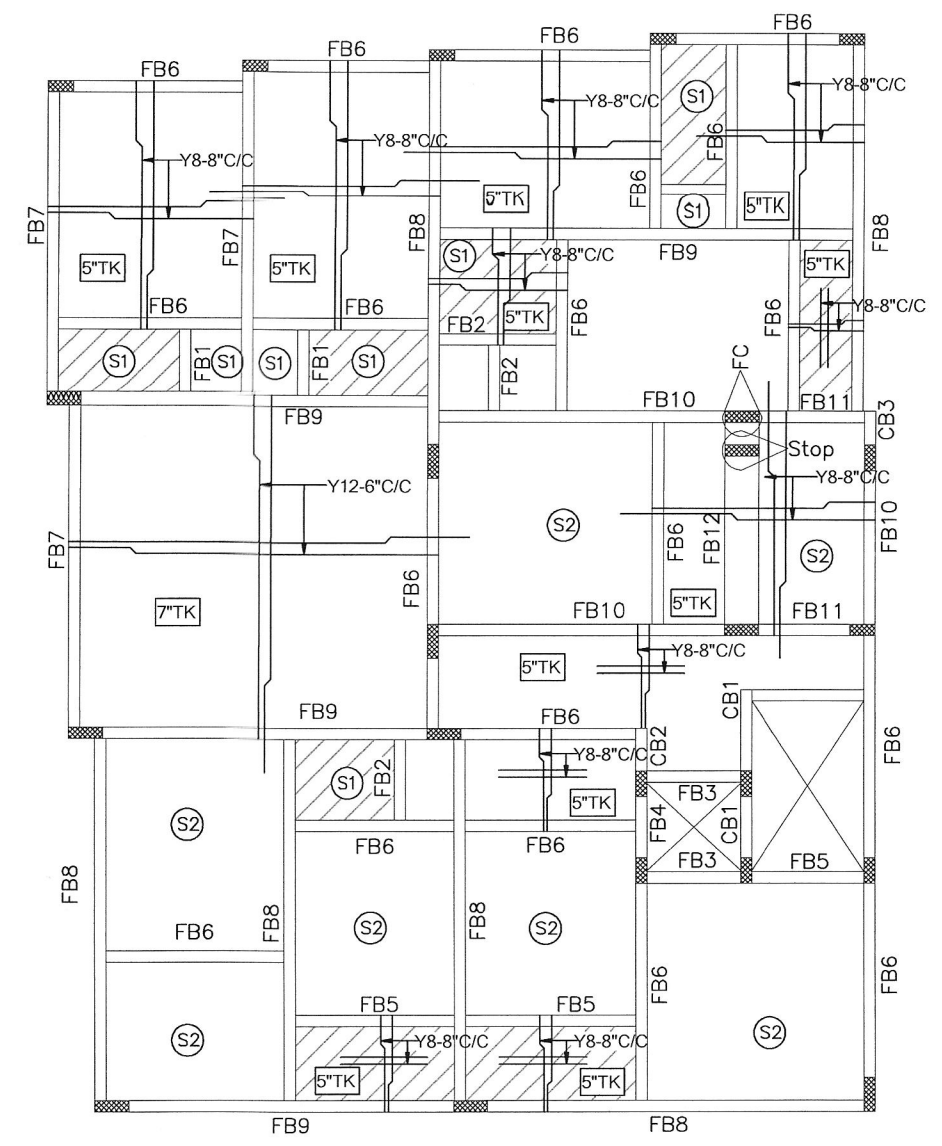
1. The minimum grade of concrete is M 25.
2. The design and analysis using the Code of Practice for Plain and Reinforced concrete as per IS 456, Design Loads as per IS-875 Part I to V and Design of Earthquake Resistant Structures as per IS 1893 are carried out.

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


Dr. ALEX JACOB
B.E., M.Tech(Str), Ph.D(Hon),
M.I.E. (Aust), M.I.E. (Ind)
STRUCTURAL ENGINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-1/24/02/001
REG No. RSE100392025

NOTES

- 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/m³
- 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

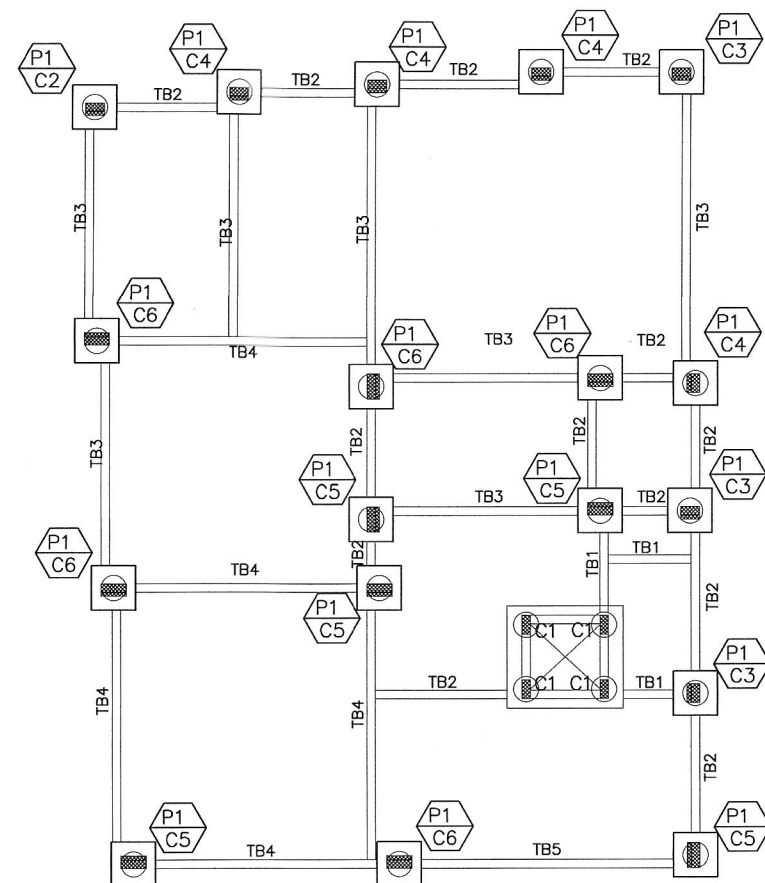
AJ-3712-OPERA HOUSING- CHOOLAIMEDU

DSND	Alex Jacob	 Dr. ALEX JACOB B.E., M.Tech(Str), Ph.D(Hon), M.I.E. (Aust), M.I.E. (Ind) STRUCTURAL ENGINEER 70, BEACH ROAD, KALAKSHETRA COLONY, Chennai - 600 090. REG No. SE/GR-1/24/02/001 REG No. RSE100302025
DRN	NAVANEETH	
DATE	10.07.25	
SCALE	1 : 8	
FILE NAME	E:\NAVU\AJ-3712-OPERA HOUSING-CHOOLAIMEDU-PILE FOUNDATION DETAIL	

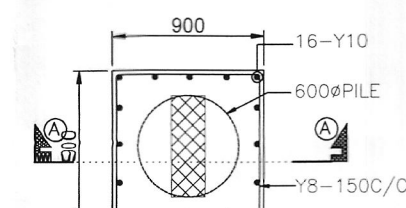
NOTES

- 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

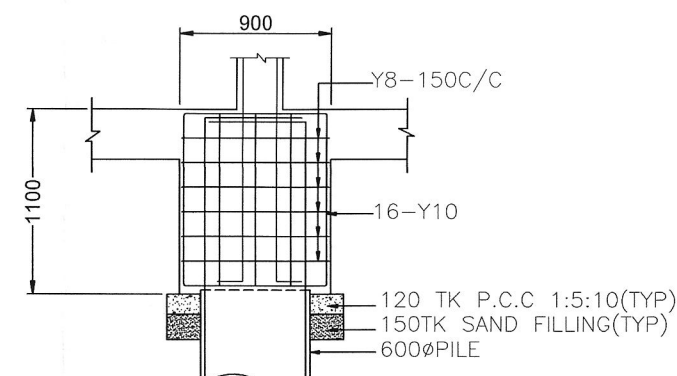
LAP LENGTH SHALL BE 50 x DIA OF THE BAR



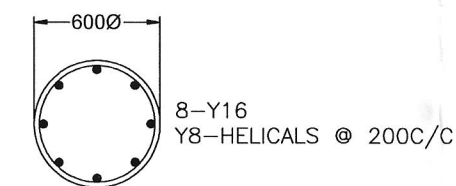
COL-NO	SIZE	REINFORCEMENT		SECTION	SHAPE OF TIES
		MAIN REINF.	TIES		
COL-C1 (LIFT WELL)	8" X 18"	4-Y16+ 2-Y12	Y8-TIES @ 200C/C		
COL-C2	8" X 18"	4-Y16	Y8-TIES @ 200C/C		
COL-C3	8" X 18"	8-Y16	Y8-TIES @ 200C/C		
COL-C4	8" X 18"	4-Y20+ 4-Y16	Y8-TIES @ 200C/C		
COL-C5	8" X 24"	4-Y25+ 4-Y20	Y8-TIES @ 200C/C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



PILE - 600Ø-P1

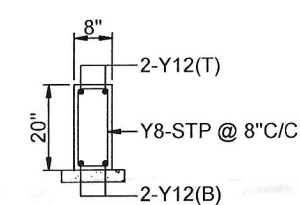


SEC. A A-P1

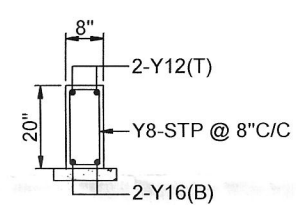


600Ø PILE-P1

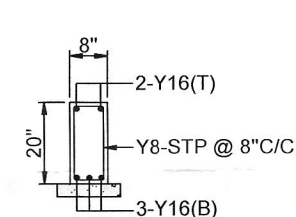
(SAFE LOAD 70 TONNES)



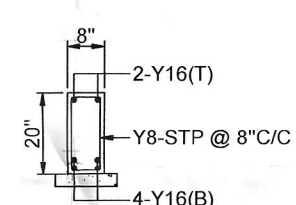
C.S OF TB1



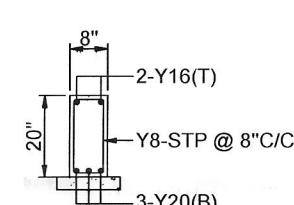
C.S OF TB2



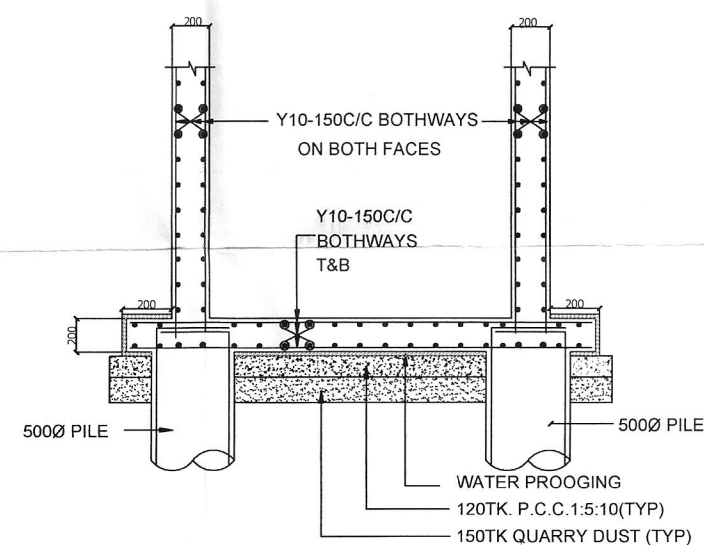
C.S OF TB3



C.S OF TB4

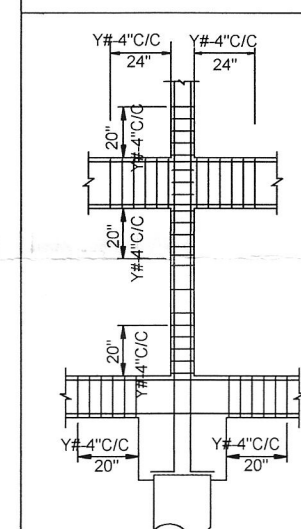
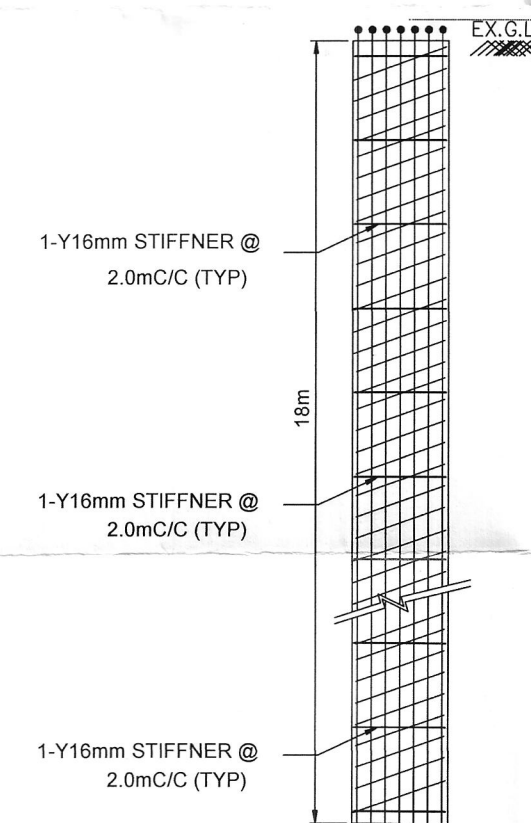


C.S OF TB5



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 DETAILSTYPICAL SECTION OF PILE
(BORED CAST IN-SITU PILE)

PROJECT TITLE

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

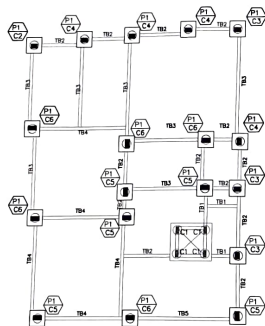
DRAWING TITLE

PILE FOUNDATION DETAIL

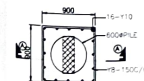
DWG NO

AJ-3712-OPERA HOUSING- CHOO LAIMEDU

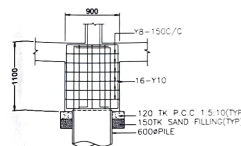
DSND	Alex Jacob	 Dr. ALEX JACOB B.E., M.Tech(Str), Ph.D(Hon) M.I.E. (Aust), M.I.E. (Ind) STRUCTURAL ENGINEER 70, BEACH ROAD, KALAKSHETRA COL Chennai - 600 090. REG No. SE/GR-1/24/02/00 REG No. RSE100392025
DRN	NAVANEETH	
DATE	05.07.25	
SCALE	1 : 8	
FILE NAME	E:\NAVU\AJ-3712-OPERA HOUSING-CHOO LAIMEDU-PILE FOUNDATION DETAIL	



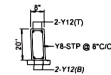
COL-NO	SIZE	REINFORCEMENT		SECTION	SHAPE OF TIES
		MAIN REINF.	TIES		
COL-C1 (B17 WALL)	8' x 18"	4-Y18+ 2-Y12	Y8-TIES @ 200C/C		
COL-C2	8' x 18"	4-Y16	Y8-TIES @ 200C/C		
COL-C3	8' x 18"	8-Y16	Y8-TIES @ 200C/C		
COL-C4	8' x 18"	4-Y20+ 4-Y18	Y8-TIES @ 200C/C		
COL-C5	8' x 24"	4-Y25+ 4-Y20	Y8-TIES @ 200C/C		
COL-C6	8' x 24"	8-Y25	Y8-TIES @ 200C/C		



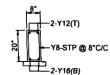
PILE - 600Ø-P1



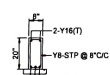
SEC. A A-P1



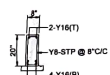
C.S. OF TB1



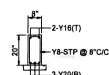
C.S. OF TB2



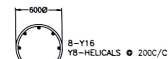
C.S. OF TB3



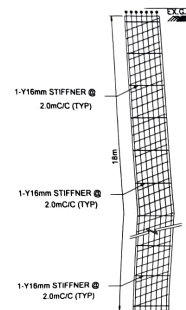
C.S. OF TB4



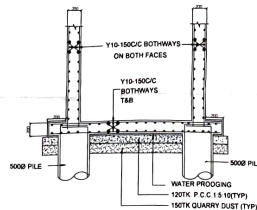
C.S. OF TB5



600Ø PILE-P1
(SAFE LOAD 70 TONNES)

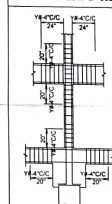


TYPICAL SECTION OF PILE
(BORED CAST IN-SITU PILE)



LIFTWELL SECTION

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



TYPICAL SECTION FOR
STIRRUPS DETAILS

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/M³.
- ALL REINFORCEMENTS ARE OF F450 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 30 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 : alex.jacobuc@gmail.com
web site : www.unitedconsultants.in

PROJECT TITLE

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

DRAWING TITLE

PILE FOUNDATION DETAIL

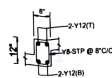
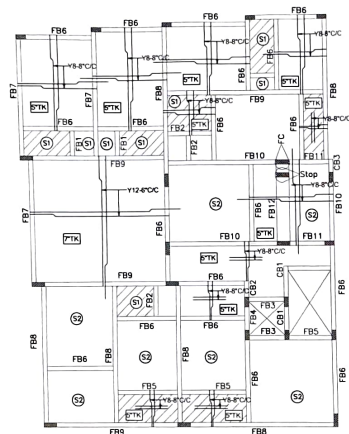
DWG. NO

AJ-3712-OPERA HOUSING- CHOOLAMEDU

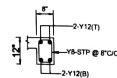
DSNO Alex Jacob
DRN NAVANEETH
DATE 05.07.25
SCALE 1 : 8

DR. ALEX JACOB
B.E., M.TECH (SPE), Ph.D (HON)
M.I.E. (AM), M.I.E. (IND)
STRUCTURAL ENGINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
CHENNAI - 600 090
REG. NO. SE/04/2402/00
REG. NO. PSE 1000002774

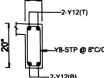
FILE NAME C:\NA\AJ-3712-OPERA HOUSING-CHOOLAMEDU-PILE FOUNDATION DETAIL



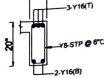
C.S OF FB1



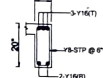
C.S OF FB2



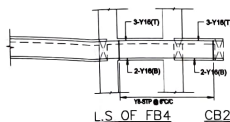
C.S OF FB3



C.S OF FB4



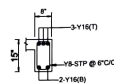
C.S OF CB2



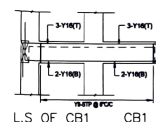
L.S OF FB4 CB2



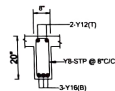
C.S OF FB5



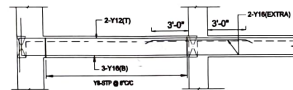
C.S OF CB1



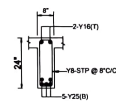
L.S OF CB1 CB1



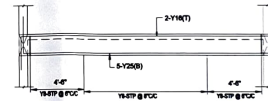
C.S OF FB6



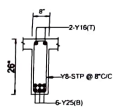
L.S OF FB6



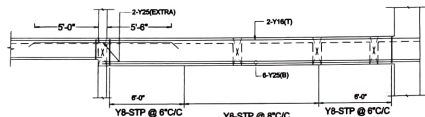
C.S OF FB7



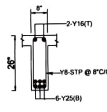
L.S OF FB7



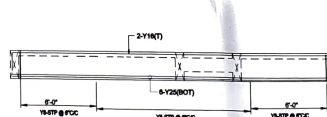
C.S OF FB8



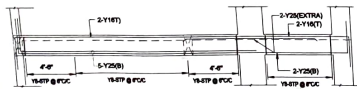
L.S OF FB8



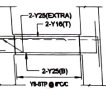
C.S OF FB9



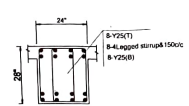
L.S OF FB9



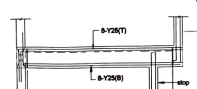
L.S OF FB10



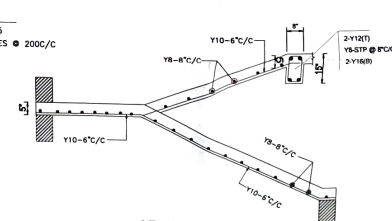
L.S OF FB11



C.S OF FB12



L.S OF FB12



- REFER ARCH DWG FOR CENTRE LINE DIMENSIONS.
- CONCRETE MIX SHALL BE M20 FOR COLUMN & M25 FOR ALL OTHER R.C.C WORKS.
- CONCRETE MIX SHALL BE M40 FOR PILE WITH MINIMUM CEMENT CONTENT OF 400KG/M³.
- ALL REINFORCEMENTS ARE OF F460 GRADE.
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE
 - (i) PILE 50mm
 - (ii) COLUMN 40mm
 - (iii) GRADE BEAM 30mm
 - (iv) 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 : alexjacob@gmail.com
 web site : www.unitedconsultants.in

PROJECT TITLE

PROPOSED RESIDENTIAL BUILDING AT DOOR NO 54/224
 CHOOALAIMEDU HIGH ROAD, CHOOALAIMEDU, 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- CHOOALAIMEDU

DSNO Alex Jacob

DRN NAVANEETH

DATE 10.07.25

SCALE 1 : 8

FILE NAME

C:\Users\AJ-3712-OPERA HOUSING-CHOOALAIMEDU-PILE FOUNDATION DETAIL

Dr. ALEX JACOB
 B.E. IN TECHNOLOGY, P.H.D. (MATHS),
 M.T.E. (AUST), M.T.E. (IND)
 STRUCTURAL ENGINEER
 70, BEACH ROAD, KALAKSHETRA COLONY,
 CHENNAI - 600 090
 REG. NO. SE/OPR-124/2001
 (RCC) REG. NO. 124/2001

STAIR

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, Puliur 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 ENGINEER
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 ENGINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
Chennai - 600 090.
REG No. SE/GR-1/24/02/001
REG No. RSE100392025

STAAD SPACE

-- PAGE NO. 6

```
*****
*   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 ENGINEER
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 ENGINEER

70, BEACH ROAD, KALAKSHETRA COLONY,

Chennai - 600 090.

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

REG No. RSE100392025

STAAD SPACE

-- PAGE NO. 4

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 ENGINEER
 70, BEACH ROAD, KALAKSHETRA COLONY,
 Chennai - 600 090.
 REG No. SE/GR-I/24/02/001
 REG No. RSE100392025

STAAD SPACE

-- PAGE NO. 3

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 ENGINEER
 70, BEACH ROAD, KALAKSHETRA COLONY,
 Chennai - 600 090.
 REG No. SE/GR-I/24/02/001
 REG No. RSE100392025

STAAD SPACE

-- PAGE NO. 2

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 ENGINEER
 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
*****

```

```

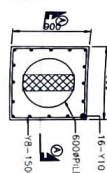
1. STAAD SPACE
INPUT FILE: D:\NEDUNCHEZHIAN\STABILITY REPORT\AJ-3712-OPERA HOUSING- CHOO LAIMEDU\AJ-3712-OPERA HOUSING-.. .STD
2. START JOB INFORMATION
3. JOB NAME DOOR NO 54/224, CHOO LAIMEDU HIGH ROAD, CHOO LAIMEDU, CHENNAI 600 094 -
4. BEARING T.S.NO 138, BLOCK NO 20 IN PULIYUR VILLAGE, EGMORE TALUK, 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

```

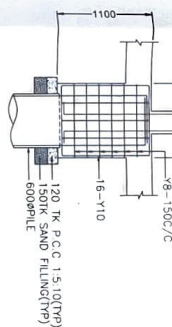


Dr. ALEX JACOB
 B.E., M.Tech(Str), Ph.D(Hon),
 M.I.E. (Aust), M.I.E. (Ind)
 STRUCTURAL ENGINEER
 70, BEACH ROAD, KALAKSHETRA COLONY,
 Chennai - 600 090.
 REG No. SE/GR-I/24/02/001
 REG No. RSE100392025

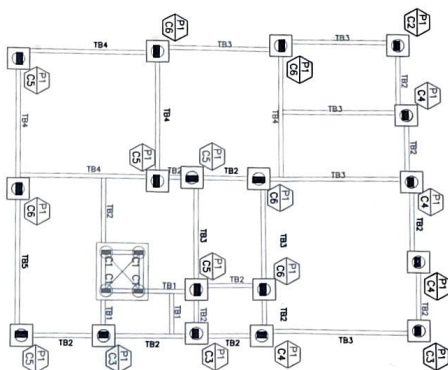
- REFER ABOVE DIM. FOR CENTRE LINE DIMENSIONS.
- CONCRETE MIX SHALL BE M20 FOR COLUMN & W25 FOR ALL OTHER R.C.C. WORKS.
- CONCRETE MIX SHALL BE M40 FOR PILE WITH ALL REINFORCEMENTS ARE OF F450 GRADE.
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE:
 - (i) PILE CAP 50mm
 - (ii) COLUMN 40mm
 - (iii) GRAVE BEAM 50mm
 - (iv) R.C.C. WALL 25mm
- LAP LENGTH SHALL BE 50 x DIA. OF THE BAR



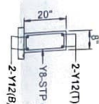
PILE - 600Ø-P1



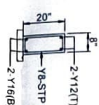
SEC. A-A-P1



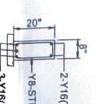
COL-NO	SIZE	REINFORCEMENT		SECTION	SHAPE OF TIES
		MAIN REINF.	TIES		
COL-01 (INT. WALL)	8" x 18"	4-Y16 2-Y12	Y8-TIES @ 200C/C		
COL-02	8" x 18"	4-Y16	Y8-TIES @ 200C/C		
COL-03	8" x 18"	4-Y16	Y8-TIES @ 200C/C		
COL-04	8" x 18"	4-Y20+ 4-Y16	Y8-TIES @ 200C/C		
COL-05	8" x 24"	4-Y20+ 4-Y20	Y8-TIES @ 200C/C		
COL-06	8" x 24"	4-Y20	Y8-TIES @ 200C/C		



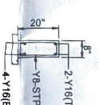
C.S. OF TBS1



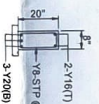
C.S. OF TBS2



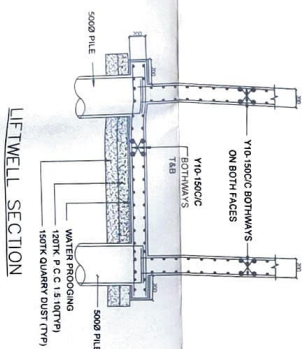
C.S. OF TBS3



C.S. OF TBS4

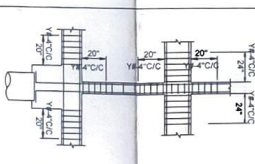


C.S. OF TBS5



LEFTWELL SECTION

NOTES
8 or 10 or 12mm
WHICH SIZE STEEL
BAR USED IN BEAM or COLUMN

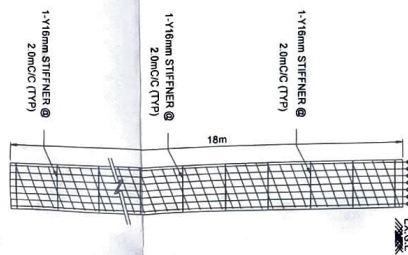


TYPICAL SECTION FOR STIRRUPS DETAILS



600Ø PILE-P1

(SAFE LOAD TO TONNES)



TYPICAL SECTION OF PILE (BORED CAST IN-SITU PILE)

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
BEASANT NAGAR, CHENNAI - 600 090.
PH. NO. 44484422, 09 44484478.
E-MAIL: alexjacob@rediffmail.com
web site: www.alexjacobconsultants.in

PROJECT TITLE

PROPOSED RESIDENTIAL BUILDING AT DOOR NO 54/224
CHODALAMEDU HIGH ROAD, CHODALAMEDU, 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- CHODALAMEDU

DSND Alex Jacob

DRN NAVANEETH

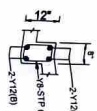
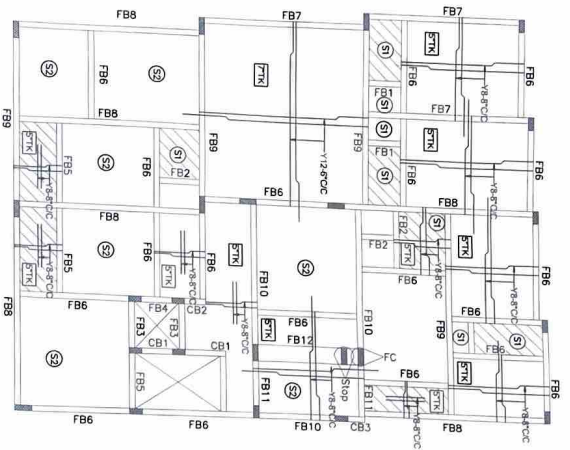
DATE 08.07.25

SCALE 1 : 8

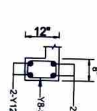
FILE NAME C:\N\AJ-3712-OPERA HOUSING-CHODALAMEDU-PILE FOUNDATION DETAIL

DR. ALEX JACOB
B.E., M.TECH(SVP), P.D. DUBAI
REGISTERED CIVIL ENGINEER
70, BEACH ROAD, KALAKSHETRA COLONY,
CHENNAI - 600 090
REG NO. RS5110032025

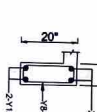
- REFER ARCH. Dwg. FOR EXISTING LINE DIMENSIONS.
- CONCRETE WALL SHALL BE M20 FOR COLUMN & R25 FOR ALL OTHER RCC WORKS.
- CONCRETE WALL SHALL BE M40 FOR R.C. WITH MINIMUM QUANT. CONTENT OF 400KG/M³.
- ALL DIMENSIONS ARE OF FINISH GRADE.
- CLEAR COVER TO MAIN REINFORCEMENT SHALL BE:
 - (i) FLE CAP 50mm
 - (ii) COLUMN 40mm
 - (iii) SLAB BEAM 30mm
 - (iv) RCC WALL 25mm
- LAP LENGTH SHALL BE 50 x DIA OF THE BAR



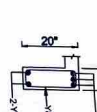
C.S. OF FB1



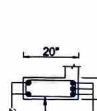
C.S. OF FB2



C.S. OF FB3



C.S. OF FB4



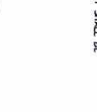
C.S. OF FB5



C.S. OF FB6



C.S. OF FB7



C.S. OF FB8



C.S. OF FB9



C.S. OF FB10



C.S. OF FB11



C.S. OF FB12



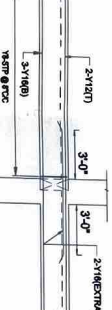
C.S. OF FB13



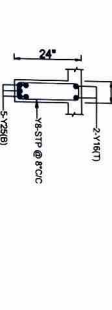
C.S. OF FB14



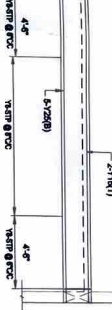
C.S. OF FB15



C.S. OF FB16



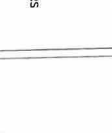
C.S. OF FB17



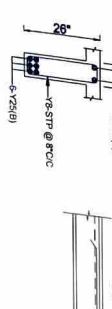
C.S. OF FB18



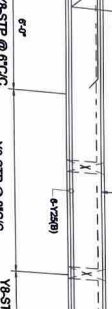
C.S. OF FB19



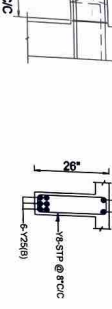
C.S. OF FB20



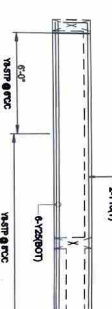
C.S. OF FB21



C.S. OF FB22



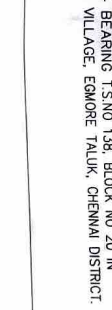
C.S. OF FB23



C.S. OF FB24



C.S. OF FB25



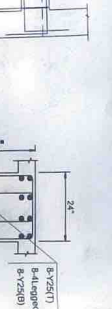
C.S. OF FB26



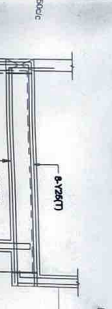
C.S. OF FB27



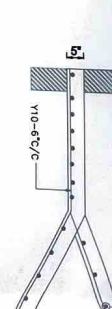
C.S. OF FB28



C.S. OF FB29



C.S. OF FB30



C.S. OF FB31



C.S. OF FB32



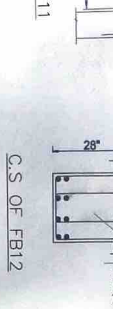
C.S. OF FB33



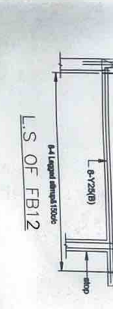
C.S. OF FB34



C.S. OF FB35



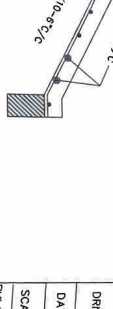
C.S. OF FB36



C.S. OF FB37



C.S. OF FB38



C.S. OF FB39



C.S. OF FB40



C.S. OF FB41

C.S. OF FB42

C.S. OF FB43

C.S. OF FB44

C.S. OF FB45

C.S. OF FB46

C.S. OF FB47

C.S. OF FB48

C.S. OF FB49

C.S. OF FB50

C.S. OF FB51

C.S. OF FB52

C.S. OF FB53

C.S. OF FB54

C.S. OF FB55

C.S. OF FB56

C.S. OF FB57

C.S. OF FB58

C.S. OF FB59

C.S. OF FB60

C.S. OF FB61

C.S. OF FB62

C.S. OF FB63

C.S. OF FB64

C.S. OF FB65

C.S. OF FB66

C.S. OF FB67

C.S. OF FB68

C.S. OF FB69

C.S. OF FB70

C.S. OF FB71

C.S. OF FB72

C.S. OF FB73

C.S. OF FB74

C.S. OF FB75

C.S. OF FB76

C.S. OF FB77

C.S. OF FB78

C.S. OF FB79

C.S. OF FB80

C.S. OF FB81

C.S. OF FB82

C.S. OF FB83

C.S. OF FB84

C.S. OF FB85

C.S. OF FB86

C.S. OF FB87

C.S. OF FB88

C.S. OF FB89

C.S. OF FB90

C.S. OF FB91

C.S. OF FB92

C.S. OF FB93