

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN mm AND ALL LEVEL ARE IN m UNLESS NOTED OTHERWISE.
2. THE DATA USED TO PREPARE THESE DRAWINGS IS BASED ON ARCHITECTURAL DRAWINGS ISSUED BY DEPARTMENT. ANY DEVIATIONS OR ERRORS SHOULD BE BROUGHT TO THE NOTICE OF SO1 (DESIGNS) OF THIS OFFICE.
3. THIS BUILDING MUST BE ERECTED ACCORDING TO THE DRAWINGS AND SAFE ERECTION PRACTICES. THE CONTRACTOR/ERECTOR SHALL FOLLOW IS 800:2007 GUIDELINES.
4. THE CONTRACTOR IS RESPONSIBLE FOR ACCURATE LOCATIONS OF BUILDING LINES AND BENCH MARKS AT THE BUILDING SITE.
5. BRACING IS TO BE INSTALLED AS PER THE DRAWINGS AND MUST REMAIN TIGHT DURING THE LIFE OF THE BUILDING AND SHALL NOT BE REMOVED WITHOUT THE CONSENT OF ENGINEERING DEPARTMENT.
6. START ERECTION AT THE BRACED BAY.
7. USE TEMPORARY GUY WIRES AND RATCHET PULLERS FOR STABILITY.
8. INSTALL PERMANENT BRACING I.E. PIPES, ANGLES, AND FLANGE BRACES.
9. GUY WIRES SHOULD BE ATTACHED TO AN IMMOVABLE OBJECT SUCH AS CAST IN ANCHOR BOLTS, OR HEAVY OBJECT.
10. PLUMB & ALIGN THE FIRST BAY BEFORE PROCEEDING.
11. USE HIGH STRENGTH BOLTS (HSFG) (IS 3757-1985) WHERE INDICATED.
12. TIGHTEN ALL HIGH STRENGTH BOLTS AFTER FINAL ALIGNMENT OF THE BUILDING.
13. ERECTION TOLERANCES SHALL BE AS PER TABLE 33 OF IS 800:2007.
14. USE TEMPORARY SUPPORTS TO ALIGN GIRTS BEFORE FIXING SHEETS.
15. THE YIELD STRENGTH OF ALL PANELS AND TRIMS IS 345MPA.
16. TRIMS ARE PROVIDED IN STANDARD LENGTHS. TRIM QUANTITIES ARE PROVIDED TO COVER THE WHOLE LENGTH OF THE TRIM USING 50 MM END LAPS. IF LAP LENGTH SPECIFIED (50MM) IS EXCEEDED DURING ERECTION THEN SHORTAGE IN LENGTH MAY RESULT. IF THE LAP LENGTH IS REDUCED THEN LEAKAGE AND APPEARANCE PROBLEMS MAY RESULT. ALWAYS CUT ANY EXCESS TRIM LENGTH AT THE END OF TRIM LINE.
17. BEAD MASTIC MUST BE PLACED CAREFULLY OVER THE PANEL PROFILE TO AVOID STRETCHING.
18. PANELS ARE TO BE FIELD CUT TO SUIT OPENINGS.
19. TRIMS ARE PROVIDED IN STANDARD LENGTHS AND ARE TO BE FIELD CUT TO THE REQUIRED DIMENSIONS.
20. DO NOT APPLY ANY LIVE LOADS TO PURLINS BEFORE SHEETING IS COMPLETED.
21. CONCRETE PLACED IN FORM WORK SHALL BE PROPERLY CONSOLIDATED.
22. ALL ANCHOR BOLT DIAMETERS ARE IN MM. ANCHOR BOLT PROJECTION MUST BE ACCORDING TO DESIGN AND THREADS AND SHOULD BE CLEAN OF DEBRIS.
23. ANCHOR BOLTS SHALL BE SET PERPENDICULAR TO THE THEORETICAL BEARING SURFACE UNLESS SHOWN OTHERWISE.
24. THE SLAB OR EDGE BEAM SHOULD BE SQUARE AND LEVEL.
25. ANCHOR BOLTS SHOULD BE SET TO WITHIN 5mm TOLERANCE OF THE GIVEN DIMENSIONS AND PROJECTION.
26. ANCHOR BOLT THREADS SHOULD BE PROTECTED DURING CONCRETING OPERATION, OR THOROUGHLY CLEANED AFTER POURING. ALL TEMPLATES SHOULD BE REMOVED.
27. ALL BOLTS USED IN CONNECTIONS ARE GR 8.8 HIGH STRENGTH BOLTS EXCEPT ANCHOR BOLTS.
28. ERECTION BOLTS AIDING IN ERECTION BUT NOT PART OF MAIN CONNECTION MAY BE GR 4.6.
29. ALL HIGH STRENGTH BOLTS TO BE PRETENSIONED TO 0.7 Fub PROOF STRESS.
30. THE BOLTS SHALL BE PRETENSIONED USING PART TURN METHOD OF IS 4000 :1997.
31. ALL SPLICE AND MOMENT CONNECTIONS ARE HIGH STRENGTH FRICTION GRIP (HSFG) CONNECTIONS.
32. CONTACT SURFACES IN HSFG CONNECTIONS SHALL NOT BE PAINTED. BUT BLASTED WITH SHOT OR GRIT AND PRIMED.
33. HIGH STRENGTH BOLTS TO BE LUBRICATED AND FREE FROM DUST AND DEBRIS. NUT WITH LUBRICANT MUST BE ROTATED FROM THE SNUG TIGHT CONDITION REQUIRED FOR FULL TENSIONING OF BOLTS WITHOUT SLIPPING. IF THE CONTRACTOR/ERECTOR NOTICES ANY LACK OF SUCH LUBRICATION, HE IS REQUIRED TO LUBRICATE THEM AT SITE, BEFORE TIGHTENING.
34. BOLTS SHALL BE OF SUFFICIENT LENGTH TO INSURE STICK THROUGH OF BOLT SHANK FROM NUT AFTER TIGHTENING TO REQUIRED PRETENSION LOAD.
35. USE BOLT DIAMETER AS INDICATED IN DRAWINGS.
36. CONTINUOUS MACHINE SUBMERGED ARC WELDING (S.A.W) SHALL MEET THE APPLICABLE REQUIREMENT OF THE IS 816:1969.
37. WEB TO FLANGE WELDS AND GUSSET TO MEMBER WELDS ARE DOUBLE SIDED FILLET WELDS.
38. ALL FILLET WELDS SHALL BE 8mm UNLESS OTHERWISE NOTED.
39. ALL MEMBERS SHALL BE FULL WELDED AS PER REQUIREMENT
40. WEB OR FLANGE PLATES SPLICED IN SHOP SHOULD BE WELDED WITH FULL PENETRATION WELDS.
41. ALL FULL PENETRATION WELDS SHALL BE BACK GOUGED.
42. 100% OF FULL PENETRATION WELDS SHALL BE ULTRASONICALLY TESTED AT SITE.
43. 10% OF THE FILLET WELDS SHALL BE ULTRASONICALLY TESTED AT SITE.
44. ELECTRICAL AND MECHANICAL DETAILS SHALL BE AS SPECIFIED BY THE TENDER DOCUMENT.
45. PROVIDE SLAB OF GRADE AS PER TENDER SPECIFICATION.

PAINTING NOTES :

1. PAINTING OF ALL STEEL MEMBERS SHALL BE DONE ACCORDING TO PROVISIONS OF IS 1477 - 1971 AND IS 800 - 2007 SEC 15.
2. TYPE 4 COATING SYSTEM SPECIFIED IN TABLE 29(A) OF IS 800:2007 WITH LIFE EXPECTANCY OF ABOUT 20YEARS SHALL BE PROVIDED.
3. ALL SURFACE TREATMENTS EXCEPT AS NOTED, SHALL BE SHOP APPLIED.
4. TOUCH IN TO FIX MINOR DAMAGE TO SURFACE TREATMENT DURING ERECTION PROCESS IS PERMITTED.
5. TOP COAT OF HIGH BUILD CHLORINATED RUBBER SHALL BE APPLIED ON THE SITE AFTER COMPLETION OF ERECTION.
6. ALL STEEL MEMBERS PRIOR TO APPLYING PRIMER COAT SHALL BE BLAST CLEANED.
7. STEEL MEMBERS SHALL RECEIVE 2 PACK ZINC RICH EPOXY PRIMER WITH TOTAL THICKNESS NOT LESS THAN 45µm (20µm PRE-FAB PRIMER + 25µm POST-FAB PRIMER.)
8. PRIMER SHALL BE ALLOWED TO DRY COMPLETELY AND 2 PACK EPOXY MICACEOUS IRON OXIDE PAINT PROTECTION SHALL BE APPLIED. TOTAL THICKNESS OF PAINT PROTECTION SHALL NOT BE LESS THAN 120µm (INTERMEDIATE COAT 65µm AND TOP COAT 55µm.)

ERECTION NOTES :

1. QUALITY OF ERECTION IS THE SOLE RESPONSIBILITY OF CONTRACTOR
2. IS. 800:2007 CODE OF STANDARD PRACTICE SHALL GOVERN AS FAR AS FABRICATION TOLERANCES, ERECTION METHOD & FIELD WORK ASSOCIATED WITH THE PROJECT.
3. CONTRACTOR SHOULD TAKE FULL RESPONSIBILITY FOR ANY SHOP FABRICATION ERRORS AND GET IT RECTIFIED AND SUCH ERRORS SHOULD BE BROUGHT TO THE NOTICE OF SO1 DESIGN OF THIS OFFICE
4. CONTRACTOR/ERECTOR SHOULD TAKE FULL RESPONSIBILITY OF SAFETY AT SITE DURING ERECTION.
5. PROPER COVERED STORAGE OF PEB ITEMS SHOULD BE DONE AT SITE TO PROTECT THEM FROM CORROSION.
6. THE STRUCTURE SHOULD BE ADEQUATELY BRACED AT ALL TIMES BEFORE RAISING THE NEXT COMPONENT.
7. THE STRUCTURE MUST BE SECURED WITH TEMPORARY OR PERMANENT BRACING BEFORE RELEASE OF RAISING EQUIPMENT AT THE END OF THE DAY, WEEK ENDS OR OTHER SHUT DOWN.
8. ALL JOINTS SHOULD BE MADE UP AND ALL BOLTS IN PLACE BEFORE RELEASING RAISING EQUIPMENT
9. UNTIL THE FIRST RUN OF ROOF SHEETS IS SECURED, TEMPORARY SCAFFOLD SHOULD BE USED TO START SHEETING SO THAT SHEETERS WILL HAVE SOMETHING TO STAND ON. PROPER METHOD OF WALKING ON THE ROOF SHOULD BE USED AS SUGGESTED BY SHEETING MANUFACTURER.
10. ALL SHEETERS SHOULD BE CAUTIONED REGARDING ROOF OPENINGS & SKYLIGHTS, AND ANY UNCOVERED OPENINGS SHOULD BE PROPERLY GUARDED.
11. WORKERS SHOULD NEVER SLIDE DOWN COLUMNS AND OTHER STRUCTURAL MEMBERS, LADDERS SHOULD BE USED TO GET ON AND OFF THE BUILDING. WALL GIRTS AND DIAGONAL BRACES SHOULD NOT BE USED AS LADDERS.
12. ERECTION TO START ONLY AFTER CONCRETE IS CURED SUFFICIENTLY.
13. STRICT ADHERENCE TO ANCHOR BOLT PLAN IS NEEDED.
14. CHECK THE SQUARENESS OF THE GRID MARKING ON THE REFERENCE PILLARS BEFORE PROCEEDING WITH ANY FOUNDATION ANCHOR BOLT
15. NON SHRINK GROUT LIKE CONBEXTRA GP2 OR EQUIVALENT SHALL BE USED FOR BASE PLATE GROUTING.
16. BOLTS SHOULD BE TIGHTENED TO REQUIRED PRETENSION FORCE BY USING PART TURN METHOD OF IS 4000: 1992

DESIGN CODES:

- THE PRE-ENGINEERED BUILDING DESCRIBED IN THESE CALCULATIONS WAS DESIGNED ACCORDING TO THE LATEST INDIAN DESIGN STANDARDS. CODES THAT ARE REFERRED IN THE DESIGN ARE AS FOLLOWS:
1. THE LOADS AS DESCRIBED IN THE DESIGN BASIS REPORT HAVE BEEN APPLIED ON THE STRUCTURE IN ACCORDANCE WITH:

a. IS: 875 "CODE OF PRACTICE FOR DESIGN LOAD FOR BUILDING AND STRUCTURES".

b. IS: 1893-2016 "CRITERIA FOR EARTHQUAKE RESISTANCE DESIGN OF STRUCTURES".
2. HOT ROLLED SECTIONS AND BUILT UP COMPONENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH:

a. IS: 800-2007 "CODE OF PRACTICE FOR GENERAL CONSTRUCTION IN STEEL".
3. COLD FORMED COMPONENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH:

a. IS: 801-1975 "CODE OF PRACTICE FOR USE OF COLD-FORMED LIGHT GAUGE STEEL STRUCTURE MEMBERS IN GENERAL BUILDING CONSTRUCTION", FIRST REVISION.
4. WELDING HAS BEEN APPLIED IN ACCORDANCE WITH:

a. IS: 816-1969 (REVISION) "CODE OF PRACTICE FOR USE OF ARC WELDING FOR GENERAL CONSTRUCTIONS IN MILD STEEL GR 7/27"
5. PEDESTALS AND FOUNDATION HAVE BEEN DESIGNED IN ACCORDANCE WITH:

a. IS 456:2000 "CODE OF PRACTICE FOR PLAIN AND REINFORCED CONCRETE"

MATERIAL SPECIFICATION

THE FOLLOWING IS THE LIST OF THE MATERIAL STANDARDS AND SPECIFICATIONS FOR WHICH THE BUILDING COMPONENTS HAVE BEEN DESIGNED:

STEEL PEB STRUCTURE

S.NO:	MATERIALS	SPECIFICATION	STEEL YIELD
1.	BUILT-UP MEMBERS	IS : 2062 - 2011	FY=345/350MPA
2.	HOT-ROLLED MEMBERS(ANGLES)	IS : 2062 - 2011.	FY=250MPA
3.	CHS AND SHS SECTIONS	IS : 1161 - 1998	FY=310MPA
4.	COLD FORMED SECONDARY MEMBERS	IS : 2062 - 2011.	FY=345/350MPA
5.	ROOF SHEETING 0.8mm TCT CORRUGARATED COLOURED GALVALUME OR EQUIVALENT	IS : 2062 - 2011	FY=550MPA
6.	SIDE SHEETING OR ANY OTHER LOCATION 0.63 MM TCT CORRUGARATED COLOURED GALVALUME	IS : 2062 - 2011	FY=550MPA
7.	ANCHOR BOLTS	IS : 2062-2011	GR 4.6
8.	HIGH STRENGTH BOLTS	IS : 3757 - 1985	GR 8.8
9.	HIGH STRENGTH NUTS	IS : 6623 -2004	GR 8.8
10.	WELD MATERIAL	IS : 814 -2004	E 51XX
11.	PAINTING	IS : 1477 -1971 (PART 1 & 2)	

RCC STRUCTURE

S.NO:	MATERIALS	SPECIFICATION	STRENGTH
1.	CONCRETE FOR RCC WORK	IS : 456-2000	M30
2.	REINFORCEMENT STEEL FOR RCC WORK	FE500 D CRS GRADE AS PER IS : 1786 WITH ELONGATION NOT LESS THAN 18%	500MPA (YIELD)
3.	BASE PLATE GROUT		NON SHRINK EPOXY GROUT
4.	OTHER MATERIALS	AS PER RELEVANT IS CODES AND TENDER SPECIFICATION	AS PER RELEVANT IS

ABBREVIATIONS

- T & B

C/C

TYP

FFL

W

WP

TCT

THK

T.O

B.O

N.S

F.S

SDS

E.L

SHS

CHS
- TOP AND BOTTOM

- CENTER TO CENTER

- TYPICAL

- FINISHED FLOOR LEVEL

- WEB

- WORK POINT

- TOTAL COATED THICKNESS

- THICKNESS

- TOP OF

- BOTTOM OF

- NEAR SIDE

- FAR SIDE

- SELF DRILLING SCREW

- ELEVATION

- SQUARE HOLLOW SECTIONS

- CIRCULAR HOLLOW SECTIONS
- PEB

Ø

Fub

HSFG

S.A.W

EQUIV

B/W

G.I

L x B x T

L x B x H

EQ

B

t<sub>f</sub>

d<sub>f</sub>

t<sub>w</sub>

F
- PRE ENGINEERED BUILDING

- DIAMETER

- ULTIMATE TENSILE STRENGTH OF BOLT

- HIGH STRENGTH FRICTION GRIP

- SUBMERGED ARC WELDING

- EQUIVALENT

- BETWEEN

- GALVANIZED IRON

- LENGTH

- BREADTH

- THICKNESS

- LENGTH

- BREADTH

- HEIGHT

- EQUAL

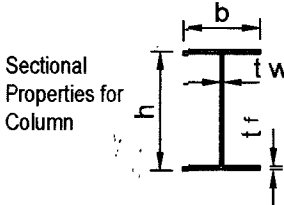
- FLANGE BREADTH

- FLANGE THICKNESS

- WEB DEPTH

- WEB THICKNESS

- FLANGE



07-03-23	(IN PAINTING NOTES SL NO:- 3, 13 & 14 CORRECTED)	
07-05-23	GENERAL NOTE, SL NO:- 45 CORRECTED	
DATE	DESCRIPTION	SIGN
REVISIONS		


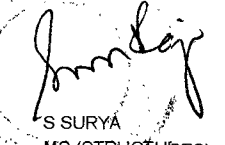
VETTED BY

ALL DETAILS HAVE BEEN THOROUGHLY CHECKED AND ARE IN COMPLIANCE TO STANDARDS, CODES, REGULATIONS IN RESPECT OF SAFETY, SOUNDINESS AND ECONOMY.

PROVN OF HANGAR AND ANNEXE BUILDING AT INS DEGA VISAKHAPATNAM

GENERAL NOTES 4

SHT NO.	S04	<b>HELIOS ENGINEERING CONSULTANTS</b> #38-34-66 FCI COLONY MARRIPALEM VISAKHAPATNAM - 530018
PRO NO.	ST2204	
SCALE.	AS NOTED	
DRN BY.	KSS	
DATE.	28-02-2023	


DESIGNED BY  DV TRINADH RAO	CHECKED BY  S SURYA MS (STRUCTURES)
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**CHIEF ENGINEER (NAVY) VISAKHAPATNAM**

REF.DRG.NO : CEVZ/2022/WD-2120(S) (GN) Sht.No: 4/4

DESIGNS & DRAWINGS PREPARED UNDER CONSULTANCY FROM M/S HELIOS ENGINEERING CONSULTANTS AND VETTED BY ANDHRA UNIVERSITY

  
Keshvi Raman  
Lt Col  
SO 1 (Design)  
for Chief Engineer

  
Srinivas Nalla, IOfE  
CE (NF)  
Director (Design)  
for Chief Engineer