

18.0 100MM THICK WALLS/ PARTITION WALLS

- 18.1 100MM THICK WALLS SHALL BE RAISED OFF THE SUB FLOOR IN GROUND FLOOR AND OFF THE SLAB IN OTHER CASES.
- 18.2 100MM THICK WALLS SHALL HAVE TWO # 8MM BARS LAID HORIZONTALLY AT EVERY FOURTH COURSE OF BRICK WORK UPTO OUTER TO OUTER OF CROSS WALLS.
- 18.3 100MM THICK WALLS WHEREVER SHOWN ON PLAN SHALL BE PROVIDED WITH THE HORIZONTAL BAND OF SIZE EQUAL TO WIDTH OF WALL X 125 MM DEPTH WITH 2 NOS. -# 12MM BARS EACH AT TOP AND BOTTOM AND # 8MM - 2 LEGGED STIRRUPS AT 100MM C/C AT 2100 MM ABOVE FFL OR AT DOOR/ LINTEL HEIGHT IN EACH FLOOR. THE BAND REINFORCEMENT SHALL BE SUITABLY ANCHORED IN CROSS WALLS, LINTELS, BEAMS OR COLUMN FOR ITS FULL DEVELOPMENT LENGTH IN TENSION.
- 18.4 100MM THICK WALLS WITH LENGTH EXCEEDING 03 (THREE) METERS AND NOT EXCEEDING 06 (SIX) METERS ON PLAN WITHOUT CROSS WALLS SHALL BE PROVIDED WITH RCC VERTICAL BAND OF SIZE EQUAL TO WALLS WIDTH X 125 MM AT MIDDLE OF LENGTH OF WALL WITH VERTICAL REINFORCEMENT WITH 4NOS. -# 12 MM BARS AND # 8 MM LINKS SPACED AT 100 MM C/C. IF THE LENGTH OF HALF BRICK WALLS EXCEED 06 (SIX) METERS, THESE BANDS SHALL BE PROVIDED AT SPACING NOT EXCEEDING 03 (THREE) METERS INTERVALS. NO FOUNDATION NEEDS TO BE PROVIDED. REINFORCEMENT SHALL BE ANCHORED INTO SLAB/ BEAM/ SUB- BASE AS APPLICABLE FOR ITS FULL DEVELOPMENT LENGTH IN TENSION.
- 18.5 ALL 100MM THICK WALLS SHALL BE NON-LOAD BEARING WALLS. THE LAST COURSE OF SUCH WALLS SHALL BE BUILT AFTER REMOVAL OF FORM WORK FROM THE SOFFIT OF SLAB/B.EAM.
- 18.6 WHEREVER, 100MM THICK WALL/ PARTITION WALL IS PROVIDED WITHOUT ANY BEAM UNDERNEATH, HIDDEN BEAM SHALL BE PROVIDED AS 300MM X SLAB THICKNESS WITH MAIN REINFORCEMENT 8 NOS. BARS OF #16 MM (TOP- 4 & BOTTOM- 4) AND # 8 MM- 2 LEGGED STIRRUPS AT 75MM C/C AND ALL PARTITION WALLS ON GROUND FLOOR SHALL BE RAISED FROM PCC SUB-BASE INCASE PLINTH BEAM IS NOT SHOWN.
- 18.7 100MM THICK WALLS IF PLACED DIRECTLY OVER RCC SLAB, HIDDEN BEAM SHALL BE PROVIDED IN THE SLAB AS SHOWN IN SKETCH NO. 15.
- 19.0 JOINTS IN BUILDINGS
- CONSTRUCTION JOINTS
- 19.1 AS FAR AS POSSIBLE ALL CONCRETING SHALL BE DONE IN ONE OPERATION UPTO THE PRE-DECIDED STAGE, AS PER CLAUSE 13.4 OF IS-456 TO AVOID CONSTRUCTION JOINTS.
- 19.2 IF CONSTRUCTION JOINT IS INESCAPABLE, IT SHALL BE A VERTICAL JOINT IN THE MIDDLE THIRD OF THE SPAN AND PARALLEL TO MAIN REINFORCEMENT. THE CONCRETE SURFACE SHALL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF IS-11817 AND CLAUSE 13.4 OF IS-456 BEFORE PLACING OF FRESH CONCRETE.
- 19.3 CONSTRUCTION JOINTS, IF REQUIRED TO BE PROVIDED IN FLOORS AND ROOFS, SHALL BE LOCATED NEAR THE MIDDLE OF THE SPANS OF SLABS, BEAMS UNLESS SECONDARY BEAM INTERSECTS THE MAIN BEAM AT THE POINT. IN WHICH CASE THE JOINTS IN THE MAIN BEAMS SHALL BE OFFSET A DISTANCE EQUAL TO TWICE THE WIDTH OF THE BEAM. SPECIAL PRECAUTIONS MENTIONED IN CL: 13.4 OF IS- 456 SHALL HOWEVER BE TAKEN WHEN PROVIDING CONSTRUCTION JOINTS.
- EXPANSION JOINTS
- 19.4 EXPANSION JOINTS SHALL BE PROVIDED IN ACCORDANCE WITH CLAUSE 27 OF IS-456, UNLESS OTHERWISE SPECIFIED IN STRUCTURAL DRAWINGS/CONTRACT AGREEMENT.
- 19.5 DESIGN CONSIDERATIONS OF EXPANSION JOINTS SHALL BE IN ACCORDANCE WITH IS-3414.
- 19.6 WIDTH OF CRUMPLE JOINT WHEREVER INDICATED SHALL BE TAKEN AS 40 MM FOR D/S BLDGS & 25MM FOR S/S BLDGS.
- 19.7 DETAILS FOR CRUMPLE JOINT SHALL BE AS PER IS-3414 TO OBTAIN EFFECTIVE SEAL AGAINST PENETRATION OF WATER.
- 20.0 DETAILS OF JOINTS IN BUILDINGS
- 20.1 THIS DRAWING INCORPORATES THE PROVISIONS OF IS-3413. ALL CRUMPLE JOINTS SHALL BE 25 MM WIDE.
- 20.2 METAL STRAP TO COVER THE CRUMPLE JOINT SHALL BE FIXED AT ONE SIDE WITH SLOTTED HOLE WITH SCREW AND ADJACENT SIDE WITH SUITABLE ROUND HOLE WITH SCREW AS SHOWN IN THE TYPICAL SECTION.
- 20.3 THE EXPANSION JOINTS IN WALLS, SLABS AND IN THE BUILDING SHALL BE PROVIDED AT THE POSITIONS INDICATED IN VARIOUS STRUCTURAL DRAWINGS.
- 20.4 THE JOINT PROVIDED IN THE BUILDING SHALL BE A COMPLETE BREAK RIGHT FROM GROUND LEVEL TO THE ROOF INCLUDING THE CAPPING OVER PARAPETS.
- 20.5 FOR CHHAJJAS, BALCONIES AND PARAPETS, A JOINT MUST BE PROVIDED AT 6 TO 12 M INTERVALS. THE EXPANSION JOINT SHALL HOWEVER NOT EXTEND INTO THE PORTION WHERE SUN SHADE IS EMBEDDED INTO MASONRY.
- 20.6 THE BITUMINOUS JOINT FILLER INDICATED SHALL CONFORM TO IS- 1838(PART- I) AND IS-1838 (PART- II). THE SEALING COMPOUND SPECIFIED AT JOINTS SHALL CONFORM TO IS-1834.
- 20.7 SCREW USED IN SLOTTED HOLE IN EXPANSION JOINTS SHALL NOT PREVENT FREE MOVEMENT OF THE ALUMINIUM PLATE.

21.0 FOUNDATIONS- STRIP/ ISOLATED/ COMBINED/ RAFT/ PILE FOUNDATIONS

- 21.1 FILLING AROUND FOUNDATION TRENCHES, PLINTH AND UNDER THE FLOORS & HARD STANDINGS AND FILLING OVER AREAS ABOVE NATURAL GROUND LEVEL SHALL BE DONE WITH APPROVED EARTH HAVING NON-SWELLING CHARACTERISTICS AND SHALL BE FREE FROM SALTS, ORGANIC OR OTHER DELETERIOUS MATTER. FILLING SHALL BE DONE IN LAYERS OF A THICKNESS NOT MORE THAN 250MM DEPTH AND PROPERLY WATERED & COMPACTED TO 95 PERCENT OF STANDARD PROCTOR'S DENSITY UNDER OPTIMUM MOISTURE CONDITIONS. HIGHLY EXPANSIVE SOILS LIKE BLACK COTTON SOILS SHALL NOT BE USED. IN CASE OF FILLING WITH MOORUM/ SAND/ SHINGLES, THE THICKNESS OF INDIVIDUAL LAYER SHALL NOT EXCEED 150 MM.
- 21.2 ALL RCC ELEMENTS LIKE FOOTINGS/ PLINTH BEAMS/ TIE BEAMS/ GRADE BEAMS/ RAFTS/ PILE CAPS ETC., BEARING ON GROUND SHALL BE FOUNDED ON VIRGIN SOIL OR ON SOFT/ HARD ROCK AND IN NO CASE, IT SHALL BE FOUNDED ON HIGHLY EXPANSIVE SOIL OR FILLED-UP SOIL.
- 21.3 FOUNDATION SHALL NOT REST ON HIGHLY EXPANSIVE SOIL LIKE BLACK COTTON SOIL, AND IN CASE THE SAME IS ENCOUNTERED BELOW THE DEPTH OF FOUNDATION, MATTER SHALL BE REFERRED TO THE COMPETENT AUTHORITY FOR RE-DESIGN
- 21.4 THE DEPTH OF THE FOUNDATION SHOWN IN THE DRAWINGS SHALL BE CONSIDERED FROM THE NATURAL GROUND LEVEL (NGL). AT LOCATIONS WHERE CUTTING IS INVOLVED, THE DEPTH SHALL BE CONSIDERED FROM THE FIRM GROUND LEVEL AFTER CUTTING.
- 21.5 MINIMUM DEPTH OF FOUNDATION BELOW NGL SHALL BE 1.5 METER.
- 21.6 UNLESS OTHERWISE SHOWN IN STRUCTURAL DRAWINGS, THE STRUCTURE(S) HAS (HAVE) BEEN DESIGNED WITHAN UN-CATERED FILLING OF MAX UPTO 01 (ONE) METER OVER NGL TO ACHIEVE THE MADE-UP GROUND LEVEL (MGL). IN CASE THE MAX DEPTH OF FILLING IS MORE THAN 01 METER OR AS SHOWN IN THE STRUCTURAL DRAWINGS, IT SHALL BE BROUGHT TO THE NOTICE OF THE COMPETENT AUTHORITY FOR RE-DESIGN.
- 21.7 DIMENSIONS OF FOOTINGS INDICATED IN FOUNDATION PLAN ARE EXCLUSIVE OF OFFSET OF LEAN CONCRETE.
- 21.8 WHEREVER PLINTH BEAMS ARE NOT PROVIDED OR WALL FOOTINGS DETAILS NOT GIVEN, THE WALL FOUNDATION SHALL BE PROVIDED AS PER DETAILS GIVEN IN TYPICAL DRAWINGS (TD).
- 21.9 SAFE BEARING CAPACITY (SBC) AND GROUND WATER TABLE CONSIDERED FOR DESIGN OF FOUNDATIONS IS AS PER SOIL INVESTIGATION REPORT AND HAS BEEN SHOWN IN RELEVANT BUILDING FOUNDATION DRAWINGS. SITE EXECUTIVES SHALL ENSURE THAT THE SOIL STRATA/ WATER TABLE AREAS PER THE SOIL INVESTIGATION REPORT BEFORE EXECUTION OF THE WORK. IN THE EVENT OF ANY VARIATION, THE MATTER SHALL BE BROUGHT TO THE NOTICE OF THE COMPETENT AUTHORITY AND THE FOOTING SHALL BE REDESIGNED.
- 22.0 FOUNDATIONS- PILE FOUNDATIONS
- 22.1 REF. DRAWING NO:- CEVZ/WD/2110(S)-SA/CH/10K, SHT. NO. :- 5/20
- 23.0 MISCELLANEOUS
- 23.1 PCC BED BLOCKS:- RCC BEAMS RESTING ON WALLS SHALL BE PROVIDED WITH PCC (1:2:4) BED BLOCK OF SIZE (WIDTH OF BEAM + 400MM) x WALL THICKNESS x 200MM THICK, UNLESS OTHERWISE SPECIFIED. IN CASE OF RCC BEAMS RESTING ON MASONRY PILLARS OF SIZE B X D SHALL BE PROVIDED WITH PCC (1:2:4) BED BLOCK OF SIZE B X D X 150MM THICK, UNLESS OTHERWISE SPECIFIED.
- 24.0 LEVELING LAYER
- 24.1 THE BEARINGS OF SLOPING SLABS/BEAMS HAVING SLOPE LESS THAN 1:20 SHALL BE MADE HORIZONTAL BY PROVIDING A LEVELLING LAYER OF PCC (1:2:4) OF AVERAGE THICKNESS OF 20MM.
- 25.0 NON-STRUCTURAL MEMBERS
- 25.1 MIX OF CONCRETE FOR ALL RCC WORKS FOR NON STRUCTURAL MEMBERS LIKE CHHAJJA, PROJECTIONS, CORNICES, RCC ARCHITECTURAL FACADES ETC. SHALL BE SAME AS THAT FOR MAIN STRUCTURAL MEMBERS IN SUPER STRUCTURE AS PER IS- 456 .
- 25.2 UNLESS OTHERWISE SPECIFIED THE TOP OF CHHAJJA MUST BE PROVIDED WITH 12 MM TH. PLASTER IN CM 1:4 WITH WATER PROOFING COMPOUND AS SPECIFIED. THIS PLASTERING SHALL BE DONE BEFORE THE CONCRETE FINALLY SET.
- 25.3 SHUTTERING OF CHHAJJAS SHALL NOT BE REMOVED UNLESS SUFFICIENT COUNTERWEIGHT FOR ANCHORAGE HAS DEVELOPED AT THE SUPPORT PORTION.
- 25.4 SHUTTERING OF CHHAJJAS SHALL BE REMOVED STARTING FROM THE FREE END TOWARDS THE FIXED SUPPORT
- 25.5 THE MINIMUM CLEAR COVER FOR CONCRETE TO REINFORCEMENT ON TOP FACE OF CHHAJJAS SHALL BE 20 MM AND FOR LINTELS, FIN/DROP/FACIA/PARAPET SHALL BE 25MM.

26.0 RCC LINTELS

- 26.1 HEIGHT OF SOFFIT OF LINTEL BEAMS SHALL BE AS INDICATED IN ARCHITECTURAL DRAWING. IN CASE THE SAME IS NOT INDICATED IN ARCHITECTURAL DRAWING IT SHALL BE 2100MM ABOVE RESPECTIVE FLOOR LEVEL.
- 27.0 TYPICAL DETAILS
- 27.1 TYPICAL DETAILS OF CERTAIN COMMONLY USED STRUCTURAL / NON STRUCTURAL PARTS SHALL BE FOLLOWED AS PER SKETCHES SHOWN IN SHT NO. 04 TO 05

28.0 WORKING DRAWING NOTES

- 28.1 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED
- 28.2 NO DIMENSIONS SHALL BE SCALED FROM STRUCTURAL DRAWINGS. ONLY FIGURED DIMENSIONS SHALL BE FOLLOWED ANY MISSING DETAILS/ DISCREPANCY SHALL BE BROUGHT TO THE NOTICE OF THE COMPETENT AUTHORITY FOR CLARIFICATIONS. THE CONTRACTOR AND EXECUTIVES SHALL CHECK AND VERIFY ALL DIMENSIONS BEFORE EXECUTION OF THE WORK.
- 28.3 IN CASE OF DISCREPANCY/ AMBIGUITY IN DETAILS GIVEN IN STRUCTURAL DRAWINGS AND ARCHITECTURAL DRAWINGS/ TD DRAWINGS/ SERVICES DRAWINGS (ELECTRICAL, SANITARY, PLUMBING ETC.), THE DETAILS GIVEN IN STRUCTURAL DRAWING SHALL SUPERSEDE.
- 28.4 THE RELEVANT INDIAN STANDARDS WHEREVER REFERRED/ APPLICABLE TO THE PROJECT SHALL BE THE LATEST EDITIONS OF IS CODES AND SPECIAL PUBLICATIONS, NATIONAL BUILDING CODE, IRC CODES AND PUBLICATIONS ETC., WITH ALL ERRATA AND AMENDMENTS AS ON THE DATE OF ISSUE OF THE CONTRACT.
- 28.5 THE STRUCTURE(S) HAS (HAVE) BEEN DESIGNED AS PER RELEVANT INDIAN STANDARDS AND FOR FOLLOWING BASIC DESIGN PARAMETERS/ CONDITIONS:

SEISMIC ZONE	II
BASIC WIND SPEED (Vb)	50 m/s
EXPOSURE CONDITION	SEVERE
PERIOD OF FIRE RESISTANCE	02 HRS
REINFORCEMENT STEEL GRADE	Fe500D CRS
CEMENT GRADE FOR ALL RCC WORKS	OPC 43 GRADE
CEMENT GRADE FOR RCC WORKS OF PILES AND PILE CAPS	REFER PILING NOTES ON DRAWING NO:- CEVZ/WD/2110(S)-SA/CH/10K SHT. NO. :- 5/20
CEMENT GRADE FOR OTHER WORKS LIKE PCC, MASONRY, PLASTERING	OPC 43 GRADE OR PPC
RCC MIX GRADE	M-40 FOR PILES REST INCLUDING PILE CAPS M30
ALLOWABLE SOIL BEARING PRESURE/ ALLOWABLE PILE CAPACITY	AS PER SOIL REPORT
SOIL STRATA PROFILE SOIL PROPERTIES AND DEPTH OF WATER TABLE	ARE CONSIDERED AS PER SOIL INVESTIGATION REPORT DATED : 13-10-2021

- 28.6 THE STRUCTURE(S) HAS (HAVE) NOT BEEN DESIGNED FOR ANY IMPACT OR LOCALISED HEAVY LOADS AND CONTINUOUS GROUND VIBRATIONS. THE PORTAL OR FRAME OF STRUCTURE SHALL NOT BE USED FOR ANY UNINTENDED LOADING/ UNLOADING OPERATIONS.

NOTE :-

1. ALL DIMENSION ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. FIGURED DIMENSIONS ONLY SHALL BE FOLLOWED.
3. ALL DRGS. ARE IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRGS

S.NO.	DATE	DESCRIPTION	INITIAL
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REVISIONS		
CLIENT:	CHIEF ENGINEER(NAVY) VISAKHAPATNAM ZONE	SHT NO: 2/20
REF. DRG NO: CEVZ/2022/WD/2110(S)-SA/CH/10K		

DESIGNS & DRAWINGS PREPARED BY CONSULTANCY FIRM
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NATIONAL INSTITUTE OF TECHNOLOGY TRICHY


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for Chief Engineer


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Director (Design)
for Chief Engineer

NAME OF PROJECT:
PROVISION OF DEFICIENT 287 SINGLE INJURING ACCN ASSOCIATED FACILITIES FOR DSC AT NAVAL DOCKYARD, VISAKHAPATNAM (BD NO AMWP 46/2020)


TITLE OF DRAWING:-
STRUCTURAL GENERAL NOTES

STRUCTURAL CONSULTANTS:
INTEGRITY STRUCTURAL CONSULTANTS

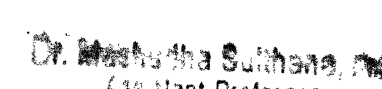
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SHEET: A1	DATE: 08/06/2022	JOB NO: 07-21	
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