GENERAL

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SECTIONS OF THE SANS 1200 OR SANS 2001.
2. READ ALL DRAWINGS IN CONJUNCTION WITH THE ARCHITECT'S DRAWINGS, OTHER APPLICABLE ENGINEERING DRAWINGS AND PROJECT SPECIFICATIONS.
3. ALL CONTRACTORS QUALITY CONTROL DOCUMENTATION TO BE FORWARDED TO AND APPROVED BY THE ENGINEER BEFORE COMMENCING WITH ANY STRUCTURAL WORK.
4. CONTRACTOR TO CONDUCT THEIR OWN QUALITY CONTROL BEFORE REQUESTING AN INSPECTION FROM THE ENGINEER.
5. 48 HOURS WRITTEN NOTICE TO BE GIVEN TO ENGINEER NOT BASED ON SITE AND 24 HOURS TO SITE BASED RESIDENT ENGINEER BEFORE TIME OF INSPECTION.
6. ALL LEVELS ARE IN METERS RELATIVE TO THE APPROPRIATE LOCAL DATUM.
7. ALL LEVELS ON DRAWINGS INDICATE TOP OF CONCRETE UNLESS INDICATED OTHERWISE.
8. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
9. DRAWINGS SHOULD NOT BE SCALED, RATHER REQUEST DIMENSIONS FROM THE ENGINEER.
10. FOR SETTING OUT DATA, SETTING OUT POINTS AND DATUM LEVELS REFER TO SURVEY INFORMATION.
11. THE CONTRACTOR SHALL CHECK ALL PROJECT DIMENSIONS AND LEVELS ON SITE BEFOREHAND AND ANY DISCREPANCIES SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER BEFORE SUBMITTING FABRICATION DRAWINGS.
12. JOINTS INDICATED ON SLABS ARE ALSO TO BE CONSTRUCTED IN BRICK WALLS, SCREED AND FINISHES.
13. METHOD STATEMENTS TO BE ISSUED 21 DAYS PRIOR TO COMMENCEMENT OF APPLICABLE WORK.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY STABILITY OF THE STRUCTURE AND ALL PARTIALLY COMPLETED WORKS DURING CONSTRUCTION.

ORDER OF PRECENDENCE

IN THE EVENT OF DISCREPANCIES, THE FOLLOWING ORDER OF PRECEDENCE SHALL APPLY:-

1. WRITTEN VARIATION ORDERS
2. SITE INSTRUCTIONS
3. STRUCTURAL DRAWINGS
4. PROJECT SPECIFICATIONS
5. RELEVANT SANS STANDARDS
6. ARCHITECTURAL DRAWINGS
7. OTHER ENGINEERING DRAWINGS
8. BILLS OF QUANTITIES

SETTING OUT

1. THE CONTRACTOR SHALL ESTABLISH ALL CONTROL POINTS, BENCHMARKS AND SURVEY INFORMATION PRIOR TO CONSTRUCTION.
2. SETTING OUT SHALL BE VERIFIED BY A REGISTERED LAND SURVEYOR WHERE REQUIRED.
3. THE CONTRACTOR REMAINS FULLY RESPONSIBLE FOR THE ACCURACY OF SETTING OUT.
4. ANY DISCREPANCIES SHALL IMMEDIATELY BE REPORTED TO THE ENGINEERS.

DESIGN CRITERIA

1. DESIGN IN ACCORDANCE WITH THE FOLLOWING CODES:

LOADINGS:	SANS 10160
CONCRETE:	SANS 10100
STRUCTURAL STEEL:	SANS 10162
STRUCTURAL TIMBER:	SANS 10163
BUILDING REGULATIONS:	SANS 10400

2. DESIGN SUPERIMPOSED DEAD LOADS:

CONCRETE SELF-WEIGHT:	25kN/m³
CEILINGS AND SERVICES:	0.5kN/m²

SURFACE BED

1. REFER TO ARCHITECTURAL DETAILS FOR SURFACE FINISH AND COVERING.
2. PROVIDE 250 MICRON DPC UNDER ALL SURFACE BEDS WITH A MINIMUM LAP OF 300mm.
3. MINIMUM LAP OF MESH REINFORCEMENT IS 450mm UNLESS OTHERWISE NOTED.
4. PROVIDE A VERTICAL ISOLATION JOINT BETWEEN THE SURFACE BED AND ALL VERTICAL WALLS AND COLUMNS PROTRUDING THROUGH THE SURFACE BED.
5. CONCRETE CAST UNDER ROOF COVER: SAW CUT SURFACE BEDS WITHIN 24 HOURS OF CASTING.
6. CONCRETE CAST IN OPEN AIR SAW CUT FLOOR SLABS WITHIN 6 HOURS OF CASTING.

IN-SITU CONCRETE WORK

1. ALL CONCRETE WORK TO BE CARRIED OUT IN ACCORDANCE WITH SANS 1200 *G* OR SANS 2001-CC1 AS WELL AS RELEVANT PROJECT SPECIFICATIONS.
2. MINIMUM CONCRETE CUBE STRENGTH AT 28 DAYS AND MINIMUM COVER TO REINFORCEMENT: **(UNLESS NOTED OTHERWISE)**

ELEMENT	COVER (mm)	28 DAY STRENGTH (MPa)
SLAB AND BEAMS	30	30 MPa
COLUMNS	30	30 MPa
FOUNDATIONS: BOTTOM AND SIDES- / TOP-	75 / 50	30 MPa
RETAINING WALLS: RETAINING SIDE- / INTERNAL SIDE-	40 / 30	30 MPa
WATER RETAINING STRUCTURES	40	35 MPa

3. MAXIMUM NOMINAL CONCRETE AGGREGATE SIZE = 19MM, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4. NO-FINES CONCRETE SHALL CONSIST OF COURSE AGGREGATE OF A SINGLE SIZE (19mm), CEMENT AND WATER ONLY. NO FINE AGGREGATE SHALL BE ALLOWED.

IN-SITU CONCRETE WORK (CONTINUED)

5. MIX DESIGNS, TRIAL MIX CUBE TEST RESULTS AND SLUMP LIMITS TO BE SUBMITTED TO ENGINEER FOR APPROVAL AT LEAST 7 DAYS BEFORE CONCRETE IS DUE TO BE CAST.
6. A SLUMP TEST SHALL BE CONDUCTED ON EACH BATCH OF CONCRETE OR EVERY CONCRETE TRUCK DELIVERED TO THE SITE. THE TEST RESULTS MUST COMPLY WITH THE LIMITS SPECIFIED IN SANS 2001-CC1.
7. CONCRETE CUBES SHALL BE TESTED AT 7 AND 28 DAYS AFTER CASTING, AND THE RESULTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN 7 DAYS OF THE TESTING BEING CARRIED OUT.
8. DIMENSIONS OF BEAMS ARE INDICATED AS WIDTH x DEPTH.
9. THE CONTRACTOR MUST ENSURE THAT ALL EMBEDDED ITEMS AND PENETRATIONS FOR SERVICES HAVE BEEN PROVIDED FOR AND POSITIONED ACCORDING TO THE LATEST DRAWINGS OF ALL DISCIPLINES BEFORE CASTING CONCRETE. NO HOLES ARE TO BE CORED WITHOUT THE ENGINEER'S WRITTEN APPROVAL.
10. ALL CASTING PROCEDURES, CONSTRUCTION METHODS AND POSITION OF CONSTRUCTION JOINTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
11. ACRONYMS AND JOINT SPACING ARE DEFINED AS FOLLOWS:

SC: SAW CUT JOINT (Max. 7.5m c/c)
CJ: CONSTRUCTION JOINT (Max. 15m c/c)
IJ : ISOLATION JOINT (AS INDICATED)
EJ: EXPANSION JOINT (Max. 30m c/c)

ALL JOINTS SPACING SHALL COMPLY WITH THE SPACING INDICATED ABOVE**UNLESS OTHERWISE SPECIFIED.**

12. CONSTRUCTION JOINT POSITIONS ARE INDICATIVE ONLY AND SHALL BE AGREED WITH THE ENGINEER. MOVEMENT JOINTS ARE TO BE INSTALLED AS INDICATED ON THE DRAWINGS.
13. CONSTRUCTION JOINTS:
NO HORIZONTAL JOINTS WILL BE ALLOWED IN BASES, BEAMS AND SLABS. NO VERTICAL JOINTS IN COLUMNS AND SHEAR WALLS.



14. WHERE IT IS NECESSARY TO UTILIZE CONSTRUCTION JOINTS, SUCH JOINTS SHALL BE INSPECTED BY THE ENGINEER PRIOR TO COMMENCEMENT OF CONSTRUCTION.
15. THE PROPOSED CASTING SEQUENCE OF ALL CONCRETE TO BE APPROVED BY THE ENGINEERS REPRESENTATIVE 14 DAYS BEFORE CASTING.
16. IF FOR ANY REASON A COLD JOINT SHOULD FORM DURING CASTING, THE PLANE OF THE JOINT SHOULD BE AT 45 DEGREES TO THE SOFFIT OF THE MEMBER AND THE ENGINEER SHOULD BE NOTIFIED IMMEDIATELY.
17. ARCHITECTURAL DRAWINGS TO BE FOLLOWED FOR CONCRETE FINISHES, GROOVES, CHAMFERS, ETC. ALL EXPOSED CONCRETE CORNERS WITH AN ANGLE OF 90° OR LESS SHALL HAVE A 20mm x 20mm CHAMFER UNLESS OTHERWISE NOTED ON THE DRAWINGS.
18. WALLS SHALL BE CAST IN LIFTS NOT EXCEEDING 3 m HEIGHT. THE CONSTRUCTION SEQUENCE SHALL BE SUCH THAT VERTICAL JOINTS IN WALLS ARE AVOIDED OR LIMITED TO AN ABSOLUTE MINIMUM. WHERE VERTICAL JOINTS EXIST, THE DIFFERENCE IN CONCRETE LEVEL ON EITHER SIDE OF THE JOINT SHALL NOT EXCEED 3 m HEIGHT.
19. ALL CONCRETE TO BE COMPACTED USING A MECHANICAL VIBRATOR OF A SUITABLE SIZE. POURS DEEPER THAN 300mm TO BE DOUBLE VIBRATED, THE SECOND VIBRATING BEING DONE JUST BEFORE INITIAL SET.
20. THE TOP OF CONCRETE ELEMENTS AND THE SURFACE OR WATER JETTED TO REMOVE LAITANCE AND LOOSE MATERIAL AND TO ROUGHENED EDGES PRIOR TO CASTING THE NEXT LIFT OF CONCRETE. A WET TO DRY EPOXY TO BE PROVIDED TO THE ENGINEER'S APPROVAL ON TOP OF SLABS WHERE UPSTAND BEAMS ARE CAST.
21. ALL CONCRETE TO BE CONTINUOUSLY CURED USING AN APPROVED METHOD FOR A MINIMUM OF 7 DAYS.
22. SHOULD NO ALTERNATIVE CURING METHOD BE APPROVED BY THE ENGINEER IN WRITING, THE FOLLOWING SHOULD BE DONE:

- FOR CONCRETE CAST UNDER ROOF COVER: CURE BY WETTING SIX TIMES PER DAY FOR A MINIMUM OF 7 DAYS.
- CONCRETE CAST IN OPEN AIR: CURE BY COVERING WITH PLASTIC SHEETING IMMEDIATELY AFTER STRIPPING OFF FORMWORK.
- FOR POWER FLOATED SLABS, COVER SLAB WITH WHITE PLASTIC SHEETING IMMEDIATELY AFTER STRIPPING OFF FORMWORK AND REPLACE PLASTIC SHEETING AFTER POWER FLOATING.
- COLUMNS TO BE WRAPPED IN PLASTIC.
- CURING COMPOUND TO BE APPROVED BY THE ENGINEER PRIOR TO COMMENCING WORKS.

23. CONCRETE DEFECTS MAY ONLY BE REPAIRED AFTER THE ENGINEER HAS APPROVED A METHOD STATEMENT FOR THE REPAIR.
24. A 25mm x 25mm CHAMFER SHALL BE PROVIDED ON ALL VISIBLE CORNERS OF OFF-SHUTTER CONCRETE. (UNLESS OTHERWISE INDICATED).
25. COVER BLOCKS TO REINFORCEMENT SHALL BE CONCRETE OF THE SAME STRENGTH AS THE STRUCTURE.

EXISTING STRUCTURES

1. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, LEVELS AND CONDITIONS ON SITE PRIOR TO COMMENCEMENT OF WORK.
2. ANY DICREPANCIES BETWEEN THE STRUCTURAL DRAWINGS AND EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
3. NO STRUCTURAL MEMBER SHALL BE CUT, CORED, CHASED OR DEMOLISHED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SUPPORTS DURING ALTERATIONS OR DEMOLITION WORKS.

WATER RETAINING OR WATER EXCLUDING STRUCTURES

1. ALL CONCRETE SHALL BE MADE WITH ORDINARY PORTLAND CEMENT WITH 30% FLY ASH OR SIMILAR APPROVED CEMENT EXTENDER.
2. WATER:CEMENT RATIO NOT TO EXCEED 0.50.
3. CEMENT CONTENT 325kg/m³ - 400kg/m³.
4. A CRYSTALLINE WATERPROOFING ADDITIVE SHALL BE MIXED INTO THE CONCRETE AS PER THE PROJECT SPECIFICATIONS.
5. NO OPEN FERRULES ARE PERMITTED. ALL SHUTTERS TO BE SUPPORTED USING AN APPROVED EMBEDDED BOLT SYSTEM.
6. ACID-STORAGE TANKS SHALL BE DESIGNED TO PROVIDE ENHANCED RESISTANCE TO CHEMICAL ATTACK AND LONG-TERM DURABILITY UNDER ACIDIC EXPOSURE CONDITIONS. THE CONCRETE MIX SHALL INCORPORATE A PROPRIETARY ACID-RESISTANT ADMIXTURE SYSTEM (SIKA, MAPEI OR SIMILAR APPROVED), IN ADDITION TO THE CRYSTALLINE WATERPROOFING/SELF-HEALING ADMIXTURE SPECIFIED ELSEWHERE.

FORMWORK

1. STAGING AND FORMWORK SHALL BE DESIGNED AND CERTIFIED BY SUITABLY EXPERIENCED PROFESSIONALLY REGISTERED ENGINEER, WHERE APPROPRIATE THE CONTRACTOR SHALL SUBMIT FORMWORK AND TEMPORARY WORKS DESIGN AND DETAILS TO THE ENGINEER FOR REVIEW.
2. THE STAGING AND BACK PROPPING DETAILS ARE TO BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALLOWANCE SHALL BE MADE FOR BACK PROPPING LOWER FLOORS WHILST CONCRETE IS BEING CAST ABOVE .
3. ALL SLAB PANELS WITH UPSTAND BEAMS TO REMAIN PROPPED UNTIL THE UPSTANDS HAVE BEEN CAST AND ARE 14 DAYS OLD.
4. CLASS OF FORMWORK AS FOLLOWS:

FORMED VERTICAL CONCRETE SURFACE AS DEFINED IN TABLE 1 OF SANS 2001 CC1:

SURFACE	FINISH
UNEXPOSED SURFACE MORE THAN 300mm BELOW GROUND LEVEL AND SIDES OF GROUND BEAMS	ROUGH
UNEXPOSED SURFACE 0-300mm BELOW GROUND LEVEL	SMOOTH
EXPOSED WALLS, COLUMNS, BEAMS AND SLABS IN PARKING AREAS	SMOOTH

5. HORIZONTAL UNFORMED SURFACES:

SURFACE	FINISH
SURFACE BED	POWER FLOATED
SUSPENDED SLAB	POWER FLOATED
WALL TOPS	STEEL FLOATED
TOP OF EXPOSED FOUNDATIONS	STEEL FLOATED
TOP OF COVERED FOUNDATIONS	WOOD FLOATED
ROOFS	WOOD FLOATED

6. DEGREE OF ACCURACY FOR FORMED CONCRETE SURFACES AS DEFINED IN TABLE 11 OF SANS 1200G:

SURFACE	DEGREE OF ACCURACY
UNEXPOSED SURFACE MORE THAN 500mm BELOW GROUND LEVEL AND SIDES OF GROUND BEAMS	II
UNEXPOSED SURFACE 0-500mm BELOW GROUND LEVEL	I
EXPOSED WALLS, COLUMNS, BEAMS AND SLABS IN OFFICES AND OTHER HABITABLE AREAS	I

PRE-CAST PRESTRESSED CONCRETE LINTELS

1. LINTELS TO COMPLY WITH SANS 1504.
2. LINTELS MINIMUM BEARING LENGTH:

LOADING	MIN. LENGTH (mm)
MASONRY ONLY	330

3. LINTELS MAY NOT SPAN FURTHER THAN 3m UNLESS APPROVED METHOD OF CONSTRUCTION IS USED.
4. LINTELS TO HAVE AT LEAST 5 LAYERS OF BRICKWORK ABOVE IT WITH BRICKFORCE AS PER MASONRY NOTES.
5. LINTELS TO BE ADEQUATELY SUPPORTED FOR AT LEAST 7 DAYS AFTER COMPLETION.

CONSTRUCTION LOADS

1. NO CONSTRUCTION LOADING SHALL BE APPLIED TO THE STRUCTURAL ELEMENTS IN EXCESS OF THE DESIGN, CONSTRUCTION LOADS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
2. MATERIAL STOCKPILES SHALL NOT BE PLACED ON SUSPENDED SLABS WITHOUT WRITTEN APPROVAL.

COORDINATION NOTE:

THE CONTRACTOR SHALL ENSURE THAT ALL OPENINGS, CAST-IN ITEMS, EMBEDDED SERVICES, BUILDER'S WORK OPENINGS AND PENETRATIONS ARE COORDINATED WITH THE LATEST ARCHITECTURAL, MECHANICAL, ELECTRICAL, FIRE, ICT AND MEDICAL SERVICES DRAWINGS PRIOR TO CASTING.

REINFORCEMENT

1. ALL REINFORCEMENT SHALL COMPLY WITH SANS 920, TYPE C, CLASS 2 GRADE 1.
2. BAR DESIGNATION IS AS FOLLOWS:
"R" = 250MPa YIELD STRENGTH PLAIN ROUND MILD STEEL BARS.
Y = GRADE 450MPa YIELD STRENGTH DEFORMED TYPE 2 HIGH YIELD BARS.
3. WIRE MESH SHALL BE WELDED WIRE FABRIC REINFORCEMENT SMOOTH ROUND BARS MINIMUM STRENGTH OF 485MPa COMPLYING WITH THE REQUIREMENTS OF SANS 1024.
4. REINFORCING BARS ARE CALLED UP ON DRAWINGS IN THE FOLLOWING MANNER :
NO. OFF - BAR TYPE : BAR DIAMETER - BAR MARK - PITCH : POSITION AND/OR COMMENTS
E.G. 7 Y20 03 - 200 B1
5. POSITION/COMMENT IS DESIGNATED AS FOLLOWS:
T = TOP FACE
B = BOTTOM FACE
NF = NEAR FACE
FF = FAR FACE
EW = EACH WAY
EF = EACH FACE
IF = INSIDE FACE
OF = OUTSIDE FACE
AB = ALTERNATE BARS
ABR = ALTERNATE BARS REVERSED
AP = ALTERNATIVELY PLACED
AS = ALTERNATIVELY STAGGERED
STG = BARS STAGGERED BY AMOUNT SHOWN.
ALT = ALTERNATING
SUFFIX 1,2 INDICATES THE LAYER WITH 1 BEING CLOSEST TO THE CONCRETE SURFACE.WHERE TWO BAR MARKS ARE CALLED UP TOGETHER AND IDENTIFIED AS 'ALT' THE SPACING STATED IS THE SPACING OF ALL BARS. NOT OF EACH BAR MARK E.G. 5 Y25 03 - 125T ALT 6 Y20 02 INDICATES 11 BARS AT 125 CENTERS IN THE TOP FACE.
6. SYMBOLS DENOTING LAYERS OF REINFORCEMENT IN SLABS AND BASES ARE SHOWN IN FIGURE 1 BELOW:

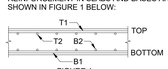

FIGURE 1

7. MINIMUM LAP LENGTH TO REINFORCING TO BE 50 X SMALLER DIAMETER BAR, AND MINIMUM ANCHORAGE LENGTH TO BE 40 X THE BAR DIAMETER UNLESS NOTED OTHERWISE.
8. SPLICES SHALL BE AVOIDED AT POINTS OF MAXIMUM STRESS AND ALL SPLICES SHALL BE STAGGERED.
9. COUPLERS MAY BE PROPOSED WHERE SITE CONSTRAINTS PREVENT THE ACHIEVEMENT OF FULL LAP LENGTHS. WHERE COUPLERS ARE USED THEY ARE TO BE POSITIONED SO AS TO ACHIEVE THE SAME NOMINAL COVER AS THAT SPECIFIED FOR THE REINFORCING BARS WHICH THEY JOIN. THE USE OF COUPLERS IS SUBJECT TO THE APPROVAL OF THE ENGINEER.
10. WELDING OF REINFORCEMENT IS NOT ALLOWED UNLESS APPROVED BY ENGINEER IN WRITING.
11. FABRIC REINFORCEMENT IS CALLED UP ON THE DRAWINGS BY REFERENCE TO ITS SANS REFERENCE, AND BY INDICATION OF THE AREA TO BE REINFORCED.
12. FOR FABRIC REINFORCEMENT OTHER THAN SQUARE MESH FABRIC, THE DIRECTION OF THE MAIN LONGITUDINAL BARS SHALL BE OF SHOWN ON THE DRAWINGS.
13. ALL LAPS TO FABRIC REINFORCEMENT SHOULD BE A MINIMUM OF 450MM.
14. SPACERS, TIES AND STOOLS SHALL BE SUPPLIED AND FIXED BY THE CONTRACTOR AS NECESSARY TO SECURE THE REINFORCEMENT AGAINST DISPLACEMENT. CONCRETE COVER BLOCKS MUST BE MANUFACTURED FROM CONCRETE WITH THE SAME STRENGTHS AS THE UNITS IN WHICH IT IS INCORPORATED.
15. CARE SHOULD BE TAKEN TO ENSURE THAT THE MINIMUM CONCRETE COVER OVER REINFORCEMENT IS ACHIEVED THROUGHOUT.
16. PULL OUT BAR REINFORCEMENT MAY NOT BE USED UNLESS WRITTEN CONFORMATION IS GIVEN BY THE ENGINEER.
17. ALL REINFORCEMENT IS TO BE APPROVED BY THE ENGINEER BEFORE CONCRETE IS CAST.

FOUNDATIONS

1. EXCAVATIONS: FOUNDING CONDITIONS AND LEVELS TO BE APPROVED BY ENGINEER PRIOR TO CASTING BLINDING.
2. THE MINIMUM DEPTH TO BOTTOM OF FOUNDATION SHALL NOT BE LESS THAN 400mm DEEP BELOW UNFINISHED GROUND LEVEL.
3. ANY OVER EXCAVATIONS BELOW FOUNDATIONS ARE TO BE MADE GOOD WITH 10MPa CONCRETE AT THE CONTRACTORS EXPENSE.
4. UNLESS OTHERWISE SPECIFIED ALL FILL UNDER FOUNDATIONS SHALL BE AN APPROVED MATERIAL COMPACTED TO 98% MOD AASHTO.
5. PROVIDE 50mm BLINDING UNDER ALL COLUMN AND WALL BASES.
6. DESIGN ALLOWABLE BEARING CAPACITIES AS PER GEOTECHNICAL REPORT.
7. NO BACKFILL MATERIAL TO BE BROUGHT ONTO SITE WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.

FOUNDATION (CONTINUED)

8. BACKFILLING OVER COLUMN BASES SHALL BE DONE WITH AN APPROVED MATERIAL COMPACTED IN LAYERS.
9. BACKFILL AROUND COLUMNS AND WALLS TO COMMENCE EVENLY.
10. COMPACTION TEST RESULTS OF IN SITU MATERIAL UNDER STRUCTURES TO CONFIRM ALLOWABLE BEARING CAPACITY, TO BE SUBMITTED AND APPROVED BY THE ENGINEER BEFORE CONCRETE WORKS COMMENCES.

PROPRIETARY EXPANSION JOINT AND ANCHORS

1. ALL EXPANSION JOINTS AND CHEMICAL TYPE ANCHORS FOR FIXING INTO CONCRETE AND MASONRY TO BE INSTALLED STRICTLY TO MANUFACTURERS SPECIFICATION.
2. ALL EXPANSION AND CHEMICAL ANCHORS TO BE HOT DIP GALVANIZED OR STAINLESS STEEL AND TO BE OF THE SAME MATERIAL AS THE ELEMENT THAT IT IS SECURING.

WATERPROOFING

1. ALL WATERPROOFING AND TANKING TO BE CARRIED OUT TO MANUFACTURER'S SPECIFICATIONS AND ENGINEER'S DETAILS

STEELWORK

1. ALL STRUCTURAL STEELWORK SHALL BE IN ACCORDANCE WITH SANS 1200H.
2. THE CONTRACTOR SHALL VERIFY THAT THE ENGINEER'S DRAWING CONTAINS ALL NECESSARY INFORMATION FOR THE PREPARATION OF THE WORKSHOP DRAWING AS SOON AS POSSIBLE AND IMMEDIATELY REPORT ANY DISCREPANCIES TO THE ENGINEER.
3. WORKSHOP DRAWINGS TOGETHER WITH SUPPORTING CALCULATIONS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION. APPROVAL PROCESS WILL TAKE A MINIMUM OF 10 WORKING DAYS.
4. MATERIALS SPECIFIED ON SHOP DRAWINGS MUST CORRESPOND WITH MATERIALS STATED ON ENGINEERS DRAWINGS AND APPLICABLE SPECIFICATION.
5. STEEL GRADES:

PRODUCTION METHOD	STEEL GRADE
HOT FORMED HOLLOW SECTIONS	S355JR
HOT ROLLED SECTIONS (SANS 1431)	S355JR
COLD FORMED STEEL SECTIONS	MIN. 200 MPa
HOLLOW SECTIONS	S355JR
PLATES AND FLATS	S355JR

ITEM	MATERIAL
WALKWAY GRATINGS	HOT DIPPED GALVANIZED MILD STEEL (REFER TO SPECIFICATION)
HANDRAILS	HOT DIPPED GALVANIZED MILD STEEL (REFER TO SPECIFICATION)
CAT LADDER	STAINLESS STEEL GRADE 316 (REFER TO SPECIFICATION)

6. ALL WELDING SHALL BE IN ACCORDANCE WITH SANS 10044.
7. ALL WELDS ARE TO BE DESIGNED TO GIVE FULL MEMBER STRENGTH AND TO BE MINIMUM 6mm FILLET WELD TO GRADE E70XX, UNLESS SPECIFIED OTHERWISE
8. ALL INTERSECTIONS TO BE WELDED CONTINUOUS ALL ROUND.
9. NO SITE WELDING IS PERMITTED.
10. ALL WELDING TO BE CARRIED OUT UNDER SUPERVISION OF A CODED WELDER AND BY A SUITABLY EXPERIENCED AND TRAINED WELDER. ALL WELDS TO BE CERTIFIED BY THE CODED WELDER.
11. DETAILS OF WELDING CONSUMABLES AND CERTIFICATES TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
12. ALL WELDS MUST BE VISUALLY INSPECTED AND 10% OF ALL WELDS MUST BE CRACK TESTED USING DYE INDICATORS OR ANY OTHER TEST APPROVED BY THE ENGINEER.
13. ALL BOLTED CONNECTIONS ARE TO BE DESIGNED TO SANS 10162.
14. ALL BOLTS TO BE GRADE 8.8 UNLESS NOTED OTHERWISE. ALL BOLTS TO BE HOT DIP GALVANIZED.
15. ALL BOLTS TO RECEIVE WASHERS WITH MATERIAL OF WASHER TO MATCH MATERIAL OF BOLTS. EG. HOT DIP GALVANIZED BOLT TO HAVE HOT DIP GALVANIZED WASHER.
16. ALL BOLTED CONNECTIONS TO CONSIST OF MINIMUM 2M16 GRADE 8.8 BOLTS UNLESS SPECIFIED OTHERWISE.
17. ALL HOLDING DOWN BOLTS TO BE MINIMUM M16 AND HOT DIP GALVANIZED.
18. ALL GUSSET PLATES ARE TO BE MIN. 8mm THICK UNLESS NOTED OTHERWISE.
19. PROVIDE 60MPa NON-SHRINK STRUCTURAL GROUT BELOW ALL BASE PLATES.
20. ALL MECHANICAL AND ELECTRICAL SUPPORTS ON TRUSSES TO BE AT NODE POINTS OR AS AGREED WITH THE ENGINEER.
21. CONNECTIONS TO PURLINS FOR MECHANICAL AND ELECTRICAL SUPPORTS WILL ONLY BE MADE BY BOLTING TO THE WEB OF THE PURLIN MAXIMUM LOAD 25kg.

STEELWORK (CONTINUED)

22. ALL FIXINGS TO ROOF STEELWORK TO BE APPROVED BY THE ENGINEER.
23. ALL PURLINS AND GIRTS TO BE CONTINUOUS A MINIMUM OF TWO SPANS AND STAGGERED AT SHORTER SPAN.
24. ALL SHEETING, FLASHING AND MATTERS PERTAINING ROOF SHEETING TO ARCHITECTS DETAIL.
25. ALL RUNNERS AND BRACING TO BE FULLY FIXED IN POSITION BEFORE SHEETING COMMENCES.
26. ALL CORROSION PROTECTION SHALL BE DONE IN ACCORDANCE WITH SANS 1200 HC.
27. ALL PURLINS TO BE HOT DIP GALVANIZED.
28. ALL STRUCTURAL STEEL BELOW GROUND LEVEL, CAST INTO CONCRETE OR BUILT INTO BRICKWORK, SHALL BE PAINTED WITH TWO COATS OF BITUMEN.
29. SURFACE PREPARATION OF STRUCTURAL STEELWORK:
SANDBLAST ALL NEW STEELWORK TO A MINIMUM SA 2.5 IN ACCORDANCE WITH SWEDISH SIS 055900-1967.
30. ALL STEELWORK THAT IS SPECIFIED TO BE HOT DIPPED GALVANIZED SHALL BE HOT DIPPED GALVANIZED FOR EXPOSURE CLASS C3 IN ACCORDANCE TO SANS 121.
31. WHERE PAINTED FINISH IS SPECIFIED ON GALVANIZED STEEL, DEGREASE WITH GALVANIZED IRON CLEANER AND 3M SCOTCH BRITE PADS AND RINSE WITH FRESH WATER PRIOR TO APPLICATION OF PRIMER COAT.
32. NO ALKYD PRIMERS ON GALVANIZING.

ALL STEELWORK SPECIFIED TO BE PAINTED SHALL BE PAINTED AS FOLLOWS:
- PRIMER: STEELWORK TO BE PAINTED ONE COAT OF EPOXY ZINC PHOSPHATE PRIMER, (85 microns DT).
- INTERMEDIATE COAT: STEELWORK TO BE PAINTED WITH ONE COAT OF POLYAMIDE EPOXY MILO. (125 microns DT).
- TOP COAT: STEELWORK TO BE SPRAY PAINTED WITH ONE COAT ACRYLIC POLYURETHANE (60 microns DT).

33. FINAL COLOUR TO ARCHITECTURAL SPEC.
34. PAINT DFT TO BE TESTED USING A PAINT THICKNESS GAUGE BEFORE ERECTION.
35. NO CUTTING, DRILLING OR WELDING OF CORROSION PROTECTED MEMBERS SHALL BE ALLOWED.
36. ALL PAINTWORK DAMAGED DURING ERECTION AND TRANSPORTATION TO BE TOUCHED UP TO ABOVE SPEC.

TIMBER STRUCTURES

1. ALL STRUCTURAL TIMBERWORK TO BE DONE IN ACCORDANCE WITH SANS 2001-CT1 AND SANS 2001-CT2.
2. TIMBER STRUCTURES TO BE DESIGNED, SUPPLIED, INSTALLED & CERTIFIED BY CONTRACTOR.
3. WORKSHOP DRAWINGS & CALCULATIONS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
4. TIMBER GRADE AND SIZING AVAILABILITY SHALL BE CHECKED BEFORE COMMENCEMENT OF FABRICATION OF TIMBER STRUCTURES. ANY POSSIBLE PROCUREMENT ISSUES SHALL BE REPORTED TO THE ENGINEER BEFORE ORDERING.
5. TIMBER GRADES:

ELEMENT	TIMBER GRADE
LAMINATED SALIGNA BEAMS	10
SALIGNA POLES	10
PINE RAFTERS	5
PINE BATTENS/PURLINS	5
PINE STRUTS	5

6. EXTERNAL TIMBER MEMBERS SHALL BE PLANED ALL ROUND (PAR):
7. ALL BOLT HOLES TO BE DRILLED A MAXIMUM OF 1mm LARGER THAN THE BOLT DIAMETER.
8. BOLTS AND COACH SCREWS CONNECTING DIRECTLY TO TIMBER WITHOUT STEEL BRACKETS TO BE FITTED WITH HOT DIPPED GALVANIZED STEEL WASHERS AS FOLLOWS.

COACH SCREW/BOLT SIZE	WASHER SIZE (ØxTHICKNESS)
M6	Ø20x2mm
M8	Ø35x4mm
M10	Ø35x4mm
M12	Ø35x4mm
M16	Ø60x6mm
M20	Ø60x6mm

COACH SCREW SIZE	SCREW SHANK DIAMETER (mm)	THREADED DIAMETER (mm)
M6	6	5
M8	8	6
M10	10	8
M12	12	9

9. COACH SCREWS SHALL BE SCREWED IN AND UNDER NO CIRCUMSTANCES SHALL COACH SCREWS BE DRIVEN IN WITH A HAMMER.
10. ALL BOLTS, COACH SCREWS AND NAILS SHALL BE HOT DIP GALVANIZED.
11. ALL CONNECTING BRACKETS AND PLATES TO BE HOT DIPPED GALVANIZED AFTER FABRICATION.
12. SURFACE PREPARATION:
- ENSURE THAT ALL SURFACES ARE CLEAN, DRY AND FREE OF ANY OIL, GREASE OR OTHER CONTAMINANTS
- SAND WITH 150 GRIT SANDING PAPER IN DIRECTION OF GRAIN.
- REMOVE DUST WITH A DAMP CLOTH.
- APPLY KNOT SEAL TO ALL KNOTS.

13. PROTECTIVE COATING SHALL BE AN APPROVED PENETRATING OIL BASED COATING FOR WATERPROOFING AND PROTECTION OF THE TIMBER APPLIED AS FOLLOWS:

a. APPLY TWO COATS WITH A BRUSH BEFORE INSTALLATION OF TIMBER MEMBERS.
b. APPLY TWO COATS AFTER INSTALLATION OF TIMBER MEMBERS WITH A ONE DAY INTERVAL BETWEEN APPLICATIONS.

14. TIMBER MEMBERS BUILT INTO BRICKWORK TO BE GIVEN TWO COATS OF DURAM 195 OR SIMILAR AND WRAPPED IN DPC.
15. TIMBER STRUCTURES TO BE SIGNED OFF BEFORE ROOF COVERING OR DECKING MAY BE INSTALLED.

MASONRY

1. ALL MASONRY UNITS TO COMPLY WITH THE FOLLOWING:
SANS 227: BURNT CLAY
SANS 285: CALCIUM SILICATE UNITS
SANS 1215: CONCRETE MASONRY UNITS
2. REFER TO ARCHITECT'S DRAWINGS FOR MASONRY WALL LAYOUTS.
3. THE FOLLOWING BRICK AND MORTAR STRENGTHS SHALL APPLY:

MINIMUM COMPRESSIVE STRENGTH OF BRICKWORK TO BE 14MPa.

	MASONRY COMPRESSIVE STRENGTH (MPa)	MORTAR CLASS (SANS 0164)
RETAINING WALLS & MASONRY BELOW GL	14	CLASS I
LOAD BEARING WALLS	14	CLASS I
PANEL WALLS IN RC FRAME	7	CLASS II

4. GALVANIZED BUTTERFLY WALL TIES TO SANS 28