

REVISIONS				
SYM	DESCRIPTION	PREPARED BY	DATE	APPROVED

1. STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE FOLLOWING.
MIL - HDBK - 1191
MIL - HDBK - 1002/1
MIL - HDBK - 1002/2
MIL - HDBK - 1002/3

STRUCTURAL STEEL: AISC NINTH EDITION (ASD), AND SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS, 15 APRIL 1977

WIND LOADS: ASCE 7-95

DESIGN LOADS:

SEISMIC - ZONE 4

WIND - 135 km/HR (85 MPH) 3 - SECOND GUST SPEED

ROOF LIVE LOAD - 0.96 kPa (20 PSF)

FLOOR LIVE LOADS AT UPPER FLOORS:

MINIMUM AT SECOND FLOOR	2.9 kPa	60 PSF
DENTAL LABS	4.8 kPa	100 PSF
MECHANICAL ROOMS (A.H.U.)	7.2 kPa	150 PSF
STAIRS	4.8 kPa	100 PSF
DENTAL RECORDS	9.6 kPa	200 PSF
PARTITION ALLOWANCE AT ALL AREAS (EXCEPT A.H.U. ROOMS)	0.96 kPa	20 PSF

LIVE LOADS REDUCED IN ACCORDANCE WITH ASCE 7.

3. TYPICAL CONDITIONS: WHEN A SECTION OR DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY TO ALL LIKE OR SIMILAR CONDITIONS EVEN THOUGH NOT SPECIFICALLY MARKED ON THE PLANS.

4. REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR SLEEVES, OPENINGS, ANCHOR BOLTS AND INSERTS. EMBEDDED ITEM OTHER THAN REINFORCING STEEL AND ANCHORAGES FOR ATTACHMENT OF NON-STRUCTURAL ITEMS WHICH ARE NOT SHOWN ON STRUCTURAL DRAWINGS.

5. THE SIZES AND LOCATIONS OF ALL EQUIPMENT FOUNDATIONS AND PADS, AND PENETRATIONS THROUGH THE STRUCTURE, SHALL BE COORDINATED BY THE GENERAL CONTRACTOR WITH THE MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACTORS. ALL PENETRATIONS SHALL BE SUBJECT TO APPROVAL BY THE GOVERNMENT.

6. REFER TO CIVIL DRAWINGS FOR RETAINING WALLS, UTILITY STRUCTURES, PAVEMENT, WALKS, AND OTHER STRUCTURES OUTSIDE THE BUILDING LINE NOT SHOWN ON STRUCTURAL DRAWINGS WHICH REQUIRE REINFORCED CONCRETE WORK.

7. FLOOR DEPRESSIONS INDICATED DESCRIBE THE STRUCTURAL REQUIRED POUR; CONTRACTOR SHALL PROVIDE CONCRETE OR MASONRY FILL AS REQUIRED BRING THE FINISH MATERIALS TO THE FINISH FLOOR ELEVATION.

8. REFER TO ARCHITECTURAL DRAWINGS FOR STAIR DETAILS AND DIMENSIONS.

9. REFER TO ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF WATERPROOFING.

1. FOUNDATIONS: SHALLOW SPREAD AND STRIP FOOTINGS, PER

- 120 kPa (2500 PSF) FOR BUILDING FOOTINGS, AND 48 kPa (1000 PSF) FOR MINOR STRUCTURES. 33 1/3% INCREASE ALLOWED FOR WIND AND SEISMIC LOADS. SITE SEISMIC SOIL PROFILE IS SOIL TYPE S_D (1997 UNIFORM BUILDING CODE), OR S₂ (1994 U.B.C.).
2. SLABS-ON-GRADE SHALL BE PLACED OVER A 0.25 m THICK VAPOR BARRIER ON A 100 mm MINIMUM BASE COURSE SAND AND GRAVEL LAYER COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY.
3. INSTALLATION OF COMPACTED BACKFILL SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDES OF WALLS TO PRECLUDE UNBALANCED SOIL LOADS. WALLS THAT RETAIN UNDERSLAB FILL SHALL BE BRACED AGAINST SOIL PRESSURE FORCES UNTIL SLABS RESTRAINING TOPS OF WALLS ARE PLACED AND CURED. PLACE FILL USING HAND DIRECTED COMPACTION EQUIPMENT. DO NOT USE HEAVY CONSTRUCTION EQUIPMENT ADJACENT TO THE FOUNDATION.
4. WEAK SOIL EXPOSED IN FOUNDATION EXCAVATIONS SHALL BE UNDERCUT TO A FIRM LEVEL OF SOIL PRIOR TO PLACEMENT OF THE FOUNDATION CONCRETE FOUNDATIONS SHALL BE "STEPPED DOWN" AS REQUIRED TO EXTEND THROUGH WEAK SOIL ZONES, OR THE WEAK SOIL MAY BE REPLACED WITH NON-REINFORCED LEAN CONCRETE, COMPACTED CRUSHED STONE, OR COMPACTED ENGINEERED FILL.
5. DO NOT PERMIT FOUNDATION BEARING SOIL TO BECOME SATURATED OR DRY EXCESSIVELY. SECTIONS WHICH BECOME SATURATED OR DRY EXCESSIVELY SHALL BE UNDERCUT JUST PRIOR TO PLACEMENT OF THE FOUNDATION CONCRETE. ALL FOUNDATIONS SHALL BE CONSTRUCTED AS EXPEDIENTLY AS POSSIBLE FOLLOWING EXCAVATION OF THE FOUNDATION TRENCH.
6. UNLESS INDICATED OTHERWISE ON PLANS, CENTERLINES OF FOOTINGS SHALL ALIGN WITH COLUMN GRID CENTERLINES. ELEVATIONS SHOWN ON FOUNDATION PLANS ARE TO TOPS OF FOOTINGS.
7. SAWN JOINTS IN CONCRETE SLABS SHALL BE MADE THE SAME DAY AS PLACEMENT, AS SOON AS POSSIBLE WITHOUT DAMAGING THE CONCRETE, AND IN NO CASE LATER THAN 12 HOURS AFTER CONCRETE PLACEMENT.
8. PLACE FLOOR SLABS ON GRADE LONGITUDINALLY IN LANES, WITH TRANSVERSE SAWCUTS.

1. CONCRETE FOR BUILDING STRUCTURE SHALL BE NORMAL WEIGHT AND HAVE THE FOLLOWING PROPERTIES:
FILL ON METAL DECK - 28-day $f'_c = 21$ MPa (3000 PSI).
FOUNDATIONS, SLABS-ON-GRADE, AND ALL OTHER CONCRETE EXCEPT AS INDICATED ABOVE - 28-day $f'_c = 24$ MPa (3500 PSI)
2. DESIGN OF CONCRETE STRUCTURES IS BASED ON ULTIMATE STRENGTH METHODS OF ACI 318.
3. FURNISH MATERIALS, MIX, PLACE, FINISH, AND CURE ALL CONCRETE IN ACCORDANCE WITH ACI 318 AND THE PROJECT SPECIFICATIONS. WHERE REQUIREMENTS CONFLICT OR OVERLAP USE THE MORE STRINGENT REQUIREMENT.
4. CONCRETE WALLS INTERSECTING PIERS SHALL BE CAST MONOLITHICALLY UNLESS OTHERWISE SHOWN.
5. CONCRETE REINFORCING BAR COVER SHALL BE AS INDICATED IN TABLE "CAST IN PLACE CONCRETE COVER FOR REINFORCING BARS."
6. TOLERANCES FOR PLACEMENT OF FORMS AND CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.

1. BARS FOR CAST IN PLACE AND PRECAST CONCRETE - ASTM A615M, GRADE 400 (60 KSI).
2. WELDED WIRE FABRIC - ASTM A185, FLAT SHEETS.
3. DETAILING OF REINFORCING SHALL BE IN ACCORDANCE WITH ACI 318 AND ACI 315.
4. LAP SPICE CONTINUOUS REBARS 30 DIAMETERS MINIMUM AT LOCATIONS INDICATED OR AS SHOWN ON PLANS. STAGGER LAP SPICES WHEN NOT SHOWN OTHERWISE.
5. PROVIDE WELDED WIRE FABRIC AS SHOWN ON PLANS. PLACE AND SUPPORT FABRIC AT DEPTHS SHOWN BELOW TOPS OF SLABS. OVERLAP ADJACENT SHEETS 200 mm MINIMUM.
6. SECURE ALL REBARS AND WELDED WIRE FABRIC IN CORRECT POSITION PRIOR TO PLACING CONCRETE. TOLERANCES FOR PLACEMENT OF REBARS SHALL BE IN ACCORDANCE WITH ACI 301.
7. INSTALL REINFORCING IN SLABS OVER INTERIOR SPACES PER 9/SI-3.

DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", JUNE 1, 1989 (AISC ASD MANUAL, 9TH EDITION), LATEST REVISION.

STEEL GRADES:

ANGLES AND MISCELLANEOUS PLATES – ASTM A36M ($F_y = 250\text{MPa}/36\text{ KSI}$),
STRUCTURAL TUBING (HSS) – ASTM A500, GRADE B
ROUND SECTIONS $F_y = 290\text{ MPa (42 KSI)}$
SHAPED SECTIONS $F_y = 317\text{ MPa (46 KSI)}$
ALL OTHER STRUCTURAL STEEL – ASTM A572M, GRADE 345 ($F_y = 345\text{ MPa}/50\text{ KSI}$).

ALL BOLTS SHALL BE 22.2 mm (7/8") DIA. (UNLESS NOTED OTHERWISE), HIGH STRENGTH, A325-N, FULLY TENSIONED. BOLTS AT BRACED FRAME CONNECTIONS SHALL BE ASTM A325-B. BOLT TIGHTNESS SHALL BE VERIFIED BY THE USE OF APPROVED DIRECT TENSION INDICATING WASHERS OR APPROVED TWIST OFF BOLTS. EMBEDDED ANCHOR BOLTS SHALL BE ASTM A307.

ALL WELDING SHALL BE IN ACCORDANCE WITH ANSI/AWS D1.1 STRUCTURAL WELDING CODE. WELDING ELECTRODES SHALL BE E70 SERIES.

EXCEPT AS OTHERWISE INDICATED ON DRAWINGS, ALL CONNECTIONS OF BEAMS TO COLUMNS SHALL BE BOLTED FRAMED BEAM CONNECTIONS (DOUBLE ANGLE) AS GIVEN IN TABLE II-A, PART 4, OF THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. CONNECTIONS OF BEAMS TO GIRDERS SHALL BE DOUBLE ANGLE OR SINGLE-PLATE CONNECTIONS (AISC "MANUAL", TABLE "X") AT THE CONTRACTOR'S OPTION. CONNECTIONS SHALL BE SIZED AND DESIGNED BY THE CONTRACTOR TO ACCOMMODATE, AS A MINIMUM, 1.25 TIMES THE UNFACTORED BEAM END REACTIONS INDICATED IN KILONEWTONS (kN) ON THE FRAMING PLANS (1 kN = 0.225 KIPS). WHERE NO REACTIONS ARE GIVEN: (1) CONNECTIONS FOR COMPOSITE BEAMS (BEAMS WITH WELDED SHEAR STUDS) SHALL BE SIZED TO SUPPORT A MINIMUM REACTION EQUAL TO 75% OF THE TOTAL UNIFORM LOAD CAPACITY FOR THE GIVEN BEAM ($F_y = 50\text{ KSI}$) BEAM SIZE AND SPAN TABULATED IN THE AISC MANUAL, PART 2, TABLE "ALLOWABLE LOADS ON BEAMS"; (2) CONNECTIONS FOR NON-COMPOSITE BEAMS SHALL BE SIZED TO SUPPORT A MINIMUM REACTION EQUAL TO 50% OF THE TOTAL UNIFORM LOAD CAPACITY FOR THE GIVEN BEAM SIZE AND SPAN IN THE ABOVE TABLES. REGARDLESS OF PLAN DESIGNATION, NO CONNECTION SHALL BE DESIGNED FOR LESS THAN 27 kN (6 KIPS). NATURAL CAMBER IN BEAMS SHALL BE INSTALLED CROWN UP.

SHOP CONNECTIONS SHALL BE WELDED AND FIELD CONNECTIONS SHALL BE WELDED OR BOLTED AS INDICATED OR APPROVED ON SHOP DRAWINGS.

NO SHOP WELD OR OTHER CONNECTION WILL BE PERMITTED UNLESS SHOWN ON APPROVED SHOP DRAWINGS.

THE ERECTOR SHALL PROVIDE ALL TEMPORARY SHORING AND BRACING REQUIRED FOR STABILITY UNTIL STRUCTURES ARE COMPLETE.

MINIMUM WELDS WHERE NOT SHOWN SHALL BE 6 mm (¼") FILLETS ALL AROUND. WELDED HEADED STUDS SHALL BE SPACED AS EVENLY AS POSSIBLE OVER THE LENGTHS OF BEAMS, AND AS EVENLY AS POSSIBLE OVER INDIVIDUAL SEGMENTS OF GIRDERS BETWEEN INTERSECTING BEAMS.

OPEN WEB STEEL JOISTS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE STEEL JOIST INSTITUTE (SJI) STANDARD SPECIFICATIONS FOR OPEN WEB STEEL JOISTS "K-SERIES" AND "CODE OF STANDARD PRACTICE", AND THE PROJECT SPECIFICATIONS. PROVIDE BRIDGING PER SJI REQUIREMENTS.

ALL JOISTS AND JOIST BRIDGING NOT UNDER CONCRETE FILL SHALL BE DESIGNED TO RESIST A MINIMUM OF 15 PSF NET UPLIFT.

ARCHITECTURALLY EXPOSED STEEL SHALL HAVE BLEMISHES THAT WILL SHOW FILLED AND GROUND SMOOTH. WELDS SHALL BE GROUND SMOOTH.

1. ALL DEFORMED AND UNDEFORMED COOL-ROLLED METAL DECK AT FLOORS AND ROOFS SHALL BE GALVANIZED STEEL (Z180 COATING), ASTM A653, DESIGNED IN ACCORDANCE WITH THE STEEL DECK INSTITUTE (SDI) "MANUAL FOR COMPOSITE DECKS, FORM DECKS, AND ROOF DECKS."
2. FLOOR DECK TO RECEIVE STRUCTURAL CONCRETE FILL SHALL BE AS SHOWN, WITH THE FOLLOWING MINIMUM PROPERTIES PER 300 mm (12") OF WIDTH.

76 mm (3") COMPOSITE TYPE	20 GA.	I = 390,000 mm ⁴ I = 0.91 IN ⁴	S = 9060 mm ³ S = 0.55 IN ³	F _y = 227 MPa F _y = 33 KSI
14 mm (9/16") FORM DECK	24 GA.	I = 7910 mm ⁴ I = 0.019 IN ⁴	S = 934 mm ³ S = 0.057 IN ³	F _y = 552 MPa F _y = 80 KSI

ROOF DECK SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES PER 300 mm (12") OF WIDTH.

38 mm (1-1/2") 20 GA.	I = 88,240 mm ⁴	S = 3835 mm ³	F _y = 227 MPa
TYPE WR	I = 0.21 IN ⁴	S = 0.23 IN ³	F _y = 33 KSI

VERTICALLY ORIENTED DECK AT UPPER LOBBY STUDWALL "SHEARWALLS" SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES PER 300 mm (12") OF WIDTH.

25 mm (1")	22 GA.	$I = 30,380 \text{ mm}^4$	$S = 2130 \text{ mm}^3$	$F_y = 552 \text{ MPa}$
FORM DECK		$I = 0.073 \text{ IN}^4$	$S = 0.13 \text{ IN}^3$	$F_y = 80 \text{ KSI}$

OTHER COMBINATIONS OF PROPERTIES AND YIELD STRENGTHS THAT PROVIDE EQUIVALENT PERFORMANCE MAY BE SUBMITTED FOR APPROVAL.

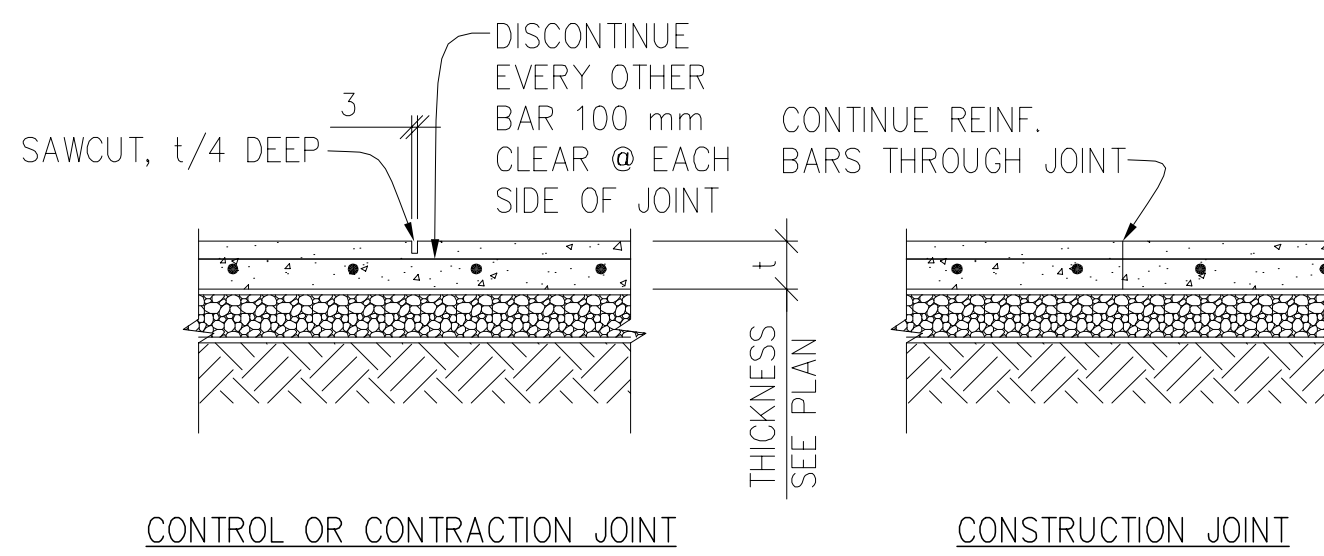
3. STEEL ROOF DECK IS REQUIRED TO ACT AS A DIAPHRAGM. REFER TO "TYPICAL ROOF STEEL DECK FASTENING DETAIL" FOR ATTACHMENT PATTERN.
4. DO NOT EXCEED MANUFACTURER'S RECOMMENDED UNSHORED SPANS DURING CONSTRUCTION. PROVIDE SHORING OR ADEQUATELY HEAVIER GAGE UNSHORED DECK.
5. ATTACH STEEL DECK AT 300 mm MAXIMUM ON CENTER TO SUPPORTS AT ALL SIDES OF OPENINGS, UNLESS INDICATED OTHERWISE.

NO PROVISION FOR SUPPORT OF FUTURE HORIZONTAL OR VERTICAL CONSTRUCTION IS MADE.

BAR DESIGNATION		NOMINAL DIAMETER		NOMINAL AREA	
*SOFT METRIC	I'PS SYSTEM	mm	IN.	mm ²	IN ²
#10	#3	9.5	3/8	71	0.11
#13	#4	12.7	1/2	129	0.20
#16	#5	15.9	5/8	199	0.31
#19	#6	19.1	3/4	284	0.44
#22	#7	22.2	7/8	387	0.60
#25	#8	25.4	1	510	0.79
#29	#9	28.7	1.128	645	1.00
#32	#10	32.3	1.270	819	1.27
#36	#11	35.8	1.410	1006	1.56
#43	#14	43.0	1.693	1452	2.25
#57	#18	57.3	2.257	2581	4.00

* DESIGNATION USED FOR REBARS IN THIS PROJECT

NOTE:
SEE E/GC-6 & A/GC-7 FOR GAS CONTROL MEMBRANE REQUIREMENTS.



S1-1

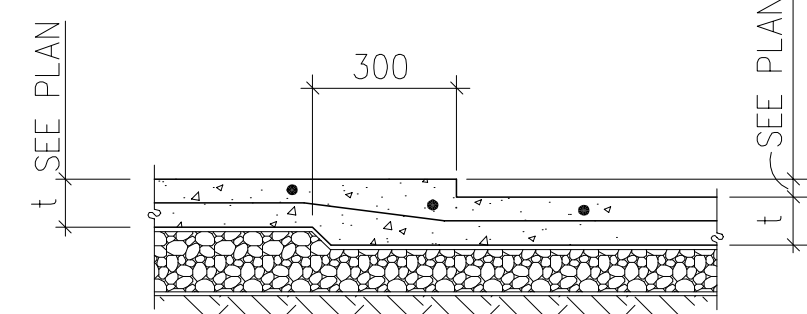
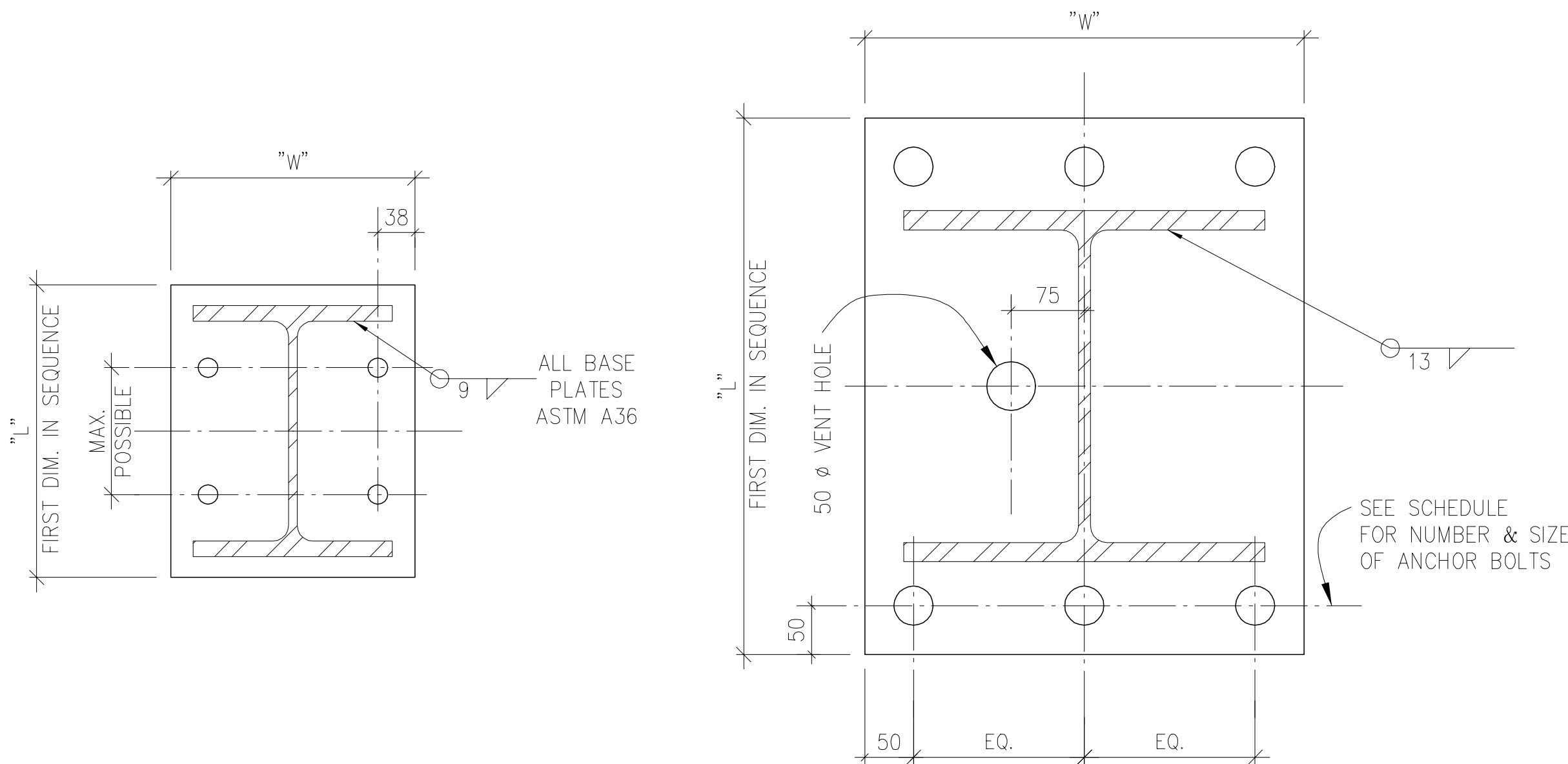


Diagram illustrating the detail of slab-on-deck conditions. The drawing shows a cross-section of a concrete slab with a 20 mm chamfer (TYP.) at the edge of equipment. A #10 reinforcement bar is shown, centered in a 100 mm slab. The bar is anchored with a 9.5Ø EXP. ANCHOR w/ 75 mm PROJECTION @ 600 mm O.C. A 100 mm dimension is indicated for the slab thickness. The drawing is labeled "SEE PLAN" and "AROUND PERIMETER".

NOTES:

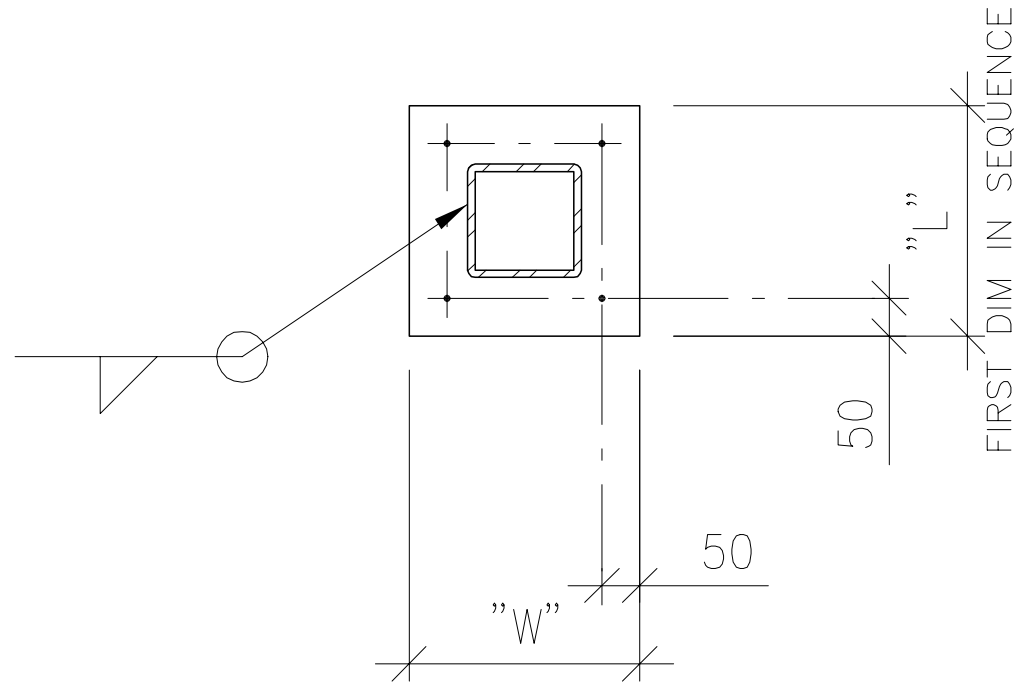
1. SEE MECHANICAL, ELECTRICAL, AND PLUMBING DWGS FOR SPECIFIC LOCATIONS.
2. SLAB-ON-GRADE CONDITION SHOWN. SLAB-ON-DECK CONDITIONS SIMILAR.

S1-1

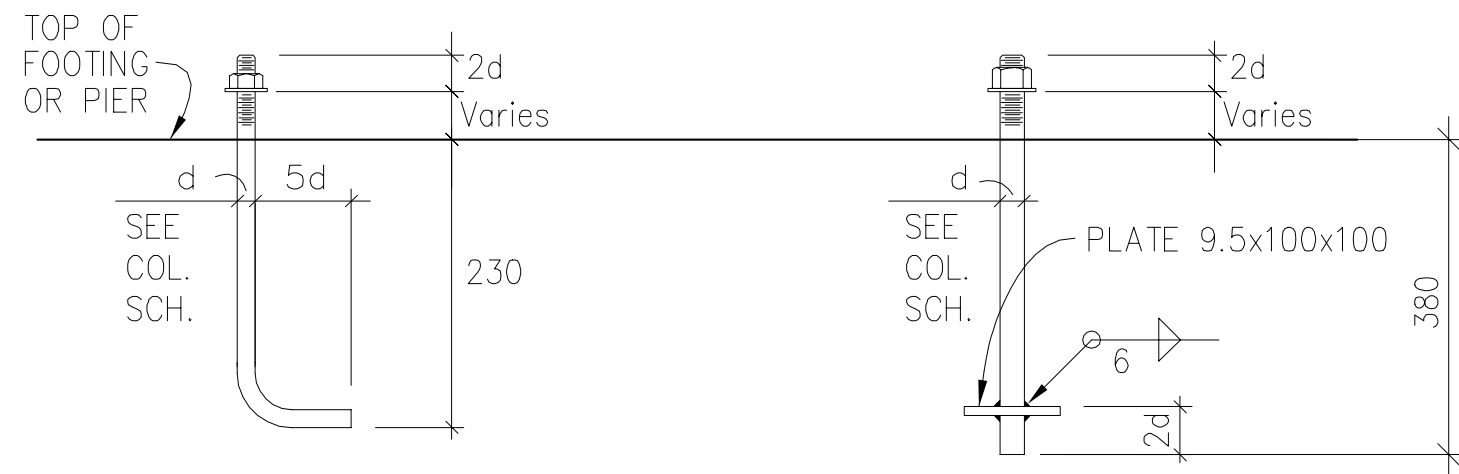


NON-BRACED FRAME COLUMNS
NO SCALE

BRACED FRAME COLUMNS
NO SCALE



S1-1



AT NON-B.F.
COLUMNS
(TYPE "A" & "C" BASEPLATES)

AT BRACED FRAME
COLUMNS
(TYPE "B" BASEPLATES)

1. ANCHOR BOLT AND PLATE MATERIAL SHALL CONFORM TO ASTM A307.
2. NUTS SHALL BE HEAVY HEX AND CONFORM TO ASTM A307.
3. ALL HOOKS SHALL BE BENT COLD.

S1-1

IF SHEET IS LESS THAN 28"x42", IT IS A REDUCED PRINT. SCALE REDUCED ACCORDINGLY.

MEDICAL/DENTAL CLINIC

GENERAL NOTES AND TYPICAL DETAILS

SIZE	CODE IDENT. NO.	DRAWING NO.
F	XXXXX	8144668
CONST. CONTR. NO.		
SCALE: AS SHOWN	SPEC. 11996048	SHEET 163 OF 316