STRUCTURAL GENERAL NOTES

1.0 LIVE LOADS USED IN DESIGN

1.1 ROOF LIVE 20 PSF
1.2 TYPICAL FLOOR 100 PSF
1.3 WIND DESIGN
1.3.1 WIND VELOCITY 165 MPH V 3S
1.3.2 WIND EXPOSURE D
1.3.3 HURRICANE RATED WINDOWS SHALL RESIST THE FOLLOWING PRESSURES:
POSITIVE 45 PSF, NEGATIVE 55 PSF
1.4 EARTHQUAKE ZONE 4 (UBC REFERENCE)
1.4.1 SEISMIC DESIGN CATEGORY D
1.4.2 SITE CLASS C/D
1.4.3 SPECTRAL RESPONSE ACCELERATIONS
Ss 1.4, S1 0.47
1.4.4 SPECTRAL RESPONSE COEFFICIENTS
Sds 0.84, SD1 0.752
1.5 FLOOD DATA: SEE SPECIFIC SITE NOTE

2.0 FOUNDATIONS

2.1 MAXIMUM SOIL DESIGN PRESSURE(ASSUMED) 3000 PSF
2.2 ALL FOOTINGS ARE TO BE PLACED ON FIRM, UNDISTURBED NATURAL GROUND, APPROVED BY THE ENGINEER. SEE SPECIFICATION FOR INFORMATION ON PILED FOUNDATIONS.
2.3 DO NOT PLACE BACKFILL AGAINST BASEMENT WALLS UNTIL BASEMENT AND FIRST FLOORS ARE IN PLACE.
2.4 CENTER ALL FOOTINGS UNDER WALLS, COLUMNS OR GRID LINES UNLESS OTHERWISE NOTED IN THE DRAWINGS
2.5 18" DIA. PILES TO DEVELOP 100 TONS SAFE WORKING LOAD. SET TO BE DETERMINED BASED ON CONTRACTORS PILING EQUIPMENT.
2.6 PILES MUST BE PLACED WITHIN 2" ON PLAN OF THE SPECIFIED POSITION.

3.0 CONCRETE

3.1 ALL CAST-IN-PLACE CONCRETE SHALL BE MADE WITH TYPE-2 PORTLAND CEMENT, STONE AGGREGATE AND SHALL DEVELOP 3000 PSI COMPRESSIVE STRENGTH IN 28-DAYS.
3.2 SLABS, TOPPINGS, FOOTINGS BEAMS AND WALLS SHALL NOT HAVE JOINTS IN HORIZONTAL PLANE. ANY STOP IN CONCRETE WORK MUST BE MADE AT CENTER OF SPAN WITH VERTICAL BULKHEADS AND SHEAR KEYS, UNLESS OTHERWISE SHOWN. ALL CONSTRUCTION JOINTS SHALL BE AS DETAILED OR AS APPROVED BY THE ENGINEER. SEE NOTE 4.0 BELOW.
3.3 ALL CONCRETE WORK AND REINFORCEMENT DETAILING SHALL BE IN ACCORDANCE WITH ACI BUILDING CODE 318-14. ALL EXPOSED EDGES OF CONCRETE WORK SHALL HAVE 1/2" MIN. CHAMFER. USE STANDARD HOOKS ON DOWELS UNLESS OTHERWISE NOTED.
3.4 MIXING, PLACING AND CURING OF ALL CONCRETE TO BE BY THE RECOMMENDATIONS IN ACI 305R-10, HOT WEATHER CONCRETING.
3.5 ALL CONCRETE SHALL BE MADE WITH GRACE DCI S CORROSION PROTECTING ADMIXTURE (EXCEPT CISTERN WALLS AND CISTERN GROUND SLABS) IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
3.6 PLACE JOINTS IN SLABS ON GRADE TO CREATE AREAS NO GREATER THAN 400 SQ. FT. COORIDNATE JOINT LOCATIONS W/ ARCHITECT TO MINIMISE IMPACT ON FLOOR FINISH. SAW CUTS CAN BE USED BUT MUST BE MADE WITHIN 3 HOURS OF PLACEMENT OF THE SLAB.

4.0 REINFORCEMENT

4.1 ALL REINFORCEMENT SHALL BE HIGH STRENGTH DEFORMED BARS CONFORMING TO ASTM A615-14 GRADE 60, EXCEPT TIES, STIRRUPS AND PLATE ANCHORS, WHICH SHALL BE ASTM DESIGNATION A615 / A615M - 14, GRADE 40 STEEL.

4.2 WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185-07 AND SHALL BE LAPPED ONE FULL MESH AT SIDES AND END SPLICES AND WIRED TOGETHER.
4.3 CONCRETE PROTECTION FOR REINFORCEMENT (REBAR-COVER)
4.3.1 CONCRETE CAST AGAINST EARTH AND PERMANENTLY EXPOSED TO EARTH 3"
4.3.2 CONCRETE CAST IN FORMS AND EXPOSED TO EARTH OR WEATHER 2"
4.3.3 CONCRETE NOT EXPOSED TO EARTH OR WEATHER
SLABS AND WALLS 1-1/2"
BEAMS AND COLUMNS -
PRIMARY REINFORCEMENT, TIES, STIRRUPS AND SPIRALS 1-1/2"
4.4 ALL BAR LENGTHS ARE DRAWN TO SCALE UNLESS OTHERWISE NOTED. NO SPLICES OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AUTHORIZED BY THE ENGINEER. LAP SPLICES WHERE PERMITTED SHALL BE A MINIMUM OF 48 BAR DIAMETERS. MAKE ALL BARS CONTINUOUS AROUND CORNERS AND ALL RECTANGULAR OPENINGS IN CONCRETE.

4.5 PLACE #5 BAR (1-QTY PER 6" THICKNESS) WITH 2'-0" PROJECTION AROUND ALL OPENINGS IN SLABS OR WALLS. ALSO PROVIDE 1- #5 x 4'-0" DIAGONALLY AT EACH CORNER.

4.6 CONTINUOUS TOP AND BOTTOM BARS IN WALLS AND BEAMS SHALL BE SPICED AS FOLLOWS:
4.6.1 TOP BARS AT MID-SPAN
4.6.2 BOTTOM BARS OVER SUPPORTS
4.7 PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCEMENT AT POSITIONS SHOWN IN THE DRAWINGS. ALL REINFORCEMENT TO BE HELD SECURELY IN PROPER POSITION IN ACCORDANCE WITH ACI 318-14. ALL ACCESSORIES TO BE GALVANIZED.
4.8 ANY WELDED REINFORCING BARS SHALL CONFORM TO ASTM A706 OR A615, GRADE 60 AND ANSI / AWS D1.4-11.

4.9 ALL TIES AND STIRRUPS SHALL BE 135° SEISMIC HOOKS IN ACCORDANCE WITH ACI 318-14

5.0 MASONRY

5.1 NOT USED.

6.0 STRUCTURAL STEEL

6.1 ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION A992 GRADE 50 EXCEPT PIPE COLUMNS WHICH SHALL CONFORM TO ASTM A53, AND TUBE COLUMNS TO ASTM A500, LATEST EDITIONS. ANCHOR BOLTS SHALL BE A307 STEEL AND MISCELLANEOUS EMBEDDED ITEMS SHALL BE A36 STEEL.
6.2 ALL STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC "STEEL CONSTRUCTION MANUAL". USE A325 BOLTS AND E60XX-SMAW WELD ROD FOR CONNECTIONS UNLESS OTHERWISE NOTED.
6.3 UNLESS OTHERWISE NOTED, USE STANDARD BEAM SEAT CONNECTIONS WITH STEEL BOLTS OR WELDED EQUIVALENT. SELECT CONNECTIONS AT EACH SPLICE TO SUPPORT 60% THE TOTAL UNIFORM LOAD CAPACITY FOR EACH GIVEN BEAM AND SPAN. USE A325 BOLTS UNLESS OTHERWISE NOTED.

6.4 MINIMUM WELDS TO BE BY AISC AND/OR AWS BUT NOT LESS THAN 3/16" CONTINUOUS FILLET UNLESS OTHERWISE NOTED.
6.5 PROVIDE ANCHORS FOR BEAMS BEARING ON MASONRY WHERE ANCHOR BOLTS ARE NOT SPECIFIED. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR NAILER HOLES, SPECIAL DETAILS AND MISCELLANEOUS STEEL.
6.6 PROVIDE TEMPORARY BRACING AND PRECAUTIONS NECESSARY TO WITHSTAND ALL CONSTRUCTION AND/OR WIND LOADS UNTIL ALL FIELD CONNECTIONS ARE COMPLETED AND SHEAR WALLS AND DECKS ARE IN PLACE.
6.7 STEEL JOISTS SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH STEEL JOIST INSTITUTE SPECIFICATIONS AND SHALL BE OF THE TYPE SHOWN IN THE DRAWINGS.
6.8 PROVIDED COMPRESSION FLANGE BRACING TO ALL PURLINS, GIRTS AND SIMILAR FRAMING MEMBERS AT MIDSPAN ON MEMBERS UP TO 20 FT AND AT 1/3 POINTS ON MEMBERS BETWEEN 20 FT AND 30 FT.

7.0 METAL DECK

7.1 DECK SHALL BE GALVANIZED STEEL G90 AND OF THE TYPE CALLED FOR ON THE FRAMING PLANS AND SHALL BE CONTINUOUS WHERE POSSIBLE. STEEL SHALL CONFORM TO ASTM A611
7.2 DECKING SHALL BE INSTALLED AND ALL OPENINGS IN DECKS CUT AND REINFORCED IN ACCORDANCE WITH MANUFACTURER'S STANDARD DETAILS AND SDI SPECIFICATIONS.

7.3 FASTENER REQUIREMENTS SHALL BE AS FOLLOWS, UNLESS OTHERWISE SHOWN IN THE DRAWINGS:
7.3.1 LONGITUDINAL JOINTS BETWEEN ADJACENT ROOF DECKS SHALL BE FASTENED TOGETHER WITH WELDS OR #12 TEK SCREWS AT 12". ROOF DECK ATTACHMENT SHALL BE 36/7 AT EAVES AND RIDGE AND 36/5 ELSEWHERE. USE 1/4" TEK SCREWS.
7.3.2 ATTACH FLOOR DECK (PERMANENT CONCRETE FORM) TO EACH INTERMEDIATE SUPPORT W/ 5/8" PUDDLE WELDS IN 36/4 PATTERN. EACH END LAP TO BE WELDED AT 10" O.C. EACH SIDE LAP IS WELDED AT EACH END PLUS TWO INTERMEDIATE WELDS (4 WELDS PER SHEET PER SIDE). USE 5/8" PUDDLE WELD AND WASHERS.

7.4 ALL CUT EDGES OF METAL DECKING SHALL BE SUITABLY SEALED OR COATED TO PROVIDE CORROSION PROTECTION.

8.0 LIGHT - GAGE METAL FRAMING

8.1 LIGHT-GAGE METAL FRAMING SHALL BE GALVANIZED G90 ACCORDING TO ASTM A525 AND OF THE SIZE AND GAGE SHOWN ON THE DRAWINGS.
8.2 FRAMING ROLLED FROM STEEL - 18 GAGE AND LIGHTER SHALL CONFORM TO ASTM A446, GRADE A, WITH A MINIMUM YIELD STRESS OF 33,000 PSI.
8.3 FRAMING FROM STEEL - GAGE 16 AND HEAVIER SHALL CONFORM TO ASTM A446, GRADE D WITH A MINIMUM YIELD STRESS OF 56,000 PSI.

9.0 DRY PACKING AND NON-SHRINK GROUT

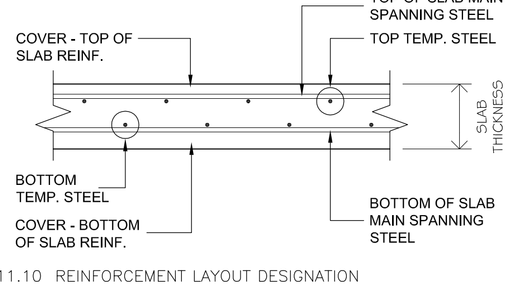
9.1 DRY PACK OR NON-SHRINK GROUT SHALL BE PROVIDED AS FOLLOWS:
9.1.1 BETWEEN COLUMNS BASES AND FOOTINGS
9.1.2 MATERIAL SHALL MEET CRD-C 621 AND BE NON-METALLIC
9.1.3 CURE MATERIAL 3-DAYS MINIMUM, BEFORE APPLICATION OF ANY SUPERIMPOSED LOADS.

10.0 TIMBER

10.1 ALL STRUCTURAL TIMBER SHALL BE SOUTHERN YELLOW PINE NO. 1 OR BETTER UNLESS SHOWN OTHERWISE. MINIMUM BENDING STRESS 1200 PSI, MODULUS OF ELASTICITY 1600 KSI AND SERVICE MOISTURE CONTENT OF NO MORE THAN 19%.
10.2 ALL STRUCTURAL PLYWOOD SHALL BE PRESSURE TREATED STRUCTURAL 1 EXTERIOR GRADE.
10.3 PROVIDE FULL DEPTH BLOCKING AT 8 FT CENTERS MAXIMUM FOR ALL FLOOR SPANS OVER 8 FT.
10.4 PROVIDE DOUBLE 2" x4" PURLINS AT EAVES AND RIDGE.
10.5 TONGUE AND GROOVE DECKING SHALL BE ATTACHED WITH 2 # 7 SCREWS x 2 1/2" LONG EACH BOARD AT EACH RAFTER. TONGUES FACING UP THE SLOPE.
10.6 PLYWOOD SHALL BE ATTACHED TO TONGUE AND GROOVE DECKING WITH # 7 SCREWS x 2 1/2" LONG @ 6" O/C ALONG EDGES AND 12" O/C AT INTERMEDIATE RAFTERS. STAGGER PLYWOOD EDGES RUNNING PARALLEL TO RAFTERS.
10.7 BUILDING FELT SHALL BE LAID PARALLEL TO THE EAVES WITH A MINIMUM 2' END LAP AND 6" LAP BETWEN LAYERS.
10.8 PURLINS SHALL BE ATTACHED THROUGH DECKING TO RAFTERS WITH #12 x 5" SCREWS TWO PER PURLIN AT EACH RAFTER.
10.9 METAL ROOFING SHALL BE 24GA MINIMUM AND ATTACHED TO PURLINS WITH # 14 SCREWS 21/4" LONG AT 4" O/C ALONG RIDGE, EAVES, GABLE AND HIPS AND AT 8" O/C ELSEWHERE. AROUND THE PERIMETER OF THE BUILDING AND AT HIPS AND RIDGES, SCREWS SHALL BE AT EACH CORRUGATION IN A STAGGERED PATTERN ENGAGING BOTH OF THE DOUBLED PURLINS.
OVERLAP CORRUGATED METAL PANELS AT LEAST 2 CORRUGATIONS ALONG SEAM AND APPLY A BEAD OF CALK AT THE OVERLAP.
10.10 USE GALVANIZED ROOFING SCREWS WITH NEOPRENE WASHERS ONLY AT RIDGES OF CORRUGATION

11.0 GENERAL

11.1 IF ANY CONDITIONS VARY FROM THE DRAWINGS OR THE CONTRACTOR REQUIRES FURTHER CLARIFICATION, ASK THE ARCHITECT AND SITE ENGINEER TO VERIFY. DO NOT PROCEED W/ ANY WORK WITHOUT AGREEMENT BETWEEN THE ARCHITECT AND SITE ENGINEER.
11.2 ENGINEER'S APPROVAL MUST BE SECURED FOR ALL STRUCTURAL SUBSTITUTIONS.
11.3 PRIOR TO INSTALLATION OF MECHANICAL AND ELECTRICAL EQUIPMENT OR OTHER ITEMS TO BE ATTACHED TO THE STRUCTURE, ENGINEER'S APPROVAL OF CONNECTIONS AND SUPPORTS SHALL BE OBTAINED. UNLESS OTHERWISE SPECIFICALLY DETAILED ON ARCHITECTURAL AND STRUCTURAL DRAWINGS, RESPECTIVE SUBCONTRACTOR SHALL FURNISH ALL HANGERS, CONNECTIONS, ETC. REQUIRED FOR INSTALLATIONS OF HIS ITEMS.
11.4 PROVIDE ALL EMBEDDED ITEMS IN STRUCTURE AS NOTED ON ARCHITECTURAL, MECHANICAL, ELECTRICAL AND STRUCTURAL DRAWINGS. MISCELLANEOUS EMBEDDED ITEMS AND ANCHOR BOLTS SHALL BE FURNISH BY STEEL SUPPLIER AND INSTALLED BY CONTRACTOR.
11.5 PROVIDE ASPHALTIC MASTIC COATINGS ON ALL STEEL EXPOSED TO THE EARTH.
11.6 SUBMIT SHOP AND ERECTION DRAWINGS FOR ALL REINFORCING, STEEL JOIST, STRUCTURAL STEEL AND METAL DECK TO ENGINEER FOR WRITTEN APPROVAL. THE MANUFACTURE OR FABRICATION OF ANY ITEMS PRIOR TO WRITTEN APPROVAL OF SHOP DRAWINGS SHALL BE AT ENTIRELY THE RISK OF THE CONTRACTOR.
11.7 ALL MAJOR STEEL AND STEEL JOIST SHOP DRAWINGS SUBMITTED SHALL INCLUDE CALCULATIONS AND BEAR THE STAMP OF A REGISTERED PROFESSIONAL ENGINEER.
11.8 CONTRACTOR TO VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH ANY WORK. DO NOT SCALE FROM DRAWINGS.
11.9 PLACE ALL CONDUIT AND SERVICES UNDER ALL SLABS ON GRADE. WHERE CONDUIT AND SERVICES ARE IN BEAMS, COLUMNS AND SUSPENDED SLABS ENSURE THAT MINIMUM COVER OF 1-1/2" TO ALL REINFORCEMENT IS MAINTAINED. DO NOT BUNDLE CONDUIT IN SLABS.



11.10 REINFORCEMENT LAYOUT DESIGNATION

11.11 TYPICAL LINTELS.
SMALL SPAN LINTELS ARE DEFINED AS HORIZONTAL SIMPLY SUPPORTED ELEMENTS SUPPORTING NO MORE THAN 4-FT OF 8" CMU MASONRY IN AN INTERIOR OR EXTERIOR AXIAL CONDITION AND NOT SUBJECT TO TORSION OR ASYMMETRIC LOADING.

LINTEL SCHEDULE

LINTEL	SIZE		REINFORCEMENT			SPAN (MAX.)
TYPE	WIDE	DEPTH	BOT.	TOP	TIES	
L-01	6 "	12 "	1 - #5	1 - #5	#3 @ 4" O.C.	5 FT
L-02	8 "	12 "	2 - #5	2 - #5	#3 @ 4" O.C.	5 FT
L-03	8 "	12 "	3 - #5	3 - #5	#3 @ 4" O.C.	10 FT

ABBREVIATIONS AND SYMBOLS

4 - #5	REBAR DESIGNATION IN A BEAM. QTY = 4 NO. BARS, #5 = 5/8" (INCH) DIAMETER
C-02	COLUMN REFERENCE NUMBER
CONC.	CONCRETE
DETL#	DETAIL REFERENCE NUMBER
DIA.	DIAMETER
EA.	EACH
E.W.	EACH WAY
F-04	FOOTING REFERENCE NUMBER
HORIZ.	HORIZONTAL
O.C.	ON CENTER
QTY	QUANTITY
REINF.	REINFORCING OR REINFORCEMENT
SSL : -	STRUCTURAL SLAB LEVEL
TEMP. STEEL	TEMPERATURE AND SHRINKAGE STEEL
VERT.	VERTICAL
W/	WITH
W12X256	WIDE FLANGE BEAM. STRUCTURAL BEAM
WWF.	WELDED WIRE FABRIC = STRUCTURAL MESH

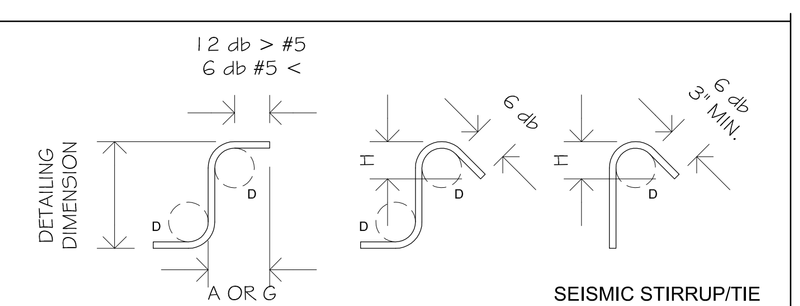
S# / S50X — DETAIL MARK / SECTION CUT
S X / S50X — DETAIL REFERENCE BUBBLE
TEXT 01 : -
TEXT 02 : -
ELEVATION : -
NOTE: - — DATUM TAG
25.000 FT [25.0 M] — SPOT LEVEL TAG
C.J.F. — COLUMN / FOOTING DESIGNATION
1 / A — GRID TAGS
5'-0" — STANDARD DIMENSION FORMAT
UP — RAMP / STAIR ARROW UP
#5 @ 8" O.C. BOT. — PRIMARY AND TEMPERATURE STEEL DESIGNATION - BOLD FONT
#5 x 10'-0" @ 8" O.C. TOP — TOP STEEL DESIGNATION - NOTES FONT

FLOOR SLAB ON GRADE - *TYPICAL FORMAT*
(SPECIFIC NOTE)
X" THICK CONC. SLAB
(TYPE) WWF IN CENTER OF SLAB

CISTERN SLABS - *TYPICAL FORMAT*
(SPECIFIC NOTE)
X" THICK CONC. SLAB
(TYPE) WWF IN CENTER OF SLAB

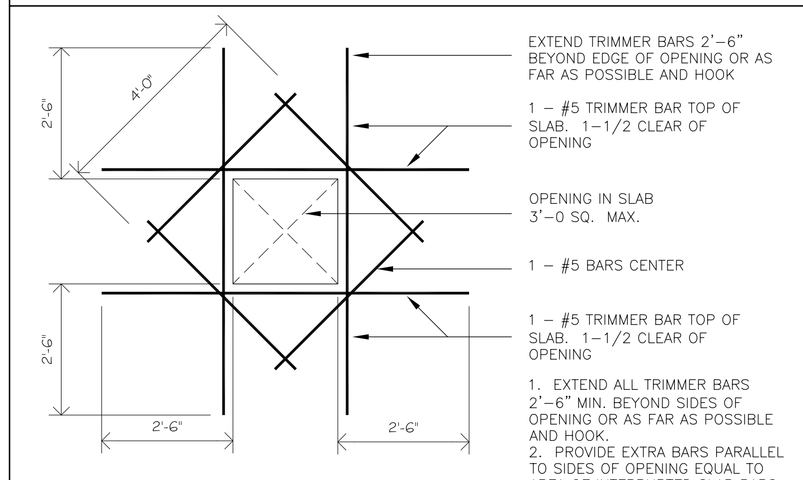
SCALE : N/A

STRUCTURAL NOTES

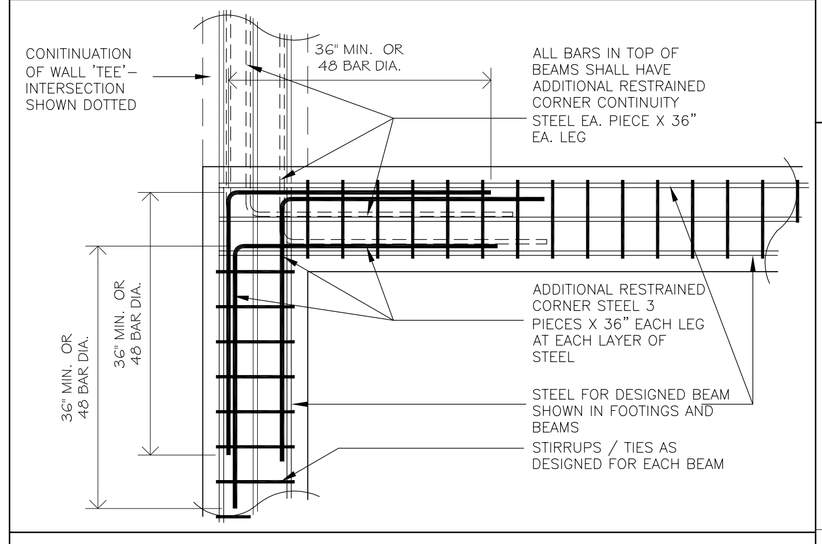


BAR SIZE	D	90° HOOK A OR G	135° HOOK A OR G	H approx.	SEISMIC STIRRUP/TIE 135° HOOK A OR G	H approx.
# 3	1-1/2"	4"	4"	3"	4-1/4"	3"
# 4	2"	4-1/2"	4-1/2"	4"	4-1/2"	3"
# 5	2-1/2"	6"	5-1/2"	5"	5-1/2"	3-3/4"
# 6	4-1/4"	12"	8"	6"	8"	4-1/2"
# 7	5-1/4"	14"	9"	7"	9"	5-1/4"
# 8	6"	16"	10-1/2"	8"	10-1/2"	6"

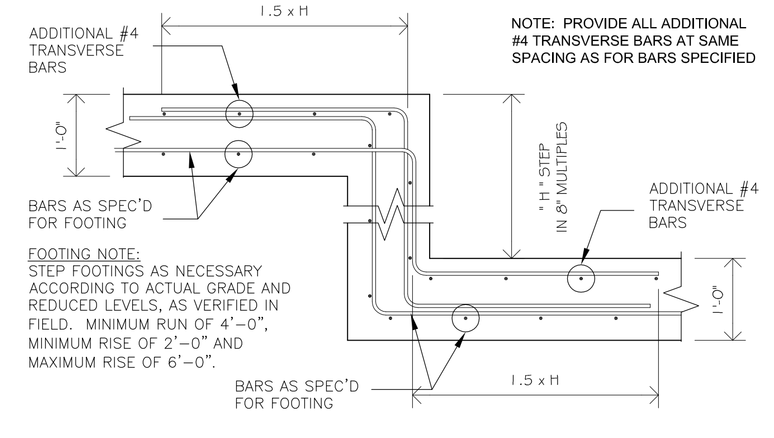
STIRRUPS AND TIES



OPENING IN SLABS

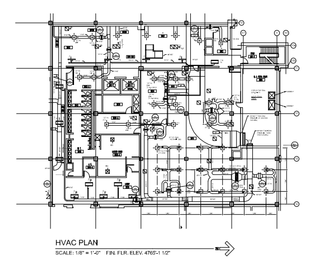


PLAN: RESTRAINED CORNER AND 'TEE'



PROFILE OF FOOTING

STEPPED FOOTING - TYPICAL



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NOTES

01	DO NOT USE THIS DRAWING FOR CONSTRUCTION UNLESS THE WORDS "CONSTRUCTION SET" APPEARS IN THE REVISIONS COLUMN
02	

A. O. SHIRLEY RECREATIONAL
GORUND: GRANDSTAND
ROAD TOWN
TORTOLA
BVI

FOR CONSTRUCTION

REV #	DESCRIPTION	DWN	YYMMD
01	CONSTRUCTION ISSUE	RT	19072
A	PRELIM ISSUE TO ARCH. / PM	RT	19052

ISSUE INFORMATION.	01
DESIGNER:	RT
DRAWN:	BM
JOB REF:	
DATE:	19 05 24
SCALE:	AS NOTED
DWG NAME:	STRUCTURAL NOTES
DWG NO:	S-001

VERS. 5.1 - 08122(