
Building B
building
A
Proposed site of
Canopy (Yellow)
Climate Controlled
U-HAUL
SELF-STORAGE

GENERAL NOTES

GENERAL DESIGN: CANOPY DESIGN TO BE HIP STRUCTURE. SHOP DRAWINGS MUST BE APPROVED BY U-HAUL CONSTRUCTION DEPARTMENT PRIOR TO ORDER/MANUFACTURE.

DESIGN LOADS:
DESIGN TO MEET OR EXCEED THE REQUIREMENTS OF THE 2006 IBC, AND/OR LOCAL GOVERNING CODE. REFER TO SHOP DRAWINGS FOR PROJECT SPECIFIC DESIGN/ENGINEERING AND GEOGRAPHICAL CONDITIONS FOR LIVE LOADS.

NOTES:
DESIGN STRUCTURE TO 5 PSF SNOW LOAD. FABRIC TOP TO BE REMOVED IF SNOW ACCUMULATION IS ANTICIPATED.
FABRIC TOP TO BE REMOVED IF WINDS EXCEEDING 90 MPH ARE ANTICIPATED.

STRUCTURAL STEEL SHALL CONFORM TO AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICES.

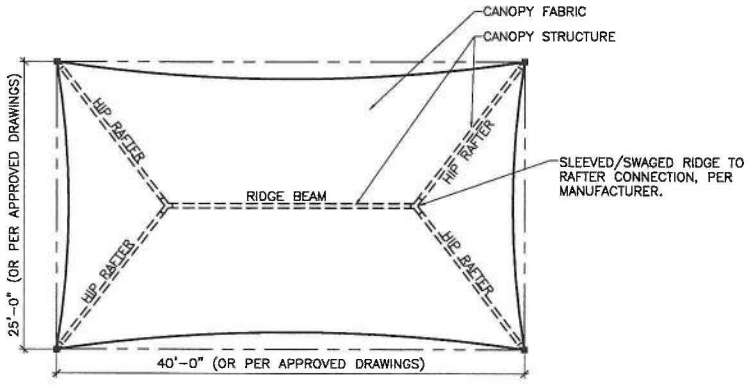
STEEL MATERIAL SCHEDULE:

ITEMS	SPECIFICATIONS
HSS TUBE STEEL	ASTM A500, GRADE B.
ROUND HSS OR STEEL PIPE	ASTM A500, GRADE B OR ASTM A53, GRADE B.
ROUND STEEL TUBING	ASTM A500
GUSSET PLATES	ASTM A36
HEX BOLTS	ASTM A325
NUTS	ASTM A563
WASHERS	ASTM F436
REINFORCING STEEL	ASTM A615, GRADE 60 (GALVANIZED)
ANCHOR RODS	ASTM F1554 GRADE 55 (GALVANIZED)
WELDING ELECTRODES	E70XX

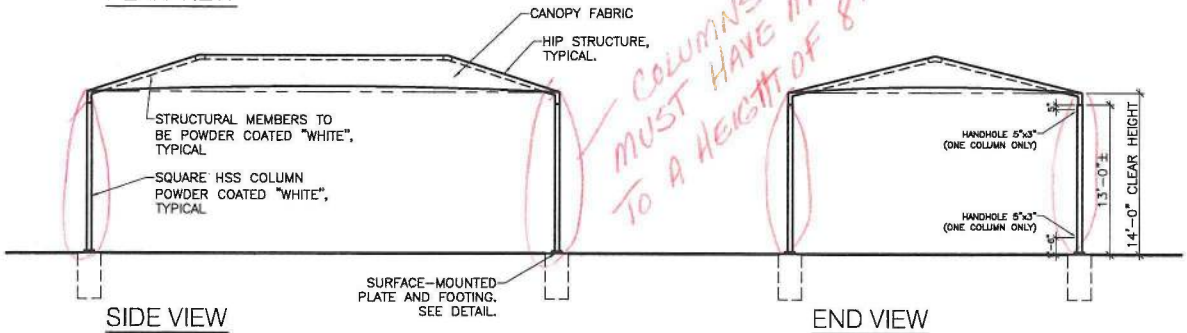
ALL WELDING SHALL CONFORM TO AWS D1.1

FABRIC: **USE "KNITTEX®" COLOURSHADE** OR FABRIC IN LIKE AND KIND PER LOCAL CANOPY MANUFACTURER. APPROVED COLORS ARE "RAINFOREST" AND "ROYAL BLUE" ("KNITTEX" COLORS). COLOR MUST BE APPROVED BY U-HAUL CONSTRUCTION DEPARTMENT BASED ON FACILITY LOCATION. FABRIC TO BE U.V. STABILIZED HIGH DENSITY POLYETHYLENE, WITH MONOFILAMENT YARN AND TAPE CONSTRUCTION AND LOCK-STITCH KNITTED TO ENSURE MATERIAL WILL NOT TEAR, FRAY OR UNRAVEL IF CUT.

STEEL CABLE: CABLE TO BE 3/8"ø, 7X19 STRAND CORE GALVANIZED WIRE ROPE WITH A BREAKING STRENGTH VALUE OF 14,000 LBS. GALVANIZED STEEL CABLE CLAMPS.
CABLES SHALL BE FED THROUGH THE FABRIC SLEEVES AROUND THE PERIMETER OF THE CANOPY AND TENSIONED UNTIL THE FABRIC PANEL (DESIGNED PURPOSELY UNDERSIZED) REACHES A TAUNT APPEARANCE.



PLAN VIEW



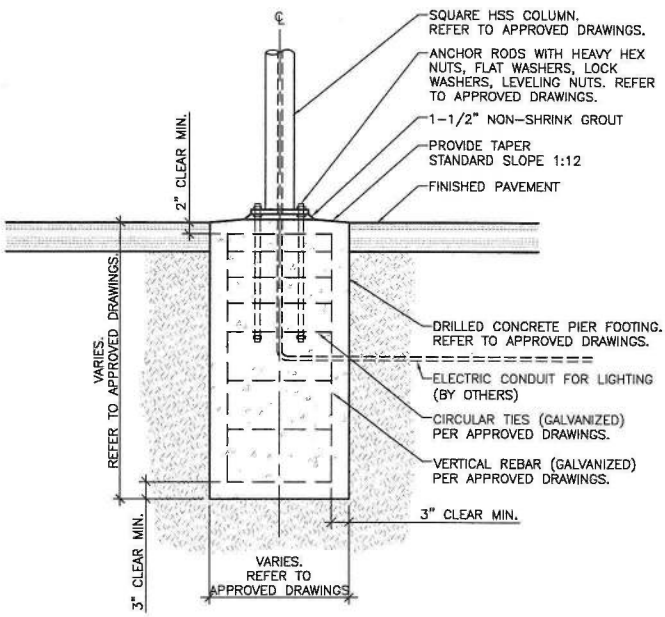
COLUMNS MUST HAVE MASONRY TO A HEIGHT OF 8'

SIDE VIEW

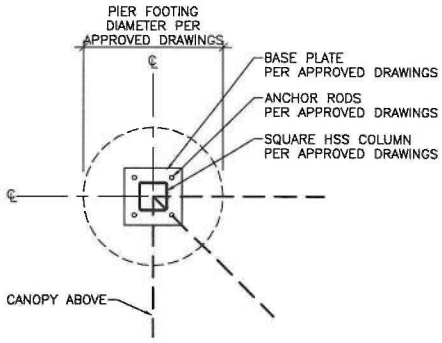
END VIEW

NON-CANTILEVERED FREESTANDING CANOPY

A NON-CANTILEVERED CANOPY IS TYPICALLY USED AT D&R AREAS, OR WHERE ROOF RUN-OFF DOES NOT REQUIRE REDIRECTION.



FOOTING DETAIL - SECTION



FOOTING DETAIL - PLAN VIEW

AMERCO
REAL ESTATE COMPANY

FREESTANDING CANOPY

FILE NAME: Freestanding Canopy.dwg		SHEET:
SECTION #: -		-
REVISED: 01/08/10		
SCALE: N.T.S.	© 2010 AMERCO REAL ESTATE COMPANY	DETAIL

CONSTRUCTION & RENOVATION - 2727 NORTH CENTRAL AVENUE, 9-NORTH - PHOENIX, ARIZONA 85004 PH:(602)263-6502 FAX: (602) 277-1026

20 X 40

DESIGN CRITERIA

1. ALL STRUCTURAL WORK SHALL CONFORM TO THE STRUCTURAL DRAWINGS AND SPECIFICATIONS AND MEET THE REQUIREMENTS OF THE 200X INTERNATIONAL BUILDING CODE AND THE APPLICABLE BUILDING CODE AMENDMENTS. THE ARCHITECTURAL DRAWINGS SHALL GOVERN ALL DIMENSIONS.

2. OCCUPANCY CATEGORY: I

3. ROOF LIVE LOADS:
   - BASIC ROOF LIVE LOAD 5 PSF

4. SNOW LOADS:
   - GROUND SNOW LOAD (Pg) XX PSF
   - FLAT ROOF SNOW LOAD (Pf) XX PSF
   - SNOW EXPOSURE FACTOR, Ce 1.0
   - SNOW LOAD IMPORTANCE FACTOR, Is 0.80
   - THERMAL FACTOR, Ct 1.2

5. WIND LOADS:
   - BASIC WIND SPEED (3-SECOND GUST) XXX MPH
   - WIND IMPORTANCE FACTOR, Iw 1.0
   - WIND EXPOSURE "C"
   - COMPONENTS AND CLADDING PRESSURE
     ROOF 14.5 PSF

6. EARTHQUAKE LOADS:
   - SEISMIC IMPORTANCE FACTOR, Ie 1.0
   - MAPPED SPECTRAL RESPONSE ACCELERATION, Ss X.XX %g
   - MAPPED SPECTRAL RESPONSE ACCELERATION, S1 X.XX %g
   - SITE CLASS (ASSUMED) D
   - SPECTRAL RESPONSE COEFFICIENT, SDs X.XX %g
   - SPECTRAL RESPONSE COEFFICIENT, SD1 X.XX %g
   - SEISMIC DESIGN CATEGORY A
   - BASIC SEISMIC-FORCE-RESISTING SYSTEM ORMSW
   - SEISMIC RESPONSE COEFFICIENT, Cs X.XX
   - RESPONSE MODIFICATION FACTOR, R 2
   - DESIGN BASE SHEAR, V X.XX KIP
   - ANALYSIS PROCEDURE USED EQUIV. LATERAL FORCE

7. SEE PLANS FOR ADDITIONAL LOADING CRITERIA.

GENERAL CONDITIONS

1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, HANGERS, INSERT ANCHORS, HOLES, AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL SAFETY PRECAUTIONS AND REGULATIONS DURING THE WORK. THE ENGINEER WILL NOT ADVISE ON, NOR ISSUE DIRECTION, AS TO SAFETY PRECAUTIONS AND PROGRAMS.

3. METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY AND STABILITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION. THE STRUCTURE SHOWN ON THE DRAWINGS HAS BEEN DESIGNED FOR STABILITY UNDER THE FINAL CONFIGURATION ONLY.

4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO FABRICATION OF ANY STRUCTURAL COMPONENTS. IMMEDIATELY NOTIFY THE ENGINEER AND/OR ARCHITECT OF ANY DISCREPANCIES FOUND DURING FIELD VERIFICATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING THE WORK.

5. CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ENGINEER AND/OR ARCHITECT FOR APPROVAL PRIOR TO FABRICATION OF ANY STRUCTURAL COMPONENTS. ALL CHANGES REQUIRE THE WRITTEN APPROVAL OF THE ENGINEER AND/OR ARCHITECT. UNAUTHORIZED DEVIATIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

6. THE CONTRACTOR SHALL SHORE OR CRIB THE STRUCTURE FOR ALL CONSTRUCTION LOADS WHICH EXCEED THE NOTED DESIGN LOADS. DO NOT APPLY ANY ERECTION OR CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND UNTIL ALL TEMPORARY BRACING IS IN PLACE.

7. ALL STRUCTURAL WORK THAT IS COMPOSED OF COMPONENTS DESIGNED BY OTHERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS AND SUPERVISED BY THE MANUFACTURER'S REPRESENTATIVE(S) DURING THE MANUFACTURING, DELIVERY, HANDLING, STORAGE, AND ERECTION AS REQUIRED.

8. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO APPROVAL BY THE ENGINEER.

9. ALL ASTM AND OTHER REFERENCES ARE PER THE LATEST EDITIONS OF THOSE STANDARDS, UNLESS OTHERWISE NOTED.

10. COORDINATE ALL CONSTRUCTION ACCESS AND OPERATIONS FOR ALL WORK THAT OCCURS ADJACENT TO AN EXISTING STRUCTURE AS NECESSARY TO AVOID DISRUPTION TO SAID STRUCTURE.

11. ALL STRUCTURAL CONSTRUCTION DOCUMENTS (DRAWINGS, DETAILS, CALCULATIONS, AND ALL OTHER STRUCTURAL INFORMATION) PROVIDED ARE THE PROPERTY OF U-HAUL INTERNATIONAL / AMERCO REAL ESTATE (U-HAUL) AND ARE FOR USE ON THIS PROJECT ONLY. ANY OTHER USE OF THE STRUCTURAL CONSTRUCTION DOCUMENTS IS STRICTLY PROHIBITED WITHOUT THE WRITTEN PREMISSION OF U-HAUL.

12. THE SCOPE OF SERVICES CARRIED OUT BY U-HAUL DOES NOT INCLUDE A FIELD REVIEW DURING CONSTRUCTION UNLESS OTHERWISE AGREED UPON IN WRITING. THE CONSTRUCTION DOCUMENTS ARE ISSUED WITH THE UNDERSTANDING THAT THE CONTRACTOR IS SOLELY RESPONSIBILITY FOR VERIFING ALL WORK IS CARRIED OUT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND THAT ANY DISCREPANCIES OR OMISSIONS WILL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND ENGINEER.

13. IF DRAWINGS AND CALCULATIONS ARE PROVIDED ELECTRONICALLY; COPIES OF THE ORIGINAL CONSTRUCTION DOCUMENTS AS DESIGNED BY U-HAUL HAVE BEEN RETAINED BY U-HAUL. U-HAUL IS NOT RESPONSIBILITY FOR ANY SUBSEQUENT CHANGES TO THE REPRODUCIBLE ORIGINAL CONSTRUCTION DOCUMENTS (I.E. DOCUMENTS PROVIDED ELECTRONICALLY) WHICH ARE NOT MADE OR OTHERWISE COMMUNICATED IN WRITING BY U-HAUL.

SHOP DRAWINGS / DEFERRED STRUCTURAL SUBMITTALS

1. THE CONTRACTOR SHALL SUBMIT A MINIMUM OF THREE COPIES OF THE FOLLOWING SHOP DRAWINGS (MAXIMUM SCALE 1/8: = 1'-0") TO THE ARCHITECT/ENGINEER PRIOR TO THE FABRICATION OF ANY STRUCTURAL COMPONENTS (ONE COPY TO BE RETAINED BY THE ARCHITECT AND ENGINEER). AS A MINIMUM, ALL SHOP DRAWING SUBMITTALS SHOULD INCLUDE PLANS, ELEVATIONS, SECTIONS, DETAILS OF INSTALLATION AND CONNECTIONS, AND MATERIAL SPECIFICATIONS, UNLESS OTHERWISE NOTED.

2. SHOP DRAWINGS AND OTHER ITEMS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW PRIOR TO FABRICATION. BEFORE BEING SUBMITTED FOR REVIEW, ALL SHOP DRAWINGS SHALL BE CHECKED BY THE FABRICATOR AND BEAR THE CHECKER'S INITIALS AND SHALL BE REVIEWED BY THE CONTRACTOR FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND HAVE AN APPROVAL STAMP PLACED ON EACH SHOP DRAWING INDICATING SUCH. ANY SHOP DRAWING NOT CHECKED OR REVIEWED BY THE FABRICATOR AND CONTRACTOR PRIOR TO BEING SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW MAY BE REJECTED AND RETURNED WITHOUT REVIEW.

3. IN NO CASE SHALL REPRODUCTION OF THE CONTRACT DRAWINGS BE USED AS SHOP DRAWINGS.

4. DESIGN AND DETAILING SHALL BE PERFORMED USING RATIONAL ENGINEERING DESIGN PRACTICES AND BE BASED ON STANDARD PRACTICES IN ACCORDANCE WITH CONSTRUCTION DOCUMENTS AND THE BUILDING CODE AND ALL APPLICABLE BUILDING CODE AMENDMENTS.

5. THE ENGINEER'S REVIEW IS TO VERIFY CONFORMANCE WITH DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE PERTINENT CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO REVIEW, CHECK, AND COORDINATE THE SHOP DRAWINGS PRIOR TO SUBMISSION. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, DIMENSIONS, ETC.

6. AS A MINIMUM, SUBMIT THE FOLLOWING ITEMS FOR REVIEW:

   - REINFORCING STEEL IN REINFORCED CONCRETE AND MASONRY CONSTRUCTION – INCLUDE DETAILS OF ALL BENT BARS, VERTICAL REINFORCING AND HORIZONTAL BOND BEAM REINFORCING. INCLUDE PLANS AND ELEVATIONS AS REQUIRED TO CLEARLY SHOW ALL REINFORCING.

   - ALL CONCRETE CONSTRUCTION – SUBMIT A CONCRETE MIX DESIGN FOR EACH CONCRETE STRENGTH. AS A MINIMUM, EACH DESIGN SHALL INCLUDE PROPORTIONS OF CEMENT, FINE AND COURSE AGGREGATES, AND WATER, GRADATION OF COMBINED AGGREGATES, AND CONCRETE COMPRESSIVE TEST RESULTS. CERTIFICATION SHALL BE FROM AN ACCEPTABLE TESTING LABORATORY.

   - STRUCTURAL STEEL – IF STEEL CANOPY IS NOT PROVIDED BY U-HAUL, SUBMIT SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED (CALCULATIONS ONLY) BY A QUALIFIED PROFESSIONAL ENGINEER. CALCULATIONS SHALL INCLUDE AS A MINIMUM, ALL LOADS, STRESSES, AND DEFLECTIONS ASSOCIATED WITH EACH MEMBER AND/OR CONNECTION.

SHOP DRAWINGS / DEFERRED STRUCTURAL SUBMITTALS (con't)

7. OTHER SUBMITTALS MAY BE REQUIRED PER THE SPECIFICATIONS OR THE SEPARATE NOTES CONTAINED HEREIN.

8. TEMPORARY OR PERMANENT SYSTEMS OR FRAMING MEMBERS THAT ARE NOT SPECIFICALLY DESIGNED, DETAILED, OR SPECIFIED IN THE CONTRACT DOCUMENTS BUT ARE REQUIRED TO COMPLETE THE FINISHED STRUCTURE, SHALL BE DESIGNED AND DETAILED BY OR UNDER THE DIRECTION OF A QUALIFIED PROFESSIONAL ENGINEER. ALL REQUESTED SUBMITTALS FOR THESE SYSTEMS OR FRAMING MEMBERS SHALL BE SIGNED AND SEALED BY SAID QUALIFIED PROFESSIONAL ENGINEER.

9. ALL SIGNED AND SEALED SHOP DRAWINGS AND/OR CALCULATIONS THAT ARE REQUIRED TO BE SUBMITTED FOR REVIEW SHALL BE DONE BY OR UNDER THE DIRECTION OF A QUALIFIED PROFESSIONAL ENGINEER.

10. A QUALIFIED PROFESSIONAL ENGINEER IS A PROFESSIONAL ENGINEER WHO IS LEGALLY REGISTERED AND LICENSED TO PROVIDE ENGINEERING SERVICES IN THE JURISDICTION IN WHICH THE PROJECT IS LOCATED AND WHO IS EXPERIENCED IN PROVIDING ENGINEERING SERVICES RELATED TO THE WORK SUBMITTED. SAID ENGINEER SHALL BE CAPABLE OF PERFORMING DESIGN AND DETAILING USING RATIONAL ENGINEERING DESIGN PRACTICES BASED ON STANDARD PRACTICES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, THE BUILDING CODE, AND ALL APPLICABLE BUILDING CODE AMENDMENTS.

FOUNDATION DESIGN

1. ASSUMED GEOTECHNICAL INFORMATION:
   - ALLOWABLE SOIL PRESSURE 1,500 PSF

2. FOOTINGS SHALL BEAR AT LEAST XX" BELOW LOWEST ADJACENT FINISHED GRADE. FOOTING DEPTHS/ELEVATIONS SHOWN ON THE DRAWINGS ARE MINIMUM AND FOR GUIDANCE ONLY; THE ACTUAL ELEVATIONS OF FOOTINGS MUST BE ESTABLISHED BY THE CONTRACTOR IN THE FIELD.

3. ALL FOOTINGS SHALL BEAR ON UNDISTURBED, FIRM NATURAL SOIL OR COMPACTED FILL CAPABLE OF SUPPORTING THE DESIGN BEARING PRESSURE NOTED HEREIN.

4. ALL SOIL SURROUNDING AND BENEATH ALL FOOTINGS, SLABS, ETC. SHALL BE PROTECTED AGAINST FROST OR FREEZING DURING CONSTRUCTION.

5. CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR FOUNDATION DESIGN WHEN A GEOTECHNICAL REPORT IS NOT PROVIDED TO THE ARCHITECT AND/OR ENGINEER.

6. CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ONSITE SOIL CONDITIONS.

7. THE CONTRACTOR SHOULD EMPLOY A PROFESSIONAL GEOTECHNICAL ENGINEER TO INSPECT THE FOUNDATIONS AND BEARING LEVELS AND VERIFY THAT THE MATERIAL ON WHICH THE FOUNDATIONS WILL BEAR HAS AT LEAST THE ABOVE NOTED CAPACITY AND GIVE RECOMMENDATIONS FOR SUBGRADE PREPARATION. STRICTLY FOLLOW GEOTECHNICAL ENGINEER'S RECOMMENDATIONS FOR SUBBASE AND FOOTING BEARING MATERIAL AND PREPARATION AS REQUIRED.

8. IMMEDIATELY NOTIFY THE ENGINEER AND/OR ARCHITECT IF UNSUITABLE SOIL OR SOIL CONDITIONS AT VARIANCE WITH THE GEOTECHNICAL REPORT IS DISCOVERED AT THE FOOTING ELEVATIONS SPECIFIED.

9. THE EXISTENCE OF UNDERGROUND STRUCTURES AND/OR UTILITIES IS NOT KNOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE OWNER OR NECESSARY AUTHORITIES THE LOCATIONS OF ALL EXISTING UNDERGROUND STRUCTURES AND/OR UTILITIES.

10. WHERE FOOTINGS ARE IN CLOSE PROXIMITY OF SEWERS, DRAINS, CONDUITS, PIPES, ETC., THE BOTTOM OF FOOTING SHALL BE SET AT OR BELOW THE INVERT ELEVATION OF THE ADJACENT ELEMENT.

CAST-IN-PLACE CONCRETE

1. ALL REINFORCED CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE BUILDING CODE AND APPLICABLE AMENDMENTS AND THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) OF THE AMERICAN CONCRETE INSTITUTE.

2. ALL REINFORCED CONCRETE MIX DESIGNS SHALL BE PERFORMED IN ACCORDANCE WITH THE BUILDING CODE AND APPLICABLE AMENDMENTS AND THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE" (ACI 301) OF THE AMERICAN CONCRETE INSTITUTE.

3. ALL REINFORCING STEEL FABRICATION AND PLACEMENT SHALL BE PERFORMED IN ACCORDANCE WITH THE BUILDING CODE AND APPLICABLE AMENDMENTS AND THE "MANUAL OF STANDARD PRACTICE" (CRSI MSP-1) OF THE CONCRETE REINFORCING STEEL INSTITUTE AND THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) AND "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (ACI 315) OF THE AMERICAN CONCRETE INSTITUTE.

4. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE (144 PCF+) CONFORMING TO ASTM C94 WITH ALL CEMENT CONFORMING TO ASTM C150, TYPE I OR II. MAXIMUM AGGREGATE SIZE SHALL BE 1-1/2" FOR FOOTINGS AND 3/4" FOR WALLS AND SLABS, CONFORMING TO ASTM C33.

5. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) AT 28 DAYS, SLUMP AND MAXIMUM WATER/CEMENT RATIO REQUIREMENTS:
   - ALL CONCRETE 3000 PSI 2" - 4" SLUMP* W/C RATIO = .58

6. OBTAIN EACH TYPE OF CEMENT OF THE SAME BRAND FROM THE SAME MANUFACTURER'S PLANT, EACH AGGREGATE FROM ONE SOURCE, AND EACH ADMIXTURE FROM THE SAME MANUFACTURER.

7. ALL CONCRETE EXPOSED TO WEATHER SHALL HAVE ENTRAINED AIR IN ACCORDANCE WITH SECTION 1904 OF THE IBC.

8. FOR AIR ENTRAINED CONCRETE - MAXIMUM W/C RATIO = .44

9. ALL GROUT SHALL BE NONMETALLIC SHRINKAGE-RESISTANT GROUT PROVIDED BY A MANUFACTURER APPROVED IN WRITING BY THE STRUCTURAL ENGINEER AND INSTALLED AND MIXED PER THE MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS. ALL GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) AT 28 DAYS EQUAL TO 5000 PSI.

10. REINFORCEMENT:
    - DEFORMED BARS ASTM A615, GRADE 60
    - GALVANIZED REINFORCEMENT ASTM A767, CLASS II

11. REINFORCING STEEL SHALL HAVE THE FOLLOWING MINIMUM CLEAR CONCRETE COVER UNLESS OTHERWISE NOTED:
    - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
    - CONCRETE SURFACES IN CONTACT WITH SOIL OR EXPOSED TO
    - EARTH OR WEATHER (#6 BARS OR LARGER) 2"
      (#5 BARS OR SMALLER) 1-1/2"
    - COLUMN TIES OR SPIRALS AND BEAM STIRRUPS 1-1/2"
    - CONCRETE SURFACES NOT IN CONTACT WITH SOIL OR EXPOSED TO WEATHER INCLUDING WALLS AND TOP AND BOTTOM OF SLABS 1"

12. WELDING OF REINFORCING BARS IS PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. IF WELDING OF REINFORCING IS NECESSARY, IT SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.4. REINFORCING STEEL FOR WELDED ASSEMBLIES SHALL CONFORM TO ASTM A706 SPECIFICATIONS.

13. SPLICED BARS SHALL HAVE A MINIMUM LAP OF CLASS B TENSION LAP SPLICE PER TYPICAL DETAILS.

14. GALVANIZED REINFORCING SHALL BE TREATED TO PREVENT REDUCTION OF BOND. OTHERWISE PROVIDE SPLICE LENGTHES EQUIVILANT TO EPOXY COATED REINFORCING.

15. ALL REINFORCING STEEL INDICATED AS BEING CONTINUOUS (CONT.) ON THE PLANS AND DETAILS SHALL BE LAPPED WITH A CLASS B SPLICE OR 36 x BAR DIAMETER (WHICHEVER IS GREATER) UNLESS OTHERWISE NOTED.

16. REINFORCING BARS TO EXTEND 12 BAR DIAMETERS BUT NOT LESS THAN 12" BEYOND BAR BENDS, UNLESS OTHERWISE NOTED.

17. PROVIDE ADDITIONAL BARS AS SHOWN IN TYPICAL DETAILS.

18. ALL REINFORCING STEEL SHALL BE SET AND TIED IN PLACE PRIOR TO POURING OF CONCRETE. NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE ENGINEER IN WRITING.

19. PROVIDE CORROSION RESISTANT ACCESSORIES SUCH AS PLASTIC COATED (NOT PLASTIC TIPPED) OR STAINLESS STEEL CHAIRS IN ALL EXPOSED CONCRETE CONSTRUCTION. PRECAST CONCRETE CHAIRS OR SAND PLATE CHAIRS SHALL BE USED FOR THE SUPPORT OF REINFORCING ON GRADE. CONCRETE BLOCK OR CLAY MASONRY BRICK ARE NOT PERMITTED.

20. ALL EXPOSED CORNERS OF CONCRETE TO HAVE 3/4" MINIMUM CHAMFER UNLESS OTHERWISE NOTED.

21. CONCRETE SHALL BE DISCHARGED AT THE SITE WITHIN 1-1/2 HOURS AFTER WATER HAS BEEN ADDED TO THE CEMENT AND AGGREGATE. ADDITION OF WATER TO THE MIX AT THE PROJECT SITE IS STRICTLY PROHIBITED. ALL WATER MUST BE ADDED AT THE BATCH PLANT ONLY.

22. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL CONCRETE OPENINGS AND/OR PENETRATIONS REQUIRED FOR OTHER TRADES PRIOR TO PLACING CONCRETE.

23. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR REGLETS, PIPE SLEEVES, CONDUITS OR OTHER ITEMS TO BE EMBEDDED OR PASSED THROUGH CONCRETE.

CONCRETE/MASONRY ANCHORS

1. EXPANSION BOLTS INTO CONCRETE AND CONCRETE MASONRY UNITS SHALL BE KWIK BOLT TZ (ICC ESR-1917) AS MANUFACTURED BY THE HILTI CORP. OR AN APPROVED EQUIVALENT IN STRENGTH AND EMBEDMENT.

2. ADHESIVE ANCHORS SHALL BE HIT-RE 500-SD (ICC ESR-2322) INTO CONCRETE AND HIT HY 150 MAX (ESR-1967) INTO MASONRY AS MANUFACTURED BY THE HILTI CORP. OR AN APPROVED EQUIVALENT IN STRENGTH AND EMBEDMENT.

3. ALL ANCHORS SHALL BE INSTALLED WITH STEEL WASHERS.

4. WHEN USING ADHESIVE ANCHORING SYSTEMS THE MANUFACTURER SHALL SUPPLY THE ANCHOR AND ADHESIVE, UNLESS OTHERWISE NOTED.

5. ALL ALTERNATE PRODUCTS SHALL HAVE A CURRENT ICC EVALUATION REPORT.

6. ANCHORS INSTALLED INTO MASONRY UNITS SHALL BE INTO FULLY GROUTED CELLS UNLESS OTHERWISE NOTED. IF GROUTED CELLS ARE NOT ENCOUNTERED, BREAK INTO CELL AND GROUT SOLID 8".

7. ALL ANCHORS SHALL BE APPROVED FOR USE WITH CRACKED CONCRETE AND CONFORM TO CURRENT ICC ES REPORT (ICC-ES AC193 FOR MECHANICAL ANCHORS AND ICC-ES AC308 FOR ADHESIVE ANCHORS).

8. INSTALL ALL ANCHORS IN STRICT ACCORDANCE WITH ALL APPLICABLE ICC-ES AND BUILDING CODE REQUIREMENTS. ALL ANCHOR SPACING, EMBEDMENT, EDGE DISTANCE, AND INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. REFER TO SECTIONS AND DETAILS ON THE DRAWINGS FOR ADDITIONAL INFORMATION.

9. ALL PERSONNEL INSTALLING MECHANICAL/ADHESIVE ANCHORS SHALL BE TRAINED BY THE PRODUCT MANUFACTURER ON PROPER INSTALLATION TECHNIQUES. TRAINING DOCUMENTATION FROM THE MANUFACTURER SHALL BE AVAILABLE UPON REQUEST.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE BUILDING CODE AND APPLICABLE AMENDMENTS AND WITH THE "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (1989 EDITION) OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.

2. ALL STRUCTURAL STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE BUILDING CODE AND APPLICABLE AMENDMENTS AND WITH THE 13TH EDITION OF THE "STEEL CONSTRUCTION MANUAL" OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.

3. GRADE OF STEEL

• OTHER SHAPES, PLATE, AND BARS	ASTM A36
• HOLLOW STRUCTURAL SHAPES (HSS)	ASTM A500, GRADE B
• STEEL PIPE	ASTM A53 TYPE E, GR. B
• GALVANIZED STRUCTURAL STEEL	
STRUCTURAL SHAPES AND RODS	ASTM A123
BOLTS, FASTENERS AND HARDWARE	ASTM A153
• ANCHOR RODS	ASTM F1554, GR. 36
• THREADED ROD	ASTM A36

4. ALL FIELD CONNECTIONS SHALL USE BOLTS, UNLESS OTHERWISE NOTED. ALL SHOP AND FIELD INSTALLED BOLTS SHALL BE 3/4" DIA ASTM A325 TYPE N BOLTS IN STANDARD HOLES, AND SNUG TIGHT, UNLESS OTHERWISE NOTED. ALL BOLTED CONNECTIONS SHALL HAVE 2 BOLTS MINIMUM, UNLESS OTHERWISE NOTED.

5. HARDENED WASHERS CONFORMING TO ASTM F436 SHALL BE USED AT A325 BOLTS AND A490 BOLTS USED IN FRICTION CONNECTION AND OVERSIZED AND SHORT SLOTTED HOLES. 5/16" THICK PLATE WASHERS OF STRUCTURAL GRADE MATERIAL SHALL BE USED AT LONG SLOTTED HOLES. WASHERS SHALL HAVE A SIZE SUFFICIENT TO COMPLETELY COVER THE SLOT AFTER INSTALLATION.

6. ALL MODIFICATIONS REQUIRED FOR OTHER TRADES SHALL BE SHOWN ON THE SHOP DRAWINGS, AND MADE DURING SHOP FABRICATION. FIELD BURNING OF STRUCTURAL STEEL IS PROHIBITED.

7. ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE-STEEL". WELDING FILLER METAL SHALL BE AWS A5.1 OR A5.5 E70XX LOW HYDROGEN ELECTRODES. WELDERS SHALL BE AWS CERTIFIED. SUBMIT COPY OF ALL CERTIFICATIONS TO THE ENGINEER. SURFACES TO BE WELDED SHALL BE WIRE BRUSHED CLEAN BEFORE WELDING.

8. ALL EXTERIOR METAL FABRICATIONS EXPOSED TO WEATHER SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.

SPECIAL STRUCTURAL INSPECTIONS

1. THE OWNER WILL HIRE AN INSPECTION AGENCY OR RETAIN THE ENGINEER OF RECORD TO PERFORM ALL REQUIRED SPECIAL INSPECTIONS AND TEST.

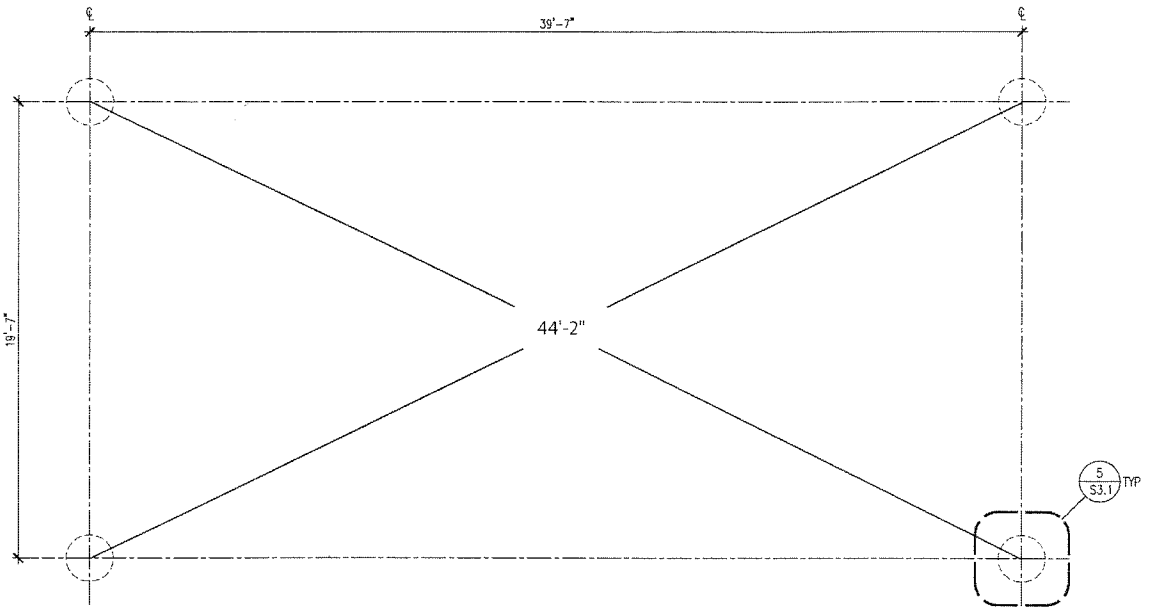
2. SPECIAL STRUCTURAL INSPECTIONS SHALL BE CONDUCTED AND DOCUMENTED AS PER CHAPTER 17 OF THE IBC AND ALL APPLICABLE AMENDMENTS FOR THE FOLLOWING ITEMS OR AS REQUIRED BY THE BUILDING OFFICIAL:

    - STEEL CONSTRUCTION
      STEEL CONSTRUCTION MINIMUM SPECIAL INSPECTION: GENERAL CONFORMANCE AND BOLTS ONLY; ALL WELDING TO BE PRE-QUALIFIED SHOP WELDS WHERE POSSIBLE, PERFORMED IN A SHOP AND BY A WELDER THAT IS AWS CERTIFIED. ALL STEEL FABRICATORS THAT ARE NOT PRE-APPROVED BY THE BUILDING OFFICIAL SHALL BE INSPECTED IN ACCORDANCE WITH SECTION 1704.2 OF THE IBC.
    - CONCRETE CONSTRUCTION
    - ANCHOR BOLTS IN PRE-DRILLED HOLES IN CONCRETE OR IN MASONRY
    - SITE SOIL CONDITIONS (AS REQUIRED; SEE FOUNDATION DESIGN NOTES)

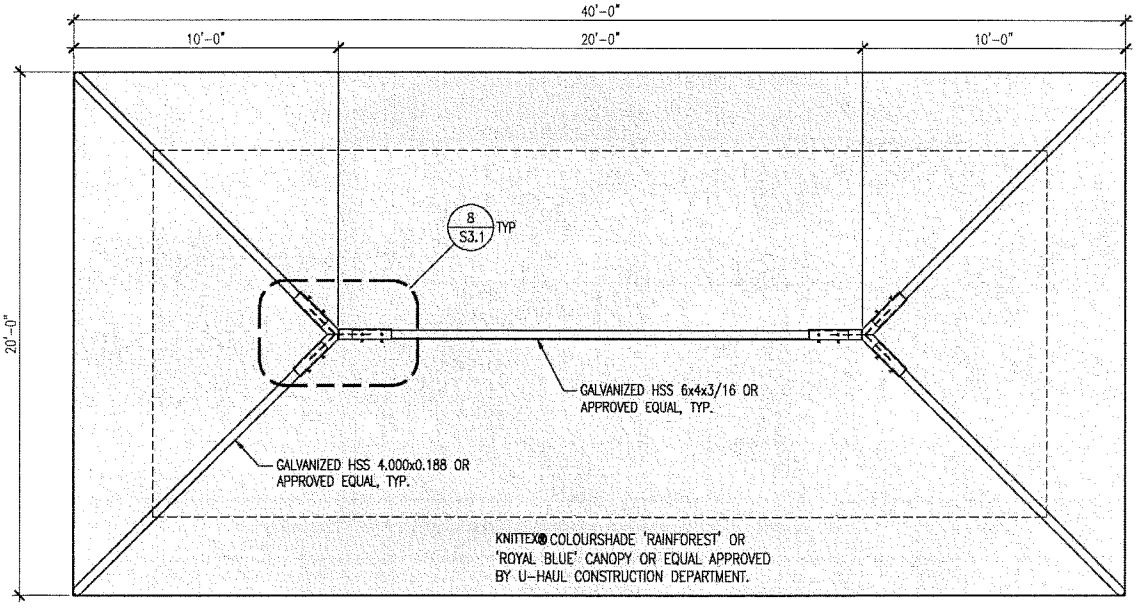
3. ALL SPECIAL INSPECTIONS SHALL BE CONDUCTED BY A QUALIFIED SPECIAL INSPECTOR AS DETERMINED BY THE BUILDING OFFICIAL AND/OR PERFORMED UNDER THE SUPERVISION OF THE ENGINEER OF RECORD.

4. A STATEMENT OF SPECIAL STRUCTURAL INSPECTION IN ACCORDANCE WITH SECTION 1705 OF THE IBC SHALL BE SUBMITTED TO THE BUILDING OFFICIAL PRIOR TO BEGINNING OF ANY SPECIAL STRUCTURAL INSPECTIONS BY THE SPECIAL INSPECTOR.

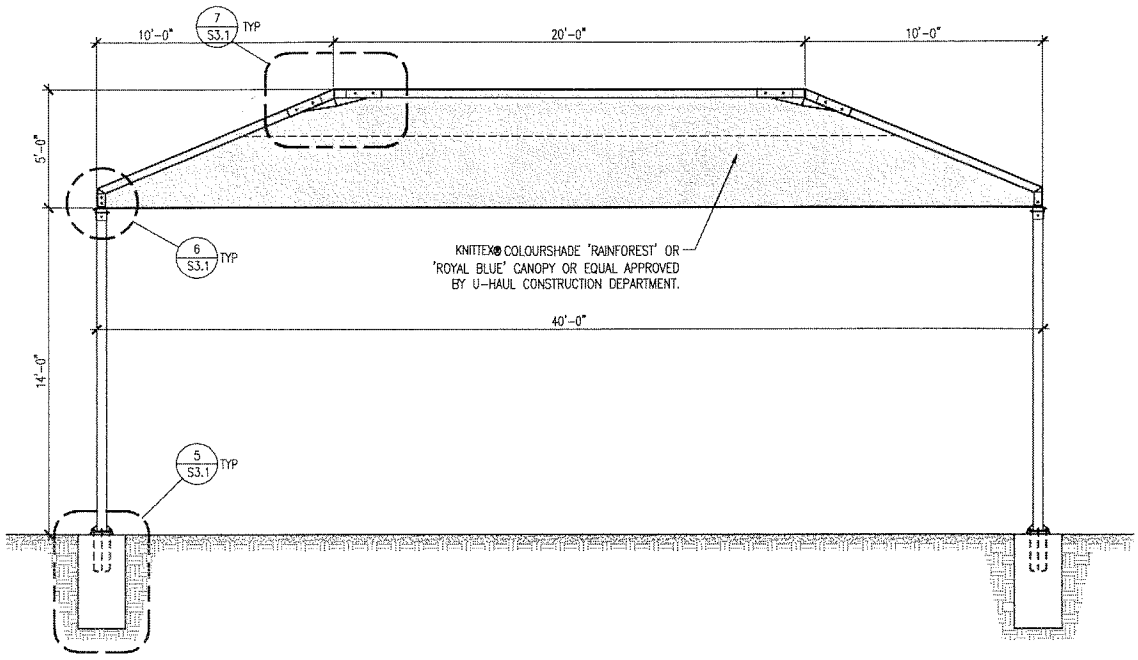
5. SPECIAL STRUCTURAL INSPECTION REPORTS SHALL BE FURNISHED TO THE BUILDING OFFICIAL AND THE ENGINEER OF RECORD IN ACCORDANCE WITH SECTION 1704 OF THE IBC.



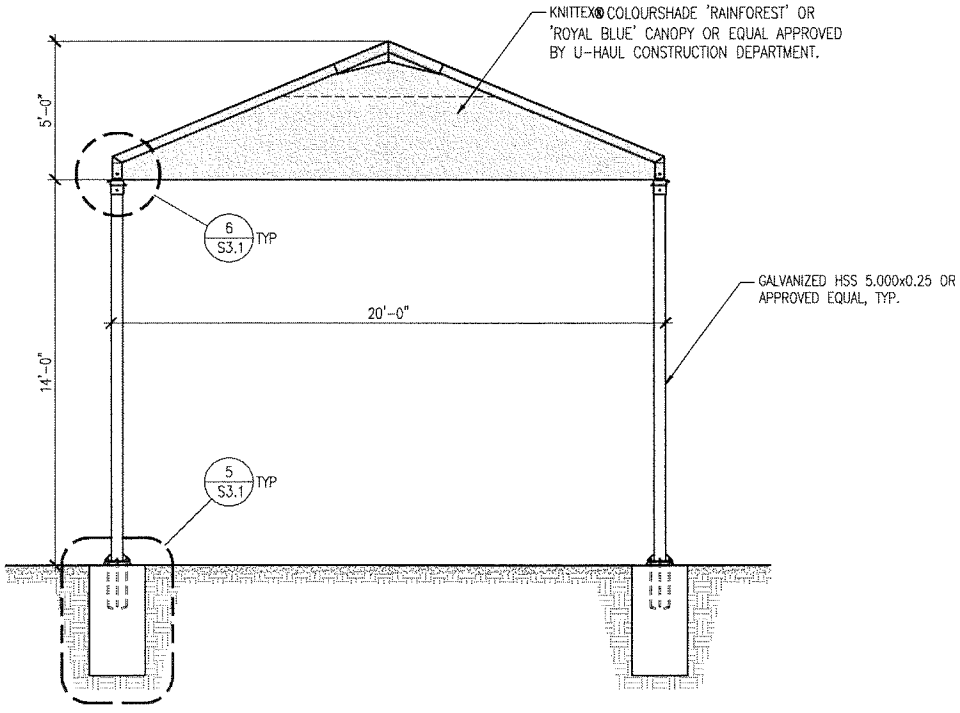
1 20'x40' STEEL CANOPY FOUNDATION PLAN SCALE: 1/4" = 1'-0"



2 20'x40' STEEL CANOPY PLAN SCALE: 1/4" = 1'-0"



3 20'x40' STEEL CANOPY SIDE ELEVATION SCALE: 1/4" = 1'-0"



4 20'x40' STEEL CANOPY SIDE ELEVATION SCALE: 1/4" = 1'-0"

LAP SPLICE LENGTHS (IN.)

BAR SIZE	LAP CLASS	LENGTHS (IN.)																							
		2500 PSI				3000 PSI				3500 PSI				4000 PSI				4500 PSI				5000 PSI			
		TOP BARS [5]		OTHER BARS		TOP BARS [5]		OTHER BARS		TOP BARS [5]		OTHER BARS		TOP BARS [5]		OTHER BARS		TOP BARS [5]		OTHER BARS		TOP BARS [5]		OTHER BARS	
		CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2
#3	A	24	36	18	27	22	33	17	25	20	30	16	23	19	28	15	22	18	27	14	21	17	25	13	20
	B	31	46	24	36	28	42	22	33	26	39	20	30	25	37	19	28	23	35	18	27	22	33	17	25
#4	A	32	47	24	36	29	43	22	33	27	40	21	31	25	37	19	29	24	35	18	27	23	34	17	26
	B	41	61	32	47	38	56	29	43	35	52	27	40	33	49	25	37	31	46	24	35	29	44	23	34
#5	A	39	59	30	45	36	54	28	42	33	50	26	39	31	47	24	36	30	44	23	34	28	42	22	32
	B	51	77	39	59	47	70	36	54	43	65	33	50	41	61	31	47	38	57	30	44	36	54	28	42
#6	A	47	71	36	54	43	65	33	50	40	60	31	46	37	56	29	43	35	53	27	41	34	50	26	39
	B	61	92	47	71	56	84	43	65	52	78	40	60	49	73	37	56	46	69	35	53	44	65	34	50
#7	A	69	103	53	79	63	94	48	72	58	87	45	67	54	81	42	63	51	77	40	59	49	73	38	56
	B	89	134	69	103	81	122	63	94	75	113	58	87	71	106	54	81	67	100	51	77	63	95	49	73
#8	A	78	117	60	90	72	107	55	83	66	99	51	77	62	93	48	72	59	88	45	68	56	83	43	64
	B	102	153	78	117	93	139	72	107	86	129	66	99	81	121	62	93	76	114	59	88	72	108	56	83
#9	A	88	132	68	102	81	121	62	93	75	112	58	86	70	105	54	81	66	99	51	76	63	94	48	72
	B	115	172	88	132	105	157	81	121	97	146	75	112	91	136	70	105	86	128	66	99	81	122	63	94
#10	A	100	149	77	115	91	136	70	105	84	126	65	97	79	118	61	91	74	111	57	86	71	106	54	81
	B	129	194	100	149	118	177	91	136	109	164	84	126	102	153	79	118	96	144	74	111	92	137	71	106
#11	A	110	165	85	127	101	151	78	116	93	140	72	108	87	131	67	101	82	123	64	95	78	117	60	90
	B	143	215	110	165	131	196	101	151	121	182	93	140	114	170	87	131	107	160	82	123	102	152	78	117
#14	N/A [4]	133 [4]	199 [4]	102 [4]	153 [4]	121 [4]	181 [4]	93 [4]	140 [4]	112 [4]	168 [4]	86 [4]	129 [4]	105 [4]	157 [4]	81 [4]	121 [4]	99 [4]	148 [4]	76 [4]	114 [4]	94 [4]	141 [4]	72 [4]	108 [4]
#18	N/A [4]	177 [4]	265 [4]	136 [4]	204 [4]	161 [4]	242 [4]	124 [4]	186 [4]	149 [4]	224 [4]	115 [4]	172 [4]	140 [4]	209 [4]	108 [4]	161 [4]	132 [4]	197 [4]	101 [4]	152 [4]	125 [4]	187 [4]	96 [4]	144 [4]

1 LAP SPLICE SCHEDULE FOR UNCOATED CONCRETE REINFORCING BARS

Detail Notes:

1. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL WEIGHT CONC.

2. TENSION LAP-SPLICE LENGTHS ARE CALCULATED PER ACI 318, SECTIONS 12.15. TABULATED VALUES FOR BEAMS OR COLUMNS ARE BASED ON TRANSVERSE REINFORCEMENT AND CONCRETE COVER MEETING MIN. CODE REQUIREMENTS.

3. CASES 1 AND 2, WHICH DEPEND ON THE TYPE OF STRUCTURAL ELEMENT, CONCRETE COVER, AND CENTER-TO-CENTER SPACING OF THE BARS ARE DEFINED AS:
   BEAM OR COLUMNS:
   CASE 1 - COVER AT LEAST 1.0 db AND CENTER-TO-CENTER SPACING AT LEAST 2.0 db
   CASE 2 - COVER LESS THAN 1.0db OR CENTER-TO-CENTER SPACING LESS THAN 2.0 db.
   ALL OTHERS:
   CASE 1 - COVER AT LEAST 1.0 db AND CENTER-TO-CENTER SPACING AT LEAST 3.0db.
   CASE 2 - COVER LESS THAN 1.0 db OR CENTER-TO-CENTER SPACING LESS THAN 3.0 db

4. ACI 318 DOES NOT ALLOW LAP SPLICES OF #14 OR #18 BARS. THE TABULATED VALUES FOR THOSE BAR SIZES ARE THE TENSION DEVELOPMENT LENGTHS.

5. TOP BARS ARE HORIZ. BARS WITH MORE THAN 12 IN. OF CONCRETE CAST BELOW THE BARS.

6. FOR GRADE 40 REINFORCING BARS, MULTIPLY TABULATED VALUES BY 0.67 (12" LAP MIN.). FOR LIGHT WEIGHT CONC., MULTIPLY TABULATED VALUES BY 1.3.

LAP–SPLICE LENGTH FOR UNCOATED REINFORCING BARS						
	LENGTHS (IN.)					
	SINGLE MAT			DOUBLE MAT		
BARSIZE	1500 PSI	1800 PSI	2000 PSI	1500 PSI	1800 PSI	2000 PSI
#3	19	17	17	19	17	17
#4	25	23	22	31	29	27
#5	31	29	27	49	45	42
#6	53	48	46	98	90	85
#7	67	61	58	133	122	116
#8	93	85	81	186	170	161
#9	119	108	103	237	216	205

NOTES:
1. LAP–SPLICE LENGTHS ARE CALCULATED PER 2006 IBC 2107.5.
2. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS.
3. FOR GRADE 40 REINFORCING BARS MULTIPLY TABULATED VALUES BY 0.67 (15" LAP MIN).
4. MECHANICAL SPLICE REQUIRED FOR BAR SIZES GREATER THAN #9.
   (MECHANICAL SPLICES SHALL DEVELOP 125% OF THE TENSILE STRENGTH OF THE BAR)

2 LAP SPLICE SCHEDULE FOR MASONRY REINFORCING BARS

SCALE: NO SCALE

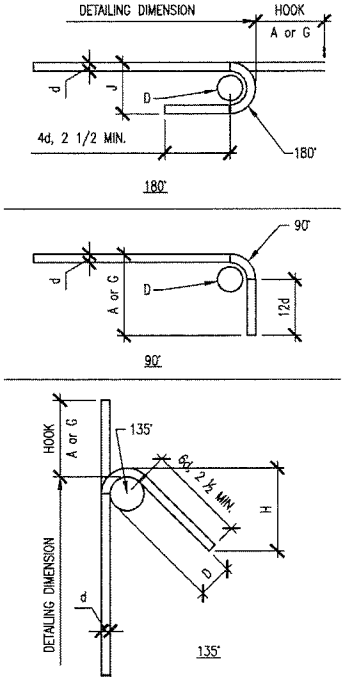
RECOMMENDED END HOOKS (ALL GRADES) D=FINISHED BEND DIAMETER

BAR SIZES	180° HOOKS			90° HOOKS
	D (in.)	A or G	J	A or G
#3	2 1/4	5	3	6
#4	3	6	4	8
#5	3 3/4	7	5	10
#6	4 1/2	8	6	1-0
#7	5 1/4	10	7	1-2
#8	6	11	8	1-4
#9	9	1-3	11 3/4	1-7
#10	10 1/4	1-5	1-0 3/4	1-10
#11	11 1/4	1-7	1-2 3/4	2-0
#14	17	2-3	1-8 1/2	2-7
#18	22 3/4	3-0	2-3 3/4	3-5

SEISMIC STIRRUP/TIE HOOK DIMENSIONS (ALL GRADES)

BAR SIZES		135° HOOKS		90° HOOKS
	D (in.)	A or G	H APPROX.	A or G
#3	1 1/2	4 1/4	3	4
#4	2	4 1/2	3	4 1/2
#5	2 1/2	5 1/2	3 3/4	6
#6	4 1/2	8	4 1/2	8
#7	5 1/4	9	5 1/4	9
#8	6	10 1/2	6	10

ALL SPECIFIC SIZES RECOMMENDED BY CRSI BELOW MEET MINIMUM REQUIREMENTS OF ACI 318



3 REINFORCING STANDARD HOOKS

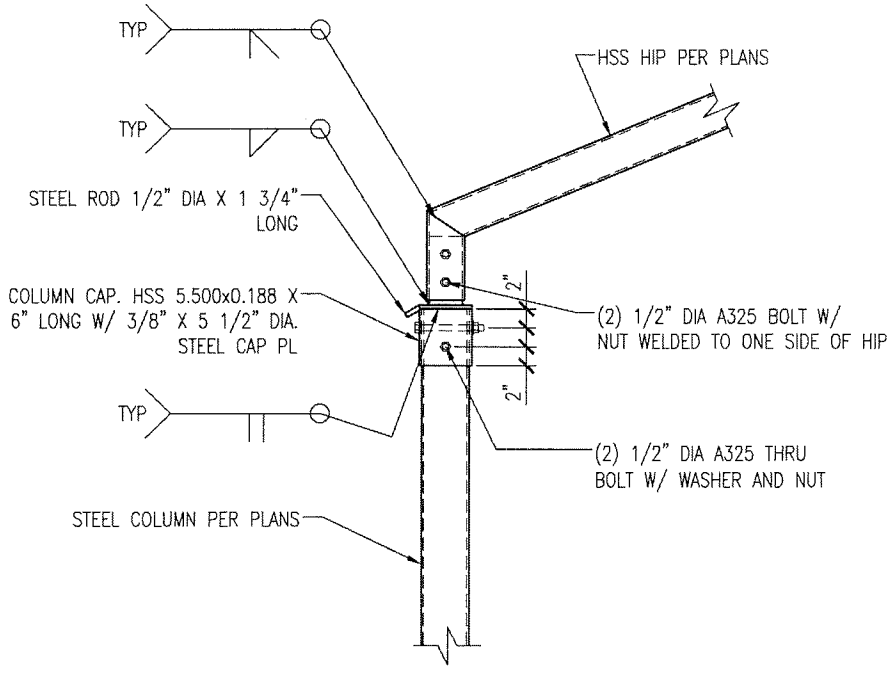
SCALE: NO SCALE

REINFORCING DEVELOPMENT LENGTH OF STANDARD HOOKS TABLE–TYPICAL U.N.O.		
BAR SIZE	CONCRETE	MASONRY
	ALL	ALL
#3	9	5
#4	11	6
#5	14	8
#6	17	9
#7	20	10
#8	22	12
#9	25	--
#10	28	--
#11	31	--
#14	--	--
#18	--	--

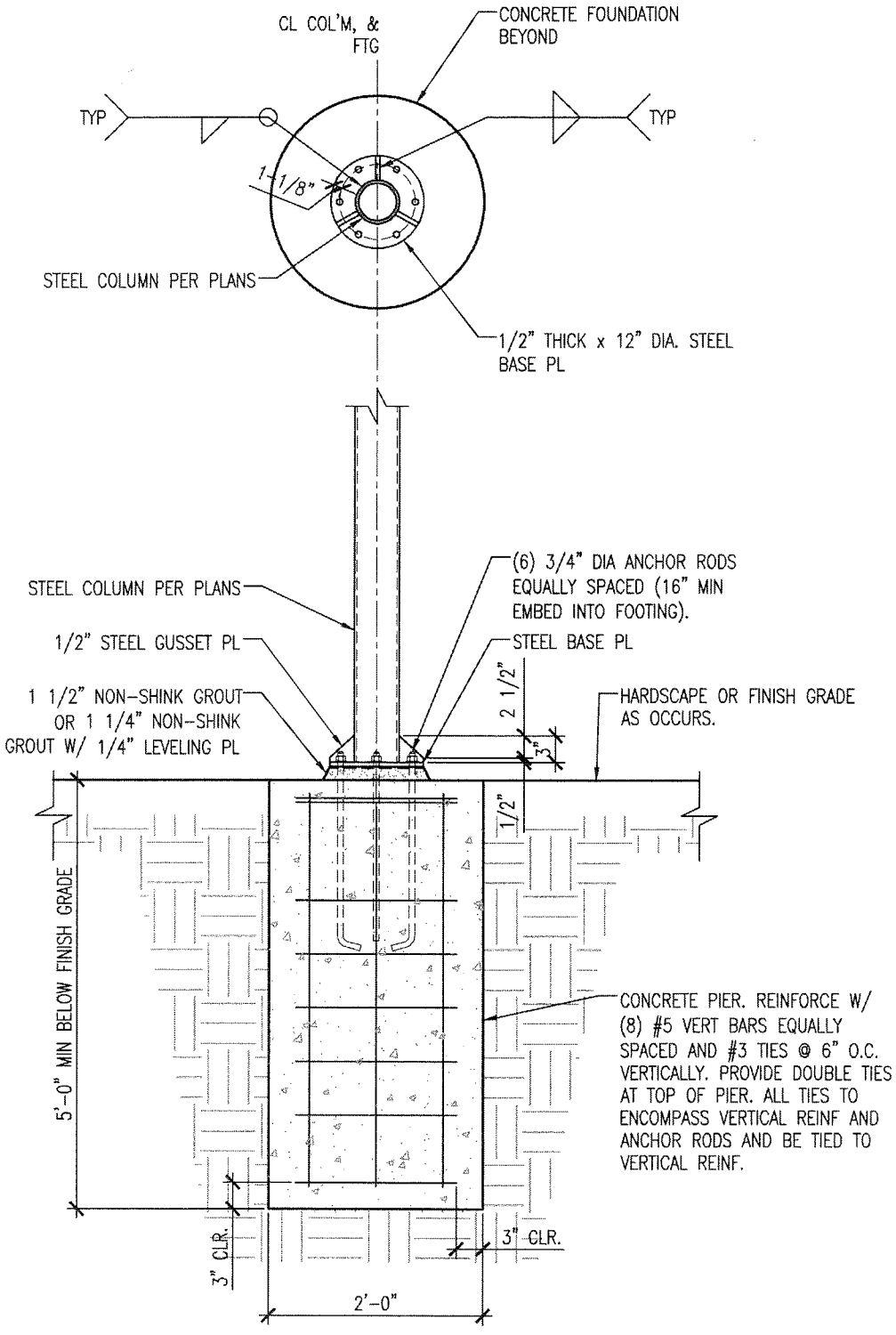
TABLE NOTES:

1. DEVELOPMENT LENGTHS ARE CALCULATED PER ACI 318–05, 12.2.3, EQ. (12–1) FOR CONCRETE AND ACI 530–05, 2.1.10.5.1 FOR MASONRY.
2. DEVELOPMENT LENGTH SHALL BE INCREASED BY 30% FOR LIGHTWEIGHT CONCRETE.

4 REINF. DVLPMNT STANDARD HOOKS TABLE SCALE: NO SCALE

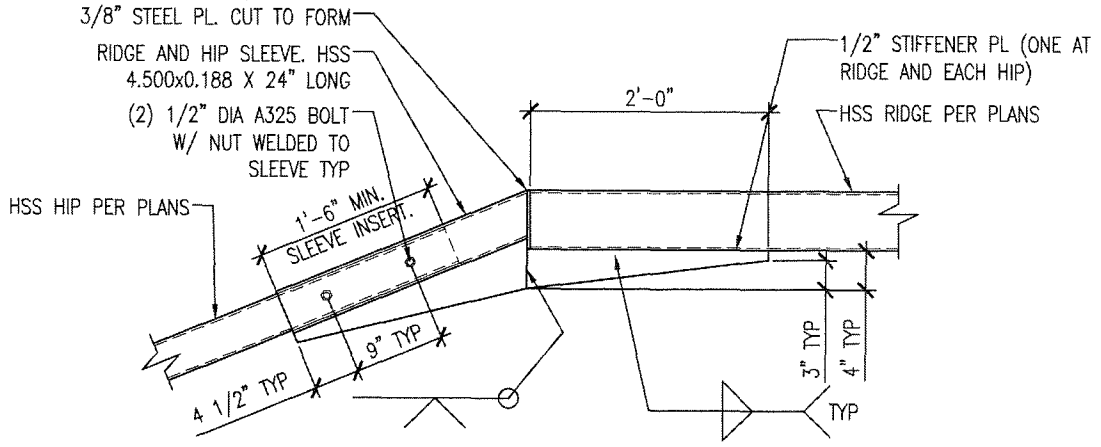


6C 20'x40' STEEL CANOPY COLUMN CAP DETAIL SCALE: NO SCALE



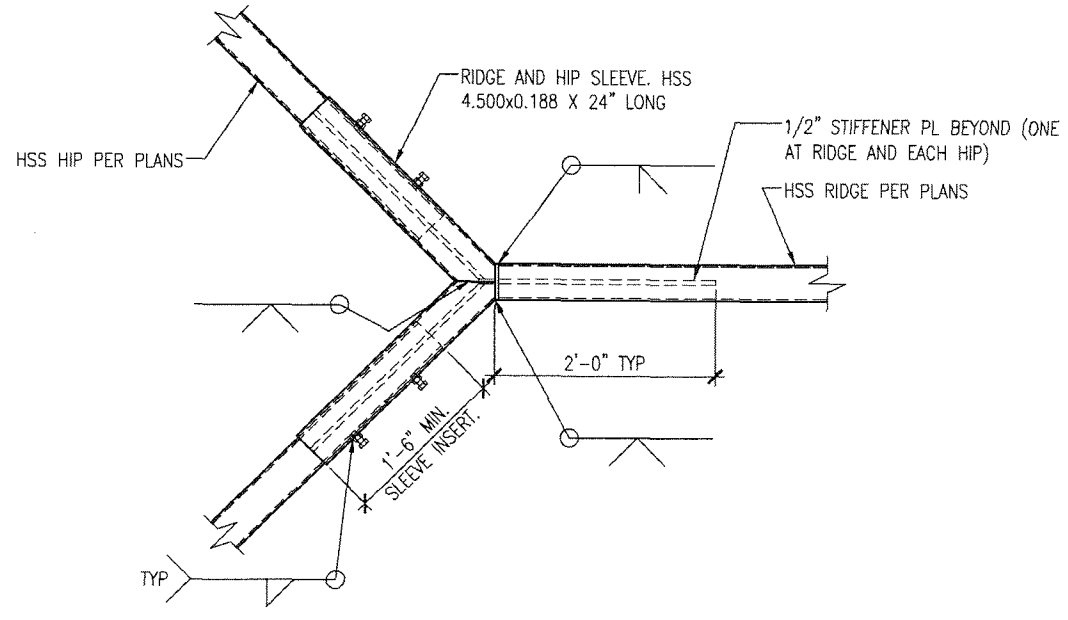
5C | 20'x40' STEEL CANOPY FOUNDATION DETAIL

SCALE:
3/4" = 1'-0"



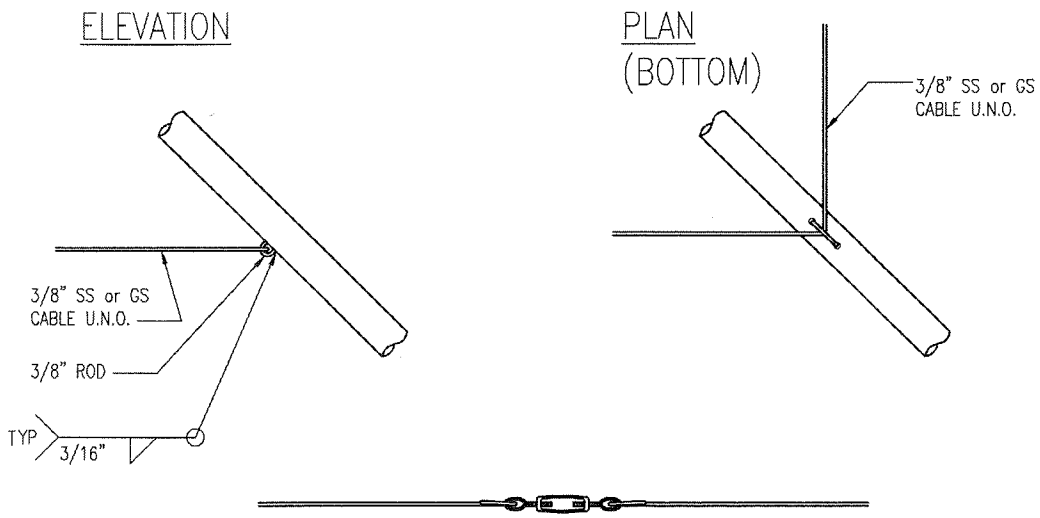
7C 20'x40' STEEL CANOPY HIP DETAIL

SCALE: NO SCALE



8C 20'x40' STEEL CANOPY HIP/RIDGE DETAIL

SCALE: 3/4" = 1'-0"



NOTE:
TENSION HIP COMPRESSION CABLE USING 3/8" TURNBUCKLE OR SIMILAR. TENSION TO REMOVE CABLE SLACK TO TAUGHT CONDITION. DO NOT DEFLECT HIP MEMBERS DUE TO FXCFSSIVF TFNSION

9C	HIP COMPRESSION CABLE	SCALE: NO SCALE