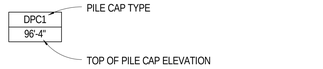
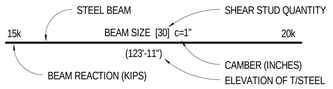
SYMBOLS LEGEND

SYMBOL	DESCRIPTION
EP1	EMBED PLATE
C1	CONCRETE COLUMN
YW1	WALLS, Y = (F)OUNDATION, (C)IP CONC, (P)RECAST, (M)ASONRY, (W)OOD, (R)ETAINING, CIP CONC (S)HEARWALL



PILE CAP TYPE

TOP OF PILE CAP ELEVATION



STEEL BEAM

SHEAR STUD QUANTITY

CAMBER (INCHES)

BEAM REACTION (KIPS)

ELEVATION OF T/STEEL

DECK TYPE
ABOVE DECK CONCRETE THICKNESS

TYPE

DECK SPAN DIRECTION

MOMENT CONNECTION

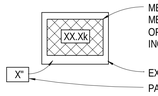
DESIGN AXIAL DRAG FORCE OR DETAIL

AXIAL DRAG CONNECTION

BRACING

NEW GRID LINES

SYMBOL	DESCRIPTION
	ELEVATION SYMBOL
	STEP
	SLOPE
1	KEY NOTE
	SUBGRADE
	FORM SAVER
1	DRAWING REVISION NUMBER
	CURRENT REVISION CLOUD
	STRUCTURAL MASONRY WALL
	CONTROL JOINT
	CAST-IN-PLACE CONCRETE (ON PLAN)



MECHANICAL UNIT (XX.Xk = MECHANICAL UNIT OPERATING WEIGHT IN KIPS INCLUDING INERTIA BASE)

EXTENT OF CONCRETE PAD

PAD THICKNESS

BUILDING SECTION OR DETAIL CUT

ON SHEET DRAWN

WELDED-WIRE REINFORCEMENT

SERVICE LOAD PROVIDED FOR SPECIALTY DESIGNER

ABBREVIATIONS

/	Per	FAB	Fabricate	OAE	Or Approved Equivalent
@	At	FF	Finished Floor	OC	On Center
AB	Anchor Bolt	FIN	Finish(ed)	OD	Outside Diameter
ADDNL	Additional	FLG	Flange	O.F.	Outside Face
AFF	Above Finished Floor	FLR	Floor	OH	Opposite Hand
ALT	Alternate	FND	Foundation	OPNG	Opening
ALUM	Aluminum	FO	Face Of	OPP	Opposite
APA	American Plywood Association	FP	Full Penetration or Fire Proofing	OVS	Oversized
APPROX	Approximate				
ARCH	Architect or Architectural	FRAM	Framing	PAF	Power Actuated Fastener
		FS	Far Side	PC	Precast
B/	Bottom of	FT	Foot or Feet	PEN	Penetration
BAL	Balance	FTG	Footing	PERP	Perpendicular
BD	Board	FV	Field Verify	PL	Plate (Steel)
BG	Backgouge			PLF	Pounds Per Lineal Foot
BL	Brick Ledge	GA	Gage or Gauge	PREFAB	Prefabricated
BLDG	Building	GALV	Galvanized	PRELIM	Preliminary
BLKG	Blocking	GL	Glu-lam	PS	Prestressed
BM	Beam	GR	Grade or Grind	PSF	Pounds Per Square Foot
BN	Boundary Nail	GR BM	Gradle Beam	PSI	Pounds Per Square Inch
BO	Bottom of			PT	Point or Post-Tension
BOT or B	Bottom	HDAR	Headed Anchor Rod		
BOS	Bottom of Steel	HD	Headed or Holdown	QTY	Quantity
BRG	Bearing	HAS or HDAS	Headed Anchor Stud		
BSMT	Basement	HDG	Hot Dipped Galvanized	RAD or R	Radius
BTWN	Between	HK	Hook	RB	Precast Rectangular Beam
		HORIZ	Horizontal	RC	Reinforced Concrete
CC	Center to Center	HT	Height	RE: or REF	Refer to (Reference)
CG	Center of Gravity	HVAC	Heating-Ventilating and A/C	REINF	Reinforce(ing)(d)(ment)
CIP	Cast-In-Place			RET	Return
CJ	Control Joint	ID	Inside Diameter	REQD	Required
CJP	Complete Joint Penetration	I.F.	Inside Face	REQT(S)	Requirement(s)
CL	Centerline	IN	Inch	RO	Rough Opening
CLG	Ceiling	INT	Interior	ROF	Random Oriented Fiber
CLR	Clear	IT	Precast Inverted Tee Beam		
CMU	Concrete Masonry Unit			(S)	Salvaged
COL	Column	JST	Joist	SC	Slip Critical
CONC	Concrete	JT	Joint	SCHED	Schedule
CONN	Connection			SECT	Section
CONST	Construction	k	Kip	SIM	Similar
CONT	Continue or Continuous			SLH	Short Leg Horizontal
CONTR	Contractor	L or LG	Length	SLV	Short Leg Vertical
COORD	Coordinate	LB(S)	Pound(s)	SOG	Slab on Grade
CSJ	Construction Joint	LB	Precast L-Shaped Beam	S	South
CTR(D)	Center(ed)	LCE	Compression Embedment	SP @	Space At
		LCS	Compression Lap Splice	SP	Space(s)
d	Penny	LDH	Hook Development Length	SPECS	Specifications
DAS	Deformed Anchor Stud	LL	Live Load	SPRT	Support
DBL	Double	LLH	Long Leg Horizontal	SS	Stainless Steel
DIA or Ø	Diameter	LLV	Long Leg Vertical	STD	Standard
DIAG	Diagonal	LOC(S)	Location(s) or Locate	STIFF	Stiffener
DIM	Dimension	LONG	Longitudinal	STL	Steel
DL	Dead Load	LSL	Laminated Strand Lumber	STR	Structural
DN	Down	LT	Light	SW	Shearwall
DO	Ditto	LTE	Tension Embedment	SYM	Symmetrical
DP	Drilled Pier or Deep	LTS	Tension Lap Splice Length		
DT	Precast Double Tee	LT WT	Lightweight	T&B	Top & Bottom
DTL(S)	Detail(s)	LVL	Level or Laminated Veneer Lumber	T	Top
DWG(S)	Drawing(s)			T/	Top of
DWL(S)	Dowel(s)	LWC	Light Weight Concrete	THK	Thick or Thickness
				TL	Total Load
(E) or EXIST	Existing	MACH	Machine	T.O.	Top of
EA	Each	MACH RM	Machine Room	TOC	Top of Concrete
EC	Epoxy Coated	MAS	Masonry	TOF	Top of Footing
EE	Each End	MATL	Material	TOM	Top of Masonry
EF	Each Face	MAX	Maximum	TOPG	Topping
EJ	Expansion Joint	MBS	Metal Building Supplier	TOS	Top of Steel
EL	Elevation	MCJ	Masonry Control Joint	TOW	Top of Wall
ELEV	Elevator	MECH	Mechanical	TRANS	Transverse
EMBED	Embedded	MEP	Mech/Elect/Plumb	TYP	Typical
EN	Edge Nail	MIN	Minimum		
ENGR	Engineer	MISC	Miscellaneous	ULT	Ultimate
EOR	Engineer-of-Record	ML	Micro-Lam	UNO	Unless Noted Otherwise
EOS	Edge of Slab	MLS	Masonry Lap Splice		
EQ	Equal	mm	Millimeter	VERT	Vertical
EQ SP	Equally Spaced	MNFR	Manufacturer	VIF	Verify in Field
EQUIP	Equipment	MO	Masonry Opening		
ES	Each Side	MTL	Metal	W/O	Without
EW	Each Way			W/	With
E-W	East-West	N	North	WD	Width or Wood
EXP ANCH	Expansion Anchor	NM	Non-Metallic	WF	Wide Flange
EXP	Expansion	NS	Non-Shrink or Near Side	WP	Working Point or Waterproofing
EXT	Exterior	N-S	North-South		
		NIC	Not in Contract	WT	Weight
		NO or #	Number	WWR	Welded Wire Reinforcement
		NOM	Nominal	WxH	Width x Height
		NTS	Not To Scale		
		NWC	Normal Weight Concrete		

DESIGN CRITERIA

1. CODES AND STANDARDS:
1A. GENERAL DESIGN
- INTERNATIONAL BUILDING CODE 2006

1B. CONCRETE
- ACI 301-05 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"
- ACI 318-05 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

1C. MASONRY
- ACI 530-05/ASCE 5-05: "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES"
- ACI 530.1-05/ASCE 6-05: "SPECIFICATION FOR MASONRY STRUCTURES"

1D. STEEL
- ANSI/AISC 360-05: "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"

2. SEISMIC LOADS
- SEISMIC DESIGN CATEGORY = B
- OCCUPANCY CATEGORY = II
- EARTHQUAKE IMPORTANCE FACTOR, Ie = 1.0
- MAPPED SPECTRAL RESPONSE ACCELERATION, Ss= 0.27
- MAPPED SPECTRAL RESPONSE ACCELERATION, S1= 0.066
- DESIGN SPECTRAL RESPONSE COEFFICIENT, SDs = 0.285
- DESIGN SPECTRAL RESPONSE COEFFICIENT, SD1 = 0.105
- SOIL SITE CLASS = D
- BASIC STRUCTURAL SYSTEM: STEEL FRAME WITH HSS COLUMNS AND MASONRY BEARING WALLS
- STRUCTURAL SEISMIC LATERAL SYSTEM:
  MAIN BUILDING: STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE.
  POOL BUILDING: INTERMEDIATE REINFORCED MASONRY SHEARWALLS.
- RESPONSE MODIFICATION FACTOR:
  MAIN BUILDING: R=3.0
  POOL BUILDING: R=3.5
- SEISMIC RESPONSE COEFFICIENT:
  MAIN BUILDING: Cs=0.095
  POOL BUILDING: Cs=0.081
- SYSTEM OVERSTRENGTH FACTOR
  MAIN BUILDING: OMEGA = 3.0
  POOL BUILDING: OMEGA = 2.5
- DESIGN BASE SHEAR EAST-WEST DIRECTION:
  MAIN BUILDING: = 296.0 KIPS
  POOL BUILDING: = 91.0 KIPS
- DESIGN BASE SHEAR NORTH-SOUTH DIRECTION:
  MAIN BUILDING: = 296.0 KIPS
  POOL BUILDING: = 91.0 KIPS
- SEISMIC ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE

3. WIND LOADS
- OCCUPANCY CATEGORY = II
- WIND IMPORTANCE FACTOR, Iw = 1.0
- BASIC WIND SPEED = 90 MPH
- EXPOSURE CATEGORY = C
- INTERNAL PRESSURE COEFFICIENT, GCpi = +/- 0.18

4. DESIGN WIND PRESSURE FOR COMPONENTS AND CLADDING AND ELEMENTS DESIGNED BY THE CONTRACTOR
- PRESSURES LISTED BELOW ARE BASED ON 10 SF EFFECTIVE WIND AREA. FINAL CALCULATIONS TO BE COMPLETED BY CONTRACTOR
- SEE 'WALL CORNER AND SPECIAL ROOF ZONES DIAGRAM'
- TYPICAL WALL AREA INWARD PRESSURE = 21.0 PSF
- TYPICAL WALL AREA OUTWARD PRESSURE = 21.0 PSF
- WALL CORNERS(OUTWARD) = 26.0 PSF
- TYPICAL ROOF AREA (OUTWARD) = 21.0 PSF
- ROOF SPECIAL ZONES (EAVES, RAKES, RIDGES AND CORNERS) (OUTWARD) = 53.0 PSF
- PARAPETS (INWARD OR OUTWARD) = 66.0 PSF
- SCREEN WALLS (INWARD OR OUTWARD) = 66.0 PSF
- TYPICAL NET UPLIFT FOR JOIST DESIGN = 10.0 PSF

5. LATERAL LOAD RESISTING SYSTEM DESCRIPTION:
- METAL DECK ROOF DIAPHRAGMS AND CONCRETE ON METAL DECK FLOOR DIAPHRAGMS SPANNING TO INTERMEDIATE REINFORCED MASONRY SHEAR WALLS AND STRUCTURAL STEEL BRACES. SHEAR WALLS AND BRACES REST ON GRADE BEAMS AND PILE CAPS SUPPORTED BY DRIVEN PILES
-

6. GRAVITY LOADS
6A. SEE GRAVITY LOADS TABLE
6B. DRIFTING, SLIDING AND UNBALANCED SNOW
- GROUND SNOW LOAD = 30 PSF
- SNOW EXPOSURE FACTOR Ce = 1.0
- SNOW LOAD IMPORTANCE FACTOR Is = 1.0
- THERMAL FACTOR Ct = 1.0
- FLAT ROOF SNOW LOAD Pf = 30 PSF

GRAVITY LOADS TABLE

LOCATION	SUPERIMPOSED DEAD LOAD (PSF)	LIVE LOAD (PSF)	LIVE LOAD REDUCTION	PARTITION LOAD (PSF)	POINT LOAD (LB)
ROOF	17 (INCLUDES 5 ROOFING LOAD)	30 MIN UNIFORM LOAD, SEE NOTE 6B FOR SNOW LOADS	No	--	--
LOBBIES, EXIT FACILITIES, FITNESS AND ASSEMBLY AREAS	32 (INCLUDES 12 PSF DEFLECTION CONCRETE)	100	No	--	2000
MECHANICAL	32 (INCLUDES 12 PSF DEFLECTION CONCRETE)	75 + EQUIP BUT NOT LESS THAN 125	No	--	--

SPECIAL INSPECTION NOTES

1. SPECIAL INSPECTION:
1A. SPECIAL INSPECTION SHALL BE PROVIDED PER IBC 2006 SECTION 109 AND CHAPTER 17. THE LIST BELOW IS A SUMMARY OF REQUIRED INSPECTIONS. REFER TO THE SPECIFICATIONS FOR DETAILED INSPECTION REQUIREMENTS.

1B. SOILS:
- SUBGRADE AND FILL BENEATH FOOTINGS AND SLABS-ON-GRADE AND WALL BACKFILL
- PILE DRIVING AND TESTING

1C. CONCRETE:
- STRUCTURAL CONCRETE
- INSTALLATION OF EMBEDDED BOLTS AND PLATES SUPPORTING STRUCTURE
- REINFORCING STEEL PLACEMENT
- FIELD BENDING OF REINFORCING STEEL
- REINFORCING COUPLERS
- ANCHORED REBAR INTO HARDENED CONCRETE
- WELDING OF REINFORCING

1D. STRUCTURAL STEEL:
- SHOP AND FIELD WELDING
- FLOOR AND ROOF DECK FASTENING
- HDAS IN COMPOSITE FLOOR SYSTEMS
- SHOP INSPECTION OF EMBED PLATE ASSEMBLIES
- COLD FORMED STRUCTURAL STEEL
- CONNECTIONS USING POWDER ACTUATED FASTENERS
- STAIRS AND RAILING SYSTEMS
- DAS AND REINFORCING STEEL WELDS
- HIGH STRENGTH BOLTING

1E. STRUCTURAL MASONRY:
- PRECONSTRUCTION TESTING
- PRISM PREPARATION
- MASONRY UNIT PLACEMENT
- REINFORCING PLACEMENT
- GROUT SPACE INSPECTION AND CLEANOUTS
- EMBEDDED PLATES AND ANCHORS
- GROUT AND MORTAR MIXING
- GROUTING

STRUCTURAL DRAWING LIST

09-22-09

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12499 WEST COLFAX AVENUE
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LAKEWOOD, COLORADO 80215
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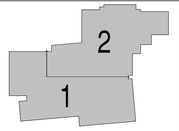
KEY PLAN



Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
90% CD'S	09-07-09
CONSTRUCTION DOCUMENTS	09-22-09

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FRUITA COLORADO

M/M Project No.: 21468.S.01

NOTES

Drawn By: DE, LB

Checked By: BN, GS

S0.01

MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:34:01 AM

GENERAL NOTES

1. GENERAL:
1A. ENGINEER: REFERENCES ON THE STRUCTURAL DRAWINGS TO 'ENGINEER' MEAN THE STRUCTURAL ENGINEER OF RECORD. OTHER ENTITIES ARE SPECIFICALLY NOTED AS "CONTRACTOR'S ENGINEER", "MECHANICAL ENGINEER", ETC.

1B. THESE NOTES SUPPLEMENT THE SPECIFICATIONS, WHICH SHALL BE REFERENCED FOR ADDITIONAL REQUIREMENTS.

1C. UNDERGROUND UTILITIES: LOCATE EXISTING UTILITIES AND NOTIFY ARCHITECT OF EXISTING UTILITIES OR SUBGRADE CONDITIONS WHICH INTERFERE WITH WORK.

1D. STRUCTURAL ELEMENTS ARE CENTERED ON GRID LINES AND GRID LINE INTERSECTIONS UNLESS DIMENSIONED OTHERWISE.

2. USE OF DRAWINGS:
2A. DO NOT SCALE DRAWINGS.

2B. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN. DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. DETAILS NOTED TYPICAL APPLY TO ALL SIMILAR CONDITIONS. WHERE NO SPECIFIC DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ELSEWHERE ON THE PROJECT.

3. TEMPORARY CONDITIONS:
3A. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES. REFER TO 'LATERAL LOAD RESISTING SYSTEM DESCRIPTION" IN DESIGN CRITERIA FOR ADDITIONAL INFORMATION.

3B. FOUNDATION WALLS SHALL NOT BE BACKFILLED UNTIL THE SLABS-ON-GRADE AND UPPER SLABS ARE IN-PLACE AND REACH FULL STRENGTH UNLESS ADEQUATE BRACING IS PROVIDED. USE ONLY HAND OPERATED TOOLS FOR COMPACTION ADJACENT TO FOUNDATION WALLS AND GRADE BEAMS. GRADE BEAMS SHALL BE BACKFILLED EVENLY ON BOTH SIDES.

4. SUBMITTALS AND SUBSTITUTIONS:
4A. SUBMITTALS: REFER TO SPECIFICATIONS FOR DETAILED REQUIREMENTS.
- IF THE CONTRACTOR REQUESTS A CHANGE FROM THE STRUCTURAL DRAWINGS, IT SHALL BE APPROVED BY THE ARCHITECT AND DESIGNED BY MARTIN/MARTIN, INC. PRIOR TO SUBMITTING SHOP DRAWINGS. VARIATION SHALL BE INDICATED ON THE SHOP DRAWINGS. CONTRACTOR SHALL COMPENSATE MARTIN/MARTIN, INC. FOR MAKING THE CHANGE.
- CONSTRUCTION DOCUMENTS SHALL NOT BE REPRODUCED FOR USE IN SUBMITTALS
- ALL SHOP DRAWINGS SHALL REFERENCE THE STRUCTURAL DRAWING NUMBER AND DETAIL USED TO PREPARE THE SUBMITTAL
- SUBMIT A STATEMENT OF RESPONSIBILITY FOR THE CONSTRUCTION OF THE LATERAL LOAD RESISTING SYSTEM IDENTIFIED IN THE DESIGN CRITERIA IN ACCORDANCE WITH IBC SECTION 1706

4B. SUBSTITUTIONS: ARCHITECTS APPROVAL SHALL BE SECURED FOR ALL SUBSTITUTIONS

4C. NONCONFORMANCE: NOTIFY ARCHITECT OF CONDITIONS NOT CONSTRUCTED PER THE CONTRACT DOCUMENTS PRIOR TO PROCEEDING WITH CORRECTIVE WORK. SUBMIT PROPOSED REPAIR TO THE ARCHITECT FOR ACCEPTANCE. CONTRACTOR SHALL COMPENSATE MARTIN/MARTIN, INC. FOR DESIGNING THE REPAIR.

5. OSHA STANDARDS:
5A. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. NOTHING SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE CONSTRUED AS ELIMINATING THE NEED FOR THE CONTRACTOR TO COMPLY WITH ALL OSHA REQUIREMENTS.

5B. THE CONTRACTOR SHALL ADD ALL NECESSARY BOLTS, ANCHOR BOLTS, PLATES, STIFFENER PLATES, STABILIZER PLATES, BRIDGING, BRACING, BEARING SEATS, COLUMN SPLICES, ETC., AS WELL AS CLOSURES FOR OPENINGS. IN ADDITION, FIELD WELD ANYTHING THAT MAY BE CONSIDERED A TRIP HAZARD, SUCH AS SHEAR STUDS, AFTER PROTECTIVE DECKING IS INSTALLED.

5C. WASHERS OR RINGS MAY BE WELDED TO COLUMNS TO PROVIDE FOR SAFETY CABLES. DO NOT PLACE HOLES IN COLUMNS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. ADJUST LOCATIONS OR ADD COLUMN SPLICES AS NECESSARY TO COMPLY WITH OSHA REQUIREMENTS. SUBMIT PROPOSED LOCATIONS.

5D. ALL METAL JOISTS REQUIRED BY OSHA TO BE BOLTED SHALL HAVE ERECTION BOLTS INSTALLED REGARDLESS OF FINAL CONNECTION SHOWN ON THE STRUCTURAL DRAWINGS.

5E. WHERE THE STRUCTURAL DRAWINGS APPEAR TO CONFLICT WITH OSHA REQUIREMENTS, THE STRUCTURAL DRAWINGS REPRESENT FINAL CONDITIONS ONLY. THE CONTRACTOR SHALL ADD ALL ERECTION FRAMING NECESSARY TO COMPLY WITH OSHA.

6. CONSTRUCTION ENGINEERING:
6A. THE STRUCTURE DEFINED ON THE CONTRACT DOCUMENTS HAS BEEN DESIGNED ONLY FOR LOADS ANTICIPATED ON THE STRUCTURE DURING ITS SERVICE LIFE. PROVIDE ALL REQUIRED ENGINEERING AND OTHER MEASURES TO ACHIEVE THE MEANS, METHODS, AND SEQUENCES OF WORK. SUCH ENGINEERING MAY INCLUDE, BUT IS NOT LIMITED TO:
- LAYOUT
- DESIGN FOR FORMWORK AND SHORING
- DESIGN OF CONCRETE MIXES
- ERECTION PROCEDURES WHICH ADDRESS STABILITY OF THE FRAME DURING CONSTRUCTION
- WELD PROCEDURES
- DESIGN OF TEMPORARY BRACING OF WALLS FOR WIND, SEISMIC, OR SOIL LOADS
- SURVEYING TO VERIFY CONSTRUCTION TOLERANCES
- EVALUATION OF TEMPORARY CONSTRUCTION LOADS ON STRUCTURE DUE TO EQUIPMENT AND MATERIALS
- STRUCTURAL ENGINEERING TO RESIST ANY OTHER LOADS NOT IDENTIFIED ON DESIGN DRAWINGS

7. COORDINATION:
7A. STRUCTURAL DRAWINGS ARE NOT STAND-ALONE DOCUMENTS AND ARE INTENDED TO BE USED IN CONJUNCTION WITH CIVIL, ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND DRAWINGS FROM OTHER DISCIPLINES. THE CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS INTO SHOP DRAWINGS AND WORK.

7B. COORDINATE DIMENSIONS OF ALL OPENINGS, BLOCKOUTS, DEPRESSIONS, ETC., WITH ARCHITECTURAL DRAWINGS, DRAWINGS FROM OTHER DISCIPLINES, AND FIELD CONDITIONS PRIOR TO SHOP DRAWING SUBMITTAL.

7C. SEE ARCHITECTURAL PLANS FOR INTERIOR PARTITIONS. PARTITION FRAMING SHALL BE CONNECTED TO THE PRIMARY STRUCTURE IN SUCH A WAY SO AS TO ALLOW FOR VERTICAL LIVE LOAD DEFLECTIONS OF SPAN/360 OF THE FLOOR FRAMING. DO NOT MAKE RIGID VERTICAL AND HORIZONTAL CONNECTIONS TO THE PRIMARY STRUCTURE IN THE PLANE OF THE WALL.

8. DEFERRED SUBMITTALS:
8A. THE FOLLOWING PORTIONS OF THE STRUCTURAL DESIGN WILL NOT BE SUBMITTED AT THE TIME OF PERMIT APPLICATION. WHEN RECEIVED AND REVIEWED, THESE DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL BY THE CONTRACTOR:
- OPEN WEB STEEL JOISTS
- METAL STAIRS
- CURTAIN WALL
- METAL RAILINGS

FOUNDATION NOTES

1. DESIGN CRITERIA:
1A. THE GEOTECHNICAL REPORT PREPARED BY GROUND ENGINEERING CONSULTANTS, INC., JOB NUMBER 09-6013, DATED MAY 12, 2009, PROVIDED CRITERIA FOR THE FOUNDATION DESIGN FOR THE PROJECT.

2. DRIVEN PILES:
2A. PIER CAPACITY CRITERIA:
- MAXIMUM END BEARING PRESSURE = 12000 PSF (BASED ON STEEL PILE CROSS-SECTIONAL AREA)
- MAXIMUM UPLIFT CAPACITY = 2400 PSF (BASED ON STEEL PILE CROSS-SECTIONAL AREA)
- MAXIMUM BATTER FOR LATERAL LOAD RESISTING PILES: 1:4 (HORIZONTAL:VERTICAL)
- MAXIMUM PILE SPACING WITHOUT VERTICAL CAPACITY REDUCTION: 3 x PILE DIAMETER
- MAXIMUM PILE SPACING WITHOUT HORIZONTAL CAPACITY RECUTION: 6 x PILE DIAMETER
- HORIZONTAL MODULUS OF SUBGRADE REACTION (Kh) 5 FT TO 30 FT: 30 TCF
- HORIZONTAL MODULUS OF SUBGRADE REACTION (Kh) 30 FT TO BEDROCK: 230 TCF
- HORIZONTAL MODULUS OF SUBGRADE REACTION (Kh) CLAY SHALE BEDROCK: 400 TCF

3. FOUNDATION WALLS AND SITE RETAINING WALLS:
3A. EQUIVALENT FLUID PRESSURES USED FOR WALL DESIGN:
- "ACTIVE" CONDITION = 55 PCF
- "AT REST" CONDITION = 75 PCF
- "PASSIVE" CONDITION = 270 PCF (2700 PSF MAXIMUM)
- ULTIMATE COEFFICIENT OF FRICTION USED IN DESIGN TO RESIST LATERAL LOADS = 0.3

3B. WALL DESIGN BASED ON ON-SITE BACKFILL MATERIAL. SEE GEOTECHNICAL REPORT FOR REQUIREMENTS.

CONCRETE NOTES

1. GENERAL:
1A. ALL WORK SHALL CONFORM WITH ACI 301, LATEST EDITION, UNLESS NOTED OTHERWISE IN DRAWINGS OR PROJECT SPECIFICATIONS.

1B. DETAIL BARS IN ACCORDANCE WITH THE LATEST EDITIONS OF PUBLICATION SP-66: "ACI DETAILING MANUAL" WITH ADDED REQUIREMENTS OF THE PROJECT SPECIFICATION AND ACI 318: "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE."

2. REINFORCING MATERIALS:
2A. SEE 'REINFORCING MATERIALS TABLE'

REINFORCING MATERIAL TABLE

REINF ELEMENT	ASTM	Fy (KSI)	Fu (KSI)	COMMENTS
TYP REINFORCING	A615	60	90	--
WELDED & FIELD BENT REINF	A706	60	80	--
WELDED WIRE REINFORCING, SMOOTH	A185	65	75	--
WELDED WIRE REINFORCING, DEFORMED	A497	70	80	--

3. REINFORCING FABRICATION:
3A. SPLICES:
- NO SPLICING OF REINFORCEMENT PERMITTED EXCEPT AS NOTED ON DRAWINGS. MAKE BARS CONTINUOUS AROUND CORNERS. WHERE PERMITTED, SPLICES MAY BE MADE BY CONTACT LAPS OR MECHANICAL CONNECTORS.
- SEE 'LAP SPLICE SCHEDULE' FOR LAP LENGTHS.

3B. MISCELLANEOUS REINFORCING REQUIREMENTS:
- PROVIDE ADDITIONAL BARS OR STIRRUPS REQUIRED TO SECURE REINFORCING IN PLACE DURING CONCRETE PLACEMENT.
- MAKE ALL REINFORCING BAR BENDS IN THE FABRICATOR'S SHOP UNLESS NOTED.
- NO WELDING OF REINFORCING PERMITTED UNLESS NOTED ON DRAWINGS. WHERE PERMITTED, PERFORM WELDING IN ACCORDANCE WITH AWS D1.4, LATEST EDITION.
- PROVIDE ADDED REINFORCING TO TRIM ALL OPENINGS, NOTCHES, AND REENTRANT CORNERS AS NOTED IN TYPICAL DETAILS.
3C. INCLUDE IN THE BID THE COST FOR THE MATERIAL, FABRICATION AND PLACING OF 1000 LINEAR FEET OF #5 REINFORCING BARS AND 800 LINEAR FEET OF #6 REINFORCING BARS. THE REINFORCING WILL BE ADDED TO THE SHOP DRAWINGS AND IN FIELD OBSERVATION REPORTS BY THE ENGINEER AS "ADDED PER GENERAL NOTES." AN UP-TO-DATE TOTAL OF LINEAR FEET ADDED WILL BE MAINTAINED AND SUBSTANTIATED BY SHOP DRAWINGS AND FIELD OBSERVATION REPORTS.

4. STRUCTURAL CONCRETE MIX REQUIREMENTS:
4A. SEE 'CONCRETE MIX TABLE'

CONCRETE MIX TABLE

CONC MIX TYPE	INTENDED USE	28 DAY STRENGTH, f'c (KSI)	CONCRETE WEIGHT	MAX W/C RATIO, INCLUDING FLY ASH	MIN CEMENT MATERIAL (#/C'Y), INCLUDING FLY ASH	MAX AGGREGATE SIZE (IN), NOTE a	SLUMP LIMITS (IN), TOLERANCE = +1", -1"	TOTAL AIR CONTENT (%), NOTE b	CEMENT TYPE	REQUIRED ADMIXTURES, NOTE c	OTHER REQUIREMENTS, NOTE d
1	CONCRETE IN DRIVEN PIPE PILES	4.5	NWC	0.45	470	1	7	-	I / II	NOTE e	HRNP
2	GRADE BMS, TIE BMS, PILE CAPS	4.5	NWC	0.45	470	3/4	4	5	I / II	AE	--
3	WALLS, COLUMNS	4.5	NWC	0.45	517	3/4	4	--	I / II	--	--
4	INT TOPPING SLABS, SLABS ON DECK	3.5	NWC	0.50	517	3/4	4	NP	I / II	--	--
5	INT SLABS ON GRADE	4.5	NWC	0.45	517	1	4	NP	I / II	--	--
6	SLAB ON GRADE WITH MOISTURE SENSITIVE FLOORING	4.5	NWC	0.45	517	1	4	NP	I / II	WRA	SOG
7	ALL CONC OTHERWISE NOT SPECIFIED	4.5	NWC	0.45	517	3/4	4	6	I / II	AE	--

CONCRETE MIX TABLE NOTES:
a. FOR THE MAXIMUM COARSE AGGREGATE SIZE INDICATED, USE THE FOLLOWING AGGREGATE SIZE NUMBERS PER ASTM C33:
3/4": #67 AGGREGATE
1": #57 AGGREGATE

b. TOTAL AIR CONTENT LIMITS INCLUDE BOTH ENTRAINED AND ENTRAPPED AIR +/- 1 1/2%. 'NP' IN COLUMN INDICATES ADDITION OF ENTRAINED AIR IS NOT PERMITTED.

c. ABBREVIATIONS FOR REQUIRED ADMIXTURES AS FOLLOWS:
AE = AIR-ENTRAINING ADMIXTURE. DO NOT USE ENTRAINED AIR FOR STEEL TROWELED FINISHED FLOORS.
WRA = WATER REDUCING ADMIXTURE.

d. ABBREVIATIONS FOR OTHER REQUIREMENTS AS FOLLOWS:
MSS = MAXIMUM SHRINKAGE STRAIN LIMITED, RE: SPECS.
HRNP = HIGH RANGE WATER REDUCING ADMIXTURE SHALL NOT BE USED TO OBTAIN HIGH SLUMP UNLESS DATA ARE SUBMITTED DEMONSTRATION SLUMP IS NOT LOST UNTIL CONCRETE IS OVER 90 MINUTES OLD.
SOG = CONTRACTOR TO VERIFY ALKALINITY OF CONCRETE SURFACE, SLAB VAPOR TRANSMISSION, AND SLAB FLATNESS/LEVELNESS ARE COMPATIBLE WITH FLOORING SYSTEM AND ADHESIVES PRIOR TO INSTALLING FLOORING. PROVIDE THE AMOUNT OF CEMENTITIOUS MATERIALS LISTED. DO NOT USE LESS AND DO NOT USE OVER 5% MORE

e. FOR DRIVEN PILES FILLED DURING CONSTRUCTION PROVIDE CONCRETE MIX WITH FLOWABILITY TO PREVENT ARCHING ACROSS PILE.

f. FOR CONCRETE PLACED BY PUMPING PROVIDE CONCRETE MIX FLOWABILITY TO FACILITATE PUMPING. ENTRAINED AIR MAY BE USED IF IT CAN BE SHOWN THAT THE FLOOR WILL HAVE A FINISH ACCEPTABLE TO THE ARCHITECT WITHOUT BLISTERS.

5. SLAB-ON-GRADE:
5A. VERIFY ALKALINITY OF CONCRETE SURFACE, SLAB VAPOR TRANSMISSION, AND SLAB FLATNESS/LEVELNESS ARE COMPATIBLE WITH FLOORING SYSTEM AND ADHESIVES PRIOR TO INSTALLING FLOORING.

5B. TAKE PRECAUTIONS TO MINIMIZE SLAB CURLING. GRIND SLAB OR USE LEVELING COMPOUND IF FLOOR FLATNESS AND LEVELNESS VALUES ARE NOT ACCEPTABLE TO THE ARCHITECT.

6. NON-SHRINK GROUT:
6A. CONFORM TO ASTM C1107, GRADES B, OR C.

6B. ACHIEVE 6000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

7. PLACING REINFORCEMENT:
7A. REINFORCEMENT PROTECTION:
- SEE 'CONCRETE COVER TABLE'

CONCRETE COVER

CASE	COVER (IN)
COLUMNS, GIRDERS, AND BEAMS	1 1/2
CONCRETE PLACED AGAINST EARTH	3
CONCRETE PLACED IN FORMS, EXPOSED TO WEATHER OR EARTH	2
SLABS OR WALLS NOT EXPOSED TO EARTH OR WEATHER	1

- SEE ACI 318-05 7.5 FOR REINFORCEMENT PLACING TOLERANCES AND ACI 117 FOR ADDITIONAL REQUIREMENTS

7B. PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING AND WELDED WIRE FABRIC AT POSITIONS SHOWN ON PLANS. ALL REINFORCING, DOWELS, BOLTS, AND EMBEDDED PLATES SHALL BE SET AND TIED IN PLACE BEFORE THE CONCRETE IS POURED. "STABBING" INTO PREVIOUSLY PLACED CONCRETE IS NOT PERMITTED.

8. CONSTRUCTION/CONTROL JOINTS:
8A. SUBMIT DRAWINGS SHOWING CONSTRUCTION AND CONTROL JOINT LOCATIONS ALONG WITH THE SEQUENCE OF POURS. CONSTRUCTION JOINT LOCATIONS AND CASTING SEQUENCE SHALL BE ARRANGED TO MINIMIZE THE EFFECTS OF ELASTIC AND LONG-TERM SHORTENING/SHRINKAGE.
8B. CONSTRUCTION JOINT LOCATION AND CASTING SEQUENCE SHOWN ON THE DRAWINGS IS SUGGESTED AND HAS BEEN ARRANGED TO MINIMIZE THE EFFECTS OF ELASTIC AND LONG-TERM SHORTENING. SUBMIT DRAWINGS SHOWING PROPOSED CONSTRUCTION JOINT LOCATION AND CASTING SEQUENCE.

8C. LOCATE CONSTRUCTION JOINTS IN SLABS-ON-DECK AND STRUCTURAL SLABS FOR A MAXIMUM LENGTH OF 150 FEET WITH A MAXIMUM AREA OF 15,000 SQUARE FEET.

8D. SHEAR FRICTION JOINTS: WHERE CONSTRUCTION JOINTS ARE LABELED AS "ROUGHENED" ON THE DRAWINGS, THE ENTIRE JOINT SURFACE SHALL BE MECHANICALLY ROUGHENED TO A 1/4" AMPLITUDE AND THOROUGHLY CLEANED. EXPOSE THE COURSE AGGREGATE IN THE HARDENED CONCRETE AND REMOVE ALL LOOSE MATERIAL.

9. MEP AND OTHER OPENINGS AND EMBEDMENTS:
9A. PROVIDE SLEEVES AT OPENINGS (SUCH AS THOSE REQUIRED FOR PLUMBING AND ELECTRICAL PENETRATIONS) BEFORE PLACING CONCRETE. REMOVE METAL DECK AT SLEEVES AFTER CONCRETE HAS CURED. DO NOT CUT REINFORCING WHICH MAY CONFLICT. CORING OF CONCRETE IS NOT PERMITTED.

9B. REFER TO TYPICAL DETAILS FOR SPACING LIMITS ON SLEEVES AND FOR REQUIREMENTS FOR EMBEDDED CONDUIT AND PIPE.

MASONRY NOTES

1. DEFINITIONS:
1A. STRUCTURAL MASONRY IS DEFINED AS BEING EITHER LOAD BEARING AND/OR SERVING AS PART OF THE LATERAL LOAD RESISTING SYSTEM. STRUCTURAL MASONRY IS SHOWN ON THE STRUCTURAL PLANS AND DEFINED IN SCHEDULES AND DETAILS ON THE STRUCTURAL DRAWINGS.

1B. SEE ARCHITECTURAL DRAWINGS FOR LOCATION, THICKNESS AND EXTENT OF MASONRY PARTITIONS. SEE DETAILS ON THE STRUCTURAL DRAWINGS FOR GENERAL MASONRY PARTITION REQUIREMENTS.

1C. SEE ARCHITECTURAL DRAWINGS FOR ALL MASONRY VENEER REQUIREMENTS. SEE DETAILS ON THE STRUCTURAL DRAWINGS FOR MASONRY VENEER LOOSE LINTELS.

2. DESIGN STRENGTH:
2A. DEVELOP 2000 PSI COMPRESSIVE STRENGTH (f'm) IN 28 DAYS.

2B. STEEL REINFORCING:
- PRIMARY REINFORCING: ASTM A615, 60 KSI
- HORIZONTAL JOINT REINFORCING: ASTM A82, PREFABRICATED, LADDER TYPE

3. SPLICES:
3A. SEE MASONRY LAP SPLICE SCHEDULE FOR LAP LENGTHS

4. INSTALLATION REQUIREMENTS:
4A. GROUT SOLID ALL CELLS CONTAINING REINFORCING, EMBEDDED ITEMS, AND ALL OTHER CELLS NOTED ON THE CONTRACT DOCUMENTS.

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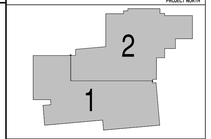

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STEEL NOTES

1. CONNECTIONS:
1A. PROVIDE CONNECTIONS AS SHOWN IN THE 'STEEL BEAM CONNECTION SCHEDULES' AND DETAILS HEREIN. REFER TO SPECIFICATION FOR ALTERNATIVES AND CONNECTIONS NOT SHOWN.

2. WELDING REQUIREMENTS:
2A. WELDERS: HAVE IN POSSESSION CURRENT EVIDENCE OF PASSING THE APPROPRIATE A.W.S. QUALIFICATION TESTS.

2B. MINIMUM WELDS: AISC SPECIFICATION, NOT LESS THAN 3/16" FILLET, CONTINUOUS UNLESS OTHERWISE NOTED.

2C. WELD SIZES AND LENGTHS CALLED FOR ON THE DRAWINGS ARE THE NET EFFECTIVE REQUIRED. INCREASE WELD SIZE IF GAPS EXIST AT THE FAYING SURFACE.

2D. WELD SIZES SHALL BE AS SHOWN UNLESS A GREATER SIZE IS REQUIRED BY ANSI/AISC 360-05 TABLES J2.3 AND J2.4.

2E. ALL GROOVE WELDS SHALL BE COMPLETE PENETRATION UNLESS NOTED.

2F. FIELD WELDING SYMBOLS INDICATE SUGGESTED CONSTRUCTION PROCEDURES.

3. COMPOSITE GRAVITY FRAMING:
3A. COMPOSITE BEAMS ARE DESIGNED ASSUMING STUDS ARE INSTALLED IN THE WEAK POSITION (Rp = 0.6). SEE TYPICAL METAL DECK DETAILS FOR PLACEMENT REQUIREMENTS.

3B. COMPOSITE GIRDERS ARE DESIGNED ASSUMING STUDS ARE WELDED THROUGH THE METAL DECK AND/OR METAL DECKING/SHEET STEEL COVERS MORE THAN HALF OF THE TOP FLANGE (Rp = 0.75). SEE TYPICAL METAL DECK DETAILS FOR PLACEMENT REQUIREMENTS.

4. CAMBER:
4A. CAMBER SHOWN IS BASED ON THE COMPUTED DEFLECTION OF THE BEAM DUE TO SELFWEIGHT OF CONCRETE PLACED. DESIGN IS BASED ON THE THEORETICAL CONCRETE THICKNESS PLUS 1/2" THICKNESS FOR DECK LEVELING AND 1/2" THICKNESS FOR BEAM LEVELING. INCLUDE QUANTITY OF ADDED CONCRETE DUE TO DECK AND BEAM DEFLECTION IN BID.

4B. VALUE NOTED ON PLAN IS IN-PLACE CAMBER, AFTER ERECTION, PRIOR TO PLACING CONCRETE. ADJUST FABRICATION AS REQUIRED TO ACHIEVE CAMBER SPECIFIED WITHIN TOLERANCES.

5. STRUCTURAL STEEL INSTALLATION:
5A. ALL HIGH STRENGTH BOLTS USED IN COLUMN SPLICES, CONNECTIONS OF BEAMS AND GIRDERS TO COLUMNS, AND WHERE NOTED ON THE DRAWINGS AS TYPE "SC" OR OTHER TYPE FOLLOWED BY "PT", SHALL BE TENSIONED TO THE VALUES OF TABLE J3.1 OF ANSI/AISC 360-05. OTHER HIGH-STRENGTH BOLTS MAY BE INSTALLED SNUG TIGHT AS DEFINED BY AISC.

6. STEEL JOISTS:
6A. DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE STEEL JOIST INSTITUTE (SJI) STANDARD SPECIFICATIONS, LATEST EDITION.

6B. SIZE, TYPE, AND SPACING OF JOIST BRIDGING PER CURRENT SJI REQUIREMENTS. USE 'X' BRIDGING AT DISCONTINUOUS ENDS OF BRIDGING UNLESS OTHERWISE NOTED ON PLANS OR DETAILS.

6C. REFER TO PLANS, DETAILS, AND SPECIAL JOIST LOADING DIAGRAMS FOR ADDITIONAL JOIST DESIGN REQUIREMENTS INCLUDING UNBALANCED, CONCENTRATED, AXIAL, AND UPLIFT LOADS.

6D. DESIGN JOISTS AND BRIDGING FOR NET UPLIFT FORCES INDICATED IN DESIGN CRITERIA.

7. METAL DECK:
7A. SEE 'METAL DECK SCHEDULE' FOR MATERIALS, PROFILE, AND CONNECTIONS TO STRUCTURE.

7B. DECK DESIGN IS IN ACCORDANCE WITH STEEL DECK INSTITUTE (SDI) PUBLICATION NO. 31 AND DIAPHRAGM DESIGN MANUAL, LATEST EDITIONS.

7C. PLACE CONCRETE ON METAL DECK IN ACCORDANCE WITH SDI PUBLICATION NO. 31 TO LIMIT CONSTRUCTION LOADS TO ALLOWABLE MAGNITUDES.

7D. REINFORCE OPENINGS IN METAL ROOF DECK AND FLOOR DECK SUPPORTING CONCRETE FILL IN ACCORDANCE WITH TYPICAL DECK OPENING DETAILS.

7E. INSTALL DECK OVER 4 SUPPORTS (3 SPAN CONTINUOUS) UNLESS NOTED OTHERWISE. DO NOT INSTALL DECK AS SINGLE SPAN UNLESS SPECIFICALLY SHOWN ON DRAWINGS.

7F. PROVIDE DECK ATTACHMENTS AS NOTED ON DRAWINGS.
7G. HANGERS: SEE TYPICAL METAL DECK DETAILS FOR ALLOWABLE HANGER LOADS, SPACING AND ATTACHMENT.

8. STRUCTURAL COLD FORMED METAL FRAMING:
8A. REFER TO SCHEDULE FOR REQUIRED STUD MATERIAL GRADES AND SECTION PROPERTIES. REFER TO DETAILS FOR CONNECTIONS AND OTHER REQUIREMENTS.

8B. REFER TO DETAILS FOR MINIMUM CONNECTIONS AND OTHER REQUIREMENTS. DO NOT IMPOSE FORCES ON THE BUILDING STRUCTURE IN DIRECTIONS OR AT LOCATIONS OTHER THAN THAT SHOWN ON THE STRUCTURAL DRAWINGS. CONNECTIONS TO CONCRETE SHALL NOT USE PAFs TO RESIST TENSION LOADS.

STEEL MATERIAL TABLE

STEEL ELEMENT	ASTM/TYPE	Fy (KSI)	Fu (KSI)	COMMENTS
ADHESIVE	RE 500 SD	--	--	
ADHESIVE ANCHORS	A193 B7	--	125	THREADED ROD
ANCHOR RODS	F1554 GR 55	55	75	WELDABLE, HEAVY HEX HEADED
BOLTS	A325 OR F1852	--	120	BOLTS ARE 3/4"Ø UNO, USE TENSION-CONTROLLED WHERE POSSIBLE
COLD-FORMED STUDS/PLATE, 16 GAGE OR HEAVIER		50	--	--
COLD-FORMED STUDS/PLATE, 20-18 GAGE		33	--	--
COLD-FORMED TRACK, ALL GAGES		33	--	--
DAS	A496	70	80	--
EXPANSION ANCHORS	HILTI KWIK BOLT TZ OR EQUIV	--	--	SUBMIT ICC EVALUATION REPORT
HAS	A108	51	65	STUDS ARE 3/4"Ø UNO
OTHER SHAPES	A36	36	58	--
PIPE	A53 GR B	35	60	--
PLATES	A36	36	58	--
RECT HSS	A500 GR B	46	58	--
ROUND HSS	A500 GR B	42	58	--
SCREW ANCHORS	HILTI HUS-H OR EQUIV	--	--	SUBMIT ICC EVALUATION REPORT
SLEEVE ANCHORS	HILTI HLC OR EQUIV	--	--	SUBMIT ICC EVALUATION REPORT
WELDING ELECTRODES	E70	--	--	PER AWS
WF, WT	A992	50	65	--

METAL GAGE CONVERSION

GAUGE	MINIMUM THICKNESS (MILS)
12	97
14	68
16	54
18	43
20	33
22	27

WOOD NOTES

1A. LAMINATED MEMBER SIZES (GLU-LAM). SIZES ARE NET; OTHER MEMBER SIZES ARE NOMINAL.

2A. DECKING: GLUE-LAMINATED DECKING SHALL BE SELECT AND HAVE THE FOLLOWING MINIMUM DESIGN VALUES:
A. BENDING STRESS = 2585 PSI
B. MODULUS OF ELASTICITY = 1,8000,000 PSI
C. SHEAR STRESS = 165 PSI

3A. NAILING: UNLESS NOTED OTHERWISE ON THE DRAWINGS, PROVIDE COMMON NAILS WITH SIZES SHOWN ON THE DRAWINGS. ALL NAILING SHALL BE IN ACCORDANCE WITH THE NAILING SCHEDULE IBC 2006 TABLE 2304.9.1. UNLESS NOTED OTHERWISE ON DRAWINGS.

4A. OPENINGS: OPENINGS, POCKETS, ETC., SHALL NOT BE PLACED IN BEAMS, JOISTS, RAFTERS, STUDS, POSTS, COLUMNS, TIMBER AND OTHER STRUCTURAL MEMBERS UNLESS DETAILED ON THE STRUCTURAL DRAWINGS.

COLORADO REGISTERED PROFESSIONAL ENGINEER
BENJAMIN R. NELSON
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PROFESSIONAL ENGINEER

09-22-09

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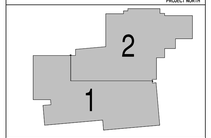

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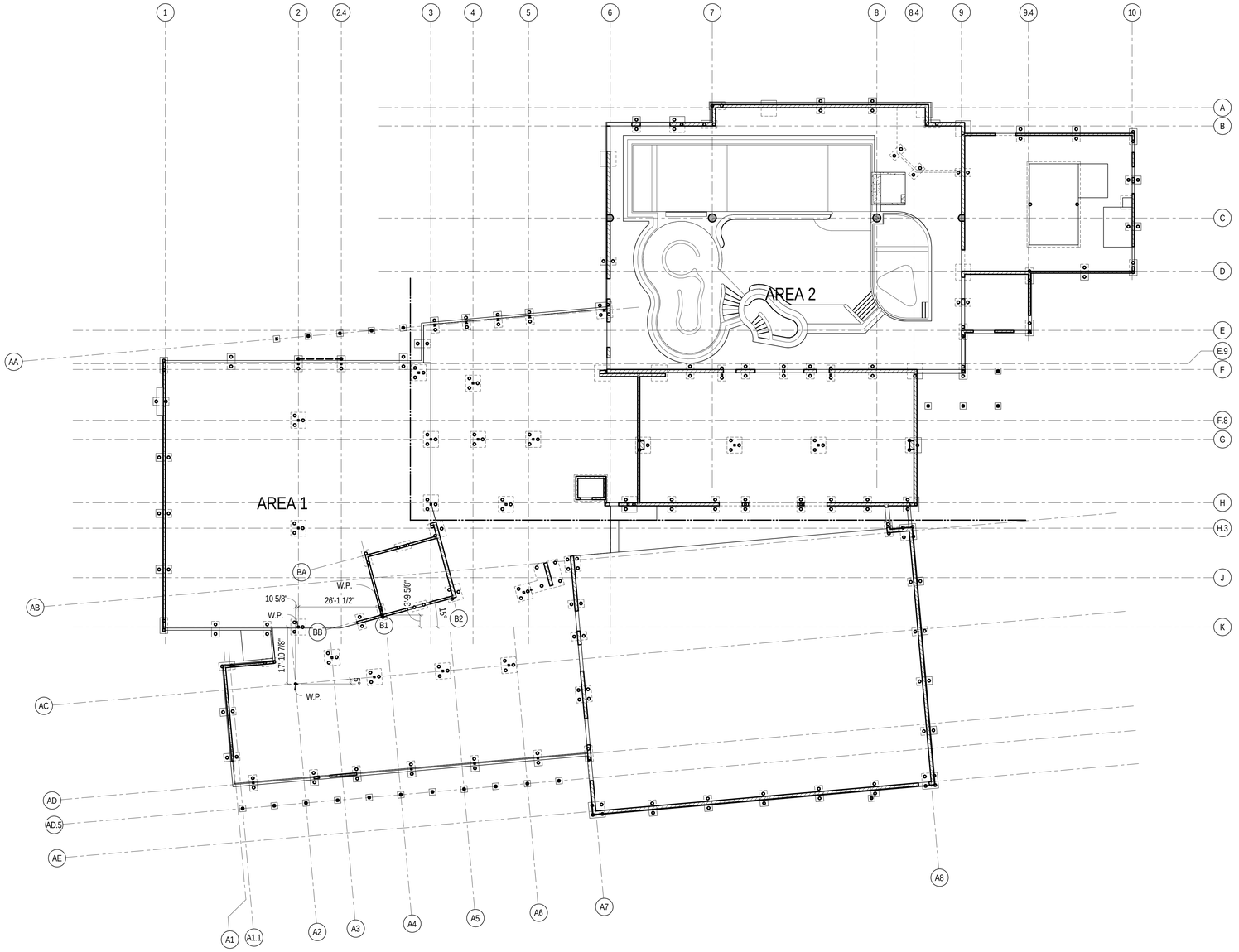

FIRST LEVEL - OVERALL FOUNDATION PLAN

1/16" = 1'-0"

FOUNDATION NOTES

1. SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. SEE S3 SERIES SHEETS FOR TYPICAL CONCRETE DETAILS.
3. SEE S3.02 FOR TYPICAL SLAB-ON-GRADE DETAILS.
4. SEE ARCHITECTURAL DRAWINGS FOR VAPOR RETARDER LOCATIONS. CONTRACTOR SHALL INSTALL VAPOR RETARDER PER RECOMMENDATIONS OF PCA AND ACI 302.1R-04.
5. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SLAB SLOPES, DEPRESSIONS, FILL, PADS, AND CURBS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
6. PILE CAPS ARE EQUALLY SPACED UNLESS NOTED OTHERWISE. PILE CAPS ARE DIMENSIONED FROM CENTROID OF PILE CAP UNLESS NOTED OTHERWISE. REF 17/S3.03 FOR PILE CAP CENTROID LOCATIONS.
7. SEE S3.03 FOR TYPICAL PILE DETAILS.
8. SEE S3.04 FOR TYPICAL FOUNDATION WALL DETAILS.
9. SEE S4.01 FOR TYPICAL STRUCTURAL MASONRY WALL DETAILS.
10. MASONRY PARTITION WALLS ARE NOT SHOWN. SEE S4.02 FOR TYPICAL MASONRY PARTITION WALL DETAILS. ALL MASONRY PARTITION WALLS LESS THAN 15'-0" TALL SHALL BE TYPE MW8A. MASONRY PARTITION WALLS GREATER THAN 15'-0" SHALL BE TYPE MW8B.
11. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF ALL MASONRY WALLS.
12. SEE ELEVATIONS FOR STRUCTURAL MASONRY WALL TYPE. ALL STRUCTURAL MASONRY WALLS NOT SHOWN IN ELEVATION TO BE TYPE MW8B.
13. EXTERIOR METAL STUD WALLS PER SCHEDULE 2/S5.50 UNLES NOTED OTHERWISE.

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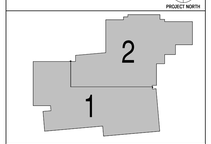

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FIRST LEVEL - AREA 1 FOUNDATION PLAN

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S2.11

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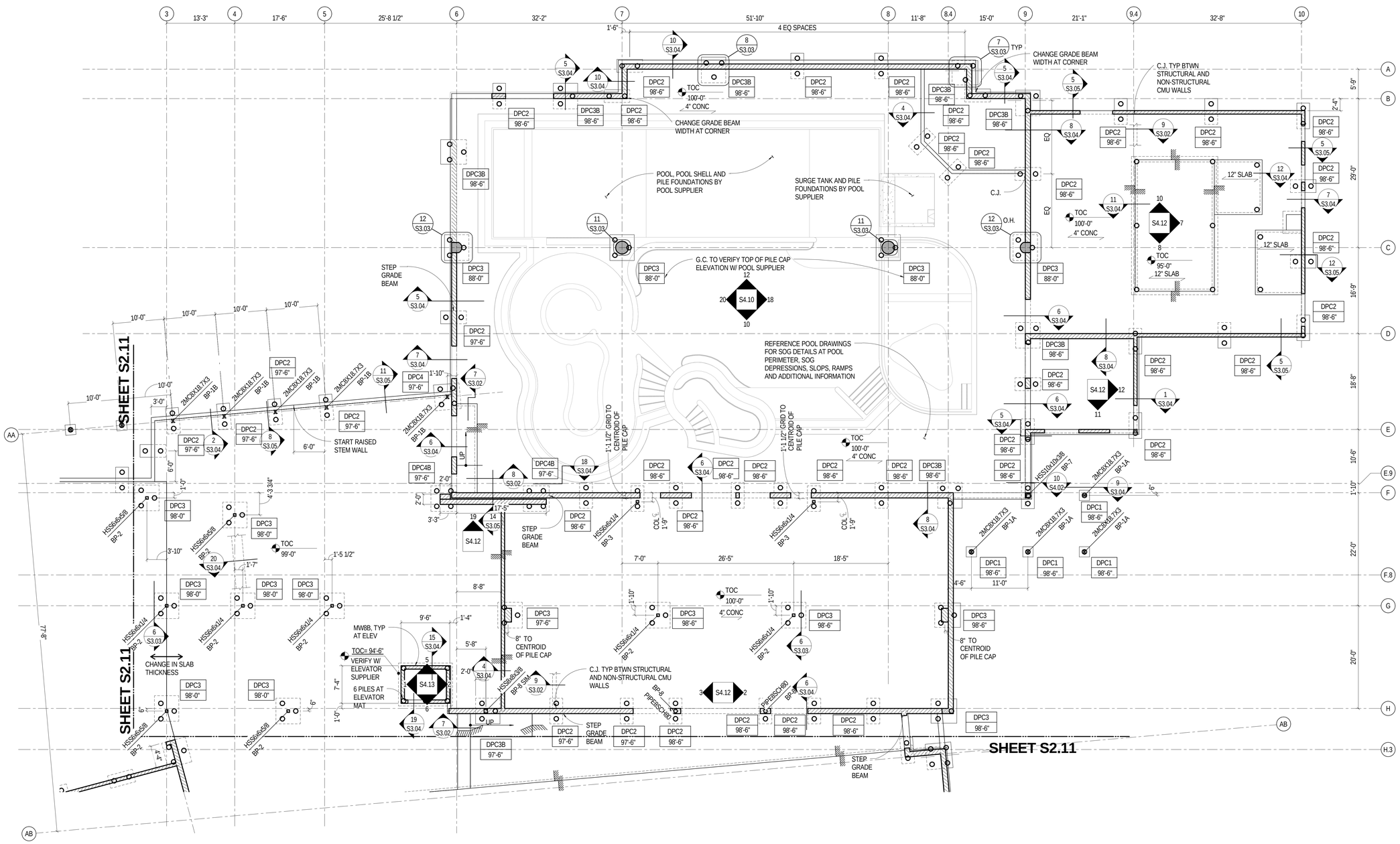
FIRST LEVEL - AREA 1 FOUNDATION PLAN

1/8" = 1'-0"

RE: S2.10 FOR FOUNDATION PLAN NOTES.



FIRST LEVEL - AREA 2 FOUNDATION PLAN

1/8" = 1'-0"

RE: S2.10 FOR FOUNDATION PLAN NOTES.

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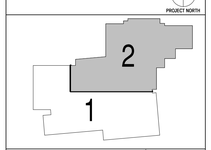

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S2.12

MM JOB #: 21468.S.01
PRINCIPAL: BEN NEILSON
EOR: BEN NEILSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
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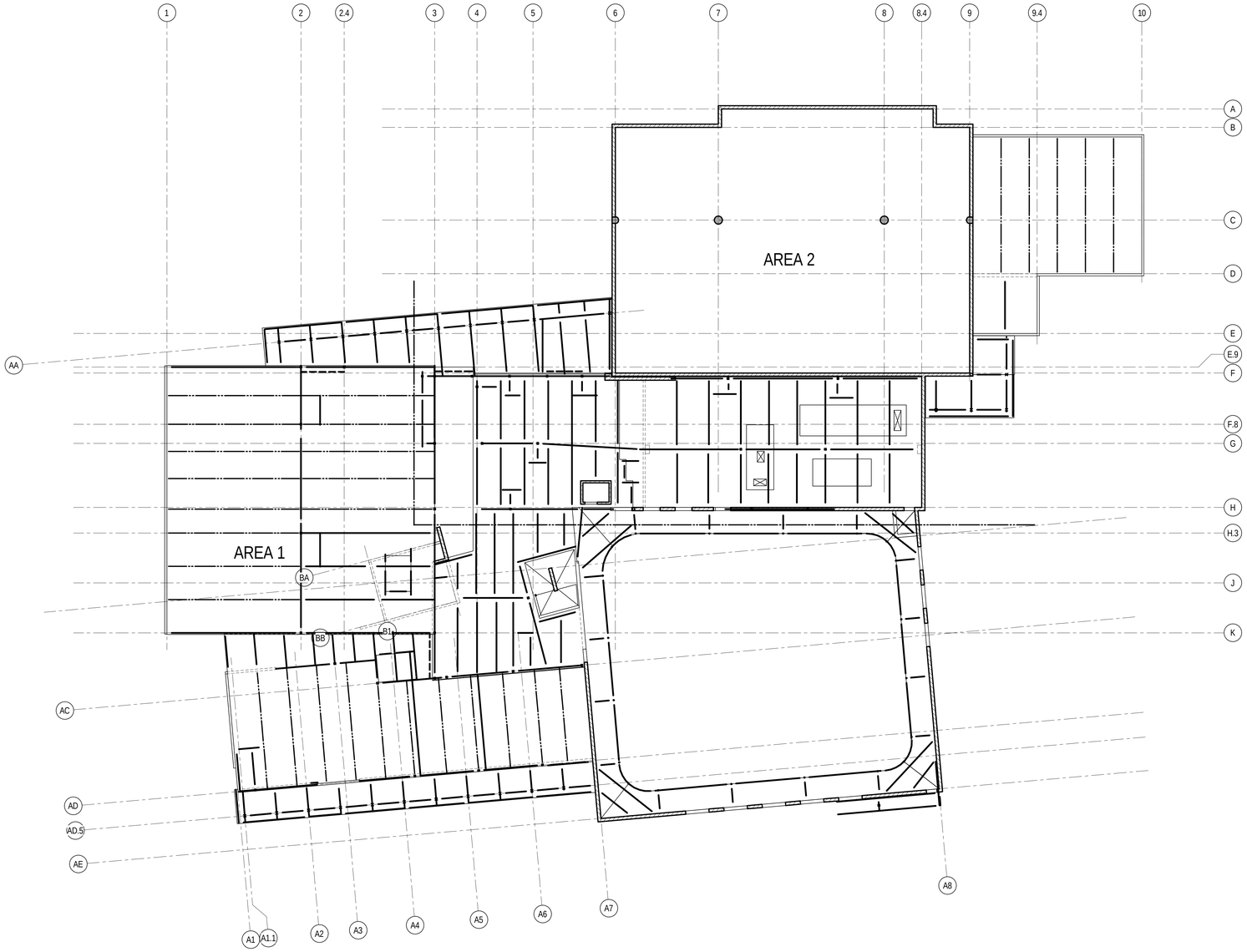

SECOND LEVEL - OVERALL FRAMING PLAN

1/16" = 1'-0"

STEEL FLOOR FRAMING PLAN NOTES
1. SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. SEE S5 SERIES SHEETS FOR TYPICAL STEEL DETAILS.
3. SEE S5.04 FOR TYPICAL METAL DECK DETAILS AND SCHEDULE.
4. SCREED CONCRETE TO PROVIDE LEVEL FLOOR.
5. SPACE BEAMS AND JOISTS EQUALLY BETWEEN GRID LINES UNLESS DIMENSIONED OTHERWISE.
6. TOP OF BEAM ELEVATION = BOTTOM OF METAL DECK UNLESS NOTED OTHERWISE ON PLAN.
7. SEE 20/S5.08 FOR JOIST LOADING AND DESIGN CRITERIA FOR NONSTANDARD JOISTS NOTED AS "SPECIAL" OR "SP".
8. CONTRACTOR TO VERIFY ALL EQUIPMENT WEIGHTS, SIZES, LOCATIONS, AND OPENINGS REEQUIRED WITH MECHANICAL CONTRACTOR. CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY CHANGES IN THE WEIGHTS OR LOCATIONS SHOWN ON THE DRAWINGS. SUCH CHANGES IN CONDITIONS SHALL BE SUBJECT TO STRUCTURAL ENGINEER REVIEW. RE: MECHANICAL AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL OPENINGS NOT SHOWN.
9. MECHANICAL EQUIPMENT WEIGHTS, IN KIPS, NOTED ON PLAN THUS: X.X k. MECHANICAL EQUIPMENT WEIGHT SHALL BE EVENLY DISTRIBUTED TO ALL SUPPORTING MEMBERS. EQUIPMENT TO BE PLACED ON TWO BEAMS MINIMUM.

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COLORADO REGISTERED BENJAMIN A. NELSON 26118 PROFESSIONAL ENGINEER

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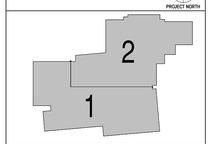
KEY PLAN

PROJECT NORTH



Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
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CONSTRUCTION DOCUMENTS	09-22-09

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SECOND LEVEL - OVERALL FRAMING PLAN

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S2.20

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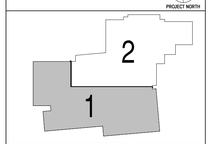

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SECOND LEVEL - AREA 1 FRAMING PLAN

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S2.21

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DESIGNERS: GARTH SCHOL
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PROJECT MANAGER: GARTH SCHOL

SECOND LEVEL - AREA 1 FRAMING PLAN

1/8" = 1'-0"

RE: S2.20 FOR FRAMING PLAN NOTES.

09-22-09

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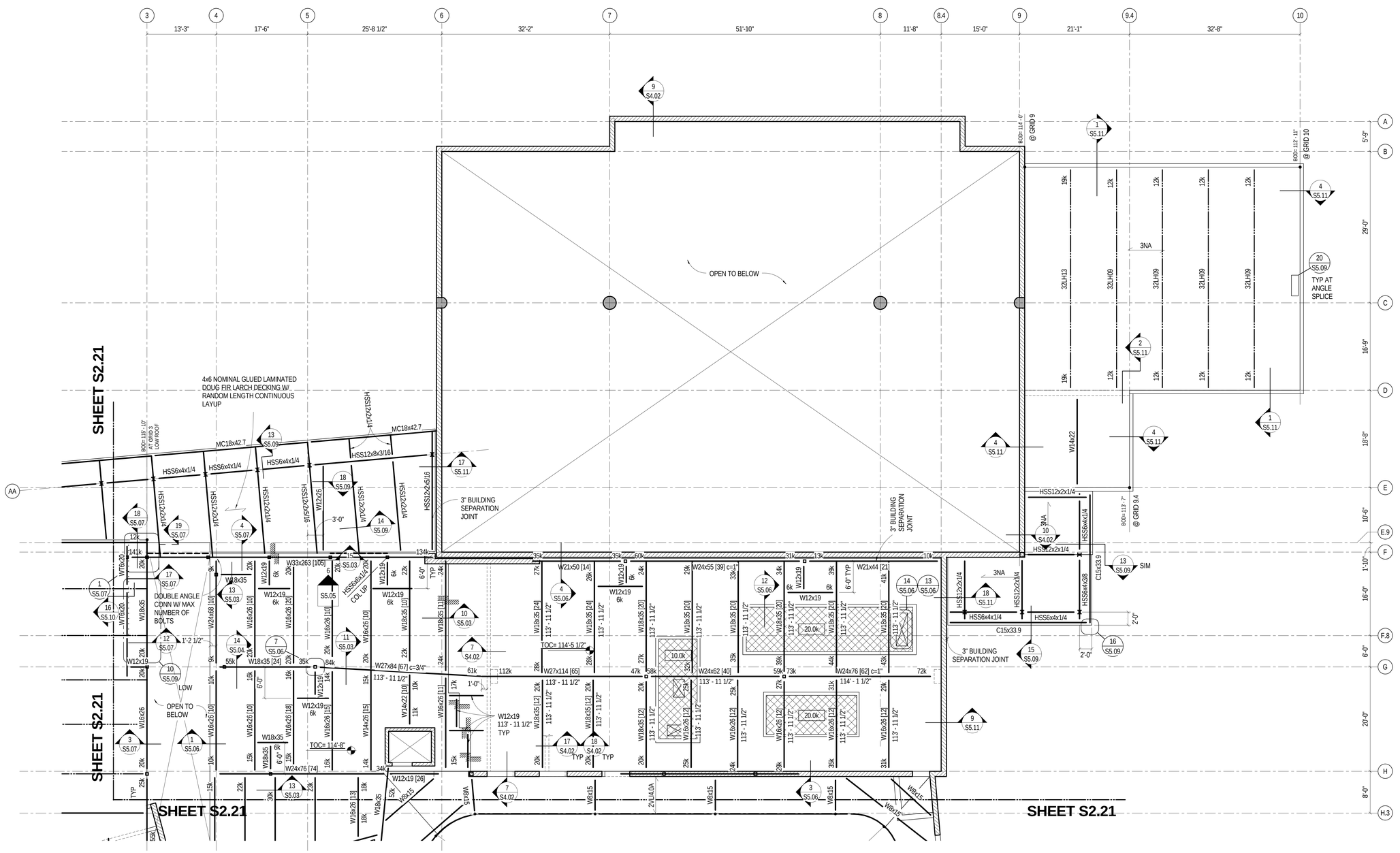
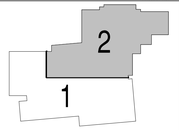


SECOND LEVEL - AREA 2 FRAMING PLAN

1/8" = 1'-0"

RE: S2.20 FOR FRAMING PLAN NOTES.

KEY PLAN



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SECOND LEVEL - AREA 2 FRAMING PLAN

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S2.22

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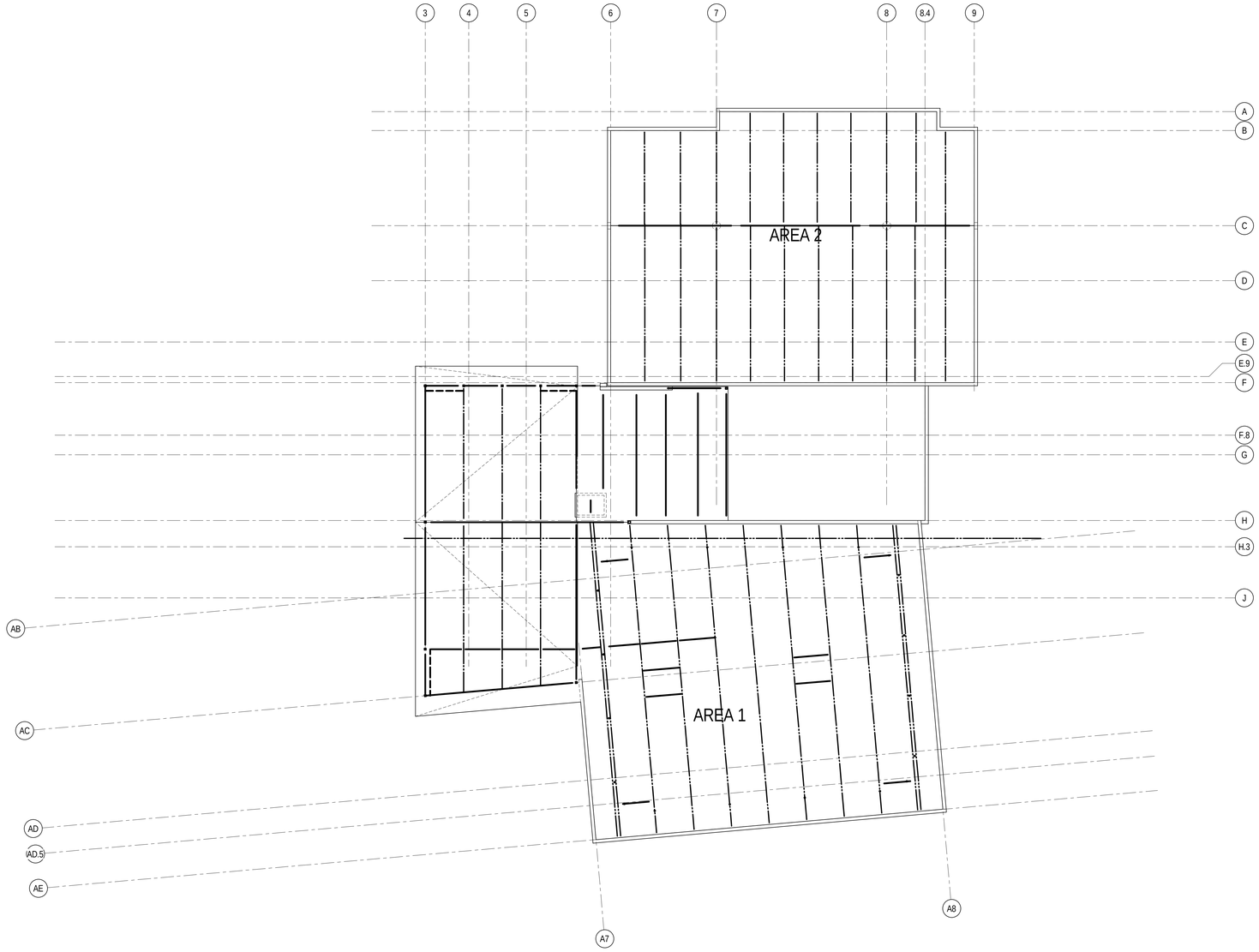

THIRD LEVEL - OVERALL FRAMING PLAN

1/16" = 1'-0"

STEEL ROOF FRAMING PLAN NOTES

1. SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. SEE S5 SERIES SHEETS FOR TYPICAL STEEL DETAILS.
3. SEES5.04 FOR TYPICAL METAL DECK DETAILS AND SCHEDULE.
4. SEE S5.08 FOR TYPICAL METAL JOIST DETAILS
5. SEE S5.01 AND S5.02 FOR TYPICAL STEEL CONNECTION DETAILS AND SCHEDULE
6. SEE S5.08 FOR JOIST LOADING AND DESIGN CRITERIA FOR NONSTANDARD JOISTS NOTED AS "SPECIAL" OR "SP".
7. SEE 12/S5.06 FOR ROOF TOP EQUIPMENT SUPPORT
8. CAMBER ALL JOISTS, AND JOIST GIRDERS FOR THE ACTUAL JOIST DEAD LOAD DEFLECTION. DO NOT USE STANDARD SJI CAMBERS. RE: S0.01 FOR DEAD LOADS.
9. JOIST BEARINGS SHALL HAVE STANDARD BEARING LENGTHS PER SJI SPECIFICATIONS.
10. CONTRACTOR TO VERIFY ALL EQUIPMENT WEIGHTS, SIZES, LOCATIONS, AND OPENINGS REQUIRED WITH MECHANICAL CONTRACTOR. CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY CHANGES IN THE WEIGHTS OR LOCATIONS SHOWN ON THE DRAWINGS. SUCH CHANGES IN CONDITIONS SHALL BE SUBJECT TO STRUCTURAL ENGINEER REVIEW. RE: MECHANICAL AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL OPENINGS NOT SHOWN.
11. RE: DETAIL6/S5.08 FOR JOIST CHORD REINFORCEMENT AT POINT LOADS.
12. ALL OPENINGS IN METAL DECK GREATER THAN 10 INCHES IN ANY DIRECTION SHALL BE SUPPORTED ON ALL FOUR SIDES BY A STEEL FRAME SPANNING BETWEEN DECK SUPPORTS. RE: 10/S5.11 FOR TYPICAL FRAMING AT ROOF DECK OPENINGS.

09-22-09

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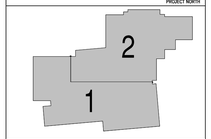

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THIRD LEVEL - OVERALL FRAMING PLAN

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S2.30

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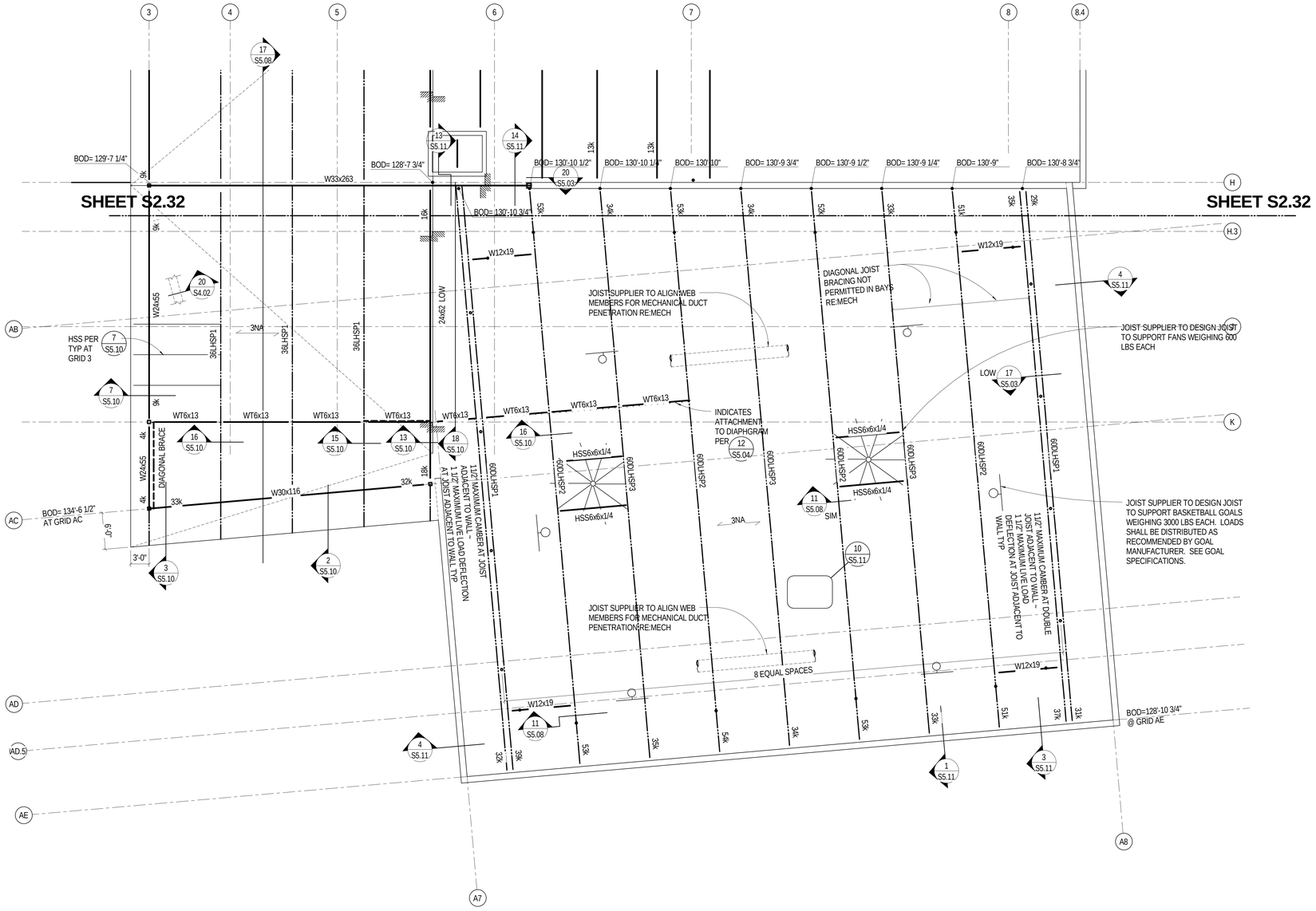

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HSS PER 7/S5.10 TYP AT GRID 3

JOIST SUPPLIER TO ALIGN WEB MEMBERS FOR MECHANICAL DUCT PENETRATION RE:MECH

DIAGONAL JOIST BRACING NOT PERMITTED IN BAYS RE:MECH

JOIST SUPPLIER TO DESIGN JOIST TO SUPPORT FANS WEIGHING 600 LBS EACH

INDICATES ATTACHMENT TO DIAPHGRAM PER 12/S5.04

11/2" MAXIMUM CAMBER AT JOIST ADJACENT TO WALL ~ 1 1/2" MAXIMUM LIVE LOAD DEFLECTION AT JOIST ADJACENT TO WALL TYP

11/2" MAXIMUM CAMBER AT DOUBLE JOIST ADJACENT TO WALL ~ 1 1/2" MAXIMUM LIVE LOAD DEFLECTION AT JOIST ADJACENT TO WALL TYP

JOIST SUPPLIER TO DESIGN JOIST TO SUPPORT BASKETBALL GOALS WEIGHING 3000 LBS EACH. LOADS SHALL BE DISTRIBUTED AS RECOMMENDED BY GOAL MANUFACTURER. SEE GOAL SPECIFICATIONS.

JOIST SUPPLIER TO ALIGN WEB MEMBERS FOR MECHANICAL DUCT PENETRATION RE:MECH

THIRD LEVEL - AREA - 1 FRAMING PLAN

1/8" = 1'-0"

RE: S2.30 FOR FRAMING PLAN NOTES.

Carl Benjamin Nelson
26118
09-22-09

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THIRD LEVEL -
AREA 1
FRAMING PLAN

Drawn By: DE, LB
Checked By: BN, GS

S2.31

MM JOB #: 21468.S.01
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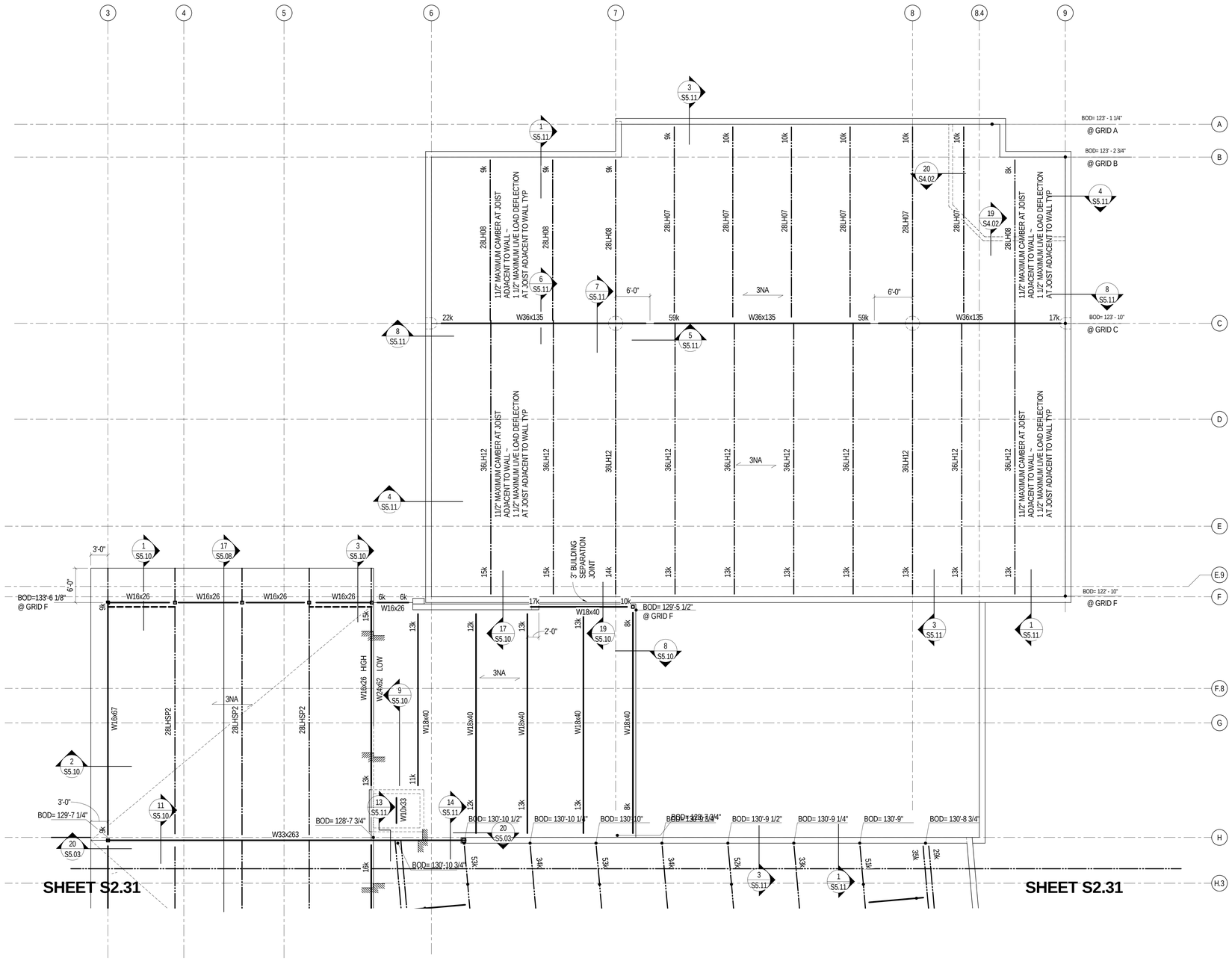

THIRD LEVEL - AREA 2 FRAMING PLAN

1/8" = 1'-0"

RE: S2.30 FOR FRAMING PLAN NOTES.

COLORADO REGISTERED BENJAMIN R. NELSON 26118 PROFESSIONAL ENGINEER

09-22-09

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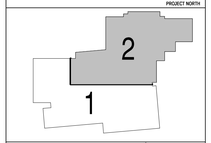

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THIRD LEVEL - AREA 2 FRAMING PLAN

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S2.32

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EOR: BEN NELSON
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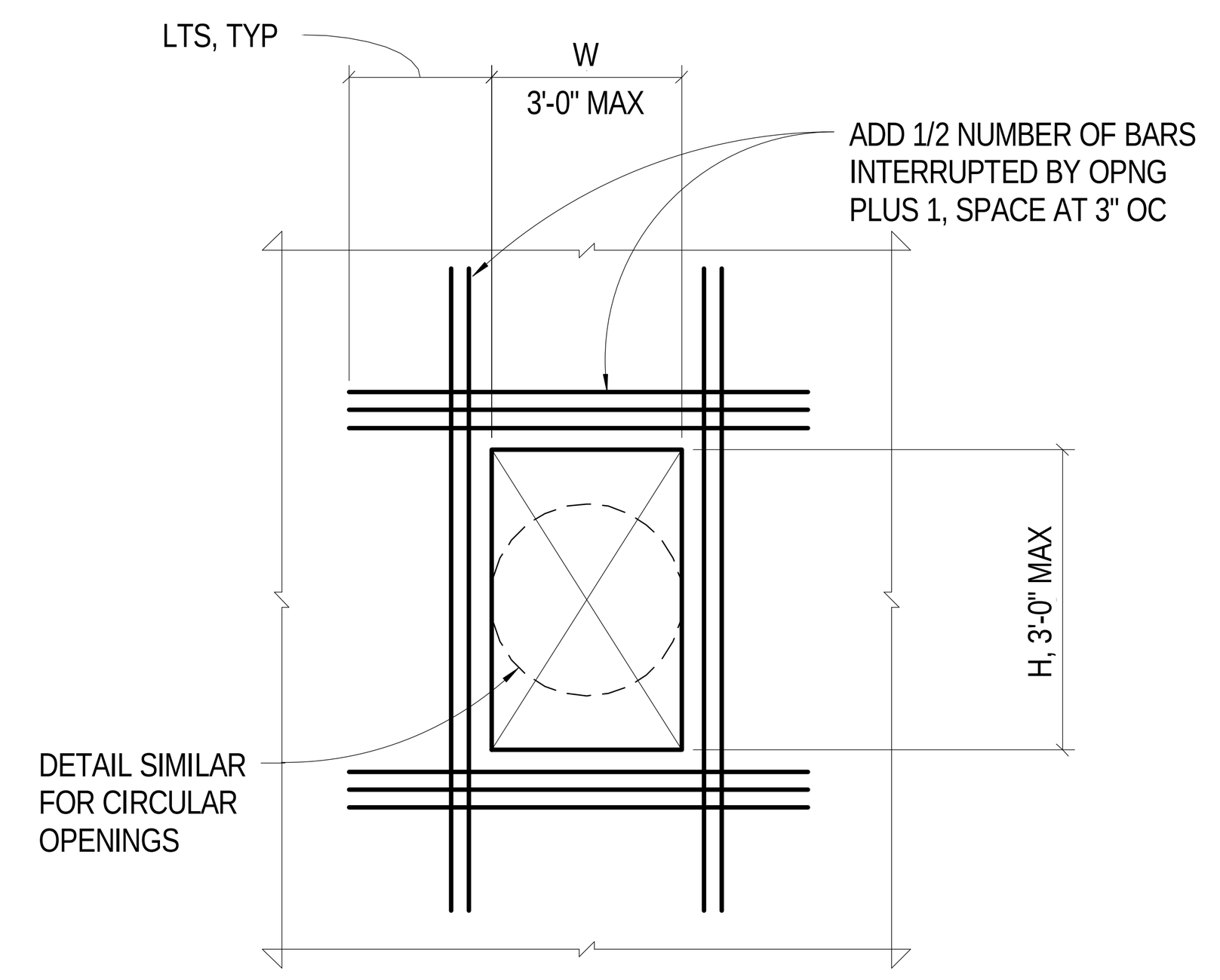
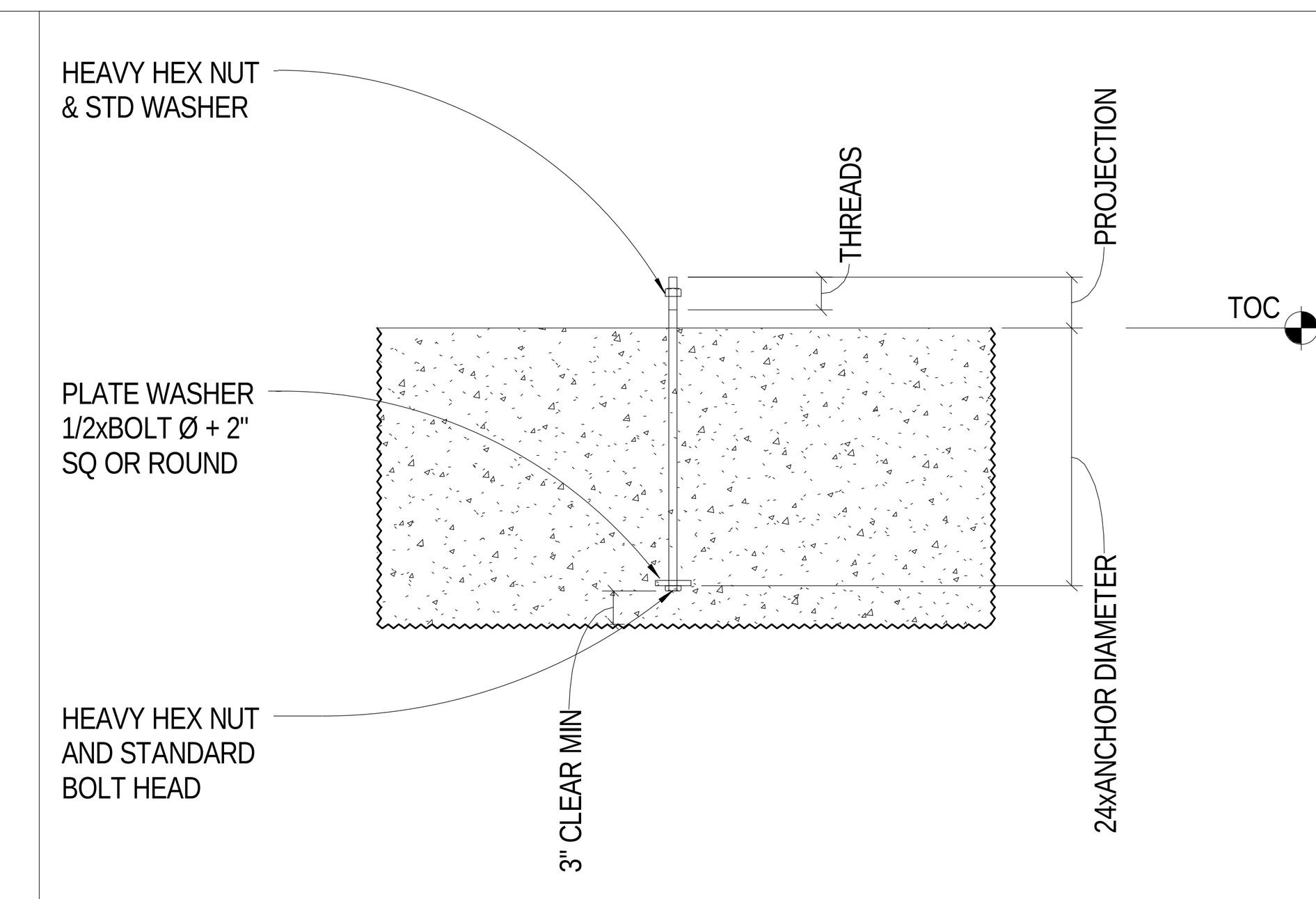


NOTES:
1. DETAIL APPLIES UNLESS REINF IS SPECIFICALLY DETAILED ON THE DRAWINGS

13 3/4" = 1'-0" TYP CIP SLAB OR WALL OPENING



NOTE: REDUCE ANCHOR BOLT EMBEDMENT AS REQUIRED TO SATISFY MINIMUM CONCRETE COVER AT BOTTOM OF FOOTINGS.

9 3/4" = 1'-0" TYPICAL ANCHOR BOLTS

LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE (INCHES)																						
BAR SIZE (IN-LB)	BAR SIZE (METRIC)	F'c = 3,000 PSI							F'c = 4,000 PSI							F'c = 5,000 PSI						
		COMP		TENSION					COMP		TENSION					COMP		TENSION				
		LCE	LCS	LDH	LTE TOP	LTE OTHER	LTS TOP	LTS OTHER	LCE	LCS	LDH	LTE TOP	LTE OTHER	LTS TOP	LTS OTHER	LCE	LCS	LDH	LTE TOP	LTE OTHER	LTS TOP	LTS OTHER
#3	#10	8	12	6	21	16	28	21	8	12	6	18	14	24	18	8	12	6	17	13	22	17
#4	#13	11	15	8	28	22	37	28	9	15	7	25	19	32	25	9	15	6	22	17	29	22
#5	#16	14	19	10	36	27	46	36	12	19	8	31	24	40	31	11	19	7	28	21	36	28
#6	#19	16	23	12	43	33	56	43	14	23	10	37	28	48	37	14	23	9	33	25	43	33
#7	#22	19	26	13	62	48	81	62	17	26	12	54	42	70	54	16	26	10	48	37	63	48
#8	#25	22	30	15	71	55	93	71	19	30	13	62	47	80	62	18	30	12	55	42	72	55
#9	#29	25	34	17	80	62	105	80	21	34	15	70	54	91	70	20	34	13	62	48	81	62
#10	#32	28	38	19	90	70	118	90	24	38	17	78	60	102	78	23	38	15	70	54	91	70
#11	#36	31	42	22	100	77	131	100	27	42	19	87	67	113	87	25	42	17	78	60	101	78

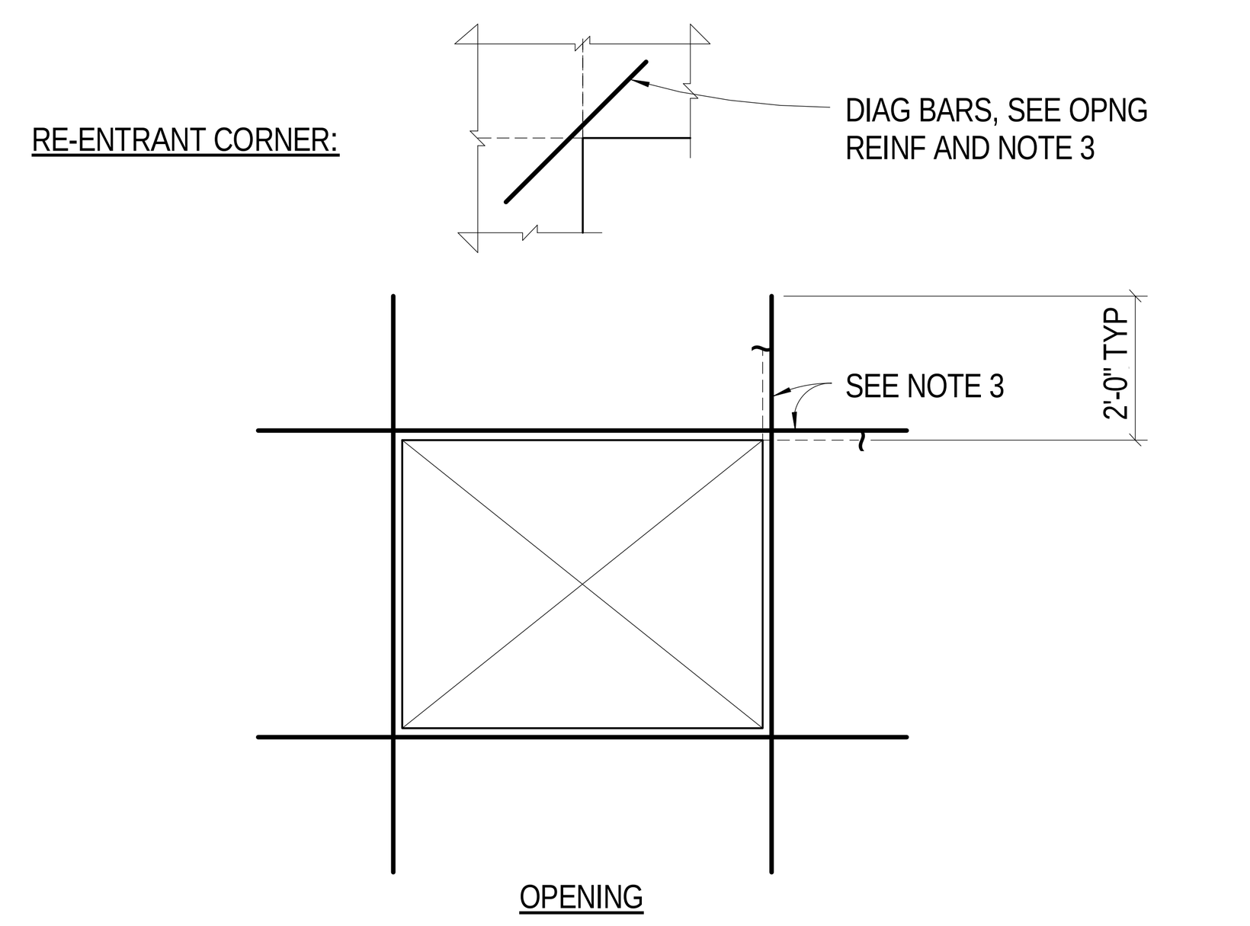
GENERAL NOTES:
1. 'LCE' = COMPRESSION EMBEDMENT LENGTH, 'LCS' = COMPRESSION LAP SPLICE LENGTH, 'LTE' = TENSION EMBEDMENT LENGTH, 'LTS' = TENSION LAP SPLICE LENGTH, 'LDH' = HOOK DEVELOPMENT LENGTH
2. 'TOP' BARS ARE HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 IN. OF FRESH CONCRETE IS CAST BELOW THE BAR
3. ALL BARS THAT ARE NOT 'TOP' BARS ARE 'OTHER' BARS
4. UNLESS NOTED OTHERWISE, ALL HOOK BARS SHALL EXTEND TO THE FAR FACE (LESS 2" COVER)

LAP SPLICE NOTES:
1. ALL SPLICES SHALL BE WIRED IN CONTACT AND STACKED VERTICALLY
2. ALL SPLICES ARE 'LTS' UNLESS NOTED OTHERWISE
3. SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPLICING DIFFERENT SIZED BARS
4. LAP LENGTHS SPECIFICALLY DETAILED ON DRAWINGS SHALL GOVERN IN LIEU OF LAP LENGTHS SCHEDULED
5. BUNDLED BAR SPLICES:
   A. INDIVIDUAL BAR SPLICES WITHIN THE BUNDLE SHALL BE STAGGERED
   B. INCREASE LAP LENGTH 20% FOR A 3 BAR BUNDLE
   C. INCREASE LAP LENGTH 33% FOR A 4 BAR BUNDLE
6. IF A NOTE OR DETAIL CALLS FOR A BAR TO BE EMBEDDED Ld (DEVELOPMENT LENGTH) INTO CONCRETE, THIS LENGTH SHALL CORRESPOND TO A 'LTE' LAP

ADJUSTMENTS TO GIVEN LAP LENGTHS:
1. IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE SCHEDULED LAP LENGTHS BY 50%
2. IF LIGHTWEIGHT AGGREGATE IS SPECIFIED, INCREASE SCHEDULED LAP LENGTHS BY 30%
3. SCHEDULED LAP LENGTHS ASSUME:
   A. CLEAR COVER IS GREATER THAN BAR DIAMETER, BUT NOT LESS THAN 3/4"
   B. CLEAR SPACING BETWEEN BARS IS GREATER THAN 2 BAR DIAMETERS
   C. IF EITHER CONDITION A OR B IS NOT MET FOR A GIVEN BAR, INCREASE LENGTHS BY 50%
4. SPLICE LENGTHS NOTED BASED ON Fy = 60,000 PSI. FOR OTHER YIELD STRENGTHS, MULTIPLY SPLICE LENGTHS NOTED BY Fy/60,000

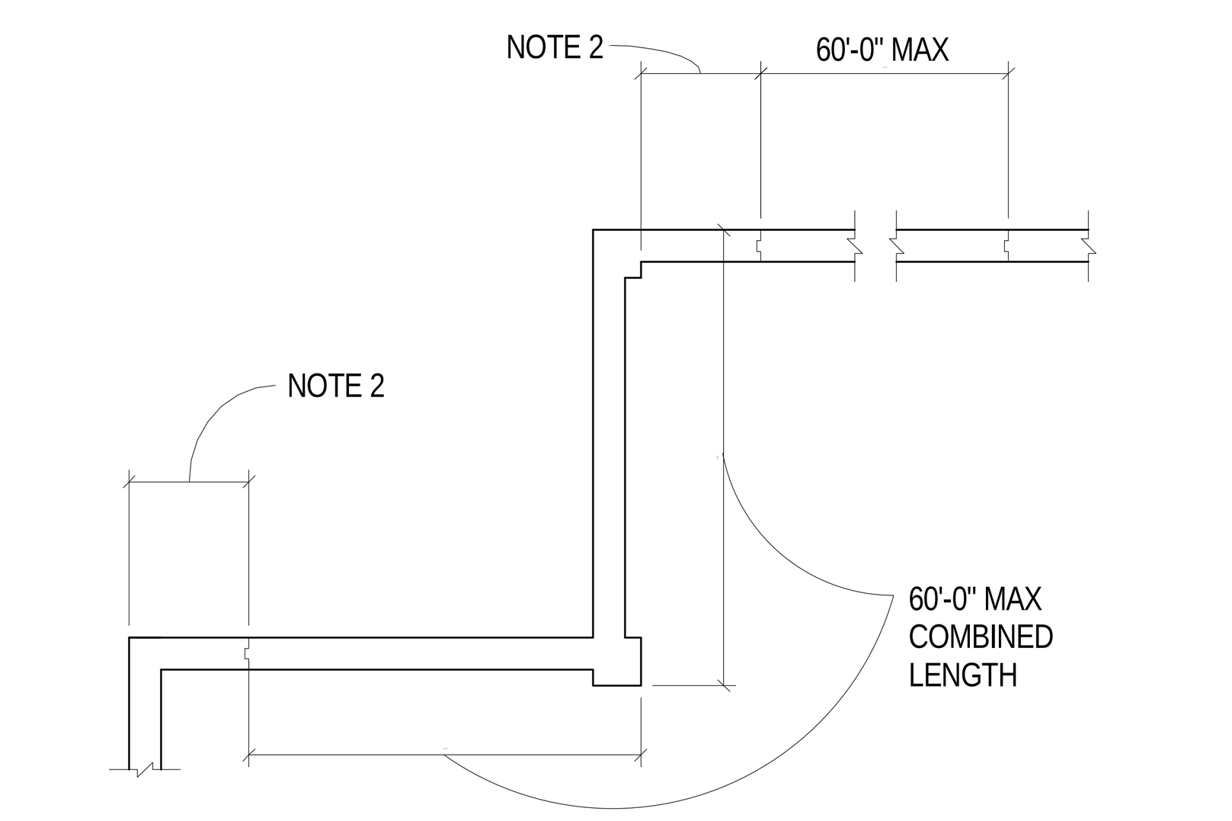
HOOK EMBEDMENT NOTES:
1. SCHEDULED HOOK EMBEDMENT LENGTHS ASSUME:
   A. SIDE COVER IS 2 1/2 INCHES OR GREATER
   B. COVER BEYOND IS 2 INCHES OR GREATER
2. IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE SCHEDULED LAP LENGTHS BY 20%
3. IF LIGHTWEIGHT AGGREGATE IS SPECIFIED, INCREASE SCHEDULED LAP LENGTHS BY 30%
4. IF SIDE COVER IS LESS THAN 2 1/2 INCHES, INCREASE LENGTHS BY 40%

6 NO SCALE LAP SPLICE & DEVELOPMENT LENGTH SCHEDULE



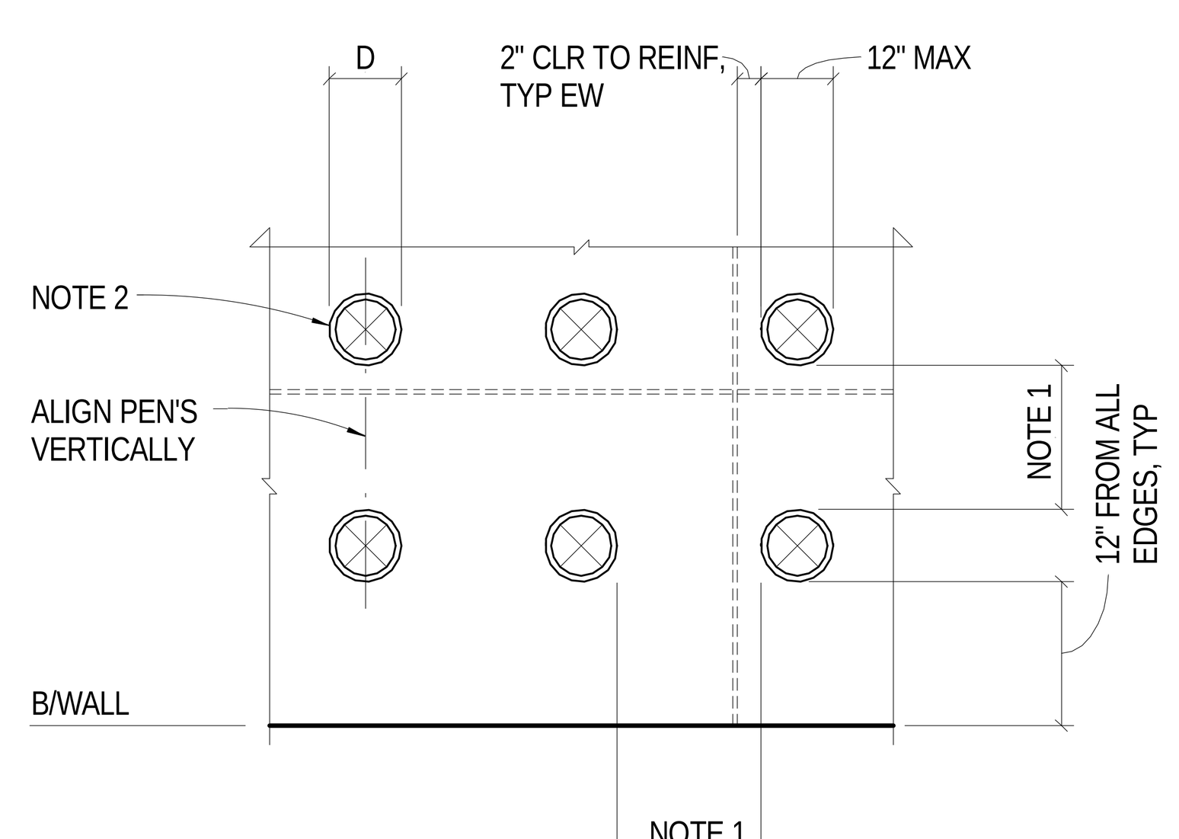
NOTES:
1. DETAIL APPLIES FOR ALL OPNGS IN METAL DECK SLABS, SOG'S, AND TOPPING SLABS
2. REINF NOT REQUIRED AT OPNGS SMALLER THAN 10"x10"
3. OMIT BARS IN SOG IF CONTROL/CONST JTS EXIST AT EACH CORNER, EACH DIRECTION
4. SEE OTHER DTLS FOR REINF AT OPNGS IN CONC WALLS AND CONC STR SLABS

14 3/8" = 1'-0" TYP TRIM REINF



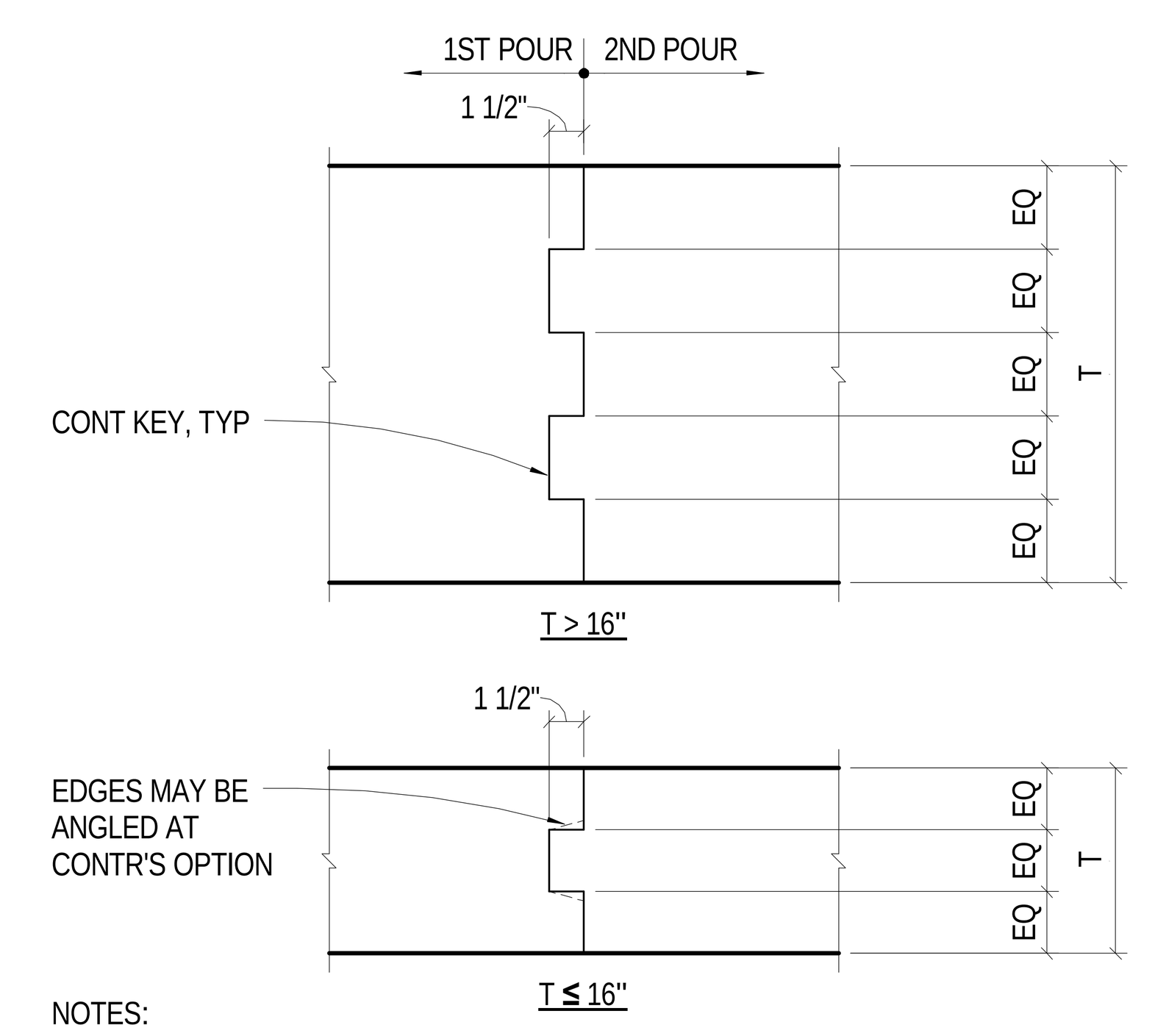
NOTES:
1. SUBMIT LOCATIONS OF CONST JTS FOR REVIEW PRIOR TO CONSTRUCTION
2. LOCATE CONST JTS AT LEAST 5'-0" FROM PILASTERS AND CORNERS. AT GR BEAMS, JT SHALL BE IN MIDDLE THIRD OF SPAN

10 1/8" = 1'-0" TYP FND WALL/STEM WALL/GR BM POUR LENGTH LIMITS



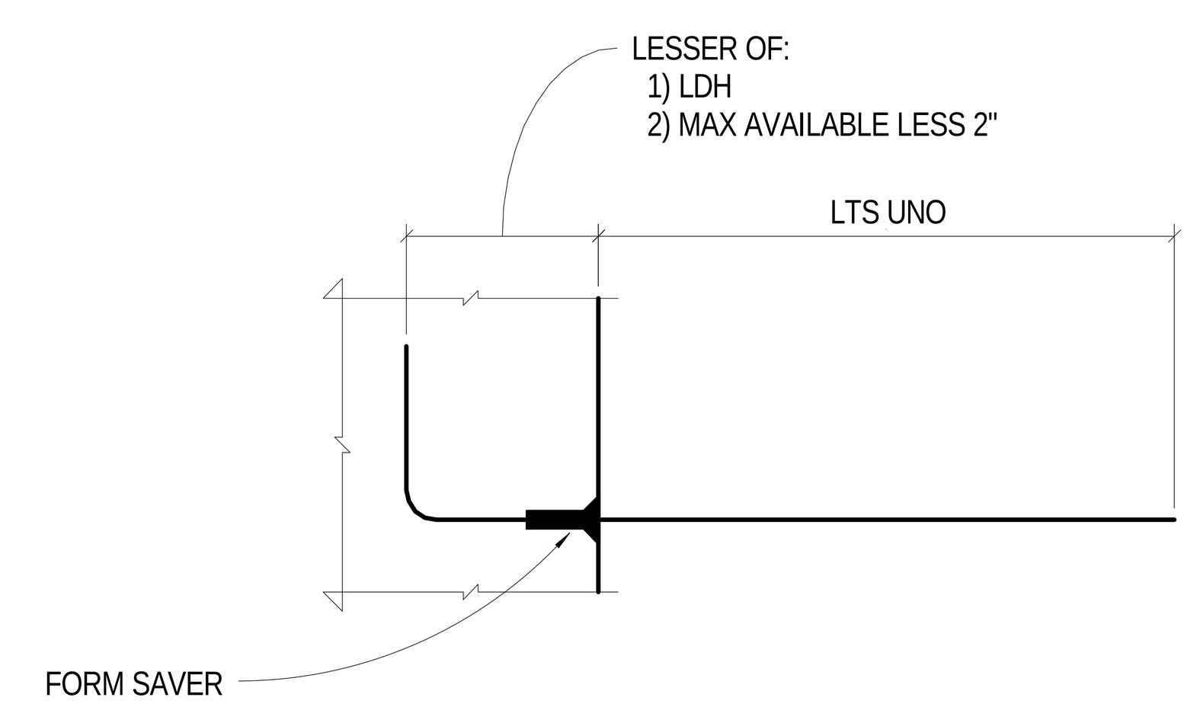
NOTES:
1. GREATER OF 2xD AND 12", WHERE CLEAR DISTANCE IS NOT ACHIEVABLE, TREAT AREA AS SINGLE OPENING REINFORCED PER "TYP CIP SLAB OR WALL OPENING" DETAIL
2. DO NOT CUT REBAR AT PENETRATIONS LOCS. REBAR MAY BE MOVED 8" MAX TO ACCOMMODATE PENETRATIONS

15 NO SCALE TYP SLEEVED OPNGS THRU WALL

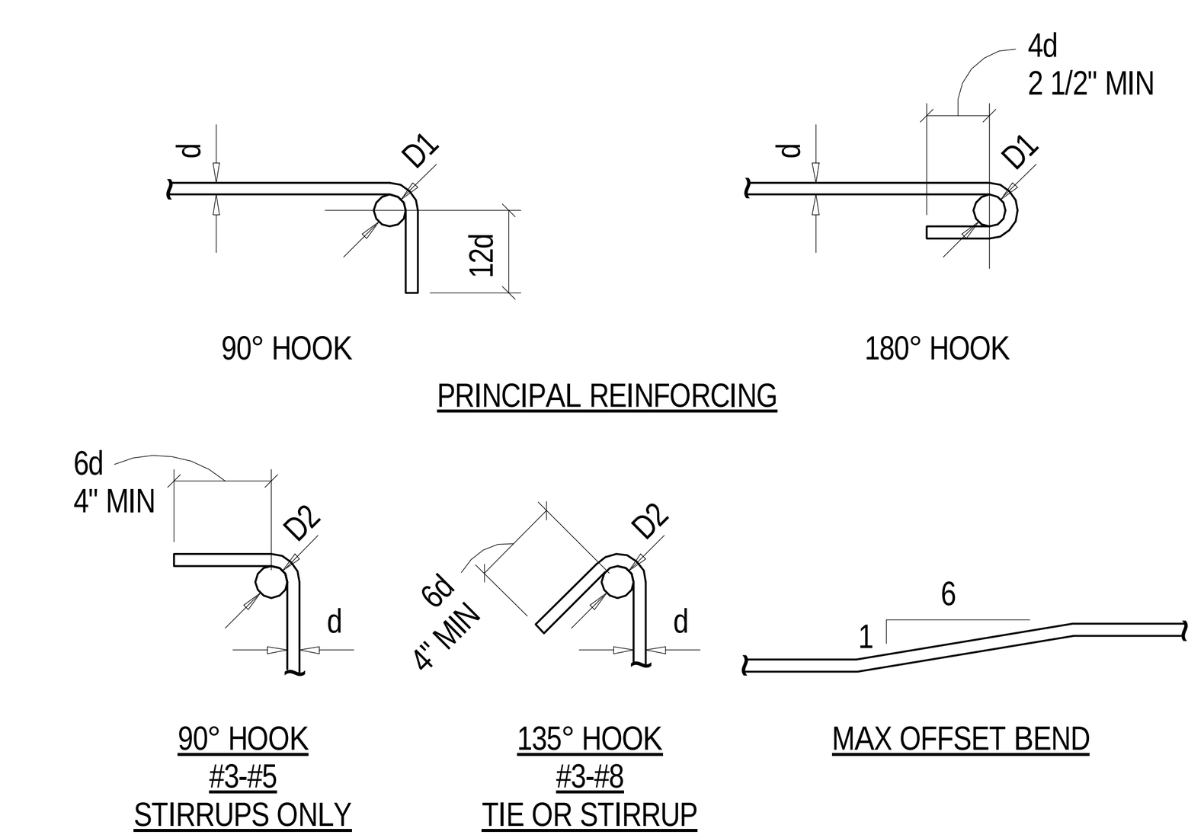


NOTES:
1. CLEAN SURFACES AND REMOVE LAITANCE
2. WET SURFACE AND REMOVE STANDING WATER PRIOR TO PLACING CONCRETE

11 1 1/2" = 1'-0" TYP KEYED CONST JT GEOMETRY



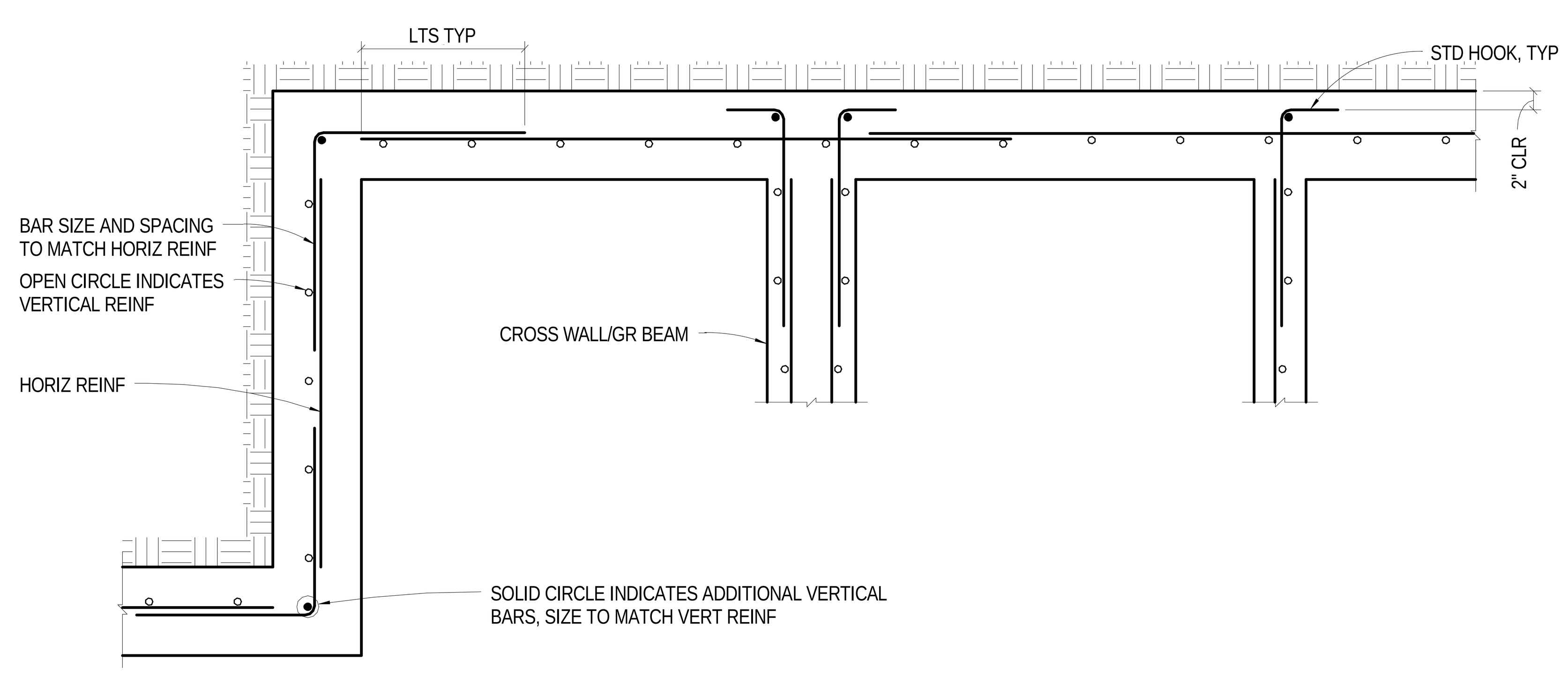
7 1 1/2" = 1'-0" TYP FORMSAVER



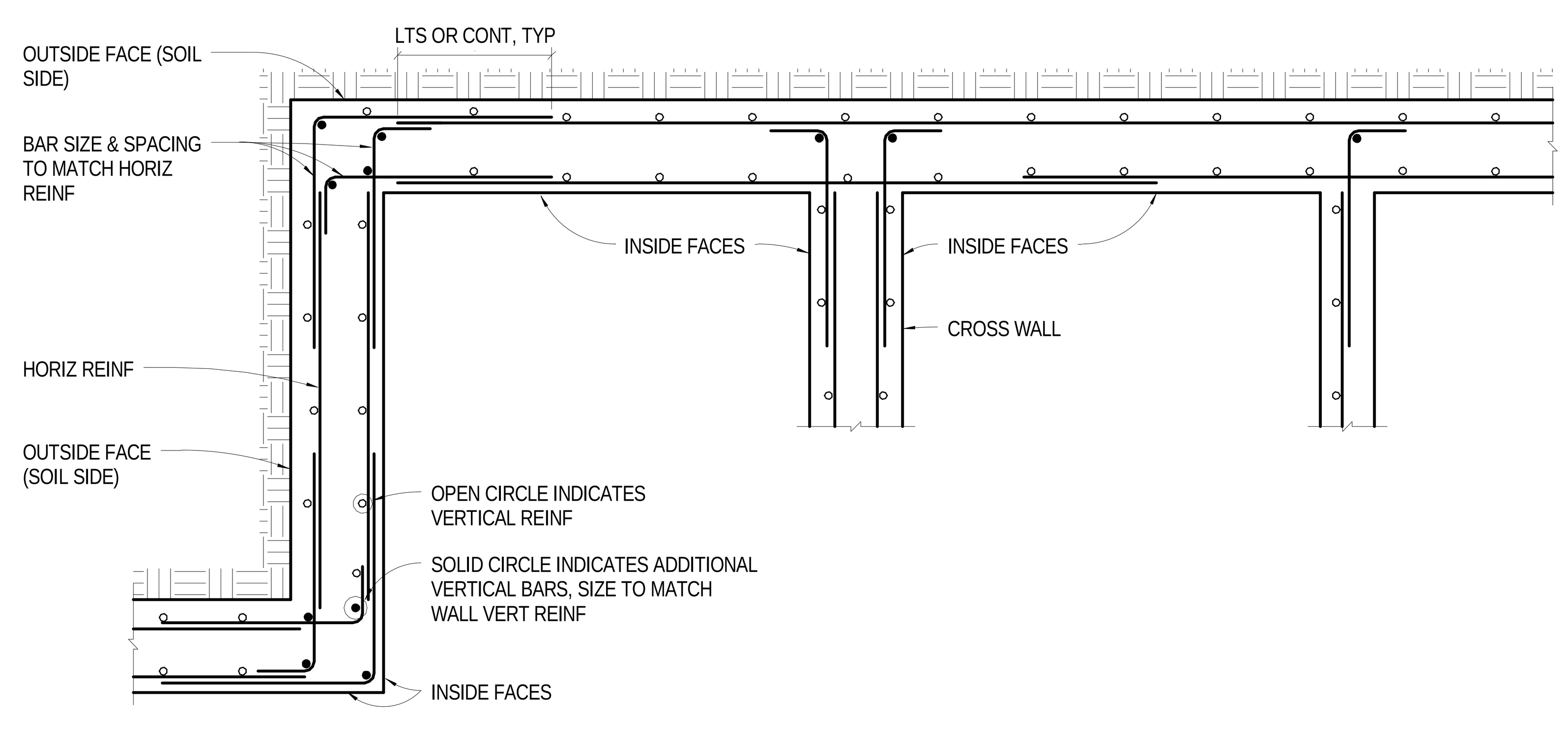
NOTES:
1. ALL BENDS SHALL BE MADE COLD
2. #14 & #18 BARS SHALL BE BEND TESTED & LAB APPROVED PRIOR TO BENDING

D1		D2	
#3 - #8	6d	#3 - #5	4d
#9 - #11	8d	#6 - #8	6d
		#9 - #11	8d

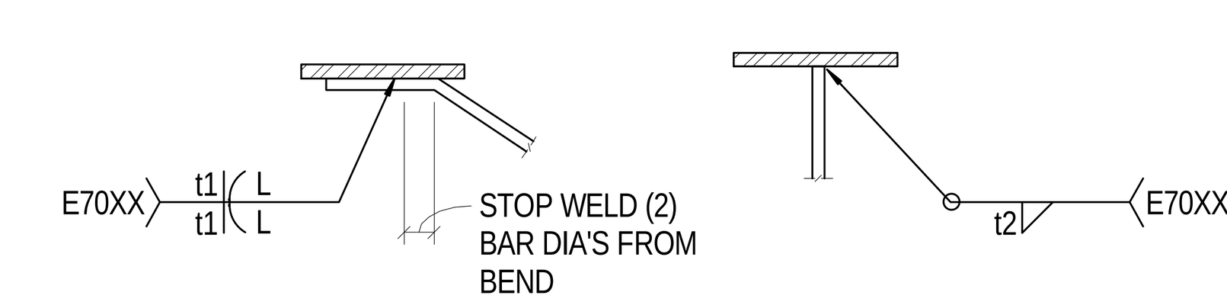
3 NO SCALE TYP BAR BEND DETAILS



20 NO SCALE TYP GRADE BEAM/STEM WALL W/SINGLE CURTAIN OF REINF



12 NO SCALE TYP GR BEAM/FND WALL W/TWO LAYERS REINF



BAR SIZE	t1	L
#3	3/16	2
#4	1/4	2 1/2
#5	5/16	3
#6	3/8	3 1/2
#7	7/16	4
#8	1/2	4 1/2

BAR SIZE	t2
#3	1/4
#4	5/16
#5	3/8
#6	7/16
#7	1/2
#8	9/16

4 1 : 1 TYP REBAR WELD SCHEDULE

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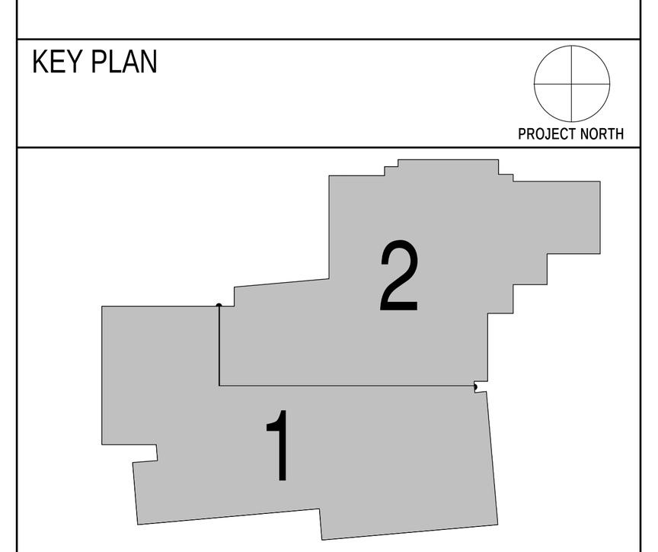
KEY PLAN



Issues/Revisions	Date:
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CONSTRUCTION DOCUMENTS	09-22-09

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M/M Project No.: 21468.S.01

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Checked By: BN, GS

DESIGNERS: GARTH SCHOL
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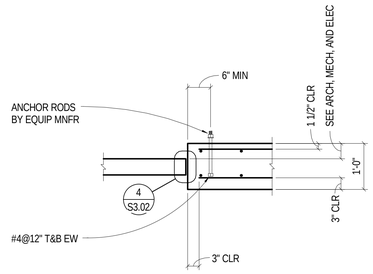
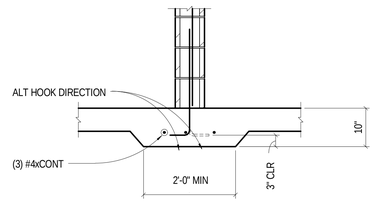
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL

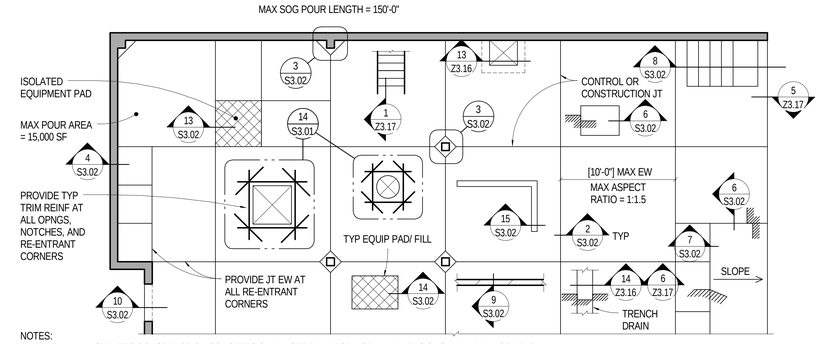
S3.01



13 NO SCALE TYP SOG ISOLATED EQUIP PAD



9 NO SCALE TYP SOG BELOW MASONRY PARTITION WALL (BRACED AT TOP)

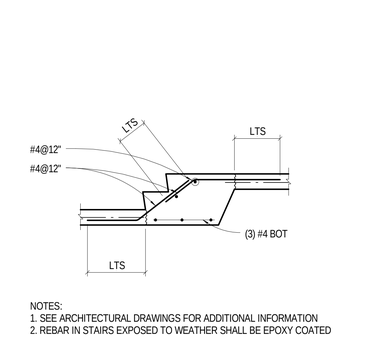


NOTES:
1. KEY PLAN ILLUSTRATES CONSTRUCTION CONCEPTS ONLY. SEE PLAN FOR ACTUAL DIMENSIONS AND ARRANGEMENT
2. PROVIDE ADDITIONAL CONTROL JOINTS AT ABRUPT CHANGES IN THICKNESS AND LOCATIONS PRONE TO CRACKING. COORD LOCS WITH FLOOR FINISHES AND INTERIOR WALLS

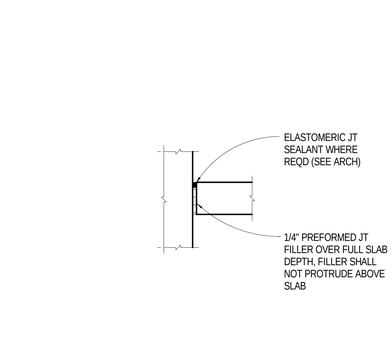
5 NO SCALE TYP SOG KEY PLAN

14 NO SCALE TYP SOG EQUIP PAD

10 NO SCALE TYP SOG EXT THRESHOLD



6 NO SCALE TYP SOG STEP



NOTES:
1. PROVIDE TOOLED JT OR SAW CUT AS SOON AS THE CONC HAS HARDENED SUFFICIENTLY TO PERMIT CUTTING WITHOUT CHIPPING, SPALLING, OR TEARING (BUT NOT MORE THAN 12 HOURS AFTER CASTING)
2. GRANULAR COURSE: [6" MIN COMPACTED GRANULAR FILL], SEE EARTHWORK SPEC
3. PREPARED/COMPACTED SUBGRADE, SEE EARTHWORK SPEC

2 1" = 1'-0" TYP SOG - 4" THICK

NOTES:
1. SEE ARCH FOR SIZES AND LOCATIONS

15 NO SCALE TYP SOG CONC CURB

11 NO SCALE TYP SOG INT THRESHOLD

7 NO SCALE TYP SOG RAMP/SLOPE

3 NO SCALE TYP SOG BLOCKOUT AT COLUMN/PILASTER

NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION
2. REBAR IN STAIRS EXPOSED TO WEATHER SHALL BE EPOXY COATED

8 NO SCALE TYP SOG STAIR

4 NO SCALE TYP SOG ISOLATION JOINT

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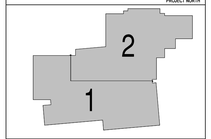
KEY PLAN



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Checked By: BN, GS

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MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
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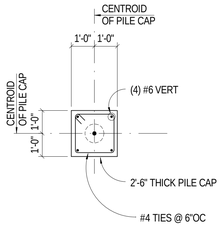

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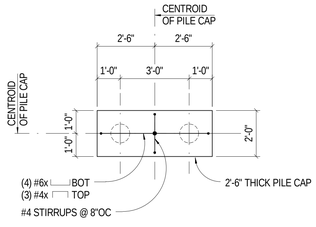

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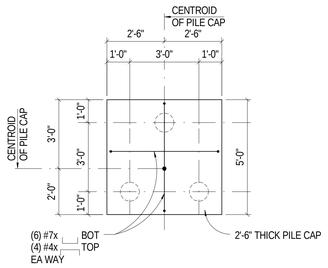

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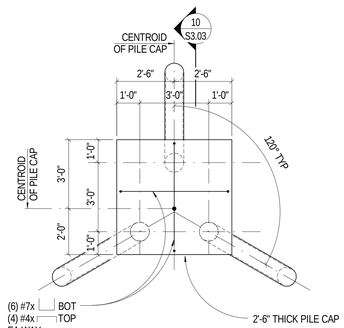
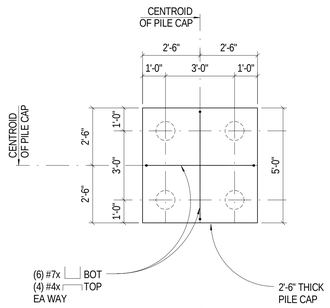
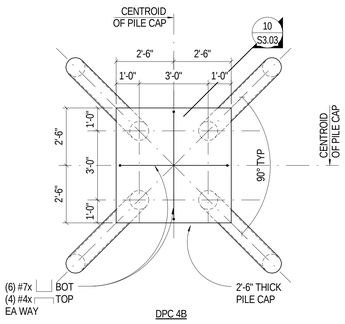


DPC 3B



DPC 4



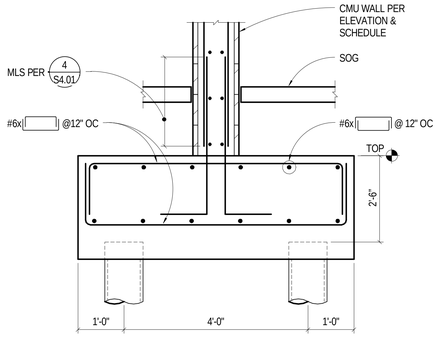
DPC 4B

NOTES:

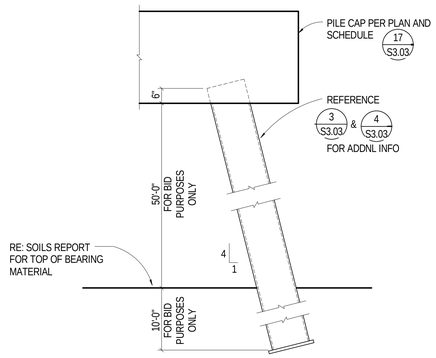
1. RE: SPECS FOR PLACEMENT TOLERANCES OF INDIVIDUAL PILES AND PILE GROUPS.

2. SURVEY AS-BUILT LOCATIONS OF ALL PILES AND PREPARE DIMENSIONED PLAN OF PILES THAT DO NOT MEET THE REUIRED PLACEMENT TOLERANCES. SUBMIT PROPOSED REMEDIATION TO ENGINEER PER NOTE 4C ON S0.02.

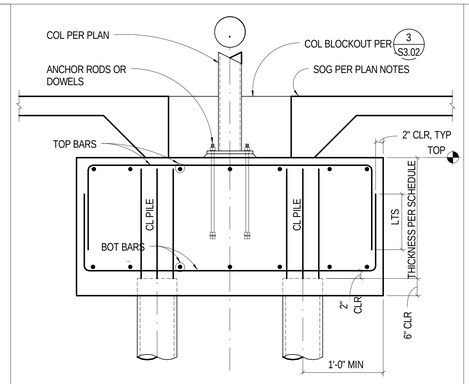
17 NO SCALE TYP PILE GROUPS



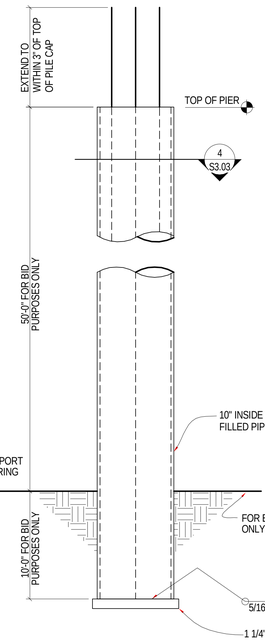
14 3/4" = 1'-0" FOUNDATION AT CMU STAIR WALL



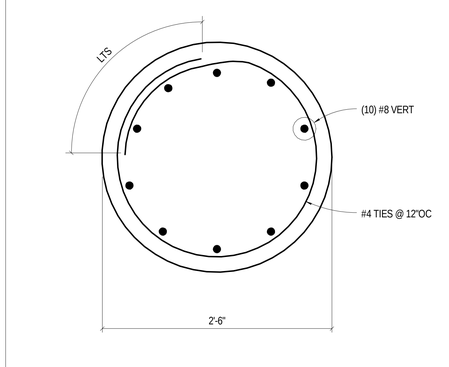
10 NO SCALE BATTERED PILE GEOMETERY



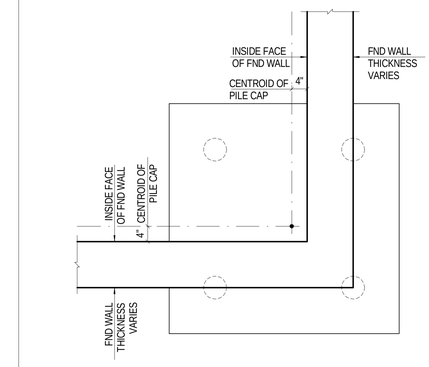
6 NO SCALE TYP PILE CAP ELEVATION



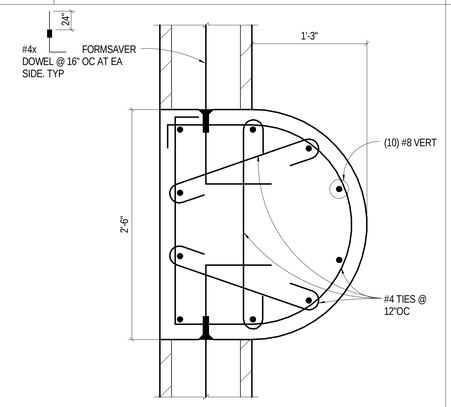
3 NO SCALE PILE END DETAIL



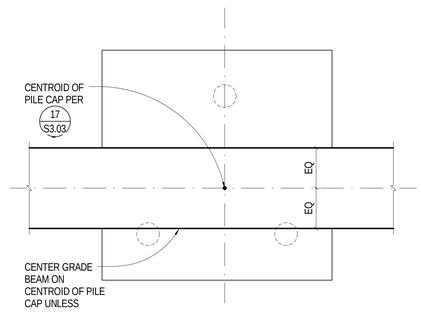
11 1 1/2" = 1'-0" 30"Ø CONC COL



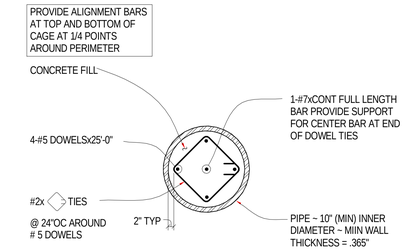
7 3/4" = 1'-0" CORNER GEOMETRY AT 3 AND 4 PILE CAPS



12 1 1/2" = 1'-0" CONC COL AT CMU WALL



8 3/4" = 1'-0" 3 PILE CAP AT CONTINUOUS GRADE BEAM



4 1 1/2" = 1'-0" TYP PILE REINF

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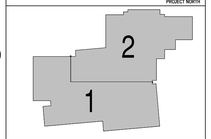

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DESIGNERS: GARTH SCHOL
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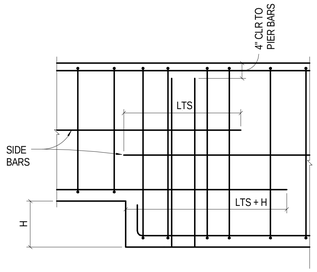
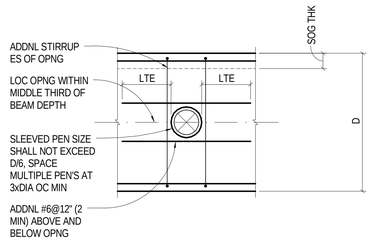
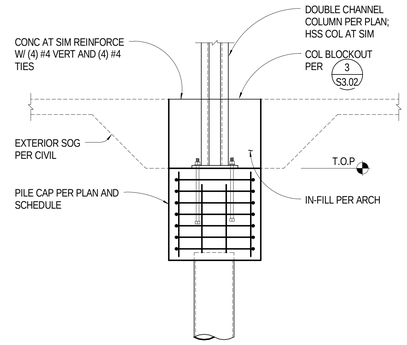


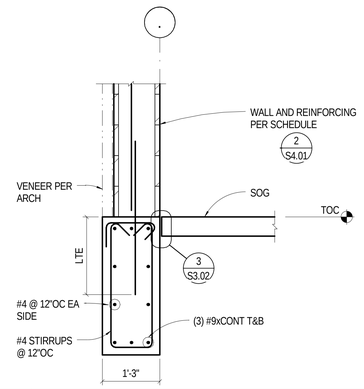
17 NO SCALE TYP GRADE BEAM STEP - 2



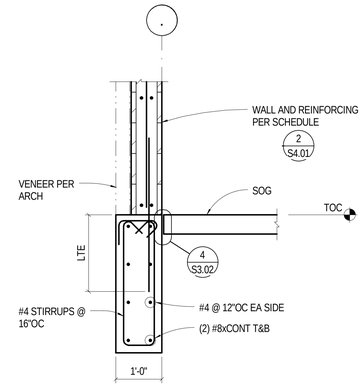
13 3/4" = 1'-0" TYP GRADE BEAM - SLEEVED OPENING



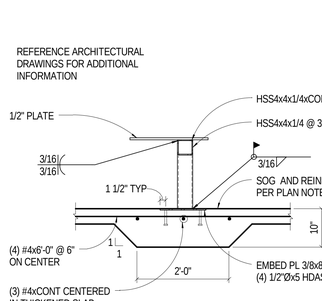
9 3/4" = 1'-0" PILE CAP AT AWNING COLUMN



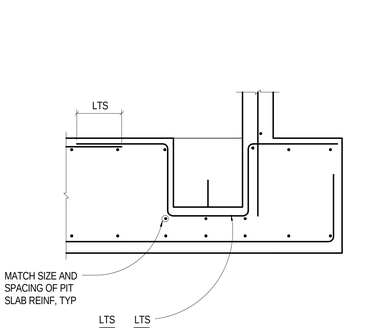
5 3/4" = 1'-0" FOUNDATION AT EXTERIOR 12" CMU WALL



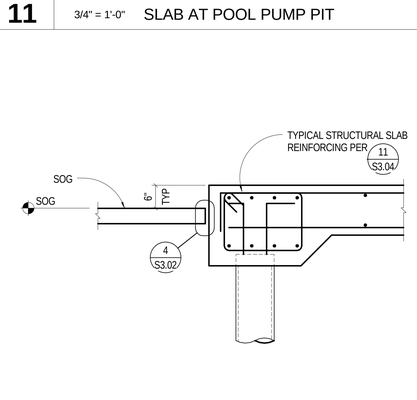
1 3/4" = 1'-0" FOUNDATION AT EXTERIOR CMU WALL



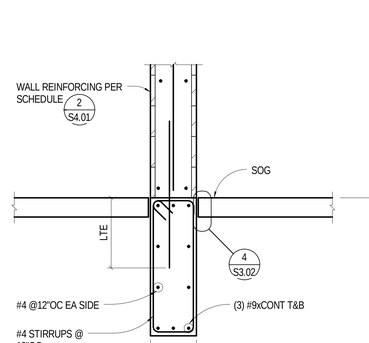
18 NO SCALE TYP GRADE BEAM STEP - 1



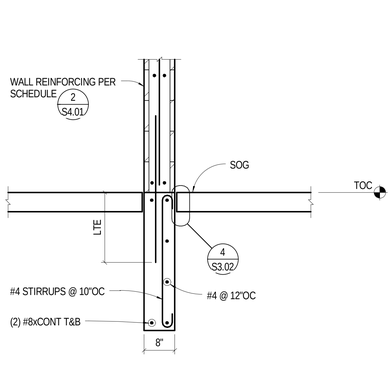
14 3/4" = 1'-0" TYP GRADE BEAM CONST JT



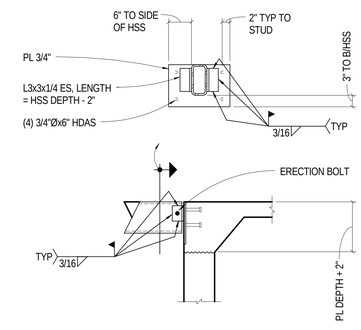
10 3/4" = 1'-0" FOUNDATION AT EXTERIOR 12" CMU WALL WITH BRICKLEDGE



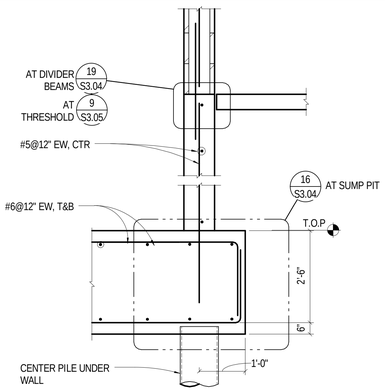
6 3/4" = 1'-0" FOUNDATION AT INTERIOR THRESHOLD



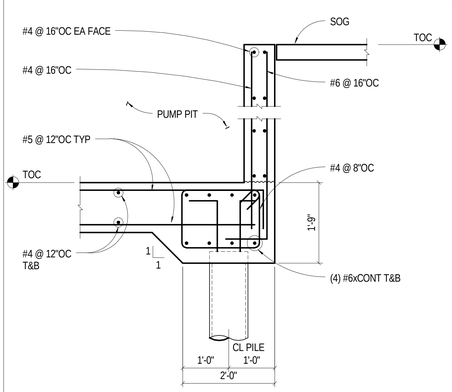
2 3/4" = 1'-0" FOUNDATION AT STORE FRONT



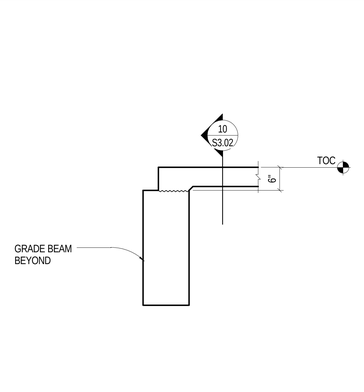
19 3/4" = 1'-0" TYP DIVIDER BEAM AT ELEV PIT



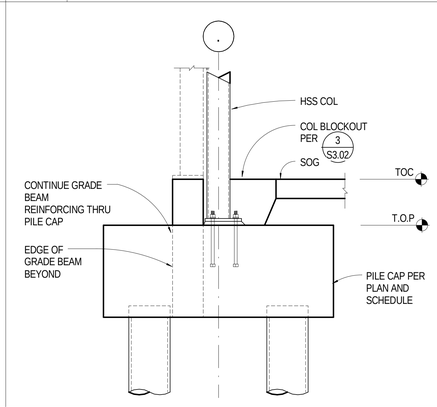
15 NO SCALE TYP ELEVATOR PIT ON PIERS



11 3/4" = 1'-0" SLAB AT POOL PUMP PIT



7 3/4" = 1'-0" FOUNDATION AT EXTERIOR THRESHOLD



3 3/4" = 1'-0" HSS COLUMN AT GRADE BEAM

20 3/4" = 1'-0" BENCH SUPPORT AT CHILDCARE WINDOW

16 3/4" = 1'-0" TYP ELEVATOR SUMP PIT ON PIERS

12 3/4" = 1'-0" STRUCTURAL SLAB AT MECH EQUIPMENT

8 3/4" = 1'-0" FOUNDATION AT INTERIOR 12" CMU WALL

4 3/4" = 1'-0" FOUNDATION AT INTERIOR CMU WALL

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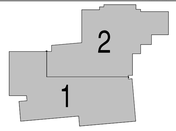

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FRUITA COLORADO

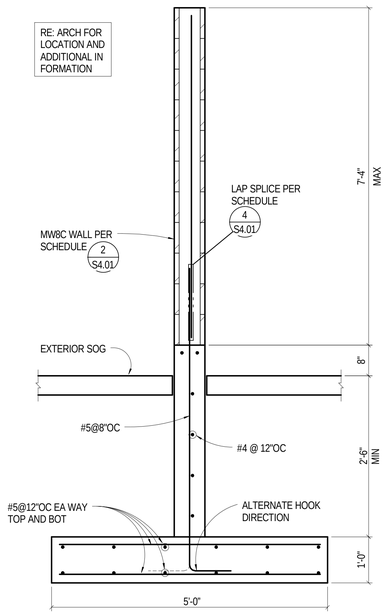
M/M Project No.: 21468.S.01

CONCRETE DETAILS

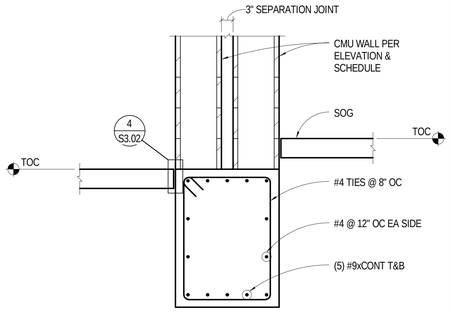
Drawn By: DE, LB
Checked By: BN, GS

S3.04

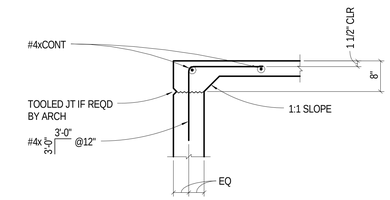
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:34:28 AM
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL



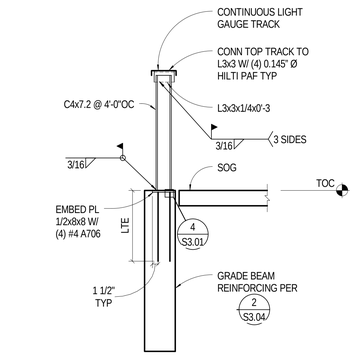
18 3/4" = 1'-0" FOUNDATION AT INTERIOR CMU WALL



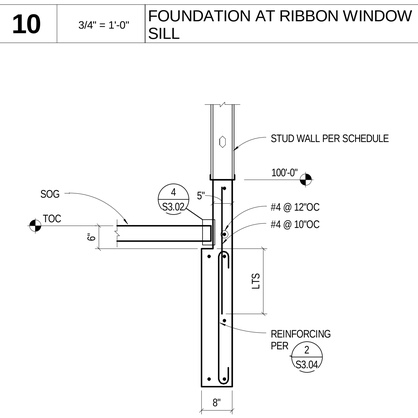
14 3/4" = 1'-0" GRADE BEAM AT DOUBLE WALL



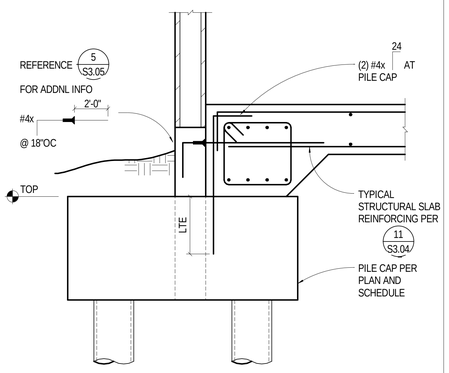
9 3/4" = 1'-0" SOG AT ELEV THRESHOLD



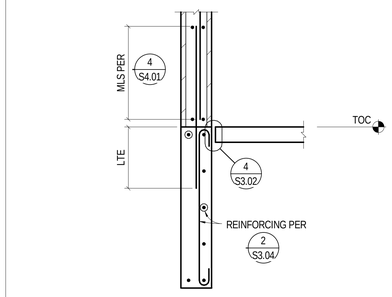
10 3/4" = 1'-0" FOUNDATION AT RIBBON WINDOW SILL



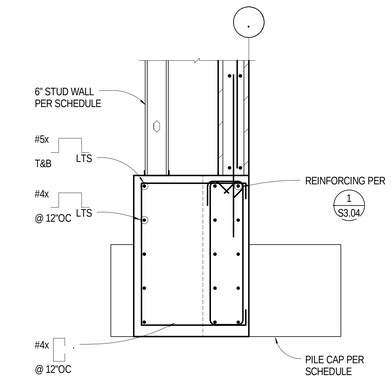
11 3/4" = 1'-0" GRADE BEAM AT RAISED FND



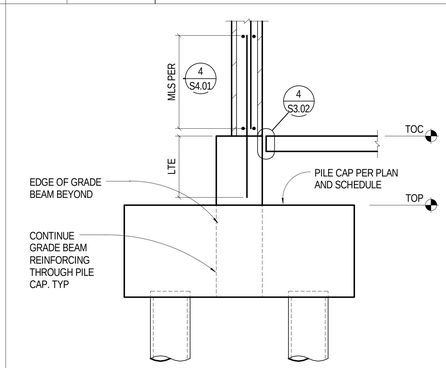
12 3/4" = 1'-0" PILE CAP AT STRUCTURAL SLAB



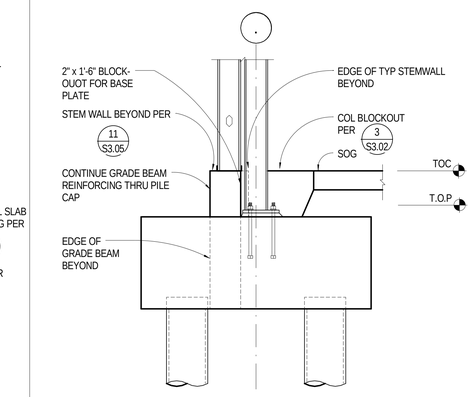
5 3/4" = 1'-0" CMU WALL



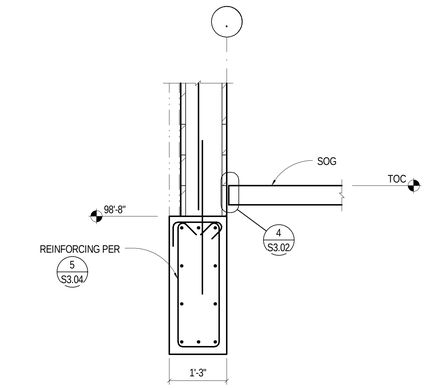
6 3/4" = 1'-0" FOUNDATION AT FIRE PLACE



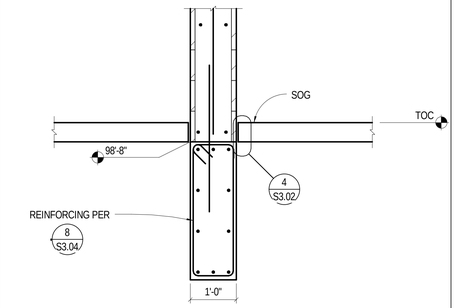
7 3/4" = 1'-0" PILE CAP AT CMU WALL



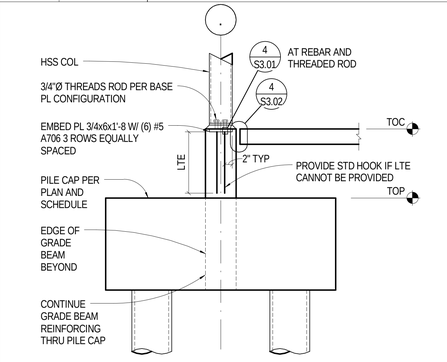
8 3/4" = 1'-0" PILE CAP AT INTERIOR AWNING COL



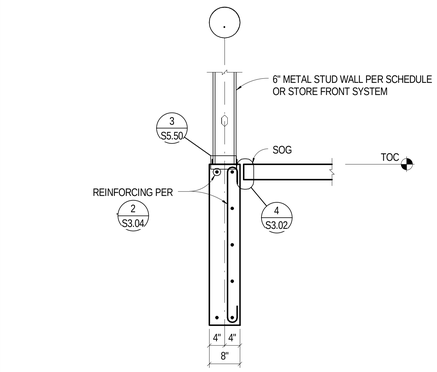
1 3/4" = 1'-0" FOUNDATION AT GYM CMU WALL



2 3/4" = 1'-0" FOUNDATION AT INTERIOR GYM WALL



3 3/4" = 1'-0" COL AT GRID AD



4 3/4" = 1'-0" GRADE BEAM AT GRID AD

COLORADO REGISTERED BENJAMIN A. NELSON 26118 PROFESSIONAL ENGINEER

09-22-09

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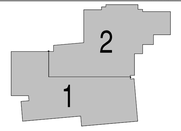
KEY PLAN



Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
90% CD'S	09-07-09
CONSTRUCTION DOCUMENTS	09-22-09

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FRUITA COLORADO

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Drawn By: DE, LB
Checked By: BN, GS

S3.05

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DESIGNERS: GARTH SCHOL
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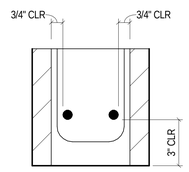
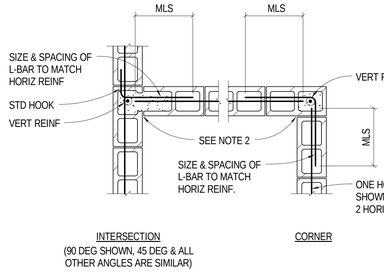


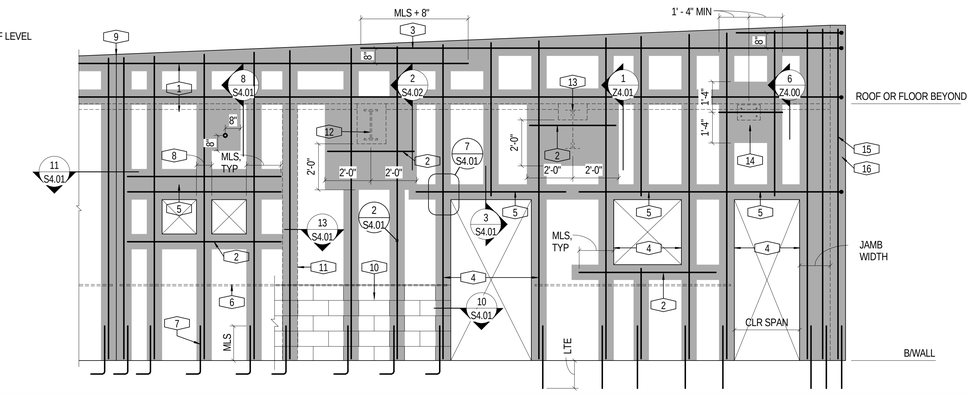
17 NO SCALE TYP STR MAS BOND BEAM



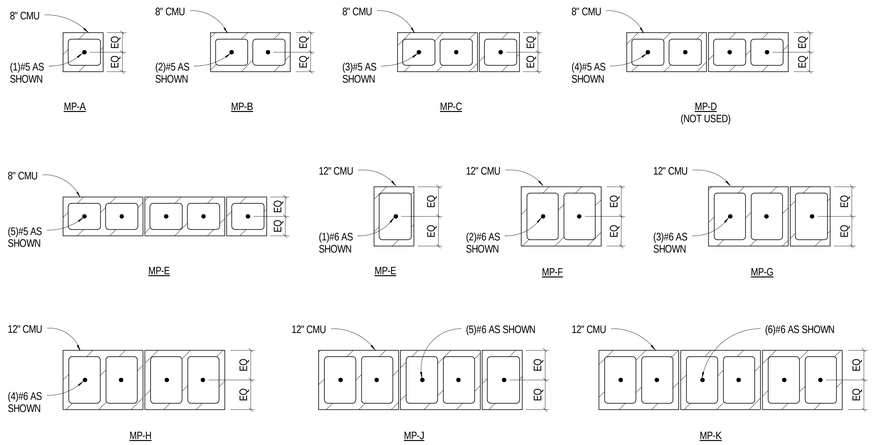
NOTES:
1. 90 DEG CORNER & INTERSECTION IS SHOWN. WALLS MEETING AT OTHER ANGLES SHALL HAVE (a) BLOCK OVERLAPPING 4" MIN AT ALL HEAD JOINTS OR (b) FACE SHELL BROKEN OPEN AND COMMON CORE GROUTED
2. IF HEAD JOINT ALIGNS OVER THE FULL WALL HEIGHT, BREAK OPEN FACE SHELLS AND GROUT WALLS TOGETHER FULL HEIGHT, TYP AT ALL CORNERS AND INTERSECTIONS

13 NO SCALE TYP STR MASONRY WALL CORNER REINF

KEYNOTES:
1. BOND BEAM W/ (2) #5 AT T/PARAPET AND EACH FLOOR AND ROOF LEVEL
2. BOND BEAM W/ (2) #5 AT BOTTOM OF ALL OPNGS
3. STEP BOND BEAM
4. JAMB REINF EACH SIDE OF ALL OPENINGS, FULL HEIGHT
5. MASONRY LINTEL
6. HORIZ JOINT REINF, SEE 'STRUCTURAL WALL SCHEDULE'
7. DOWELS TO MATCH LOCATION OF VERTICAL BARS. HOOK IF STRAIGHT BAR CANNOT BE EMBEDDED INTO CONCRETE LTE
8. AT SERIES OF TWO OR MORE OPNGS, MASONRY LINTEL REINF SHALL BE CONT. IF SPACE BTWN OPNGS IS NOT SUFFICIENT TO ACCOMODATE 'TYP JAMB REINF' FOR BOTH OPENINGS, USE OVERALL WIDTH OF SERIES OR OPNGS TO DETERMINE LINTEL DEPTH AND REINF
9. CONTROL JOINT (CJ) OR END OF WALL
10. RUNNING BOND PATTERN, TYP, UNO.
11. PERPENDICULAR WALL BEYOND
12. STEEL BEAM BEYOND
13. STEEL JOIST BEYOND
14. EMBED PLATE BEYOND
15. VERT REINF ALL CORNERS
16. GROUT CELLS WITH REINFORCEMENT AND ALL SHADED AREAS



9 NO SCALE TYP STRUCTURAL MASONRY WALL ELEV

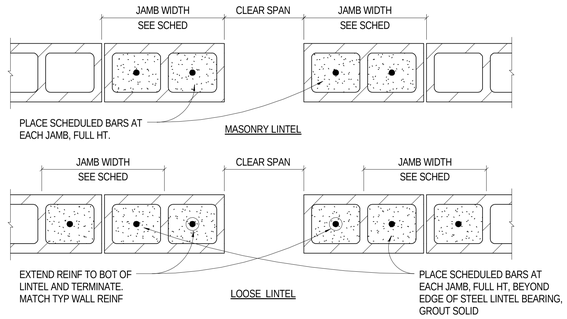


MASONRY PILASTER NOTES:
1. GROUT ALL CELLS SOLID
2. PROVIDE MATCHING DOWELS TO FOUNDATION.

20 1" = 1'-0" MASONRY PILASTERS

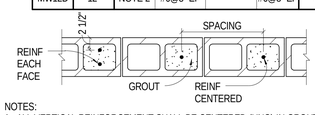
INTERIOR MASONRY WALL JAMB SCHEDULE		
LINTEL CLEAR SPAN, L	REINF FULL HT WALL	JAMB WIDTH
L ≤ 4'-0"	(1) #4	8"
4'-0" < L ≤ 8'-0"	(2) #4	16"
8'-0" < L ≤12'-0"	(3) #4	24"

EXTERIOR MASONRY WALL JAMB SCHEDULE
SEE 20/S4.01 AND ELEVATIONS ON S4.1X SERIES SHEETS



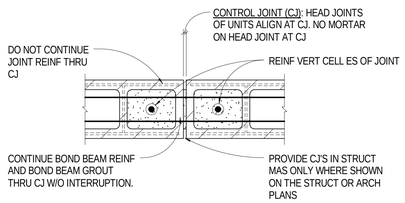
10 NO SCALE TYP STR MAS JAMB SCHEDULES & DETAILS

STRUCTURAL MASONRY WALL SCHEDULE						
MARK	WALL THK	REINFORCING				GROUT SOLID
		JOINT	VERT	HORIZ	DOWELS	
MW8A	8"	NOTE 2	#5@48"	-	#5@48"	NO
MW8B	8"	NOTE 2	#5@24"	-	#5@24"	NO
MW8C	8"	NOTE 2	#5@8"	-	#5@8"	YES
MW12A	12"	NOTE 2	#6@48"	-	#6@32"	YES
MW12B	12"	NOTE 2	#6@32"	-	#6@32"	YES
MW12C	12"	NOTE 2	#6@16"	-	#6@16"	YES
MW12D	12"	NOTE 2	#6@8" EF	-	#6@8" EF	YES

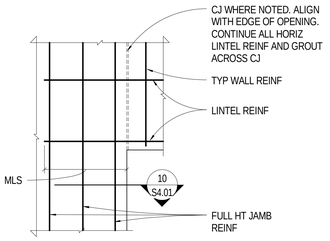


NOTES:
1. ALL VERTICAL REINFORCEMENT SHALL BE CENTERED (UNO) IN GROUTED CELLS
2. PROVIDE 'LADDER' TYPE HORIZONTAL JOINT REINFORCEMENT WITH 2-W1.7 WIRES (MIN) AT 16" OC, TYPICAL, AND AT 8" OC IN PARAPETS.

2 NO SCALE STR MASONRY WALL SCHEDULE

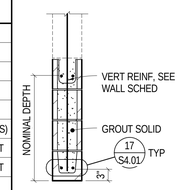


11 NO SCALE TYP STR MAS WALL CONTROL JOINT



7 NO SCALE TYP STR MAS LINTEL SUPPORT

REINFORCED MASONRY LINTEL SCHEDULE			
MARK	CLEAR SPAN, L	NOMINAL DEPTH	REINF
ML1	L ≤ 4'-0"	8"	(2) #5 BOT
ML2	4'-0" < L ≤ 8'-0"	16"	(2) #5 T&B
ML3	8'-0" < L ≤ 10'-0"	24"	(2) #6 T&B
ML4	10'-0" < L ≤ 12'-0"	32"	(2) #6 T&B
ML5	12'-0" < L ≤ 14'-0"	40"	(2) #6 T&B
ML6	14'-0" < L ≤ 16'-0"	48"	(4) #6 T&B (2 LAYERS)
ML7		56"	(2) #6 @ 8"OC VERT
ML8		64"	(2) #6 @ 8"OC VERT
	L > 16'-0"	REQUEST DESIGN FROM ENGINEER	



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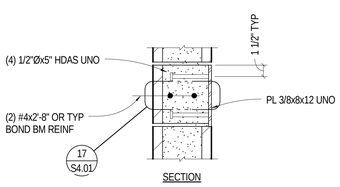
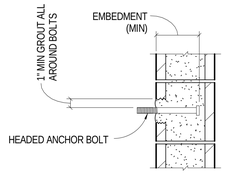


12 NO SCALE EMBED PLATE TO MAS WALL



BOLT	EMBEDMENT	MIN SPACING	MIN EDGE DIST
1/2"Ø	4"	8"	4"
5/8"Ø	4"	8"	4"
3/4"Ø	5"	10"	5"
7/8"Ø	6"	12"	6"

NOTES:
1. PROVIDE 3/4"Ø ANCHOR BOLTS UNO.

8 NO SCALE TYP EMBED BOLT IN MAS SCHEDULE

MASONRY LAP SPLICE (MLS) & DEVELOPMENT LENGTH SCHEDULE		f'm = 1800 psi fy = 60 ksi	
BAR SIZE		REINF CENTERED (IN) 8", 12" MASONRY	REINFORCEMENT AT FACE (IN) 2" CLR
ENGLISH	METRIC		
#3	#10	15	15
#4	#13	20	23
#5	#16	25	36
#6	#19	40	54
#7	#22	55	63*
#8	#25	72*	72*

NOTES:
1. SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPLICING DIFFERENT SIZED BARS
2. LAP LENGTHS SPECIFICALLY DETAILED ON DRAWINGS SHALL GOVERN INSTEAD OF SCHEDULED LAP LENGTHS
3. IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE LENGTHS BY 50%
4. MECHANICAL COUPLERS MAY BE USED IN LIEU OF ANY LAP LENGTH SHOWN.
5. WHEN LOW LIFT GROUTING IS USED, AND THE LAP LENGTH EXCEEDS THE GROUT LIFT HEIGHT (NOTED BY *), A MECHANICAL COUPLER IS REQUIRED IN LIEU OF LAPPED REINF.

4 3/8" = 1'-0" MASONRY STRENGTH DESIGN LAP SPLICE SCHEDULE - 1800

COLORADO REGISTERED DAVID E. BENJAMIN NELSON 26118 PROFESSIONAL ENGINEER

09-22-09

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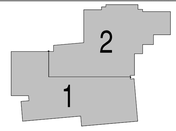
KEY PLAN



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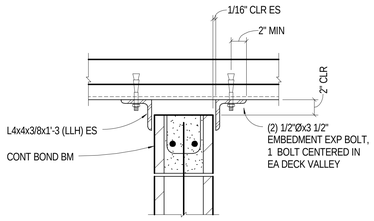
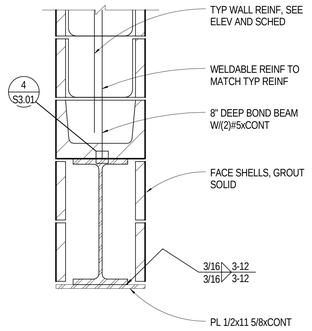
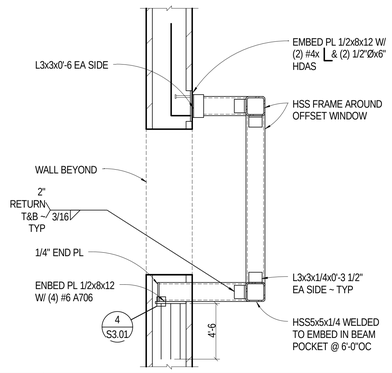


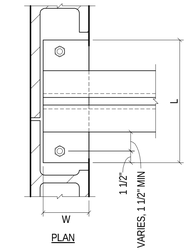
17 NO SCALE TYP MAS PARTITION SUPPORT - PERP TO DECK

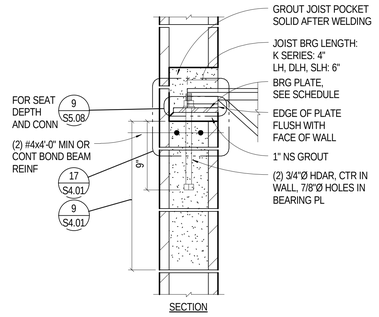


13 1 1/2" = 1'-0" GYM WALL STEEL - TYP



9 3/4" = 1'-0" WINDOW BUMP OUT FRAMING

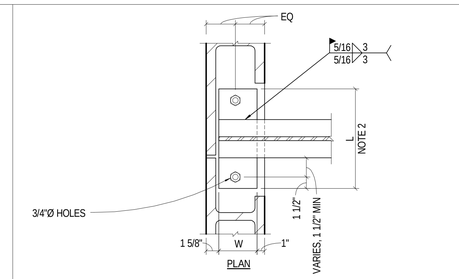


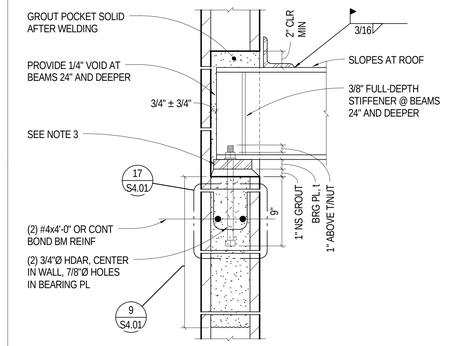


JOIST BEARING PLATES	
JOIST	PLATE, TxWxL
K SERIES	3/4x6x1'-4
LH SERIES	1 1/4x6x1'-6
DLH SERIES	1 3/4x9x1'-10"

NOTES:
1. PROVIDE ERECTION BOLTS THROUGH PLATE WHERE REQUIRED FOR ERECTION

6 NO SCALE TYP STR MAS JOIST BRG PLATE

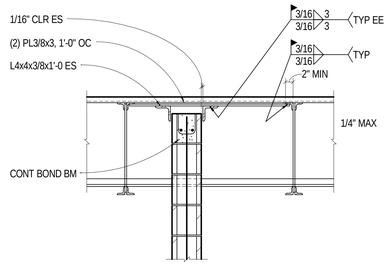




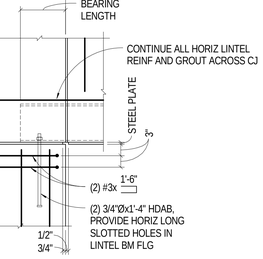
BEAM BEARING PLATE SCHEDULE					
8" CMU		10" CMU		12" CMU	
REACTION	PL t x W x L	REACTION	PL t x W x L	REACTION	PL t x W x L
≤15k	3/4x5x1'-1	≤21k	3/4x7x1'-1	≤27k	3/4x9x1'-1
≤24k	1 1/4x5x1'-4	≤34k	1 1/4x7x1'-4	≤43k	1 1/4x9x1'-4
≤28k	1 1/2x5x1'-6	≤39k	1 1/2x7x1'-6	≤50k	1 1/2x9x1'-6
≤34k	1 3/4x5x1'-10	≤48k	1 3/4x7x1'-10	≤62k	1 3/4x9x1'-10

NOTES:
1. REACTIONS ARE SERVICE LEVEL (ASD)
2. IF REQD, INCREASE LENGTH OF BEARING PLATE TO PROVIDE 3" MIN ES OF BEAM FLANGE
3. SET BEARING PLATE TO MATCH SLOPE AT ROOF

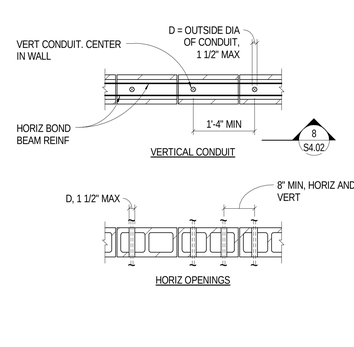
2 NO SCALE TYP STR MAS BM BEARING



18 NO SCALE TYP MAS PARTITION SUPPORT - PARALLEL OR SKEWED TO DECK



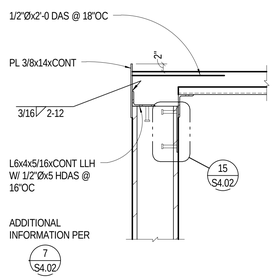
14 1 1/2" = 1'-0" GYM WALL STEEL - CONN



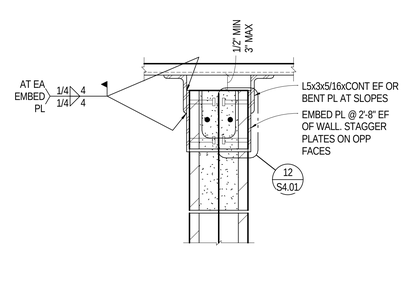
10 3/4" = 1'-0" HSS COL AT CMU WALL CORNER

19 NO SCALE TYP MAS PARTITION SUPPORT - PERP TO JOISTS

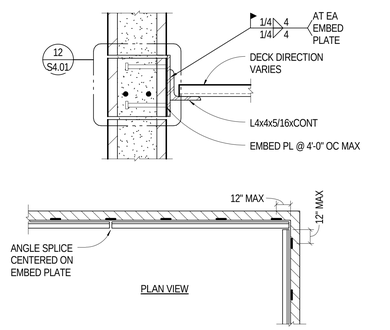
15 1 1/2" = 1'-0" EMBED PLATE AT TOP OF MAS WALL



11 3/4" = 1'-0" CMU WALL AT TRACK EDGE



7 NO SCALE TYP STR MAS INT MTL DECK - 2

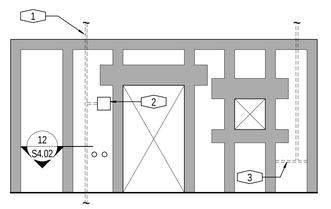


3 NO SCALE TYP STR MAS / MTL DECK

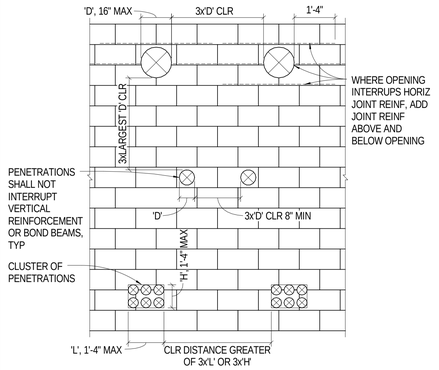
20 NO SCALE TYP MAS PARTITION SUPPORT - PARALLEL TO JOISTS

16 3/4" = 1'-0" TYP STR MAS STEEL LINTEL SUPPORT

12 3/4" = 1'-0" TYP STR MAS / CONDUIT PLAN



8 1/4" = 1'-0" TYP STR MAS / CONDUIT ELEV



4 1/2" = 1'-0" TYP STR MAS / PIPING

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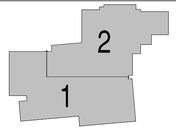
KEY PLAN



Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
90% CD'S	09-07-09
CONSTRUCTION DOCUMENTS	09-22-09

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FRUITA COLORADO

M/M Project No.: 21468.S.01

MASONRY DETAILS

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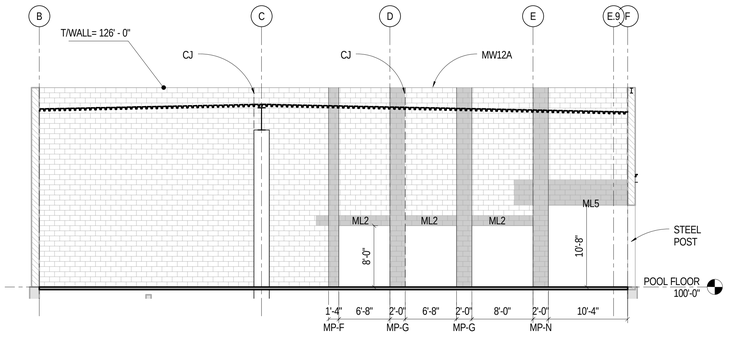
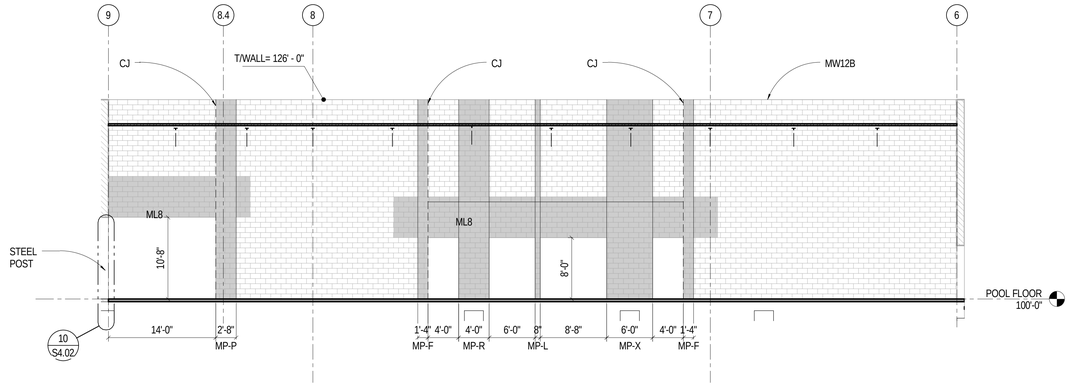
Checked By: BN, GS

S4.02

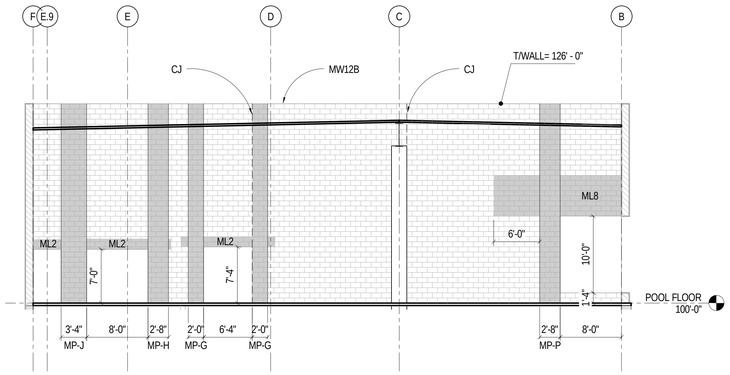
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:34:38 AM
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH.SCHOL



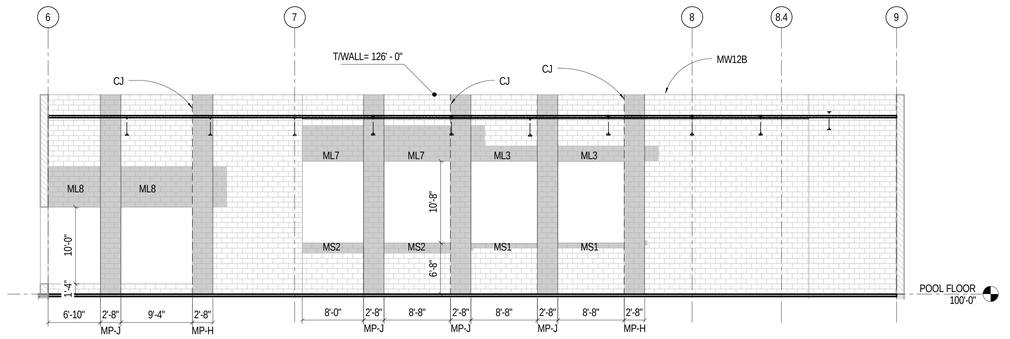
18 1/8" = 1'-0" POOL - EAST WALL



10 1/8" = 1'-0" POOL - SOUTH WALL



20 1/8" = 1'-0" POOL - WEST WALL



12 1/8" = 1'-0" POOL - NORTH WALL

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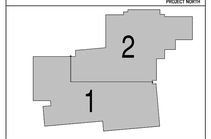

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90% CD'S	09-07-09
CONSTRUCTION DOCUMENTS	09-22-09

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FRUITA COLORADO

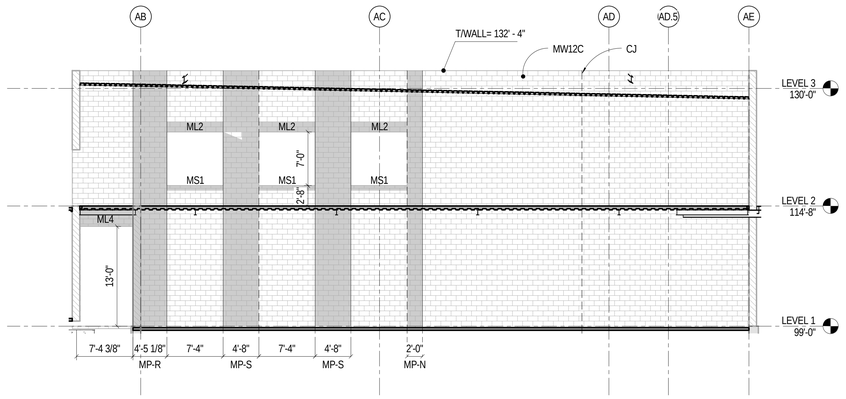
M/M Project No.: 21468.S.01

MASONRY WALL ELEVATIONS

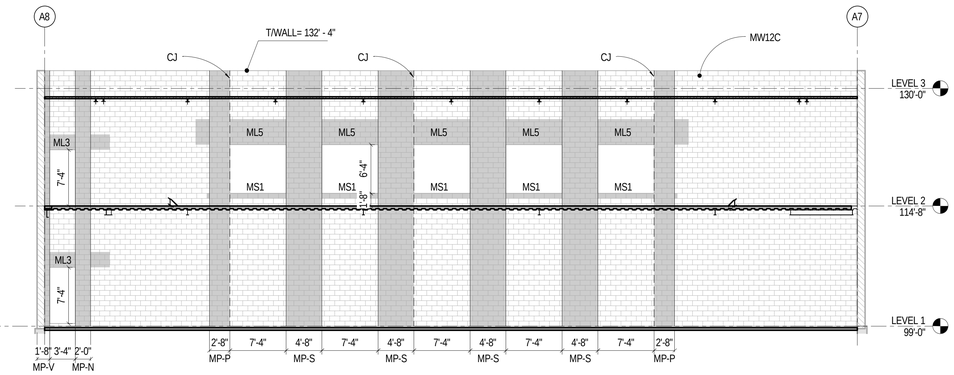
Drawn By: DE, LB
Checked By: BN, GS

S4.10

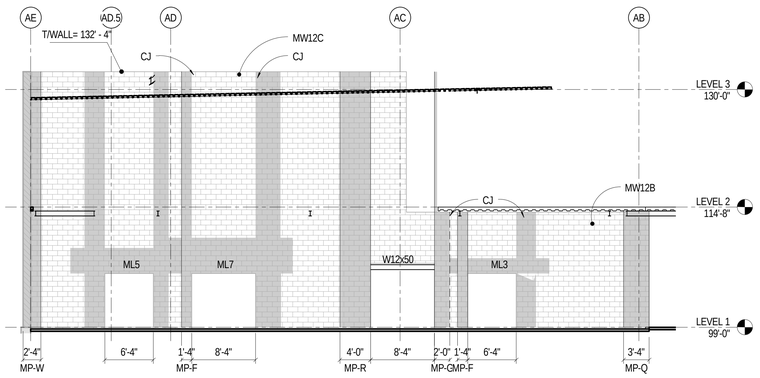
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:34:40 AM



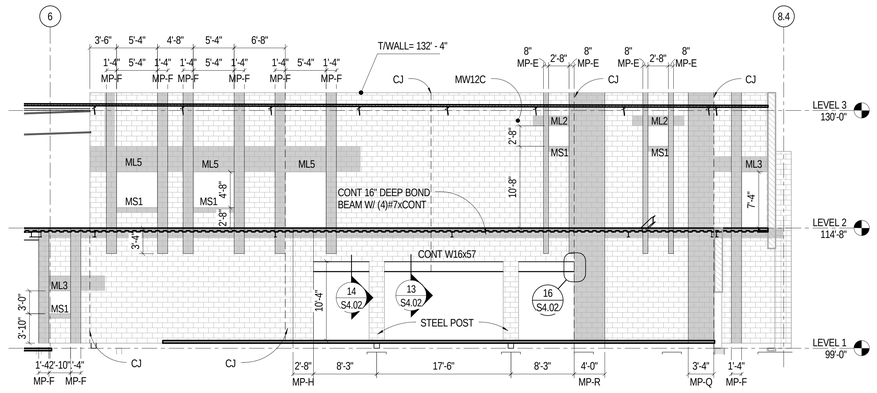
18 1/8" = 1'-0" GYM - EAST WALL



10 1/8" = 1'-0" GYM - SOUTH WALL



20 1/8" = 1'-0" GYM - WEST WALL



12 1/8" = 1'-0" GYM - NORTH WALL

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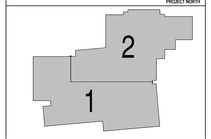

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90% CD'S	09-07-09
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FRUITA COLORADO

M/M Project No.: 21468.S.01

MASONRY WALL ELEVATIONS

Drawn By: DE, LB
Checked By: BN, GS

S4.11

MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
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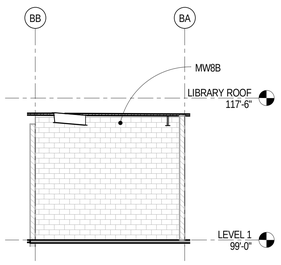
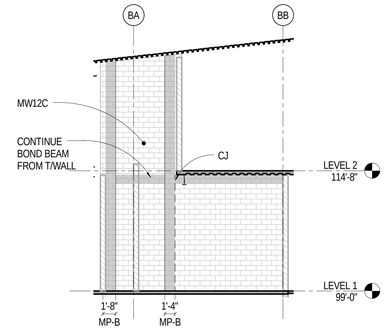
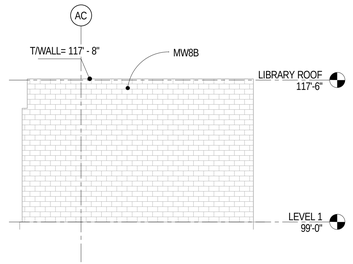


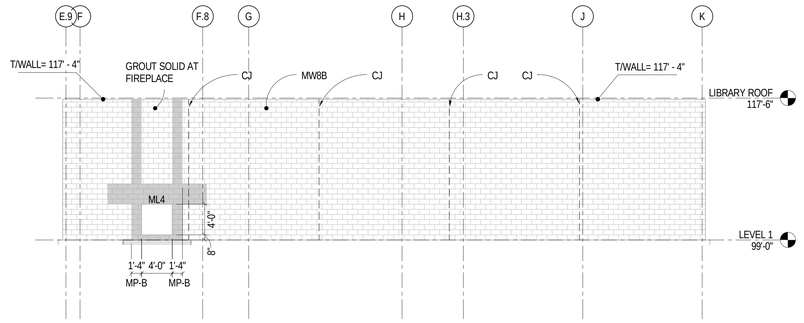
17 1/8" = 1'-0" RESTROOM - WEST WALL



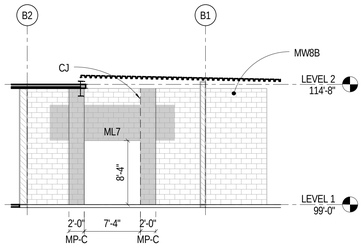
13 1/8" = 1'-0" RESTROOM - EAST WALL



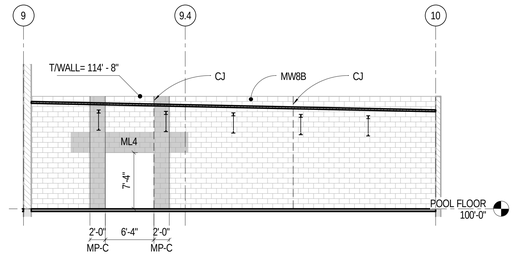
9 1/8" = 1'-0" WALL ON GRID A1



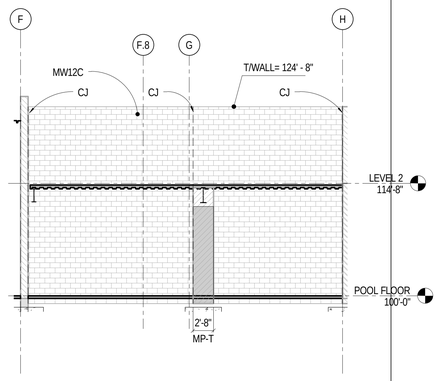
5 1/8" = 1'-0" WALL ON GRID 1



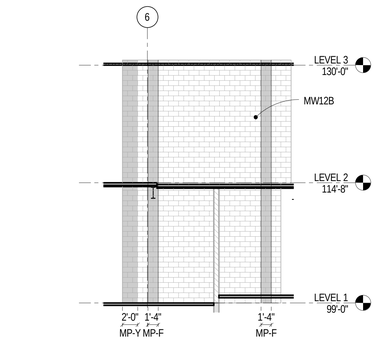
18 1/8" = 1'-0" RESTROOM - SOUTH WALL



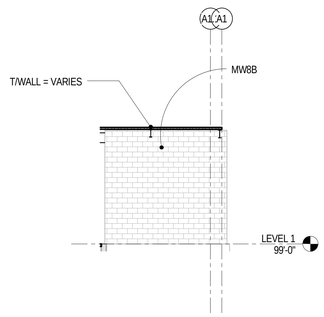
10 1/8" = 1'-0" POOL MECH - NORTH WALL



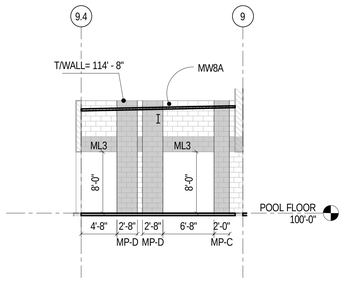
2 1/8" = 1'-0" WALL - LOCKERS EAST



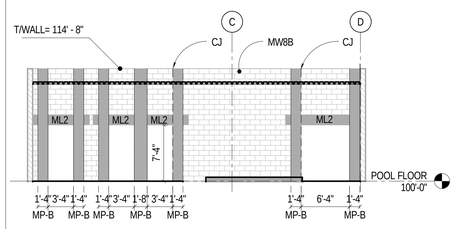
19 1/8" = 1'-0" LOCKER WALL



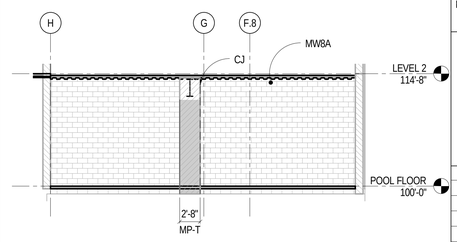
15 1/8" = 1'-0" VESTIBULE SOUTH



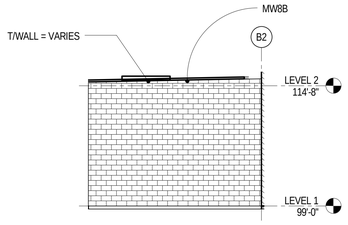
11 1/8" = 1'-0" LIFEGUARD - SOUTH WALL



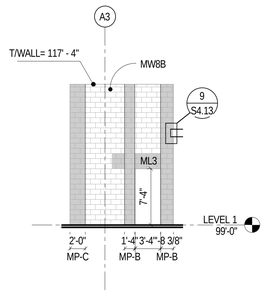
7 1/8" = 1'-0" POOL MECH - EAST WALL



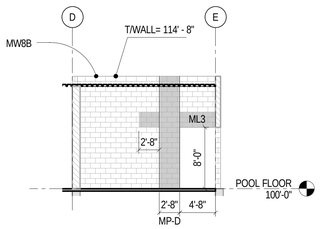
3 1/8" = 1'-0" WALL - LOCKERS WEST



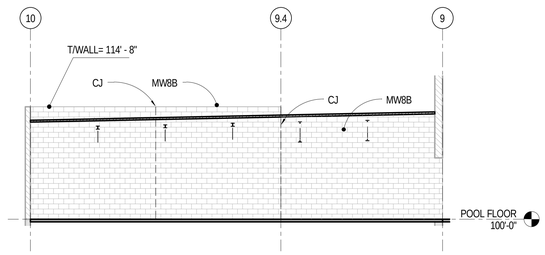
20 1/8" = 1'-0" RESTROOM - NORTH WALL



16 1/8" = 1'-0" CATERING STORAGE



12 1/8" = 1'-0" LIFEGUARD - EAST WALL



8 1/8" = 1'-0" POOL MECH - SOUTH WALL

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26118
PROFESSIONAL ENGINEER

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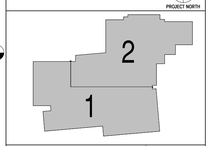

Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
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CONSTRUCTION DOCUMENTS	09-22-09

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M/M Project No.: 21468.S.01

MASONRY WALL ELEVATIONS

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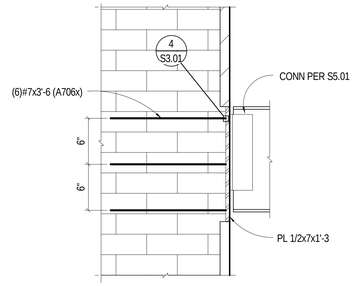
Checked By: BN, GS

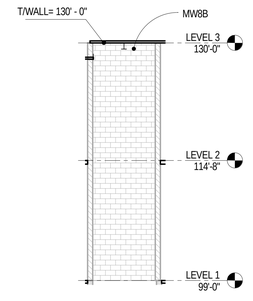
S4.12

DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:34:56 AM

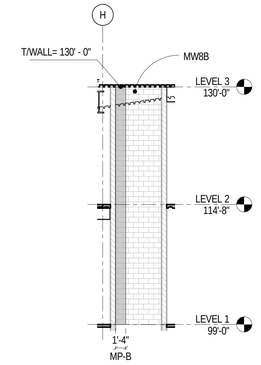
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL



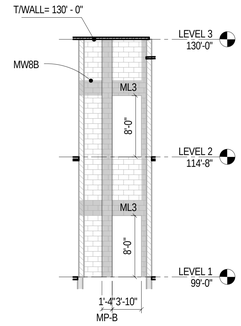
9 1 1/2" = 1'-0" EMBED PLATE AT END OF MAS WALL



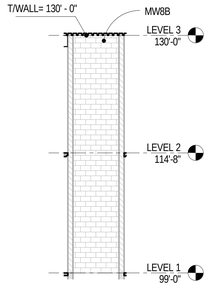
5 1/8" = 1'-0" ELEV - NORTH



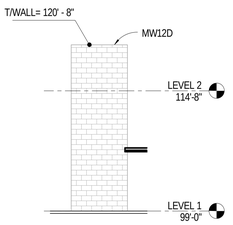
1 1/8" = 1'-0" ELEV WEST



6 1/8" = 1'-0" ELEV - SOUTH



2 1/8" = 1'-0" ELEV - EAST



3 1/8" = 1'-0" STAIR DIVIDER

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09-22-09

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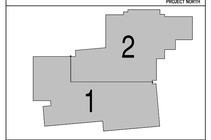
KEY PLAN



Issues/Revisions	Date:
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DESIGN DEVELOPMENT	07-10-09
90% CD'S	09-07-09
CONSTRUCTION DOCUMENTS	09-22-09

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FRUITA COLORADO

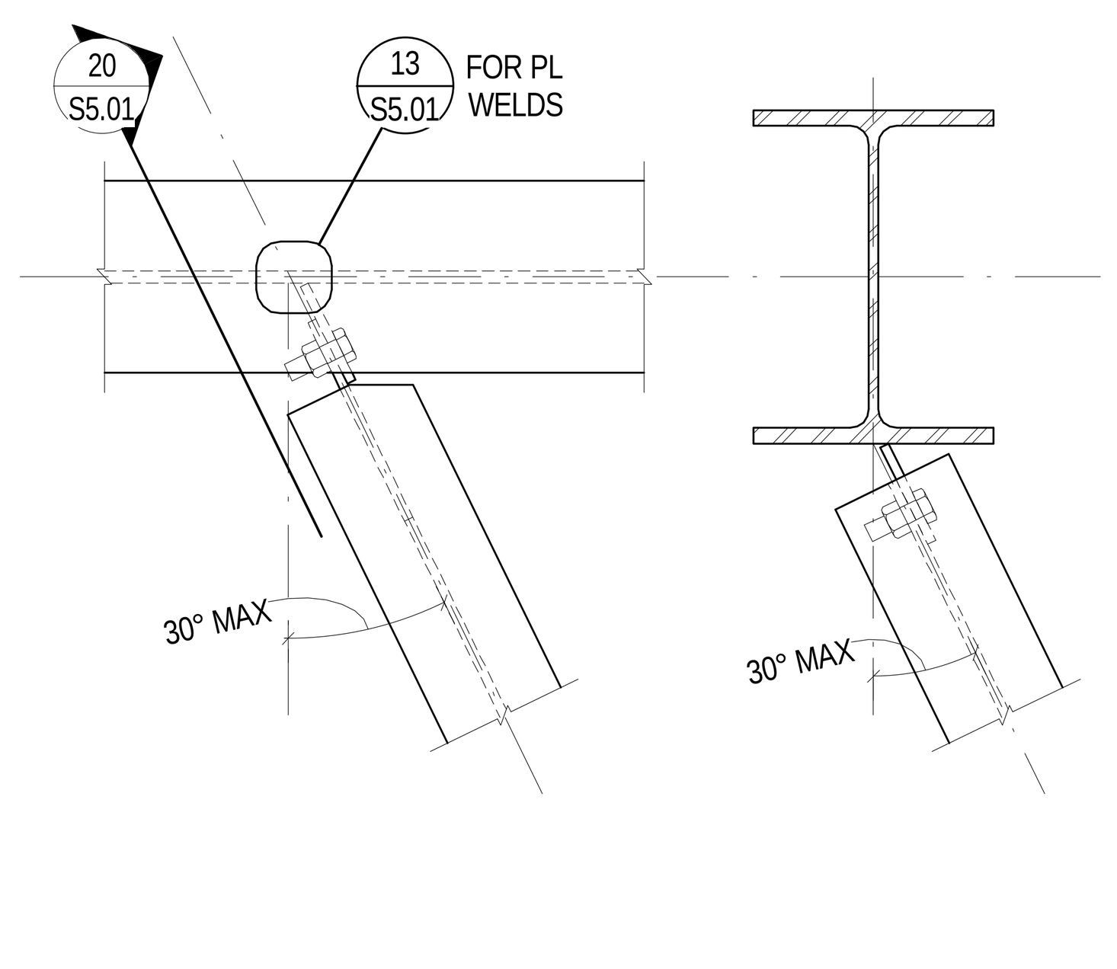
M/M Project No.: 21468.S.01

MASONRY WALL ELEVATIONS

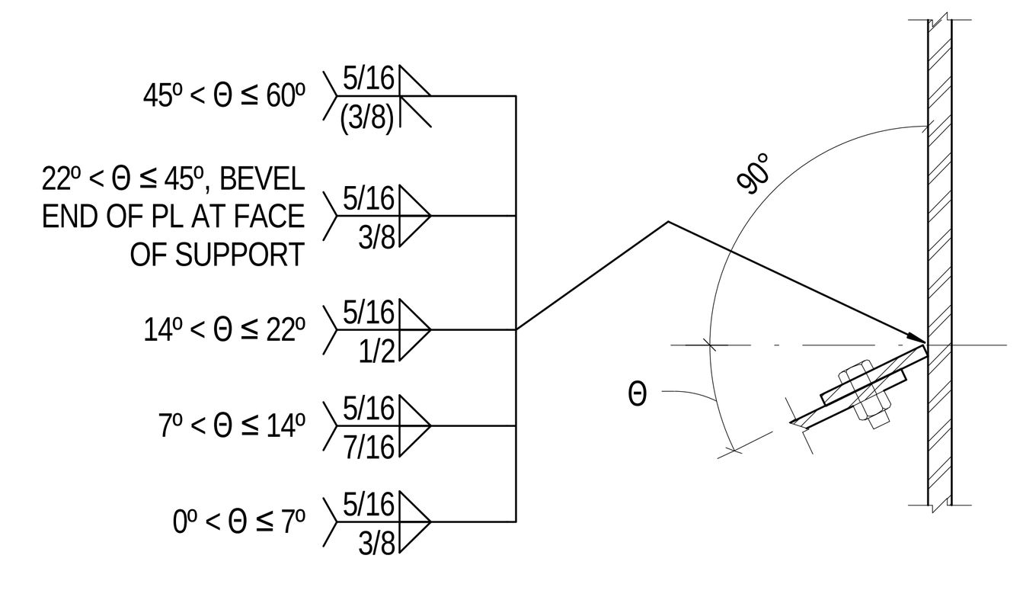
Drawn By: DE, LB
Checked By: BN, GS

S4.13

MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:34:58 AM



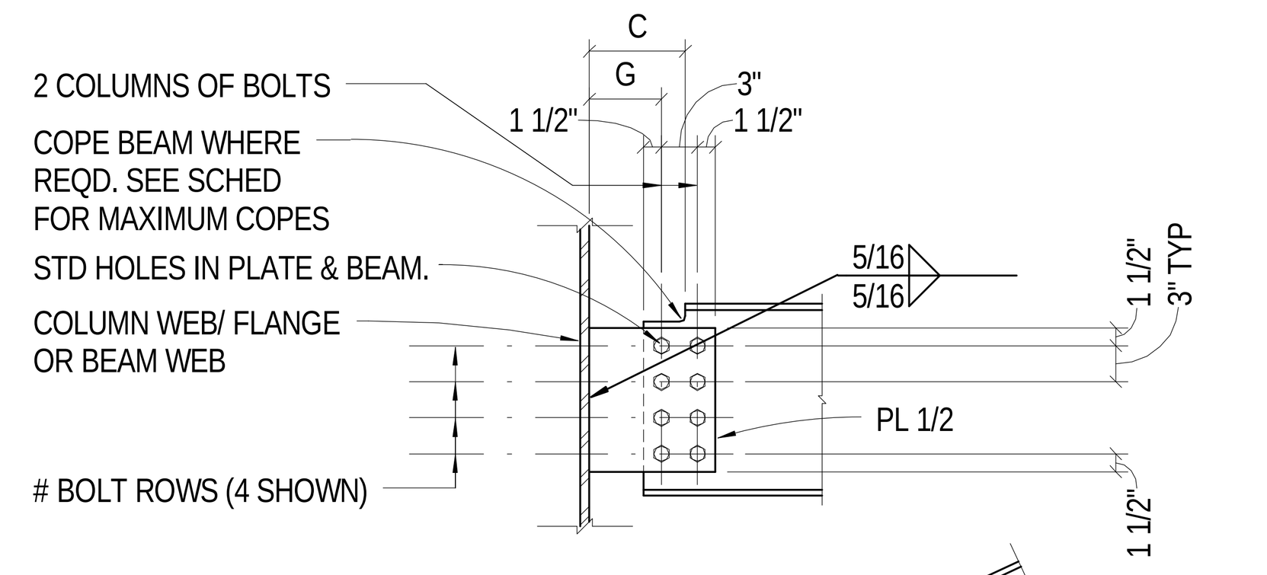
17 NO SCALE TYP BM SKEWED CONN ≤ 30°

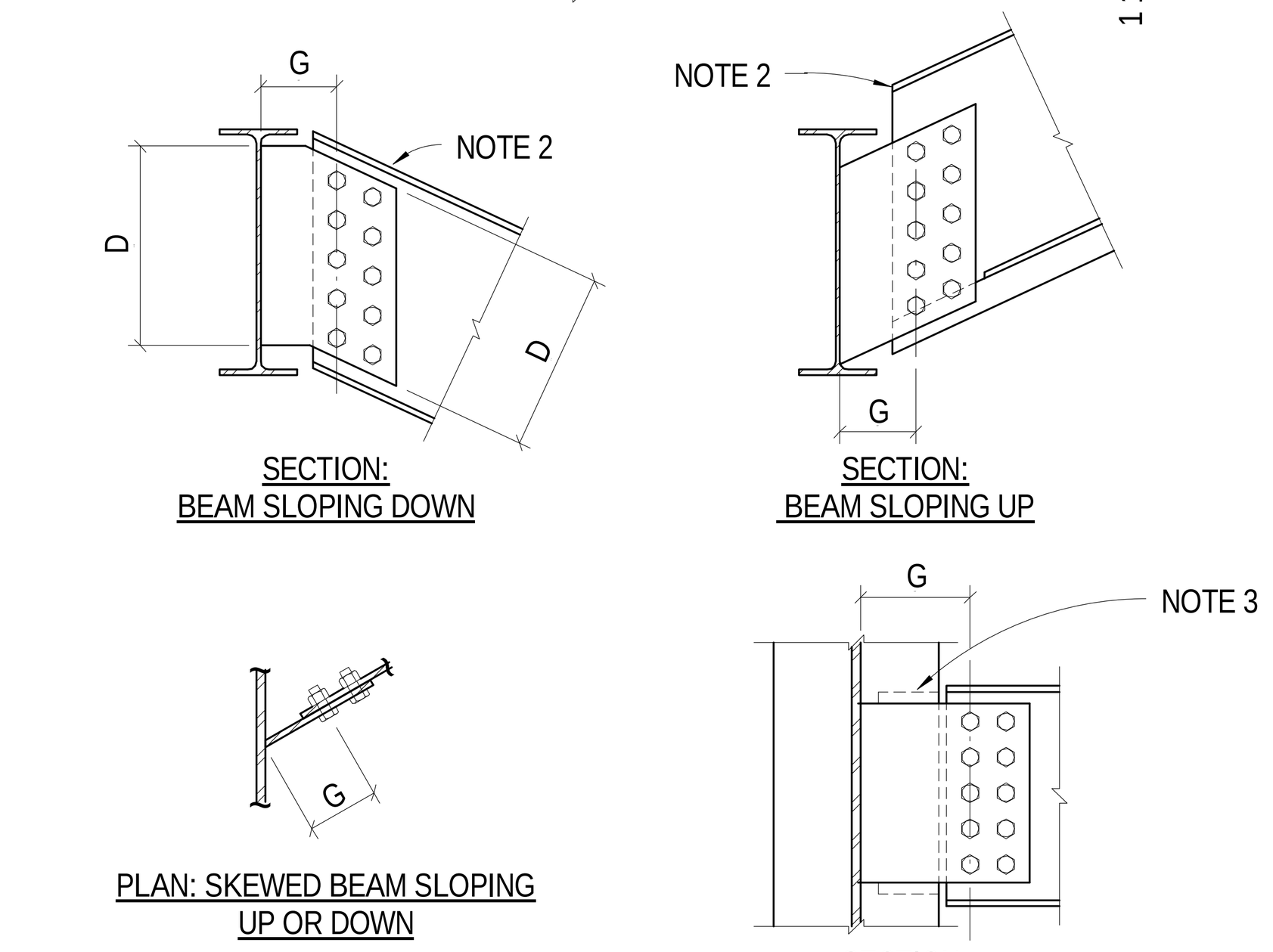


13 NO SCALE TYP BM SKEWED WELDS

EXTENDED SINGLE PL CONNECTIONS

# BOLT ROWS	BEAM SIZES	G ≤ 6" CAPACITY (KIPS)	G ≤ 6" C MAX TOP	G ≤ 6" C MAX T & B	G ≤ 10" CAPACITY (KIPS)	G ≤ 10" C MAX TOP	G ≤ 10" C MAX T & B
2	W8-W12	10	6"	6"	7	10"	10"
3	W10-W18	20	6"	6"	13	10"	10"
4	W14-W24	32	8"	6"	22	10"	10"
5	W18-W30	47	11"	6"	33	13"	10"
6	W21-W40	65	12"	8"	46	15"	12"
7	W24-W44	84	14"	10"	60	16"	14"
8	W30-W44	105	16"	12"	77	16"	16"
9	W33-W44	126	16"	15"	95	16"	16"





NOTES:
1. SERVICE LEVEL (ASD) IN KIPS
2. BEAM TOP FLANGE AT CONN TO BE BRACED BY METAL DECK, STEEL FRAMING, OR CONC SLAB. IF THE TOP FLANGE IS NOT BRACED, THIS CONN IS NOT PERMITTED
3. BEAM TOP FLANGE AT CONN TO BE BRACED BY METAL DECK, STEEL FRAMING, OR CONC SLAB. IF THE TOP FLANGE IS NOT BRACED, PROVIDE STIFFENERS AS SHOWN DASHED

10 NO SCALE TYP BM EXTENDED SINGLE PL CONN

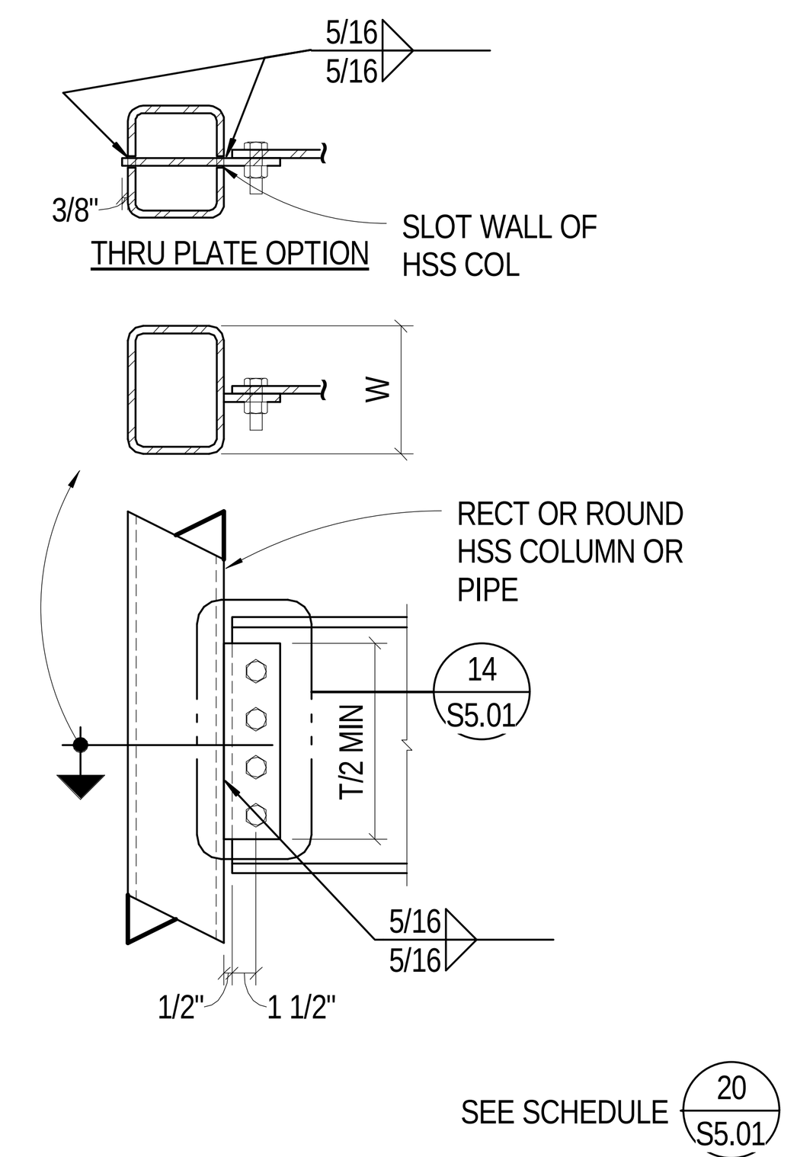
RECT HSS

W	MIN WALL THK
3"	3/16"
4"	3/16"
5"	3/16"
6"	3/16"
7"	1/4"
8"	1/4"
9"	5/16"
10"	5/16"
12"	1/2"
14"	3/8"
16"	1/2"

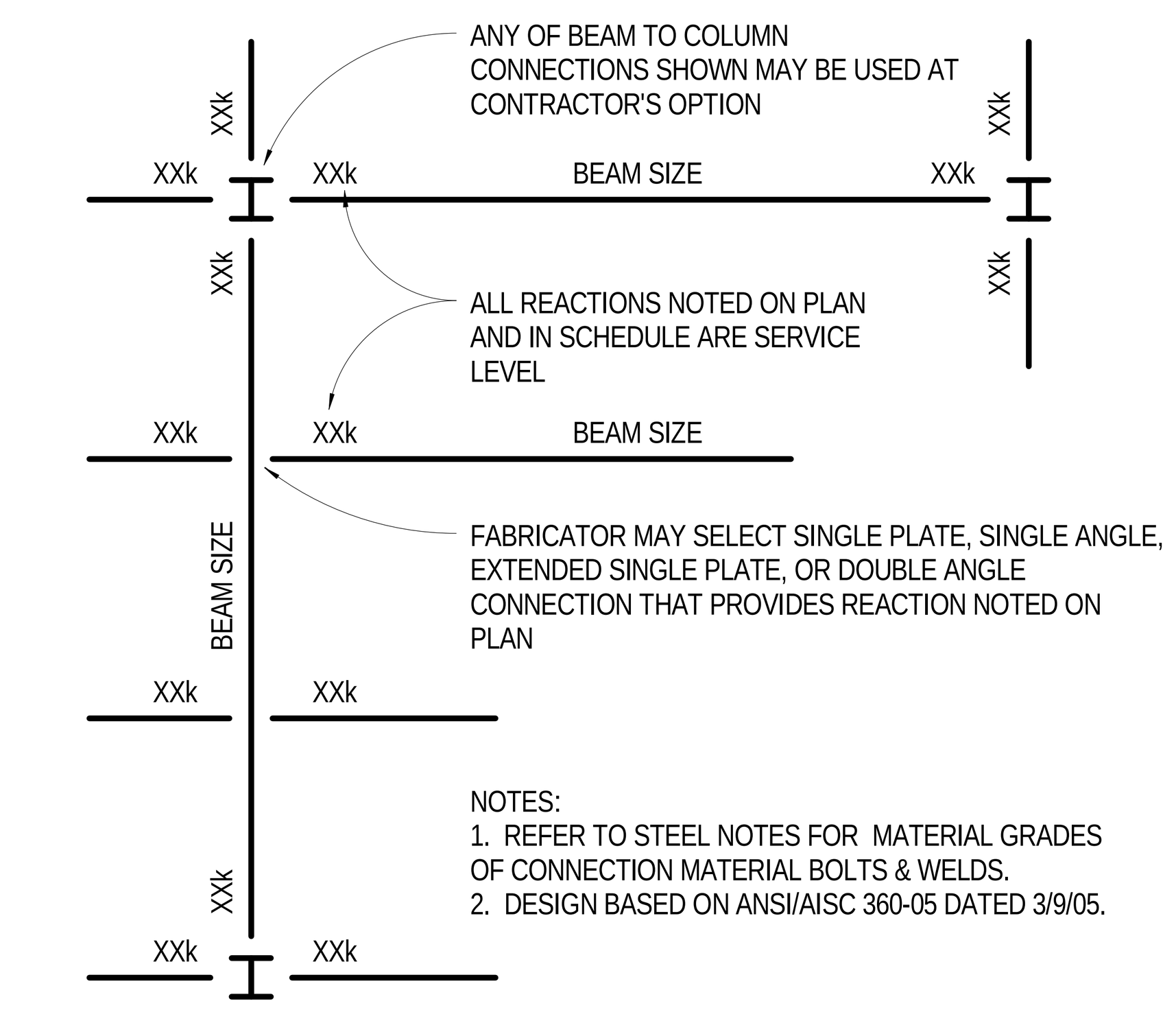
WHERE WALL THICKNESS < MIN, PROVIDE THRU PLATE AS SHOWN

ROUND HSS OR PIPE
(4"Ø THRU 22"Ø)

MIN WALL THK = 0.237"

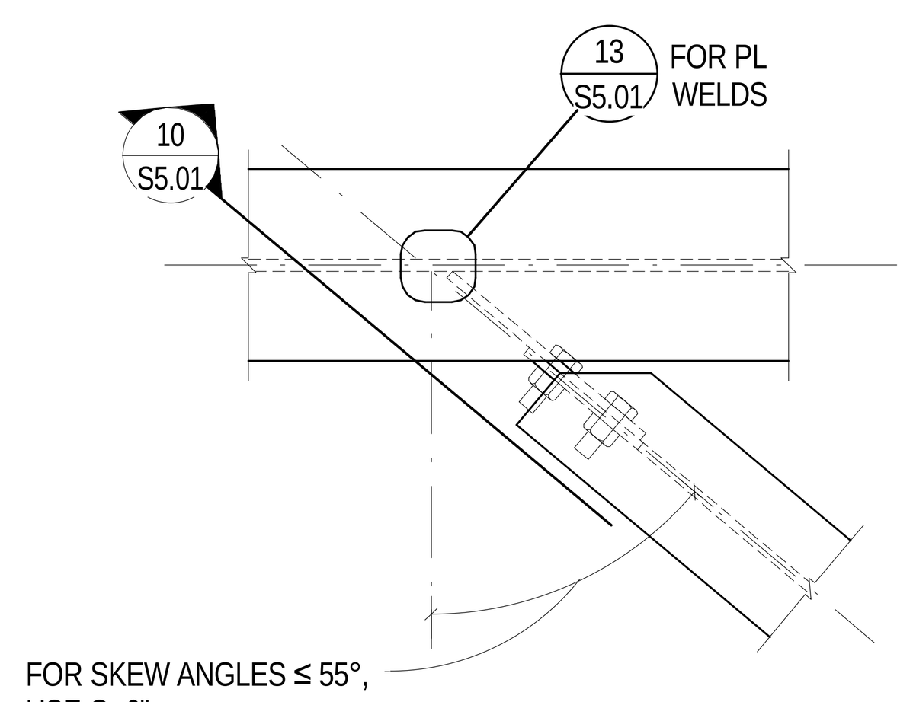


5 NO SCALE TYP BM TO HSS COL



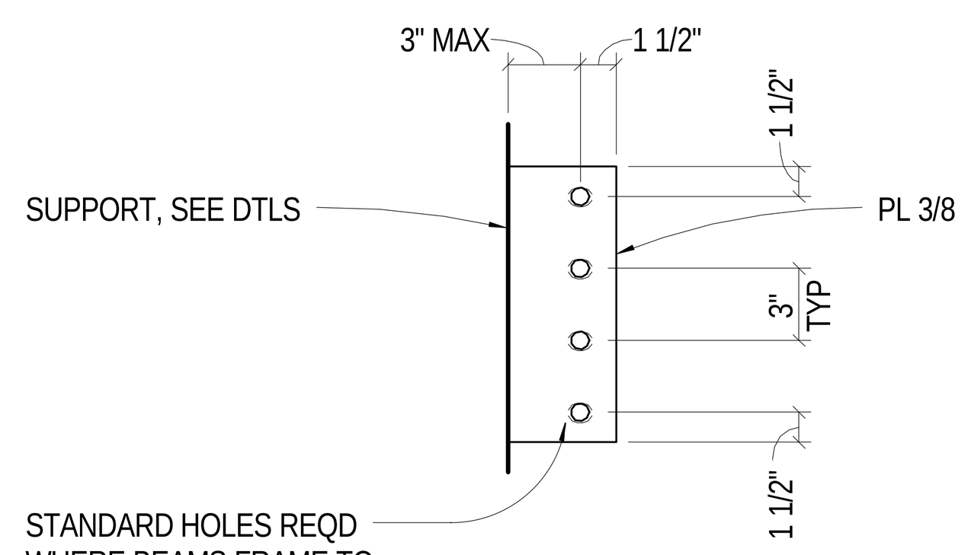
NOTES:
1. REFER TO STEEL NOTES FOR MATERIAL GRADES OF CONNECTION MATERIAL BOLTS & WELDS.
2. DESIGN BASED ON ANSI/AISC 360-05 DATED 3/9/05.

1 NO SCALE TYP BM CONNECTIONS



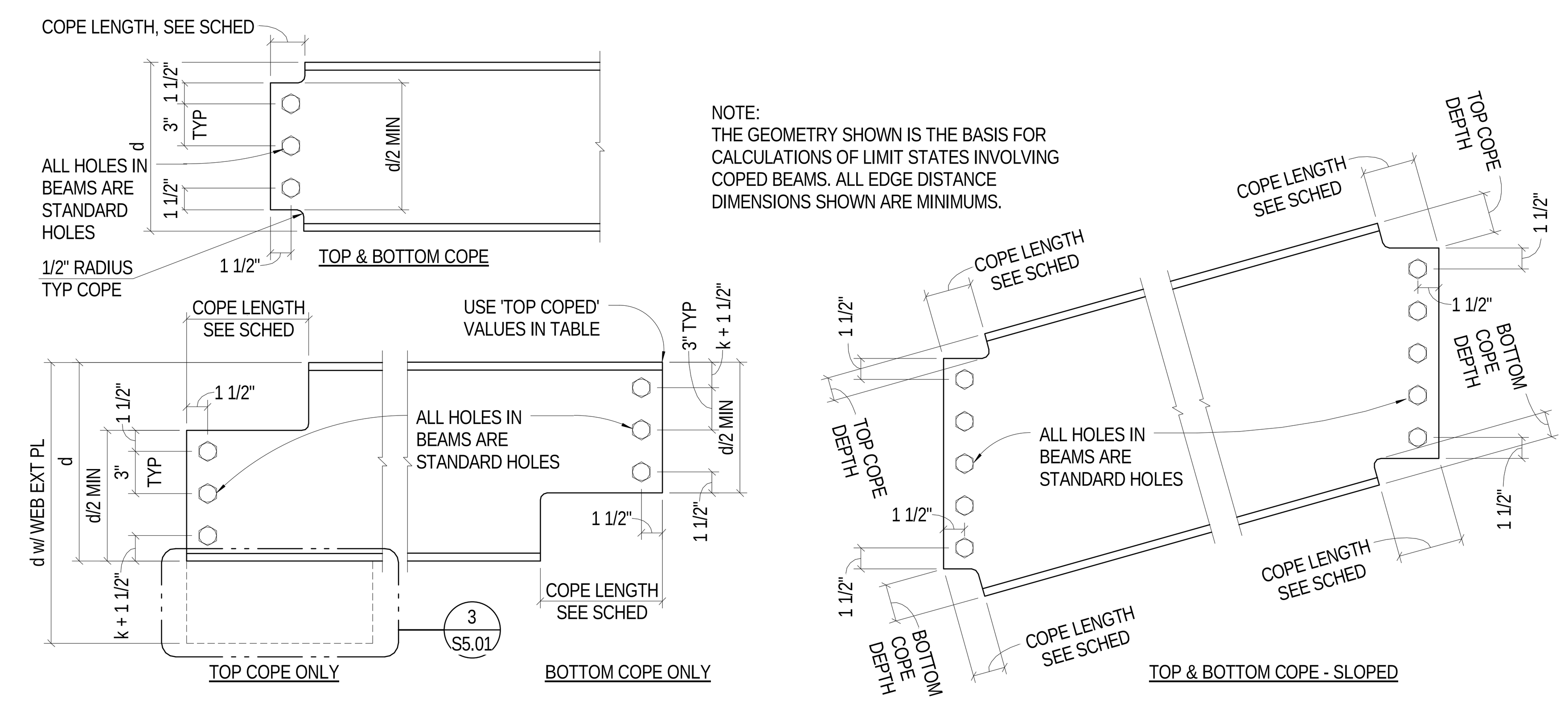
FOR SKEW ANGLES ≤ 55°, USE G=6"
FOR SKEW ANGLES ≤ 60°, USE G=10"

18 NO SCALE TYP BM SKEWED CONN ≤ 60°



STANDARD HOLES REQD WHERE BEAMS FRAME TO GIRDER FROM ONLY ONE SIDE. STANDARD OR SLOTTED HOLES MAY BE USED AT OTHER CONDITIONS

14 NO SCALE TYP BM SINGLE PLATE



6 NO SCALE TYP BM COPE GEOMETRY

3/4"Ø A325 SINGLE PLATE CONNECTION SCHEDULE - MAX REACTION (KIPS) - SERVICE LEVEL

T INDICATES TOP COPE ONLY
TB INDICATES TOP AND BOTTOM COPE

UNCOPED (# OF BOLTS)

BEAM SIZES		2	3	4	5	6	7	8	9
W8	10-15 & C8	19							
	18-28	21							
	31 & UP	21							
W10	12-19 & C10	21							
	22-30	21							
	33-45	21							
	49 & UP	21							
W12	14-22 & C12	21	31						
	26-35	21	31						
	40 & UP	21	31						
W14	22-26		31						
	30-38		31						
	43 & UP		31						
W16	26-31		31	42					
	36-57		31	42					
	67 & UP		31	42					
W18	35-46		31	42	53				
	50-71		31	42	53				
	76 & UP		31	42	53				
W21	44-57			42	53	63			
	62-93			42	53	63			
	101 & UP			42	53	63			
W24	55-62			42	53	63	74		
	68 & UP			42	53	63	74		
W27 - W44					53	63	74	84	95

COPE LENGTH ≤ 4" (# OF BOLTS / COPE TYPE)

BEAM SIZES		2 T	2 TB	3 T	3 TB	4 T	4 TB	5 T	5 TB	6 T	6 TB	7 T	7 TB	8 T	8 TB	9 T	9 TB
W8	10-15 & C8	12	6														
	18-28	18	9														
	31 & UP	21	11														
W10	12-19 & C10	14	7														
	22-30	20	9														
	33-45	21	11														
	49 & UP	21	13														
W12	14-22 & C12	15	7	26	17												
	26-35	20	9	29	20												
	40 & UP	21	11	31	26												
W14	22-26			29	20												
	30-38			31	24												
	43 & UP			31	27												
W16	26-31			31	22	42	39										
	36-57			31	26	42	42										
	67 & UP			31	31	42	42										
W18	35-46			31	26	42	42	53	53								
	50-71			31	31	42	42	53	53								
	76 & UP			31	31	42	42	53	53								
W21	44-57					42	42	53	53	63	63						
	62-93					42	42	53	53	63	63						
	101 & UP					42	42	53	53	63	63						
W24	55-62					42	42	53	53	63	63	74	74				
	68 & UP					42	42	53	53	63	63	74	74				
W27 - W44								53	53	63	63	74	74	84	84	95	95

COPE LENGTH ≤ 5 1/4" (# OF BOLTS / COPE TYPE)

BEAM SIZES		2 T	2 TB	3 T	3 TB	4 T	4 TB	5 T	5 TB	6 T	6 TB	7 T	7 TB	8 T	8 TB	9 T	9 TB
W8	10-15 & C8	10	6#														
	18-28	14	7														
	31 & UP	20	8														
W10	12-19 & C10	11	6#														
	22-30	16	7														
	33-45	21	9														
	49 & UP	21	10														
W12	14-22 & C12	11	6	23	14												
	26-35	16	7	29	16												
	40 & UP	21	9	31	20												
W14	22-26			29	16												
	30-38			31	18												
	43 & UP			31	21												
W16	26-31			31	17	42	31										
	36-57			31	20	42	36										
	67 & UP			31	27	42	42										
W18	35-46			31	21	42	37	53	53								
	50-71			31	24	42	42	53	53								
	76 & UP			31	29	42	42	53	53								
W21	44-57					42	42	53	53	63	63						
	62-93					42	42	53	53	63	63						
	101 & UP					42	42	53	53	63	63						
W24	55-62					42	42	53	53	63	63	74	74				
	68 & UP					42	42	53	53	63	63	74	74				
W27 - W44								53	53	63	63	74	74	84	84	95	95

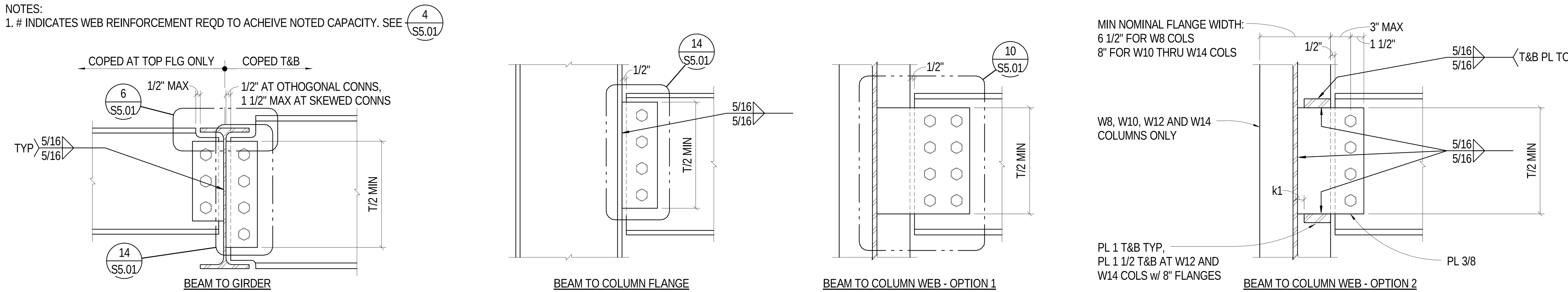
COPE LENGTH ≤ 6 1/8" (# OF BOLTS / COPE TYPE)

BEAM SIZES		2 T	2 TB	3 T	3 TB	4 T	4 TB	5 T	5 TB	6 T	6 TB	7 T	7 TB	8 T	8 TB	9 T	9 TB
W8	10-15 & C8	8	6#														
	18-28	12	6														
	31 & UP	18	7														
W10	12-19 & C10	9	6#														
	22-30	13	6														
	33-45	18	7														
	49 & UP	21	9														
W12	14-22 & C12	10	6#	20	12												
	26-35	14	6	28	14												
	40 & UP	20	7	31	17												
W14	22-26			26	14												
	30-38			31	16												
	43 & UP			31	18												
W16	26-31			29	15	42	27										
	36-57			31	17	42	31										
	67 & UP			31	24	42	42										
W18	35-46			31	18	42	32	53	50								
	50-71			31	21	42	38	53	53								
	76 & UP			31	25	42	42	53	53								
W21	44-57					42	37	53	53	63	63						
	62-93					42	42	53	53	63	63						
	101 & UP					42	42	53	53	63	63						
W24	55-62					42	42	53	53	63	63	74	74				
	68 & UP					42	42	53	53	63	63	74	74				
W27 - W44								53	53	63	63	74	74	84	84	95	95

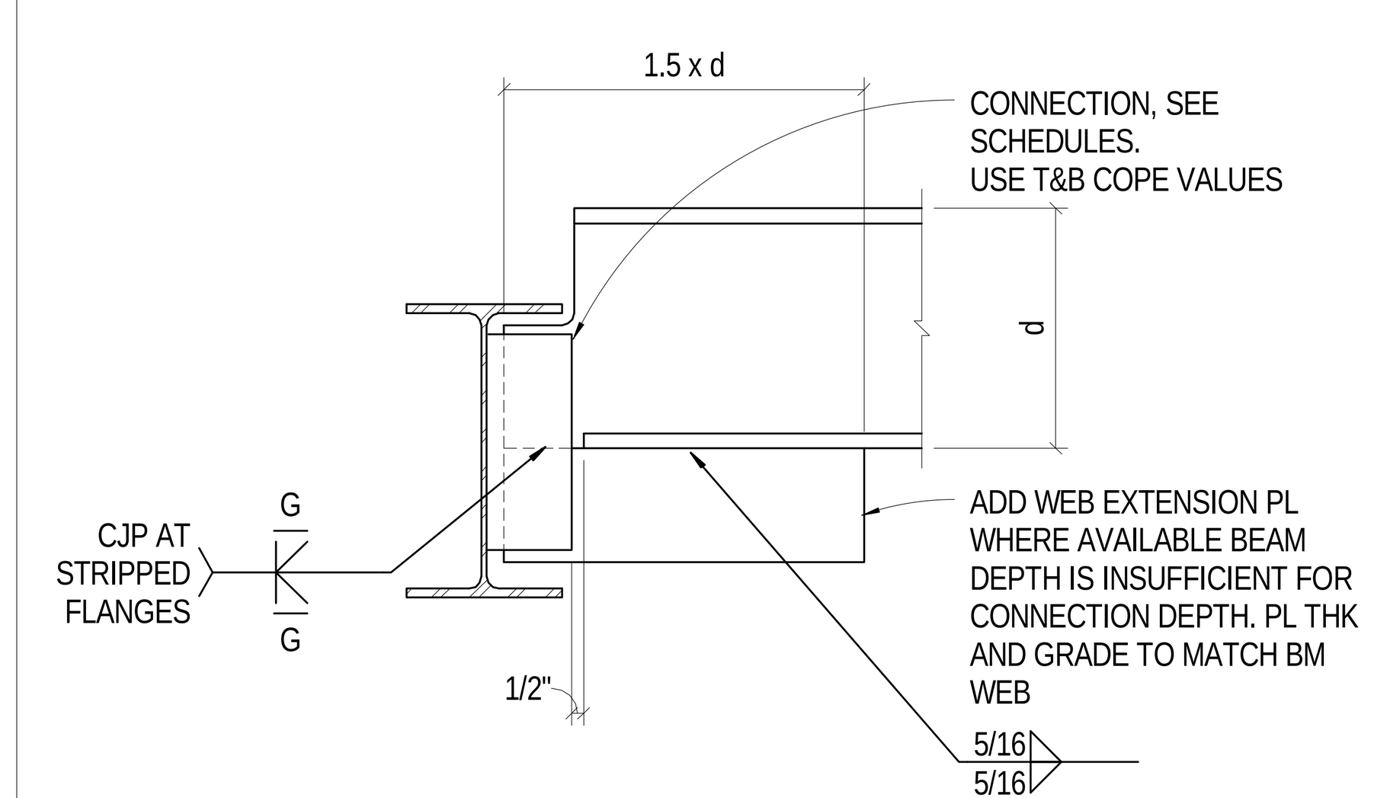
COPE LENGTH ≤ 8" (# OF BOLTS / COPE TYPE)

BEAM SIZES		2 T	2 TB	3 T	3 TB	4 T	4 TB	5 T	5 TB	6 T	6 TB	7 T	7 TB	8 T	8 TB	9 T	9 TB
W8	10-15 & C8	6	6#														
	18-28	9	6#														
	31 & UP	14	6														
W10	12-19 & C10	7	6#														
	22-30	10	6#														
	33-45	14	6														
	49 & UP	17	7														
W12	14-22 & C12	8	6#	14	9												
	26-35	11	6#	21	10												
	40 & UP	15	6	30	14												
W14	22-26			20	10												
	30-38			25	12												
	43 & UP			31	14												
W16	26-31			22	11	35	21										
	36-57			28	14	42	24										
	67 & UP			31	18	42	33										
W18	35-46			27	14	42	25	53	39								
	50-71			31	16	42	30	53	46								
	76 & UP			31	20	42	35	53	53								
W21	44-57					42	29	53	46	63	63						
	62-93					42	33	53	52	63	63						
	101 & UP					42	42	53	53	63	63						
W24	55-62					42	33	53	52	63	63	74	74				
	68 & UP					42	35	53	53	63	63	74	74				
W27 - W44								53	53	63	63	74	74	84	84	95	95

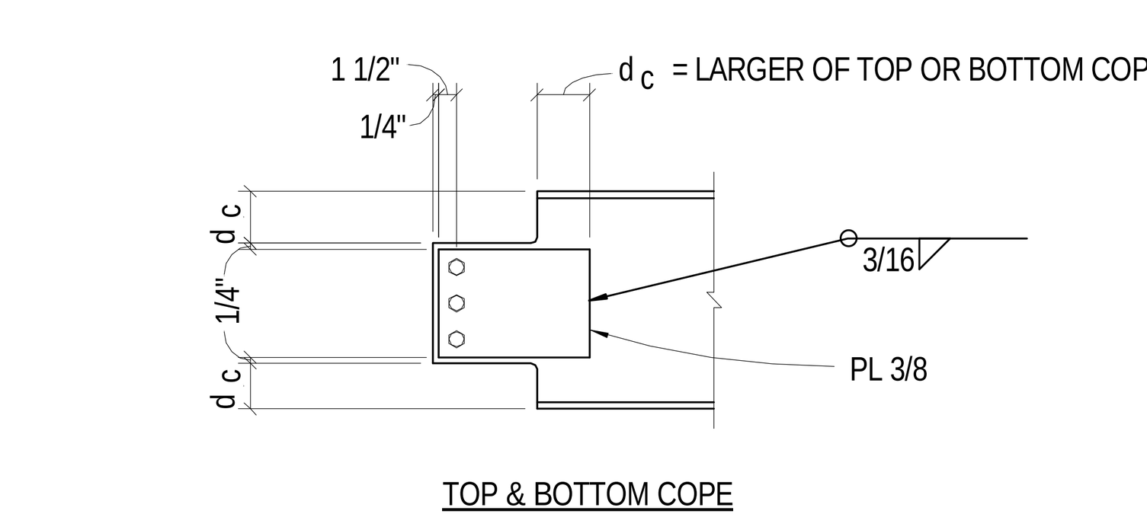
NOTES:
1. # INDICATES WEB REINFORCEMENT REQD TO ACHEIVE NOTED CAPACITY. SEE 4/S5.01

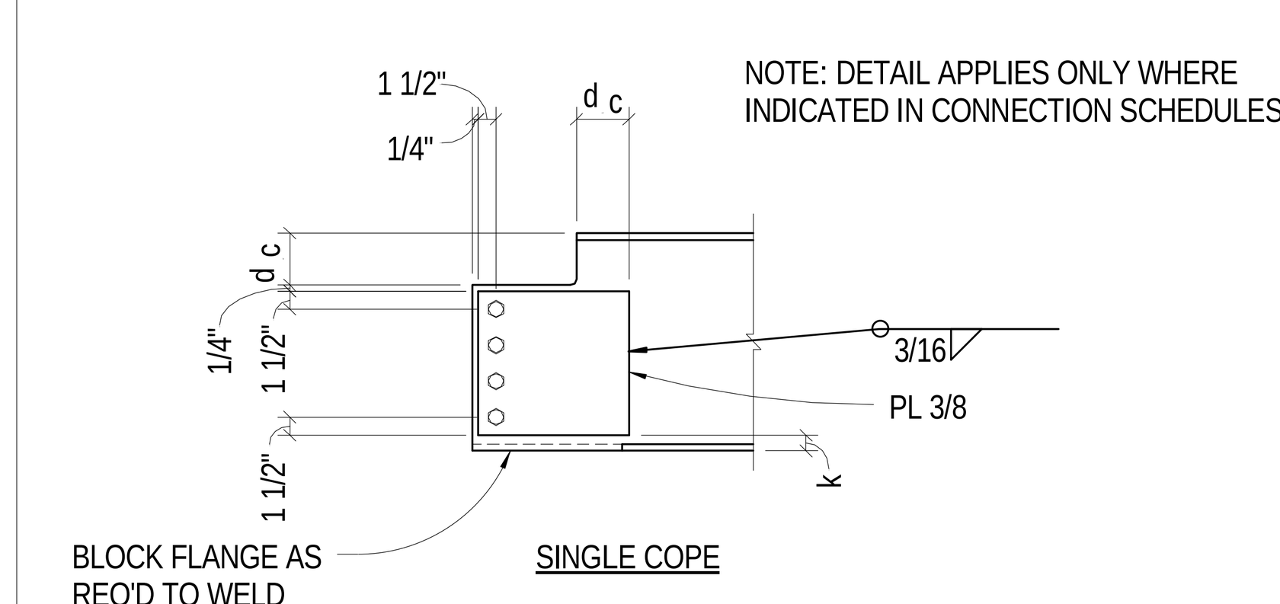


20 NO SCALE TYP BM SINGLE PLATE CONNECTION SCHEDULE



3 NO SCALE TYP BM WEB EXTENSION





4 NO SCALE TYP BM WEB REINF

COLORADO REGISTERED PROFESSIONAL ENGINEER CARL BENJAMIN NELSON 26118

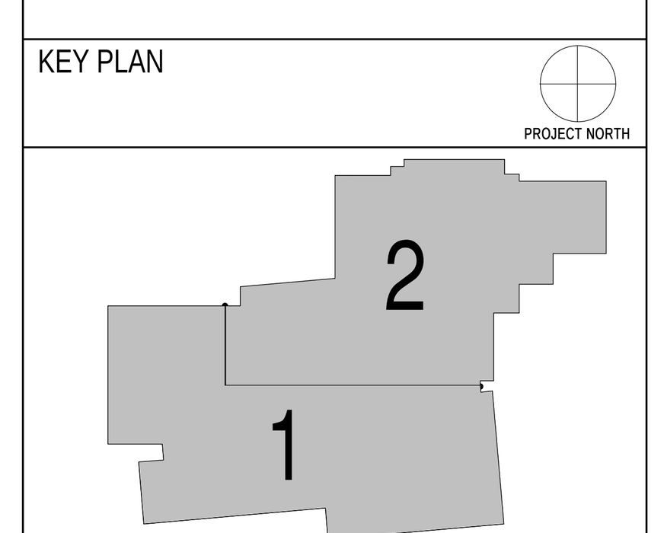
09-22-09

SINK COMBS DETHLEFS
475 Lincoln Street, Suite 100
Denver, Colorado 80203
303 308 0200
FAX 308 0222

HUMPHRIES | POLI ARCHITECTS

MARTIN/MARTIN CONSULTING ENGINEERS
12499 West Colfax Avenue
P.O. Box 151500
Lakewood, Colorado 80215
303.431.6100
FAX 303.431.6866

KEY PLAN



Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
90% CD'S	09-07-09
CONSTRUCTION DOCUMENTS	09-22-09

FRUITA COMMUNITY CENTER & MESA COUNTY LIBRARIES / FRUITA BRANCH

FRUITA COLORADO

M/M Project No.: 21468.S.01

STEEL DETAILS

Drawn By: DE, LB
Checked By: BN, GS

MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:35:02 AM

\\Structist\PROJECTS\21468_01\Revit\21468.S.01 Fruita Rec.rvt

S INDICATES STAGGERED BOLTS OR WELDED ANGLE

A INDICATES ALIGNED BOLTS

3/4"Ø A325 SINGLE ANGLE CONNECTION SCHEDULE - MAX REACTION (KIPS) - SERVICE LEVEL

COPE CONDITION		UNCOPED															
# OF BOLTS		2		3		4		5		6		7		8		9	
BEAM SIZES	ANGLE TYPE	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
W8	10-15 & C8	10	7														
	18-28	10	7														
	31 & UP	10	7														
W10	12-19 & C10	10	7	21	15												
	22-30	10	7	21	15												
	33-45	10	7														
	49 & UP	10	7														
W12	14-22 & C12	10	7	21	15												
	26-35	10	7	21	15												
	40 & UP	10	7	21	15												
W14	22-26			21	15												
	30-38			21	15												
	43 & UP			21	15												
W16	26-31			21	15	32	25										
	36-57			21	15	32	25										
	67 & UP			21	15	32	25										
W18	35-46			21	15	32	25	44	36								
	50-71			21	15	32	25	44	36								
	76 & UP			21	15	32	25	44	36								
W21	44-57					32	25	44	36	55	47						
	62 & UP					32	25	44	36	55	47						
W24 TO W44						32	25	44	36	55	47	66	59	77	70	88	82

COPE CONDITION		COPE LENGTH ≤ 4"															
# OF BOLTS		2		3		4		5		6		7		8		9	
BEAM SIZES	ANGLE TYPE	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
W8	10-15 & C8	6	6														
	18-28	9	7														
	31 & UP	10	7														
W10	12-19 & C10	7	7	17	15												
	22-30	9	7	21	15												
	33-45	10	7														
	49 & UP	10	7														
W12	14-22 & C12	7	7	17	15												
	26-35	9	7	20	15												
	40 & UP	10	7	21	15												
W14	22-26			20	15												
	30-38			21	15												
	43 & UP			21	15												
W16	26-31			21	15	32	25										
	36-57			21	15	32	25										
	67 & UP			21	15	32	25										
W18	35-46			21	15	32	25	44	36								
	50-71			21	15	32	25	44	36								
	76 & UP			21	15	32	25	44	36								
W21	44-57					32	25	44	36	55	47						
	62 & UP					32	25	44	36	55	47						
W24 TO W44						32	25	44	36	55	47	66	59	77	70	88	82

COPE CONDITION		COPE LENGTH ≤ 5 1/4"															
# OF BOLTS		2		3		4		5		6		7		8		9	
BEAM SIZES	ANGLE TYPE	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
W8	10-15 & C8	6#	6#														
	18-28	7	7														
	31 & UP	8	7														
W10	12-19 & C10	6#	6#	13	13												
	22-30	7	7	16	15												
	33-45	9	7														
	49 & UP	10	7														
W12	14-22 & C12	6	6	14	14												
	26-35	7	7	16	15												
	40 & UP	9	7	20	15												
W14	22-26			16	15												
	30-38			18	15												
	43 & UP			21	15												
W16	26-31			17	15	31	25										
	36-57			20	15	32	25										
	67 & UP			21	15	32	25										
W18	35-46			21	15	32	25	44	36								
	50-71			21	15	32	25	44	36								
	76 & UP			21	15	32	25	44	36								
W21	44-57					32	25	44	36	55	47						
	62 & UP					32	25	44	36	55	47						
W24 TO W44						32	25	44	36	55	47	66	59	77	70	88	82

COPE CONDITION		COPE LENGTH ≤ 6 1/8"															
# OF BOLTS		2		3		4		5		6		7		8		9	
BEAM SIZES	ANGLE TYPE	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
W8	10-15 & C8	6#	6#														
	18-28	6	6														
	31 & UP	7	7														
W10	12-19 & C10	6#	6#	11	11												
	22-30	6	6	14	14												
	33-45	7	7														
	49 & UP	9	7														
W12	14-22 & C12	6#	6#	12	12												
	26-35	6	6	14	14												
	40 & UP	7	7	17	15												
W14	22-26			14	14												
	30-38			16	15												
	43 & UP			18	15												
W16	26-31			15	15	27	25										
	36-57			17	15	31	25										
	67 & UP			21	15	32	25										
W18	35-46			18	15	32	25	44	36								
	50-71			21	15	32	25	44	36								
	76 & UP			21	15	32	25	44	36								
W21	44-57					32	25	44	36	55	47						
	62 & UP					32	25	44	36	55	47						
W24 TO W44						32	25	44	36	55	47	66	59	77	70	88	82

COPE CONDITION		COPE LENGTH ≤ 8"															
# OF BOLTS		2		3		4		5		6		7		8		9	
BEAM SIZES	ANGLE TYPE	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
W8	10-15 & C8	6#	6#														
	18-28	6#	6#														
	31 & UP	6	6														
W10	12-19 & C10	6#	6#	9	9												
	22-30	6#	6#	11	11												
	33-45	6	6														
	49 & UP	7	7														
W12	14-22 & C12	6#	6#	9	9												
	26-35	6#	6#	10	10												
	40 & UP	6	6	14	14												
W14	22-26			10	10												
	30-38			12	12												
	43 & UP			14	14												
W16	26-31			11	11	21	21										
	36-57			14	14	24	24										
	67 & UP			18	15	32	25										
W18	35-46			14	14	25	25	39	36								
	50-71			16	15	30	25	44	36								
	76 & UP			20	15	32	25	44	36								
W21	44-57					29	25	44	36	55	47						
	62 & UP					32	25	44	36	55	47						
W24 TO W44						32	25	44	36	55	47	66	59	77	70	88	82

NOTES:
1. # INDICATES WEB REINFORCEMENT REQD TO ACHEIVE NOTED CAPACITY. SEE 4/S5.01

COLUMN CONDITION

GIRDER CONDITION

BOLTED BEAM / BOLTED SUPPORT

BOLTED BEAM / WELDED SUPPORT

WELDED BEAM / BOLTED SUPPORT

18 NO SCALE TYP BM SINGLE ANGLE CONNECTION SCHEDULE

T INDICATES TOP COPE ONLY

TB INDICATES TOP AND BOTTOM COPE

3/4"Ø A325 DOUBLE ANGLE CONNECTION SCHEDULE - MAX REACTION (KIPS) - SERVICE LEVEL

COPE CONDITION		UNCOPED							
# OF BOLTS		2	3	4	5	6	7	8	9
BEAM SIZES	COPE TYPE								
W8	10-15	19							
	18-28	26							
	31 & UP	33							
W10	12-19	22	33						
	22-30	28	42						
	33-45	33							
	49 & UP	39							
W12	14-22	23	35						
	26-35	26	40						
	40 & UP	34	51						
W14	22-26		40						
	30-38		47						
	43 & UP		53						
W16	26-31		43	58					
	36-57		51	69					
	67 & UP		63	84					
W18	35-46		52	70	87				
	50-71		62	83	103				
	76 & UP		63	84	106				
W21	44-57			81	102	122			
	62-93			84	106	127			
	101 & UP			84	106	127			
W24	55-62			84	106	127	148		
	68-103			84	106	127	148		
	104 & UP			84	106	127	148		
W27	84-129				106	127	148		
	146 & UP				106	127	148		
W30	90-148				106	127	148	169	
	173 & UP				106	127	148	169	
W33	118-152					127	148	169	190
	169 & UP					127	148	169	190
W36	135-160					127	148	169	190
	170 & UP					127	148	169	190
W40	149-215					127	148	169	190
	235 & UP					127	148	169	190
W44	ALL						148	169	190

COPE CONDITION		COPE LENGTH ≤ 4"															
# OF BOLTS		2		3		4		5		6		7		8		9	
BEAM SIZES	COPE TYPE	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB
W8	10-15	12	6														
	18-28	18	9														
	31 & UP	25	11														
W10	12-19	14	7	24	17												
	22-30	20	9	31	21												
	33-45	25	11														
	49 & UP	30	13														
W12	14-22	15	7	26	17												
	26-35	20	9	29	20												
	40 & UP	26	11	38	26												
W14	22-26			29	20												
	30-38			35	24												
	43 & UP			39	27												
W16	26-31			32	22	42	39										
	36-57			38	26	50	47										
	67 & UP			51	35	67	63										
W18	35-46			39	26	51	47	63	62								
	50-71			46	31	60	56	75	73								
	76 & UP			55	38	72	67	90	88								
W21	44-57					60	55	74	72	89	87						
	62-93					68	63	85	82	101	99						
	101 & UP					84	79	106	103	127	124						
W24	55-62					67	63	84	81	100	98	116	114				
	68-103					71	66	88	85	105	103	122	120				
	104 & UP					84	79	106	103	127	124	147	145				
W27	84-129							97	95	116	114	136	133				
	146 & UP							106	106	127	127	148	148				
W30	90-148							100	97	119	116	139	136	158	155		
	173 & UP							106	106	127	127	148	148	169	169		
W33	118-152									127	127	148	148	169	169	190	190
	169 & UP									127	127	148	148	169	169	190	190
W36	135-160									127	127	148	148	169	169	190	190
	170 & UP									127	127	148	148	169	169	190	190
W40	149-215									127	127	148	148	169	169	190	190
	235 & UP									127	127	148	148	169	169	190	190
W44	ALL											148	148	169	169	190	190

COPE CONDITION		COPE LENGTH ≤ 5 1/4"															
# OF BOLTS		2		3		4		5		6		7		8		9	
BEAM SIZES	COPE TYPE	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB
W8	10-15	10	6#														
	18-28	14	7														
	31 & UP	20	8														
W10	12-19	11	6#	22	13												
	22-30	16	7	31	16												
	33-45	21	9														
	49 & UP	25	10														
W12	14-22	11	6	23	14												
	26-35	16	7	29	16												
	40 & UP	23	9	38	20												
W14	22-26			29	16												
	30-38			35	18												
	43 & UP			39	21												
W16	26-31			32	17	42	31										
	36-57			38	20	50	36										
	67 & UP			51	27	67	49										
W18	35-46			39	21	51	37	63	58								
	50-71			46	24	60	44	75	69								
	76 & UP			55	29	72	53	90	82								
W21	44-57					60	43	74	68	89	87						
	62-93					68	49	85	78	101	99						
	101 & UP					84	62	106	97	127	124						
W24	55-62					67	49	84	77	100	98	116	114				
	68-103					71	51	88	81	105	103	122	120				
	104 & UP					84	62	106	97	127	124	147	145				
W27	84-129							97	89	116	114	136	133				
	146 & UP							106	106	127	127	148	148				
W30	90-148							100	91	119	116	139	136	158	155		
	173 & UP							106	106	127	127	148	148	169	169		
W33	118-152									127	127	148	148	169	169	190	190
	169 & UP									127	127	148	148	169	169	190	190
W36	135-160									127	127	148	148	169	169	190	190
	170 & UP									127	127	148	148	169	169	190	190
W40	149-215									127	127	148	148	169	169	190	190
	235 & UP									127	127	148	148	169	169	190	190
W44	ALL											148	148	169	169	190	190

COPE CONDITION		COPE LENGTH ≤ 6 1/8"															
# OF BOLTS		2		3		4		5		6		7		8		9	
BEAM SIZES	COPE TYPE	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB
W8	10-15	8	6#														
	18-28	12	6														
	31 & UP	18	7														
W10	12-19	9	6#	19	11												
	22-30	13	6	27	14												
	33-45	18	7														
	49 & UP	22	9														
W12	14-22	10	6#	20	12												
	26-35	14	6	28	14												
	40 & UP	20	7	38	17												
W14	22-26			26	14												
	30-38			32	16												
	43 & UP			39	18												
W16	26-31			29	15	42	27										
	36-57			35	17	50	31										
	67 & UP			51	24	67	42										
W18	35-46			35	18	51	32	63	50								
	50-71			44	21	60	38	75	60								
	76 & UP			55	25	72	46	90	72								
W21	44-57					60	37	74	59	89	85						
	62-93					68	43	85	67	101	97						
	101 & UP					84	54	106	84	127	122						
W24	55-62					67	42	84	66	100	96	116	114				
	68-103					71	45	88	70	105	101	122	120				
	104 & UP					84	54	106	84	127	122	147	145				
W27	84-129							97	77	116	112	136	133				
	146 & UP							106	102	127	127	148	148				
W30	90-148							100	79	119	114	139	136	158	155		
	173 & UP							106	106	127	127	148	148	169	169		
W33	118-152									127	127	148	148	169	169	190	190
	169 & UP									127	127	148	148	169	169	190	190
W36	135-160									127	127	148	148	169	169	190	190
	170 & UP									127	127	148	148	169	169	190	190
W40	149-215									127	127	148	148	169	169	190	190
	235 & UP									127	127	148	148	169	169	190	190
W44	ALL											148	148	169	169	190	190

COPE CONDITION		COPE LENGTH ≤ 8"															
# OF BOLTS		2		3		4		5		6		7		8		9	
BEAM SIZES	COPE TYPE	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB	T	TB
W8	10-15	6	6#														
	18-28	9	6#														
	31 & UP	14	6														
W10	12-19	7	6#	14	9												
	22-30	10	6#	21	11												
	33-45	14	6														
	49 & UP	17	7														
W12	14-22	8	6#	14	9												
	26-35	11	6#	21	10												
	40 & UP	15	6	30	14												
W14	22-26			20	10												
	30-38			25	12												
	43 & UP			31	14												
W16	26-31			22	11	35	21										
	36-57			28	14	45	24										
	67 & UP			42	18	67	33										
W18	35-46			27	14	45	25	63	39								
	50-71			34	16	56	30	75	46								
	76 & UP			45	20	72	35	90	56								
W21	44-57					52	29	74	46	89	66						
	62-93					64	33	85	52	101	76						
	101 & UP					84	42	106	66	127	95						
W24	55-62					62	33	84	52	100	75	116	102				
	68-103					69	35	88	54	105	78	122	107				
	104 & UP					84	42	106	66	127	95	147	129				
W27	84-129							97	60	116	87	136	119				
	146 & UP							106	79	127	115	148	148				
W30	90-148							100	62	119	89	139	121	158	155		
	173 & UP							106	86	127	124	148	148	169	169		
W33	118-152									127	104	148	142	169	169	190	190
	169 & UP									127	127	148	148	169	169	190	190
W36	135-160									127	114	148	148	169	169	190	190
	170 & UP									127	127	148	148	169	169	190	190
W40	149-215									127	119	148	148	169	169	190	190
	235 & UP									127	127	148	148	169	169	190	190
W44	ALL											148	148	169	169	190	190

NOTES:
1. # INDICATES WEB REINFORCEMENT REQD TO ACHEIVE NOTED CAPACITY. SEE

WHERE COL WEB tw<0.37" TOTAL CONNECTION CAPACITY (SUM OF REACTIONS BOTH SIDES) IS LIMITED TO 16k x NUMBER OF SHARED BOLTS

COLUMN WEB OR FLANGE

COLUMN CONDITION

WHERE GIRDER WEB tw<0.37" TOTAL CONNECTION CAPACITY (SUM OF REACTIONS BOTH SIDES) IS LIMITED TO 12k x NUMBER OF SHARED BOLTS.

GIRDER CONDITION

20 NO SCALE TYP BM DOUBLE ANGLE CONNECTION SCHEDULE

STD HOLES THIS LEG AT SINGLE ANGLE CONN. STD OR SHORT SLOTTED HOLES AT DOUBLE ANGLE CONN

STANDARD HOLES REQD WHERE BEAMS FRAME TO GIRDER FROM ONLY ONE SIDE. STANDARD OR SLOTTED HOLES MAY BE USED AT OTHER CONDITIONS

BOLTS ALIGNED

BOLTS STAGGERED

NOTE:
1. ANGLES FOR BOLTED / BOLTED CONNECTIONS SHOWN. USE "BOLTS STAGGERED" ANGLE SIZE FOR BOLTED / WELDED CONNECTIONS.

1 NO SCALE TYP BM ANGLES

1/2" RADIUS TYP

SINGLE OR DOUBLE ANGLE CONN

"UNCOPED" VALUES MAY BE USED WHEN FLANGES ARE BLOCKED OR STRIPPED ONE SIDE TO PASS T DIMENSION OF COLUMN

2 NO SCALE TYP BM FLANGE BLOCK

WEB OF COLUMN OR GIRDER

DETAIL CONN TO PERMIT SAFE ERECTION OF BM EA SIDE WHERE BOLTS ARE SHARED, IN ACCORDANCE WITH ALL OSHA STANDARDS

3 NO SCALE TYP BM TWO-SIDED CONNECTIONS

SEE DTL 1/S5.02 FOR ANGLE SIZE & DETAIL.

T/2 MIN. BASED ON T OF SMALLER BEAM

SEE SCHEDULE 20/S5.02

4 NO SCALE TYP BM DBL ANGLE SPLICE

CARL BENJAMIN NELSON 26118 PROFESSIONAL ENGINEER
Carl Benjamin Nelson

09-22-09

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KEY PLAN

Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
90% CD'S	09-07-09
CONSTRUCTION DOCUMENTS	09-22-09

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FRUITA COLORADO

M/M Project No.: 21468.S.01

STEEL DETAILS

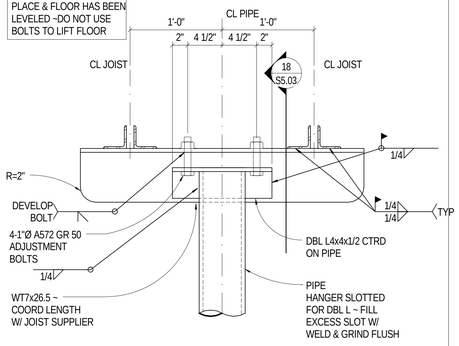
Drawn By: DE, LB
Checked By: BN, GS

S5.02

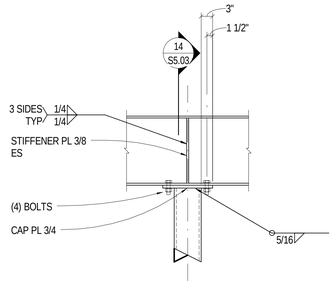
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:35:06 AM

MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL

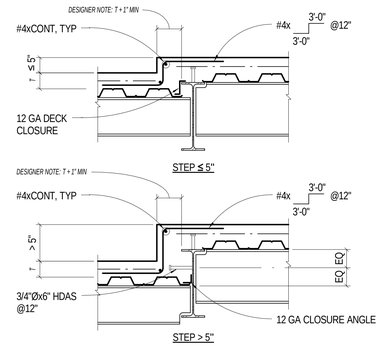
WELD 4x4 TO WT STEM AFTER ALL ROOF AND FLOOR DEAD LOAD ARE IN PLACE & FLOOR HAS BEEN LEVELED ~DO NOT USE BOLTS TO LIFT FLOOR



17 1 1/2" = 1'-0" FLOOR HANGER AT JOIST -1



13 NO SCALE TYP BM OVER T/HSS COLUMN



9 NO SCALE TYP SLAB STEP - DECK PARALLEL

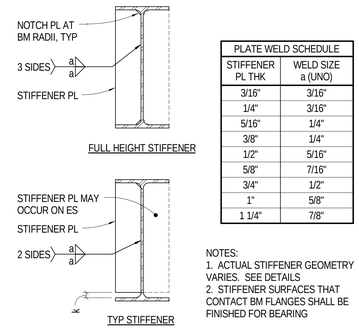


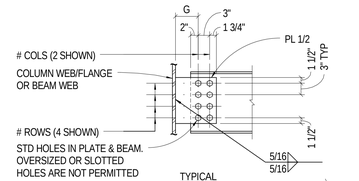
PLATE WELD SCHEDULE	
STIFFENER PL THK	WELD SIZE a (UNO)
3/16"	3/16"
1/4"	3/16"
5/16"	1/4"
3/8"	1/4"
1/2"	5/16"
5/8"	7/16"
3/4"	1/2"
1"	5/8"
1 1/4"	7/8"

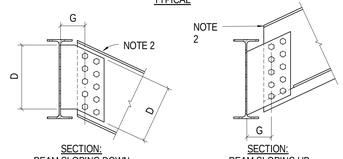
NOTES:
1. ACTUAL STIFFENER GEOMETRY VARIES. SEE DETAILS
2. STIFFENER SURFACES THAT CONTACT BM FLANGES SHALL BE FINISHED FOR BEARING

5 NO SCALE TYP WF BEAM STIFFENER

EXTENDED SHEAR PL SCHEDULE, G = 6"			
BEAM SIZE	CAPACITY (NOTE 1)	# COLS	# ROWS
W8, W10	10	2	2
W12	20	2	3
W14, W16	30	2	4
W18	50	2	5
W21	75	2	6
W24, W27	100	2	7
W30 - W36	120	2	8

EXTENDED SHEAR PL SCHEDULE, G = 9"			
BEAM SIZE	CAPACITY (NOTE 1)	# COLS	# ROWS
W8, W10	9	2	2
W12	15	2	3
W14, W16	25	2	4
W18	40	2	5
W21	60	2	6
W24, W27	75	2	7
W30 - W36	95	2	8





NOTES:
1. SERVICE LEVEL (ASD) IN KIPS
2. BEAM TOP FLANGE AT CONN TO BE BRACED BY METAL DECK, STEEL FRAMING, OR CONC SLAB. IF THE TOP FLANGE IS NOT BRACED, THIS CONN DOES NOT APPLY
3. BEAM TOP FLANGE AT CONN TO BE BRACED BY METAL DECK, STEEL FRAMING, OR CONC SLAB. IF THE TOP FLANGE IS NOT BRACED, PROVIDE STIFFENERS AS SHOWN DASHED

DESIGNER NOTE: REFERENCE 10-102 THRU 10-104, AISC 13TH EDITION

2 NO SCALE TYP EXTENDED SHEAR PLATE

09-22-09

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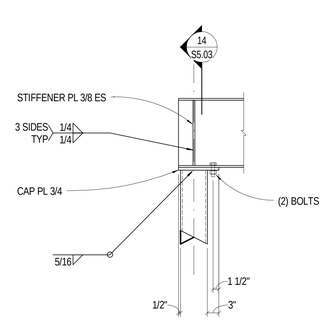
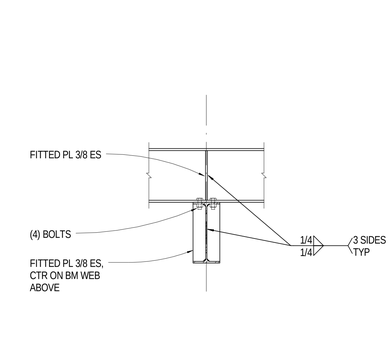
FOR ADDITIONAL INFORMATION RE: 17/S5.03



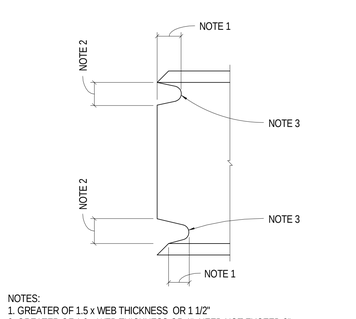
18 1 1/2" = 1'-0" FLOOR HANGER AT JOIST - 2

FOR ADDITIONAL INFORMATION

14 3/4" = 1'-0" TYP FULL DEPTH SHEAR CONN

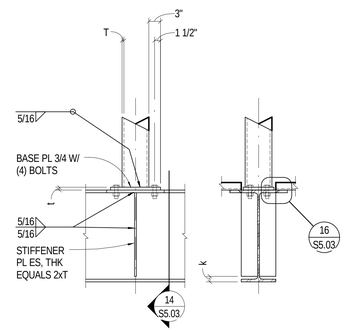


10 NO SCALE TYP SLAB STEP - DECK PERP

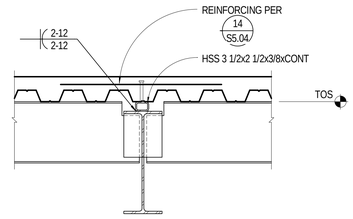


6 NO SCALE TYP BM TO GIRDER MOMENT CONN

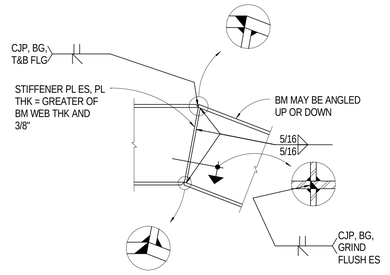
4 3" = 1'-0" TYP PLATE WASHER



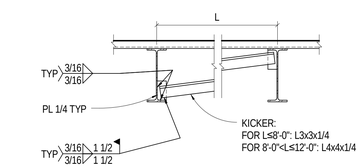
15 NO SCALE TYP HSS COL TRANSFER



11 3/4" = 1'-0" SECTION AT LOW GIRDER

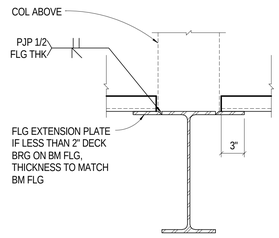


7 NO SCALE TYP ANGLED BEAM



3 NO SCALE TYP KICKER

20 NO SCALE TYP BM END OVER T/HSS COLUMN



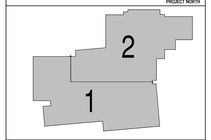
16 NO SCALE FLANGE EXTENSION PLATE

12 NO SCALE TYP BM OVER BM

NOTES:
1. GREATER OF 1.5 x WEB THICKNESS OR 1 1/2"
2. GREATER OF 1.0 x WEB THICKNESS OR 1", NEED NOT EXCEED 2"
3. MIN RADIUS = 3/8"

8 NO SCALE TYP WF WELD ACCESS HOLE

KEY PLAN



Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
90% CD'S	09-07-09
CONSTRUCTION DOCUMENTS	09-22-09

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FRUITA COLORADO

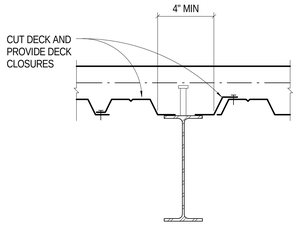
M/M Project No.: 21468.S.01

STEEL DETAILS

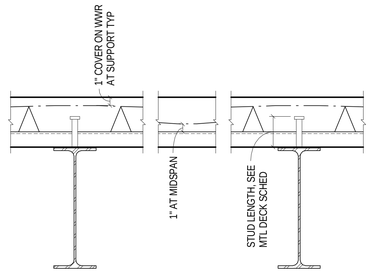
Drawn By: DE, LB
Checked By: BN, GS

S5.03

MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:35:10 AM

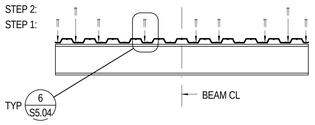


17 NO SCALE TYP COMPOSITE BM PARALLEL TO DECK

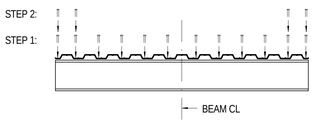


13 NO SCALE TYP COMPOSITE BEAM

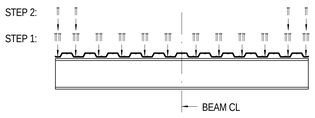
CASE 1: # STUDS < # RIBS
STEP 1 = ONE STUD EVERY OTHER RIB
STEP 2 = 1/2 OF REMAINING STUDS AT EACH END OF BEAM, PLACE IN EMPTY RIBS STARTING FROM THE BEAM END



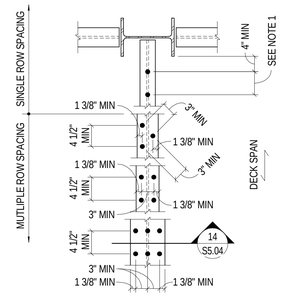
CASE 2: # RIBS < # STUDS < 2x # RIBS
STEP 1 = ONE STUD EVERY RIB
STEP 2 = 1/2 OF REMAINING STUDS AT EACH END OF BEAM, PLACE ONE IN EACH RIB STARTING FROM THE BEAM END



CASE 3: # STUDS > 2x # RIBS
STEP 1 = TWO STUDS EVERY RIB
STEP 2 = 1/2 OF REMAINING STUDS AT EACH END OF BEAM, PLACE ONE IN EACH RIB STARTING FROM THE BEAM END

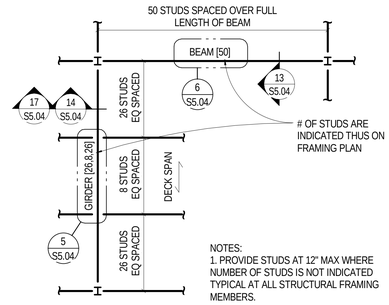


10 NO SCALE STUD LAYOUT - DECK PERP CONDITIONS



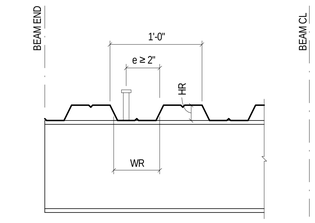
NOTES:
1. SPACE STUDS UNIFORMLY OVER BEAM LENGTH OR BTWN CONCENTRATED LOADS, 4 1/2" MIN SPACING

5 NO SCALE TYP SHEAR STUD SPACING AND LAYOUT - DECK PARALLEL



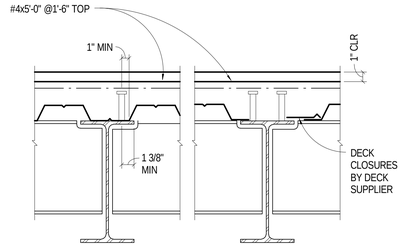
NOTES:
1. PROVIDE STUDS AT 12" MAX WHERE NUMBER OF STUDS IS NOT INDICATED TYPICAL AT ALL STRUCTURAL FRAMING MEMBERS.

1 NO SCALE TYP SHEAR STUD LAYOUT



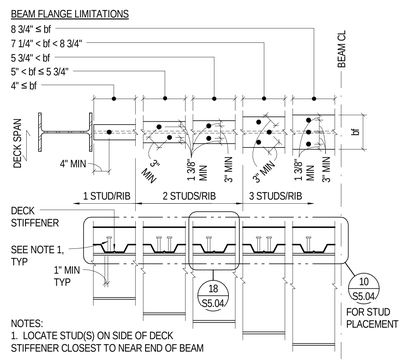
NOTES:
1. COMPOSITE METAL DECK SPECIFIED IS MANUFACTURED BY VULCRAFT. ALTERNATE COMPOSITE METAL DECK MAY BE SUPPLIED PROVIDED WR/HR ≥ 1.5 AND MINIMUM DECK PROPERTIES ARE SATISFIED

18 NO SCALE METAL DECK GEOMETRY/STUD PLACEMENT



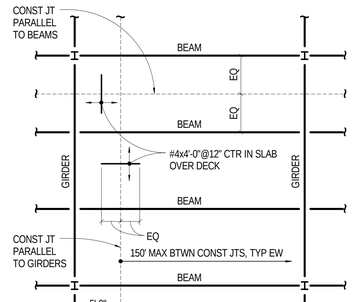
14 NO SCALE TYP COMPOSITE GIRDER

BEAM FLANGE LIMITATIONS
8 3/4" ≤ bf
7 1/4" < bf < 8 3/4"
5 3/4" < bf
5" < bf ≤ 5 3/4"
4" ≤ bf



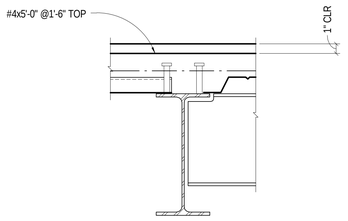
NOTES:
1. LOCATE STUD(S) ON SIDE OF DECK STIFFENER CLOSEST TO NEAR END OF BEAM

6 NO SCALE TYP SHEAR STUD SPACING AND LAYOUT - DECK PERP



NOTES:
1. LIMIT MAXIMUM SLAB POUR TO 15,000 SQ FT
2. SUBMIT PROPOSED CONST JT LOCS FOR REVIEW THREE WEEKS MIN PRIOR TO POUR
3. NO SAW CUT JOINTS IN ELEVATED SLAB ON METAL DECK UNO

2 NO SCALE TYP SLAB CONST JOINT LOCATIONS

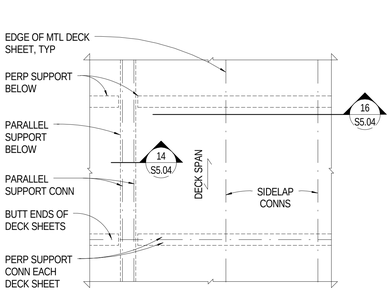


NOTES:
1. SEE DECK PERP DETAIL 6/S5.04 FOR STUD LAYOUT

19 NO SCALE TYP CHANGE IN DECK DIRECTION

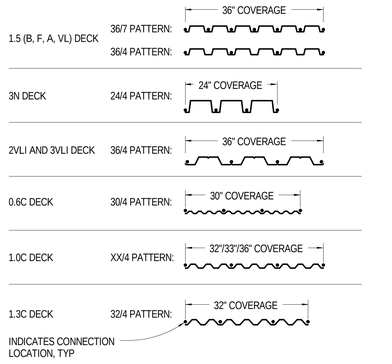
METAL DECK PROPERTIES									
DECK TYPE	DECK DEPTH (IN)	DECK GAGE	DECK FY (KSI)	DECK USAGE	(IN^4/FT)	S POS (IN^3/FT)	S NEG (IN^3/FT)	MINIMUM DECK BEARINGS (IN) EXTERIOR	MINIMUM DECK BEARINGS (IN) INTERIOR
2VLI	2	20	40	COMPOSITE	0.42	0.36	0.36	2	4
2VLI	2	18	40	COMPOSITE	0.56	0.51	0.51	2	4
2VLI	2	16	40	COMPOSITE	0.70	0.65	0.65	2	4
3VLI	3	20	40	COMPOSITE	0.94	0.55	0.57	2 1/2	5
3VLI	3	18	40	COMPOSITE	1.25	0.80	0.80	2 1/2	5
3VLI	3	16	40	COMPOSITE	1.58	1.01	1.01	2 1/2	5
1C	1	22	60	FORM	0.07	0.13	0.13	2	4
1.5B	1 1/2	22	33	ROOF	0.17	0.19	0.19	2	4
1.5B	1 1/2	20	33	ROOF	0.21	0.23	0.25	2	4
1.5B	1 1/2	18	33	ROOF	0.29	0.32	0.33	2	4
3N	3	22	33	ROOF	0.77	0.38	0.43	2	4
3N	3	20	33	ROOF	0.96	0.50	0.55	2	4
3N	3	18	33	ROOF	1.33	0.69	0.75	2	4

15 NO SCALE METAL DECK PROPERTIES



NOTES:
1. WHERE HDAS ARE FIELD APPLIED THROUGH DECK, THEY MAY BE SUBSTITUTED FOR SCHEDULED DECK CONNS ON A ONE--FOR-ONE BASIS

20 3/8" = 1'-0" COMPOSITE DECK CONNECTIONS



16 3/4" = 1'-0" TYP FASTENER LAYOUT AT PERP SUPPORT

SEE 15/S5.04 FOR METAL DECK PROPERTIES

METAL DECK SLAB SCHEDULE													
	DECK		CONCRETE										
SLAB MARK	TYPE	DEPTH (IN)	CONC ABOVE DECK (IN)	TOTAL THK (IN)	CONC TYPE (SEE GEN NOTES)	SHEAR STUD LENGTH (IN)	SLAB REINF	MAX UNSHORED CLEAR SPAN	MIN DECK GAGE, 1-SPAN	MIN DECK GAGE, 2 SPAN OR MORE	MAX DECK CANTILEVER	DECK CONN TYPE (SEE SCHED)	DECK DIAPHRAGM SHEAR (PLF)	REMARKS
2VLI4.0A	2 VLI	2	4	6	TYPE 4 (NWC)	4	6x6-W2.9xW2.9 WWR	9'-0"	-	18	-	A	--	--
3NA	3N	3	--	--	--	--	--	-	--	18	-	C	448	--

NOTES:
1. SEE SPECIFICATIONS FOR FLOOR FINISH & FLATNESS REQUIREMENTS
2. INSTALL DECK OVER 4 SUPPORTS (3 SPAN CONTINUOUS) WHERE POSSIBLE
3. COMPOSITE DECK DESIGN IS SIZED BASED UPON THE FOLLOWING MAXIMUM CONDITIONS:
   a. WET WEIGHT OF CONC = 120 PSF LIGHT WEIGHT, 145 PSF NORMAL WEIGHT
   b. DRY WEIGHT OF CONC = 115 PSF LIGHT WEIGHT
   c. DECK DEFLECTION = 3/4"
   d. AVERAGE SLAB THICKNESS INCREASED BY 1/2" FOR LEVELING
   e. CONST LIVE LOAD = 20 PSF. IF CONST LIVE LOAD WILL EXCEED 20 PSF, THEN CONTR SHALL DESIGN DECK FOR INCREASED LOADING
4. SCHEDULED STUD LENGTH IS NET-IN-PLACE LENGTH OF HDAS
5. SUBMIT SHOP DRAWINGS INDICATING STUD LAYOUT (NO. OF STUDS/RIB) AND PLACEMENT ALONG BEAM
6. NO TEMPORARY SHORING OF STEEL DECK PERMITTED WITHOUT PRIOR ACCEPTANCE OF THE ENGINEER

DECK CONNECTION SCHEDULE						
TYPE	PERP SUPPORT MEMBERS		PARALLEL SUPPORT MEMBERS		SIDELAPS	
	CONNECTION	PATTERN	CONNECTION	PATTERN	CONNECTION	PATTERN
A	3/4"Ø PUDDLE WELDS	36/4	3/4"Ø PUDDLE WELDS	12" OC	#10 SCREW	3'-0" OC
B	5/8"Ø PUDDLE WELDS	36/7	5/8"Ø PUDDLE WELDS	12" OC	#10 SCREW	5 / SPAN
C	5/8"Ø PUDDLE WELDS	24/4	5/8"Ø PUDDLE WELDS	16" OC	#10 SCREW	1'-4" OC
D	--	--	--	--	--	--

SEE 16/S5.04 FOR CONNECTION PATTERNS

12 NO SCALE METAL DECK SLAB SCHEDULE

COLORADO REGISTERED BENJAMIN NELSON 26118 PROFESSIONAL ENGINEER

09-22-09

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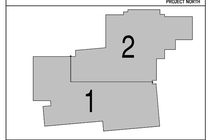

Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
90% CD'S	09-07-09
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FRUITA COLORADO

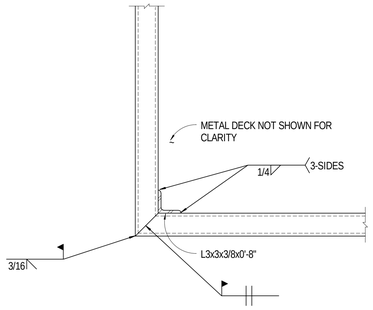
M/M Project No.: 21468.S.01

STEEL DETAILS

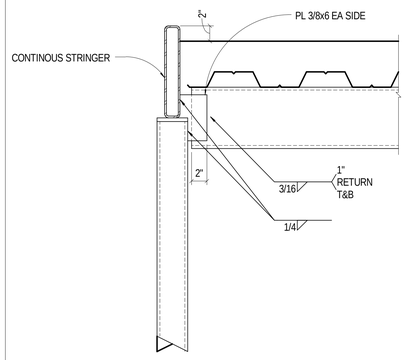
Drawn By: DE, LB
Checked By: BN, GS

S5.04

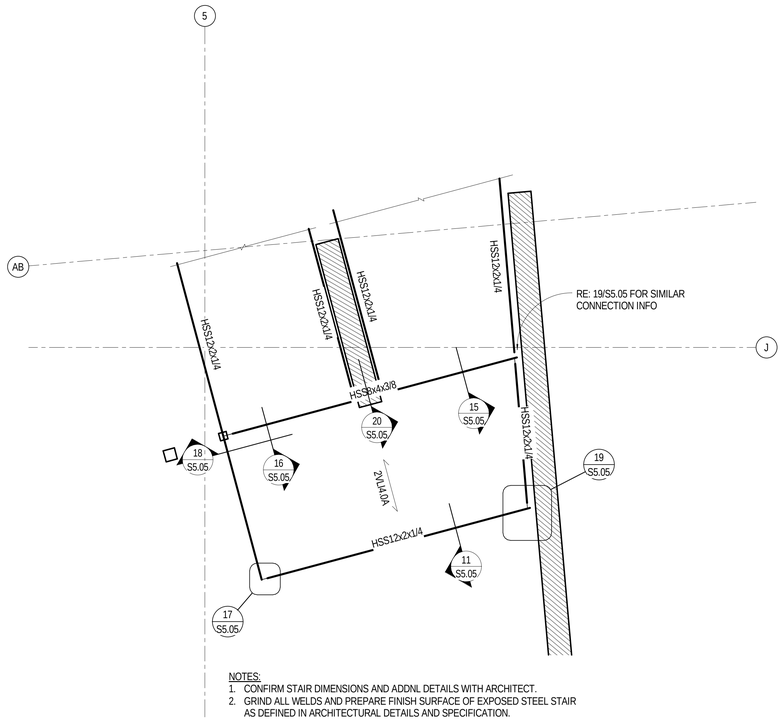
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:35:14 AM
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL



17 1 1/2" = 1'-0" LANDING CORNER CONNECTION

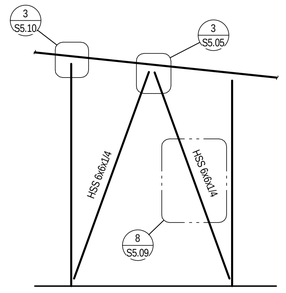


18 1 1/2" = 1'-0" STRINGER AT HSS POST

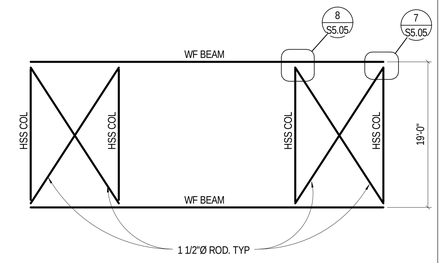


NOTES:
1. CONFIRM STAIR DIMENSIONS AND ADDNL DETAILS WITH ARCHITECT.
2. GRIND ALL WELDS AND PREPARE FINISH SURFACE OF EXPOSED STEEL STAIR AS DEFINED IN ARCHITECTURAL DETAILS AND SPECIFICATION.

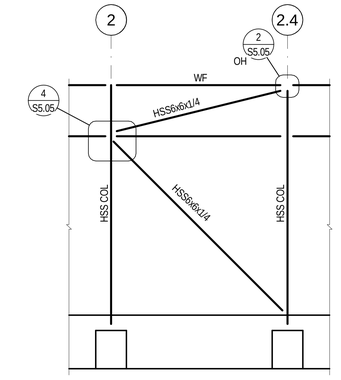
14 3/8" = 1'-0" LANDING FRAMING PLAN



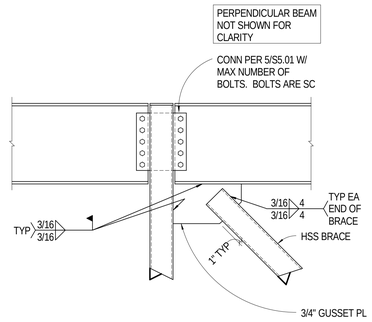
5 NO SCALE HIGH BRACE AT WEST BUTTERFLY WALL



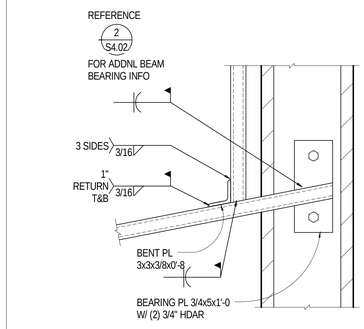
6 1/8" = 1'-0" NORTH WALL BRACE ELEVATION AT BUTTERFLY



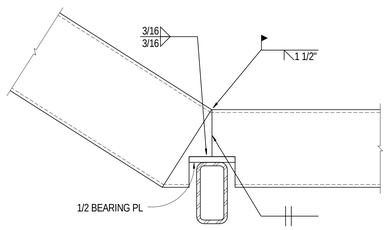
1 1/4" = 1'-0" LIBRARY BRACE ELEVATION



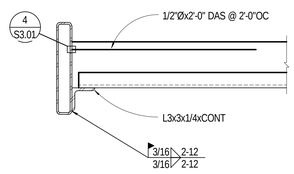
2 3/4" = 1'-0" BEAM-COL AT LIBRARY BRACE



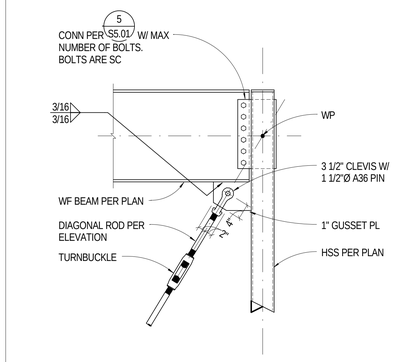
19 1 1/2" = 1'-0" CONNECTION AT LANDING CORNER



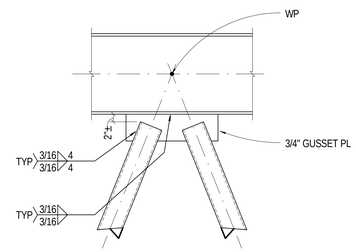
15 1 1/2" = 1'-0" STAIR STRINGER AT HSS SUPPORT



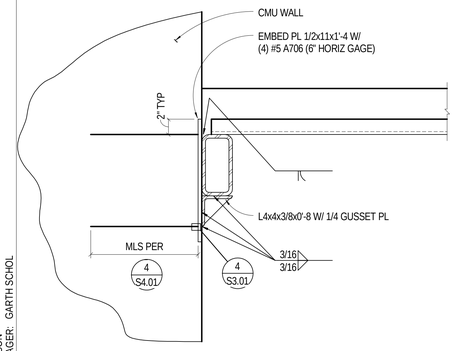
11 1 1/2" = 1'-0" TYPICAL LANDING EDGE



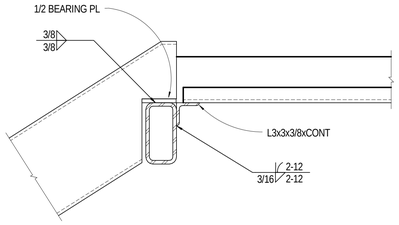
7 3/4" = 1'-0" TOP EXTERIOR BRACE CONN



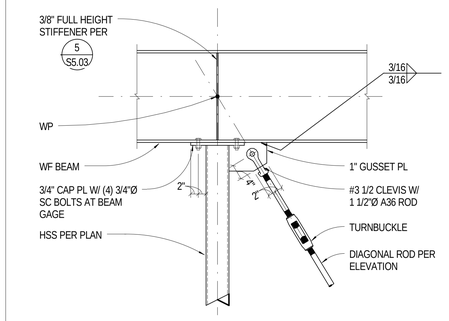
3 3/4" = 1'-0" BRACE-BEAM AT LIBRARY BRACE



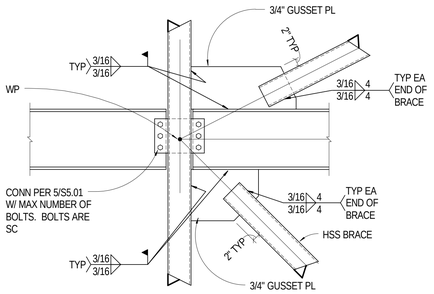
20 1 1/2" = 1'-0" HSS CONN TO CENTER WALL



16 1 1/2" = 1'-0" CENTER STRINGER SUPPORT



8 3/4" = 1'-0" BRACE AT CONTINOUS BEAM



4 3/4" = 1'-0" LOW BEAM-COL AT LIBRARY BRACE

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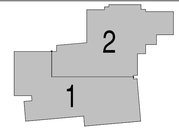

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S5.05

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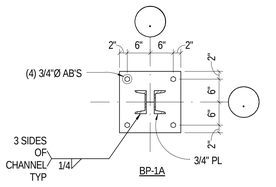

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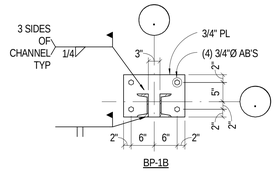

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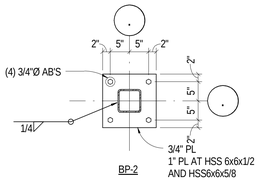

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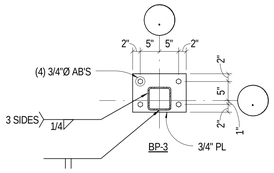

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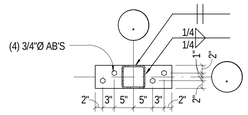

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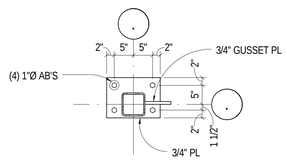
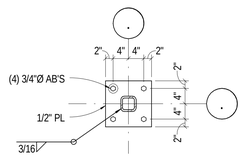
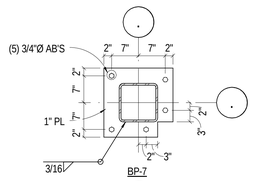


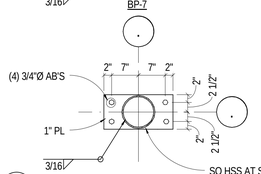
BP-5



BP-6



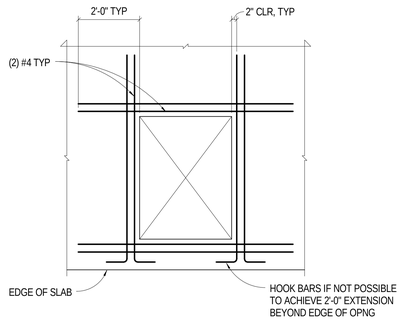
BP-7



BP-8

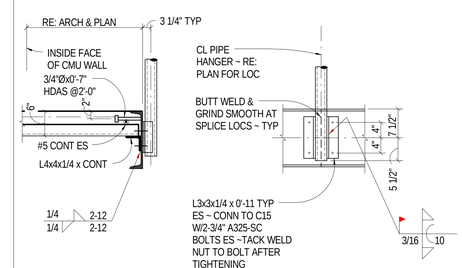
NOTES: REFERENCE FOR ANCHOR BOLT INFORMATION (9 / S3.01)

20 3/4" = 1'-0" BASE PLATES

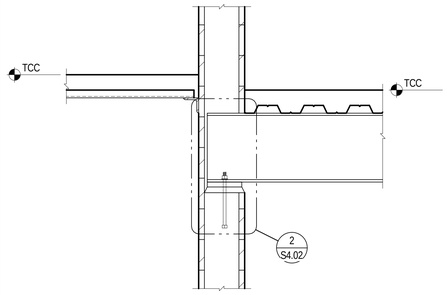


NOTES:
1. DECK OPNGS REQUIRE STIFFENERS OR FRAMING. SEE DECK OPNG DETAILS
2. CENTER BARS IN SLAB ABOVE METAL DECK

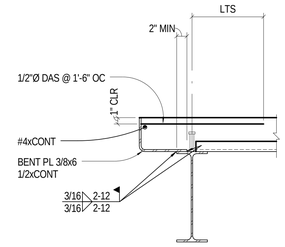
13 1/2" = 1'-0" TYP MTL DECK OPNG TRIM REINF



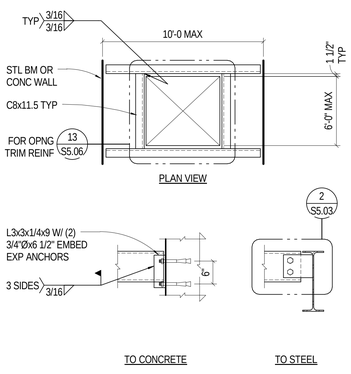
9 3/4" = 1'-0" SECTION AT RUNNING TRACK



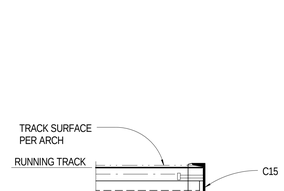
5 3/4" = 1'-0" SECTION AT FLOOR AT TRACK



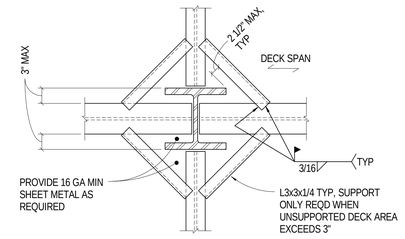
1 1" = 1'-0" FLOOR SLAB EDGE



14 3/4" = 1'-0" TYP METAL DECK SLAB OPENING- 5

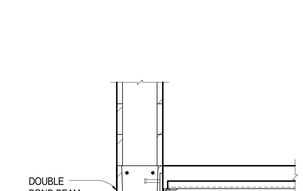


10 3/4" = 1'-0" FRAMING CONN AT RUNNING TRACK

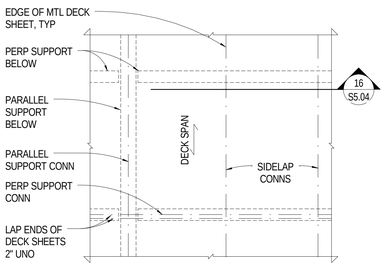


NOTES:
1. CONTRACTOR MAY DESIGN ALTERNATE METHODS OF DECK SUPPORT. DECK/DECK SUPPORTS SHALL BE ABLE TO SUPPORT THE DECK AS A FORM WITH THE WET WEIGHT OF THE CONCRETE AND ALL CONSTRUCTION LOADS
2. INTERIOR COLUMNS SHOWN. EXTERIOR COLUMNS ARE SIMILAR

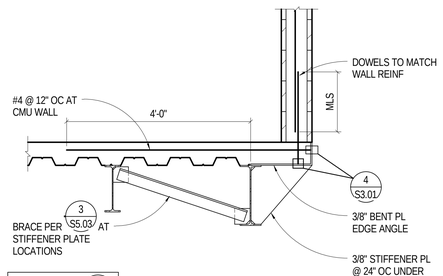
7 3/4" = 1'-0" TYP MTL DECK SUPPORT AT COL



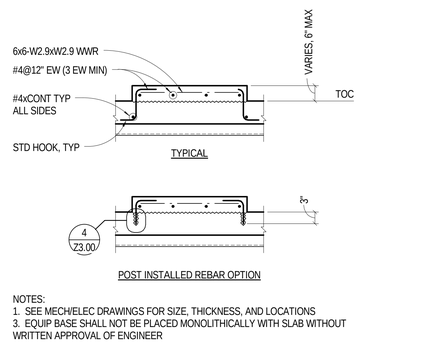
2 3/4" = 1'-0" METAL DECK AT CMU WALL (DECK PERPENDICULAR)



15 3/8" = 1'-0" ROOF/FORM DECK CONNECTIONS

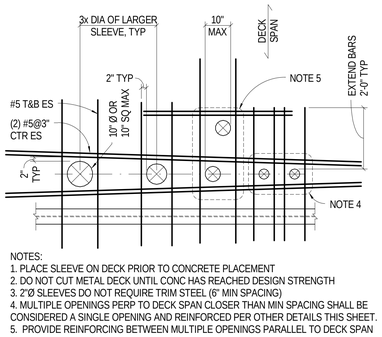


11 3/4" = 1'-0" CMU PARTITION WALL AT SLAB EDGE



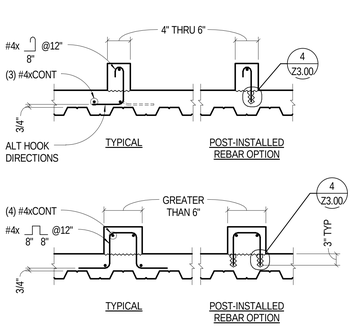
NOTES:
1. SEE MECH/ELEC DRAWINGS FOR SIZE, THICKNESS, AND LOCATIONS
3. EQUIP BASE SHALL NOT BE PLACED MONOLITHICALLY WITH SLAB WITHOUT WRITTEN APPROVAL OF ENGINEER

4 3/4" = 1'-0" COMPOSITE SLAB AT BUILDING SEPERATION

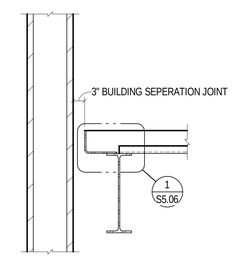


NOTES:
1. PLACE SLEEVE ON DECK PRIOR TO CONCRETE PLACEMENT
2. DO NOT CUT METAL DECK UNTIL CONC HAS REACHED DESIGN STRENGTH
3. 2"Ø SLEEVES DO NOT REQUIRE TRIM STEEL (6" MIN SPACING)
4. MULTIPLE OPENINGS PERP TO DECK SPAN CLOSER THAN MIN SPACING SHALL BE CONSIDERED A SINGLE OPENING AND REINFORCED PER OTHER DETAILS THIS SHEET.
5. PROVIDE REINFORCING BETWEEN MULTIPLE OPENINGS PARALLEL TO DECK SPAN

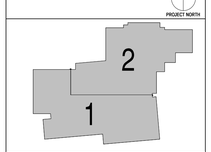
16 1/2" = 1'-0" TYP METAL DECK SLAB SLEEVES



12 NO SCALE TYP CONC EQUIPMENT BASE



KEY PLAN



Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
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CONSTRUCTION DOCUMENTS	09-22-09

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FRUITA COLORADO

M/M Project No.: 21468.S.01

STEEL DETAILS

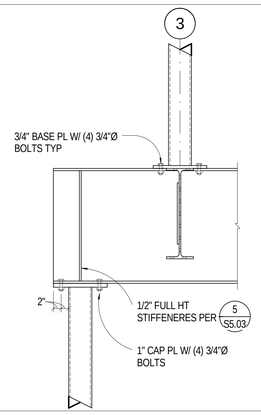
Drawn By: DE, LB
Checked By: BN, GS

S5.06

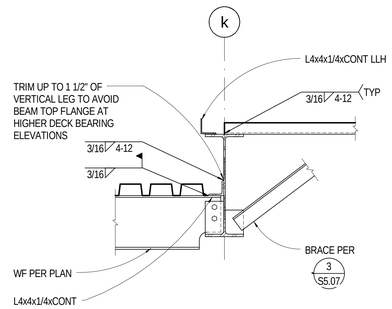
\\Structstr\PROJECTS\21468_01\Revit\21468.S.01 Fruita Rec.rvt

DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:35:21 AM

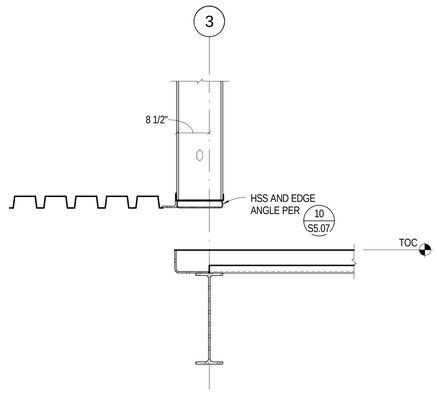
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL



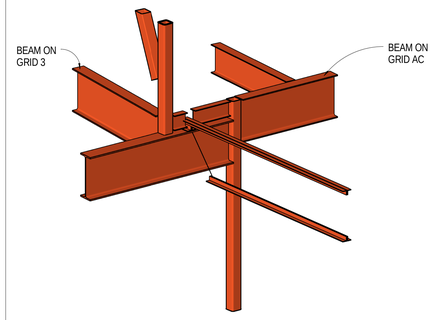
17 3/4" = 1'-0" TRANSFER BEAM AT ENTRY 1



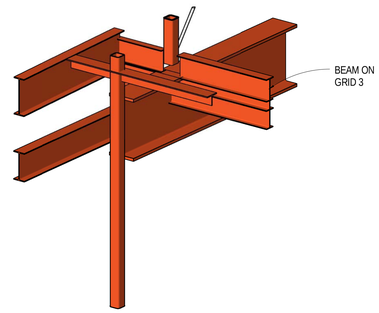
13 3/4" = 1'-0" STEP AT GRID K - BEAM LOW



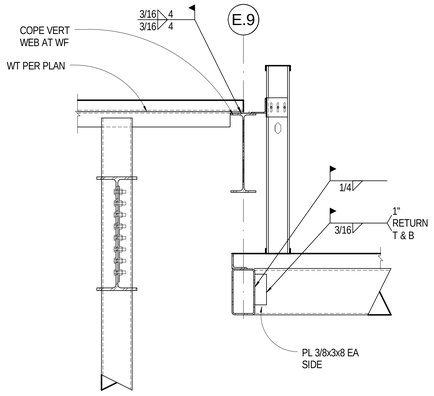
9 3/4" = 1'-0" SECTION AT GRID 3 BEAM LOW



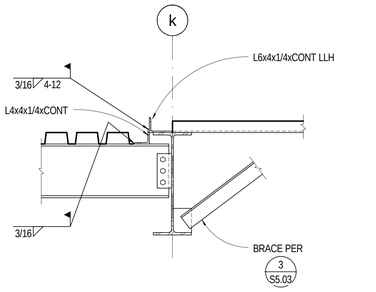
5 NO SCALE FRAMING AT GRIDS 3-AC



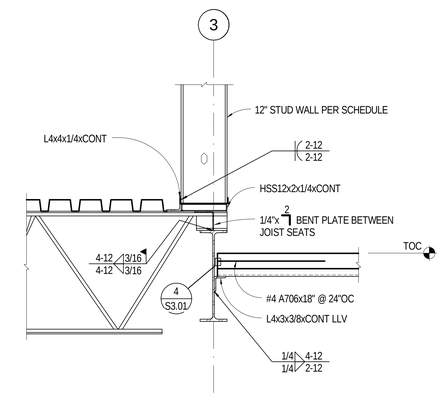
1 NO SCALE FRAMING AT GRIDS 3-F



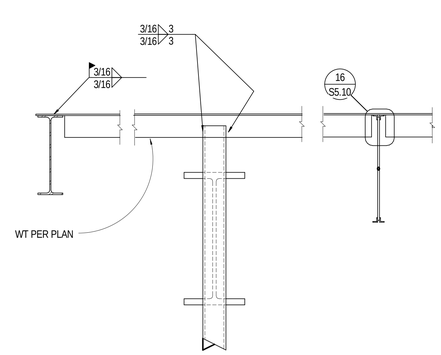
18 3/4" = 1'-0" TRANSFER BEAM AT ENTRY 2



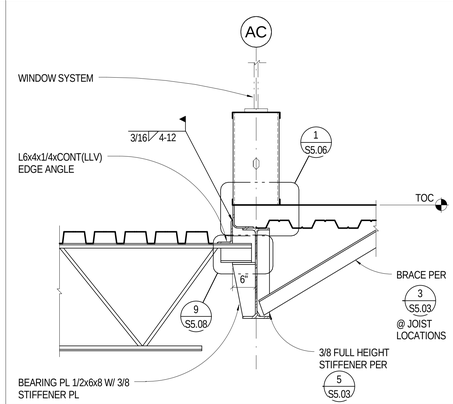
14 3/4" = 1'-0" STEP AT GRID K - BEAM HIGH



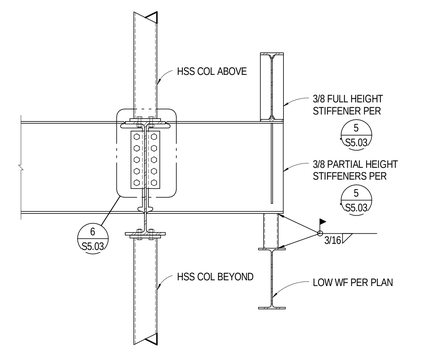
10 3/4" = 1'-0" SECTION AT GRID 3 BEAM HIGH



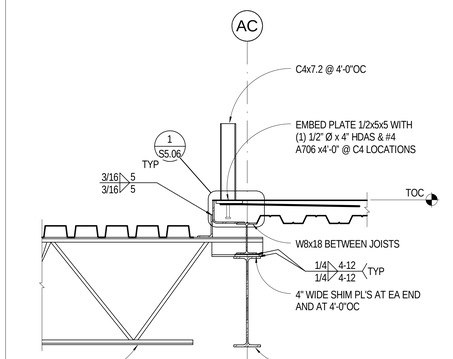
6 3/4" = 1'-0" COL BRACE AT TRANSFER BEAM



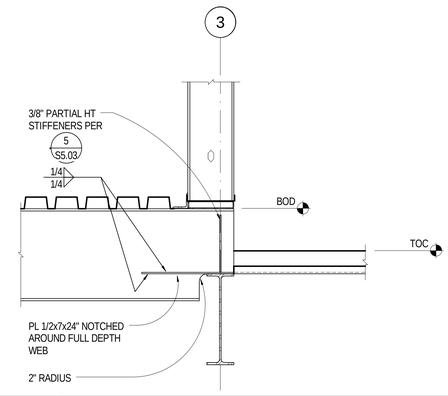
2 3/4" = 1'-0" FLOOR/LOW ROOF AT GRID AC



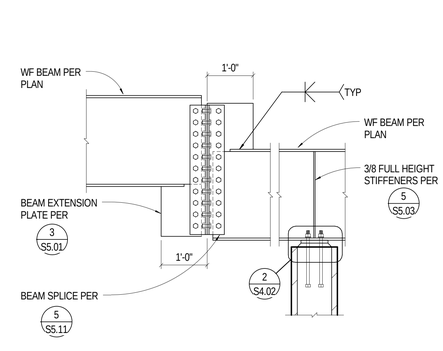
19 3/4" = 1'-0" TRANSFER BEAM AT ENTRY 3



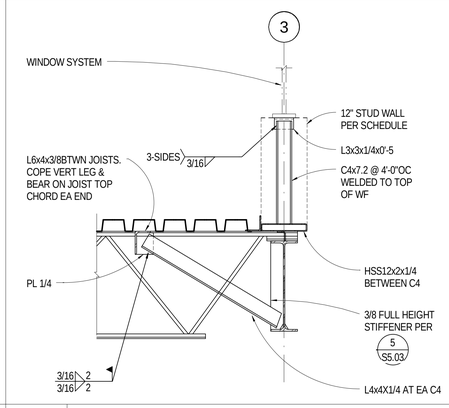
15 3/4" = 1'-0" LOW ROOF AT GRID AC



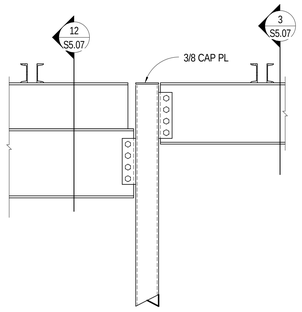
11 3/4" = 1'-0" WF BEAM CONN AT GRID K-3



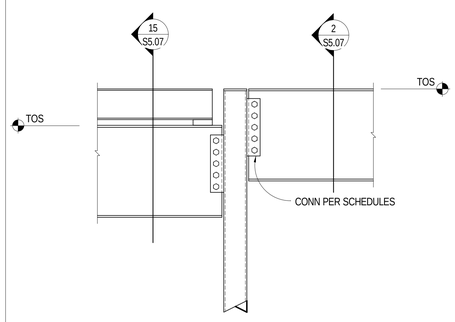
7 3/4" = 1'-0" OFFSET BEAM SPLICE



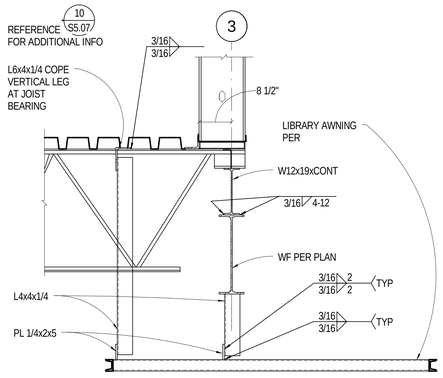
3 3/4" = 1'-0" LOW ROOF AT GRID 3



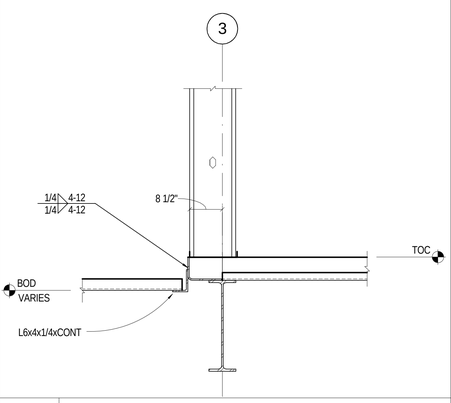
20 3/4" = 1'-0" GRID 3 BEAM LINE ELEVATION



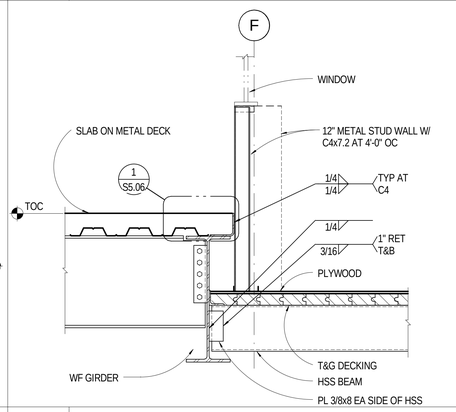
16 3/4" = 1'-0" BEAM STEP AT GRID AC



12 3/4" = 1'-0" SECTION AT GRID 3 DOUBLE BEAM



8 3/4" = 1'-0" SECTION AT GRID 3 LOW ROOF



4 3/4" = 1'-0" SECTION AT LOW ROOF

COLORADO REGISTERED BENJAMIN NELSON 26118 PROFESSIONAL ENGINEER

09-22-09

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475 Lincoln Street, Suite 100 Denver, Colorado 80203
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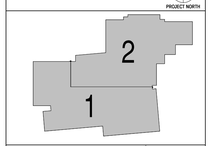
MARTIN/MARTIN CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE P.O. BOX 151500 LAKEWOOD, COLORADO 80215 303.431.6100 FAX 303.431.6866

KEY PLAN



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FRUITA COLORADO

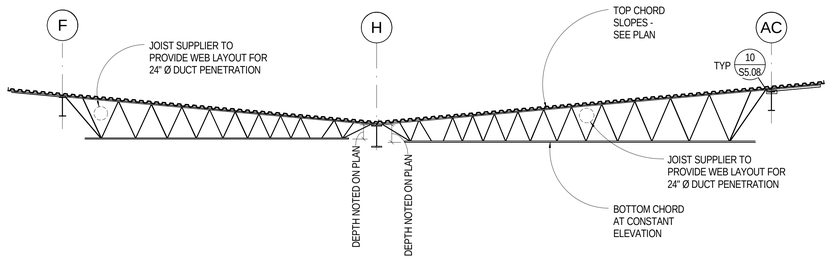
M/M Project No.: 21468.S.01

STEEL DETAILS

Drawn By: DE, LB
Checked By: BN, GS

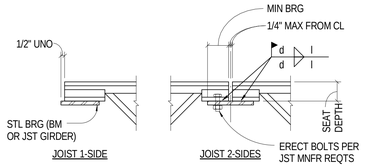
S5.07

DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:35:27 AM
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL



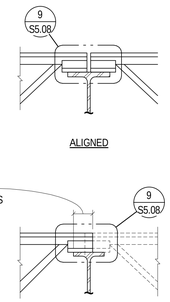
17 1/8" = 1'-0" BUTTERFLY JOIST PROFILE

JOIST SERIES	MIN BEARING	SEAT DEPTH	TYP WELD	
			d	l
K, KCS	2 1/2"	2 1/2"	3/16	2"
LH, DLH 10-17	4"	5"	3/16	2"
DLH 18-19, SLH 15-18	4"	7 1/2"	3/16	2"
SLH 19-25	6"	7 1/2"	1/4	4"



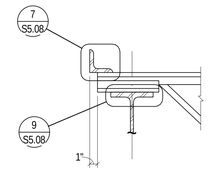
NOTES:
1. WELD ALL JOISTS TO BRG

9 1 1/2" = 1'-0" TYP JOIST BRG ON STEEL



1. COORDINATE DECK SPLICE LOCATION AT STAGGERED JOISTS

5 1 1/2" = 1'-0" TYP JOIST BRG - TWO SIDES OF WF



1 1 1/2" = 1'-0" TYP JOIST BRG - ONE SIDE OF WF

09-22-09

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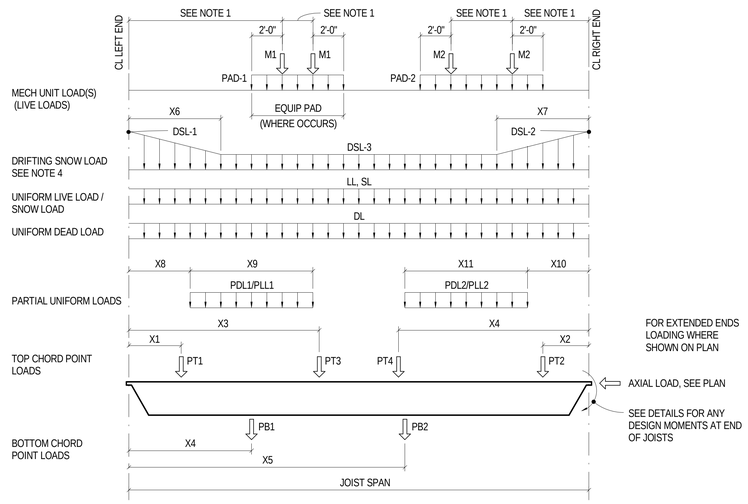
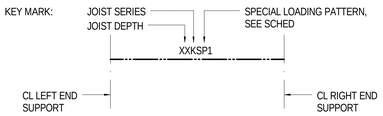
FAX 303.431.6866



NOTES:
1. APPROXIMATE LOCATION OF MECHANICAL EQUIPMENT NOTED ON PLAN. CONTRACTOR SHALL VERIFY WEIGHT AND LOCATION WITH EQUIPMENT FURNISHED. INCLUDE THIS INFORMATION IN SHOP DRAWING SUBMITTAL
2. DISTRIBUTED LOADS ARE IN LBF/FT AND SHALL BE MULTIPLIED BY JOIST SPACING FOR JOIST DESIGN
3. JOIST MANUFACTURER SHALL DESIGN TO LOAD COMBINATION PER APPLICABLE BUILDING CODE
4. UNIFORM SNOW LOAD AND DRIFTING SNOW LOAD ARE INDEPENDENT LOADINGS. DESIGN FOR BOTH LOAD CASES IN COMBINATION WITH OTHER LOADS
5. DISTRIBUTED LOADS ARE ON JOIST TOP CHORD, UNO.
6. REFERENCE SHEET S0.01 FOR NET UPLIFT WIND PRESSURE.

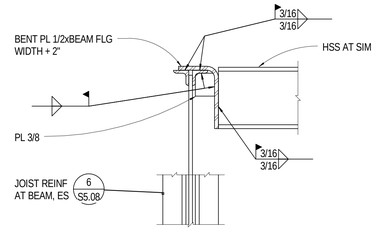
KEY MARK:



SPECIAL JOIST LOADING PATTERN SCHEDULE

PLAN MARK	DL (PSF)	LL (PSF)	SL (PSF)	DSL-1 (PSF) X6	DSL-2 (PSF) X7	DSL-3 (PSF)	PDL1 X8	PLL1 X9	PDL2 X10	PLL2 X11	PAD-1 (PLF)	PAD-2 (PLF)	M1 (LB)	M2 (LB)	PT1 (LB) X1 (FT)	PT2 (LB) X2 (FT)	PT3 (LB) X3 (FT)	PT4 (LB) X4 (FT)	PB1 (LB) X4 (FT)	PB2 (LB) X5 (FT)	REMARKS
32LHSP1	27	20	30	--	107	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				--	15'-9"										--	--	--	--	--	--	
															D (K) L (K)	D (K) L (K)	D (K) L (K)	D (K) L (K)	D (K) L (K)	D (K) L (K)	
28LHSP1	27	20	30	106	--	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
				15'-6"	--										--	--	--	--	--	--	
															-- --	-- --	-- --	-- --	-- --	-- --	
60DLHSP1	27	20	30	--	--	--	--	--	--	--	--	--	--	--	19,000	19,000	19,000	19,000	--	--	
				--	--										22'-3"	16'-11"	40'-8"	35'-4"	--	--	
															10 9	10 9	10 9	10 9	-- --	-- --	
60DLHSP2	27	20	30	--	--	--	--	--	--	--	--	--	--	--	19,000	19,000	--	--	--	--	
				--	--										8'-2"	7'-2"	--	--	--	--	
															10 9	10 9	-- --	-- --	-- --	-- --	
60DLHSP3	27	20	30	--	--	--	--	--	--	--	--	--	--	--	19,000	19,000	--	--	--	--	
				--	--										8'-2"	7'-2"	--	--	--	--	
															10 9	10 9	-- --	-- --	-- --	-- --	
28LHSP2	27	20	30			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17/S5.08
				--	--										--	--	--	--	--	--	
															-- --	-- --	-- --	-- --	-- --	-- --	
36LHSP1	27	20	30			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17/S5.08
				--	--										--	--	--	--	--	--	
															-- --	-- --	-- --	-- --	-- --	-- --	

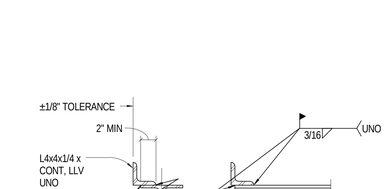
20 NO SCALE SPECIAL JOIST LOADS



SERIES	L	H BOT	H TOP
K	4"	3 1/2" MIN	PER SLOPE AND MNFR
LH, DLH	6"	6" MIN	PER SLOPE AND MNFR

NOTES:
1. PROVIDE EXTENDED ENDS WHERE DETAILED ON PLAN

10 1 1/2" = 1'-0" TYP SLOPED JOIST BRG



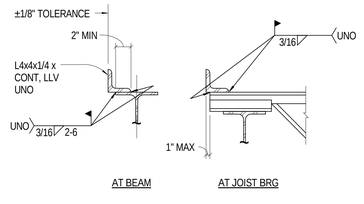
NOTES:
1. STIFFENER REQUIRED FOR ALL CONCENTRATED LOADS WHERE L EXCEEDS 3"

6 3/4" = 1'-0" TYP JOIST CHORD SUPPORT

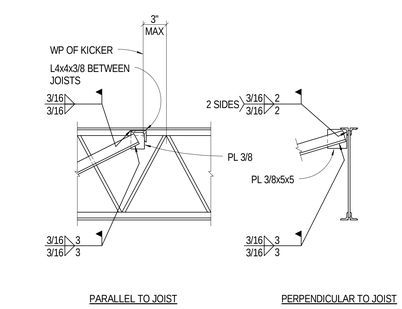
NOTES:
1. COORDINATE STABILIZER PLATE SIZE AND THK WITH JOIST MANUFACTURER
2. DO NOT WELD BOTTOM CHORD TO STABILIZER PLATE

2 3/4" = 1'-0" TYP JOIST/JOIST GIRDER BOT CHORD STABILIZER PLATE

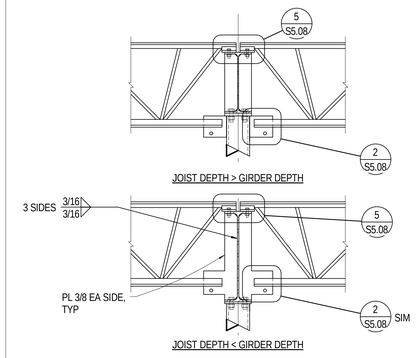
11 1 1/2" = 1'-0" HEADER TO JOIST CONN



7 1 1/2" = 1'-0" TYP EDGE ANGLE AT ROOF DECK

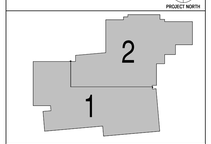


3 3/4" = 1'-0" TYP ANGLE BRACE TO JOIST



4 3/4" = 1'-0" TYP JOIST TO WF GIRDER AT T/COL

KEY PLAN



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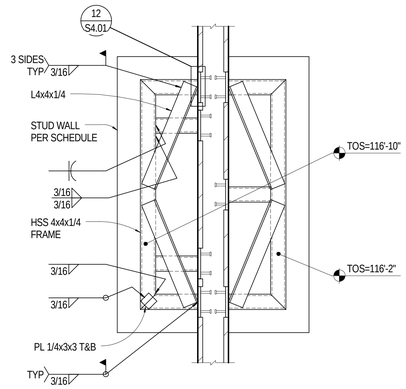
FRUITA COLORADO

M/M Project No.: 21468.S.01

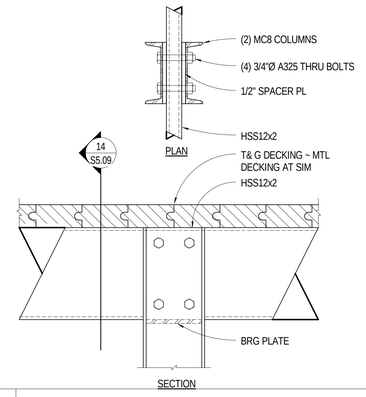
STEEL DETAILS

Drawn By: DE, LB
Checked By: BN, GS

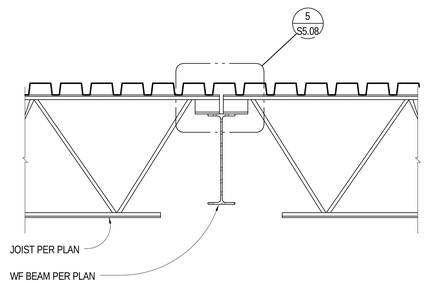
S5.08



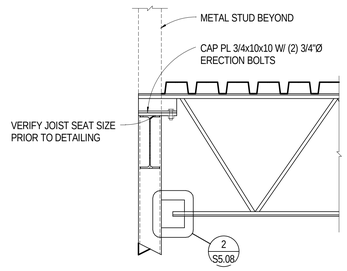
17 3/4" = 1'-0" PLAN VIEW AT HSS BRACE



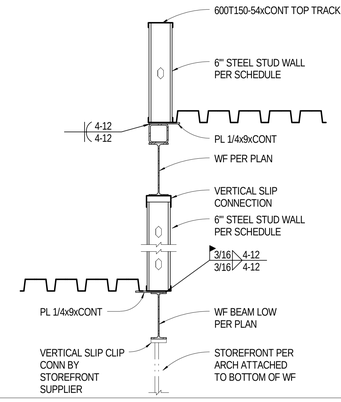
13 1 1/2" = 1'-0" COL TO BEAM CONN AT AWNING



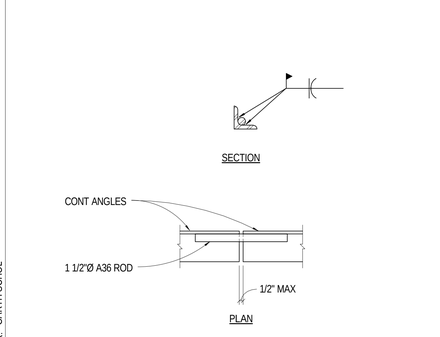
9 3/4" = 1'-0" JOIST BEARING AT WF GIRDER



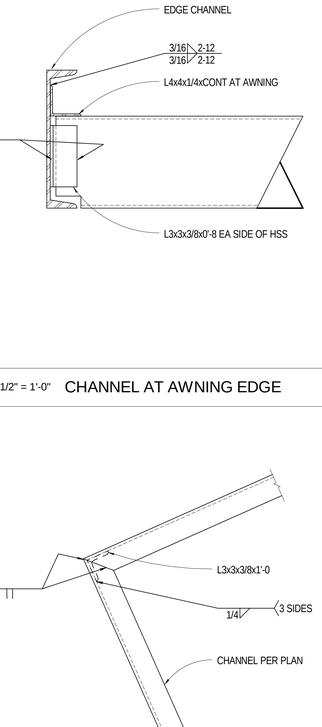
5 3/4" = 1'-0" OPEN WEB STEEL JOIST AT HSS COL



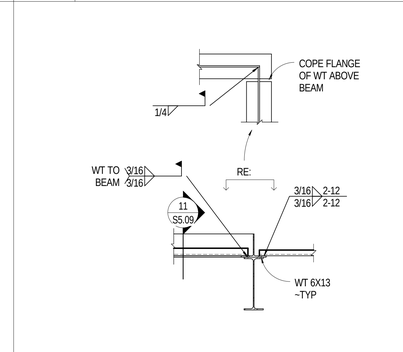
1 3/4" = 1'-0" STUD WALL AT GRID AD



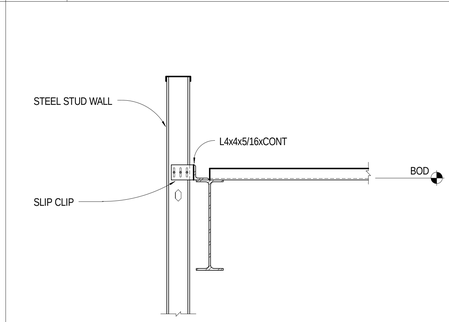
18 1" = 1'-0" OPERABLE PARTITION SUPPORT



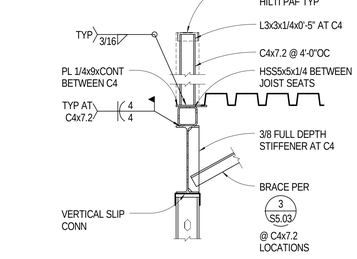
14 1 1/2" = 1'-0" DECK TO HSS CONNECTION



10 1/4" = 1'-0" PLAN VIEW AT LIBRARY ENTRY CANOPY



6 3/4" = 1'-0" ROOF AT RIBBON WINDOW



2 3/4" = 1'-0" AWNING ROOF AT COL

19 1" = 1'-0" ROOF EDGE 1

15 1 1/2" = 1'-0" CHANNEL AT AWNING EDGE

11 1 1/2" = 1'-0" CONCRETE PAD AT RTU

7 3/4" = 1'-0" BRACE CONN AT INTERIOR OPEN WEB STEEL JOIST

20 1 1/2" = 1'-0" TYP EDGE ANGLE CHORD SPLICE

16 1 1/2" = 1'-0" CHANNEL CORNER CONN AT AWNING

12 3/4" = 1'-0" CONC PAD AT RTU DECK PERP

8 3/4" = 1'-0" STUD WALL AT BEAM

4 3/4" = 1'-0" GIRDER AT WALL BETWEEN JOISTS

COLORADO REGISTERED 26118 PROFESSIONAL ENGINEER
09-22-09

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KEY PLAN
PROJECT NORTH

Issues/Revisions	Date:
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FRUITA COLORADO

M/M Project No.: 21468.S.01

STEEL DETAILS

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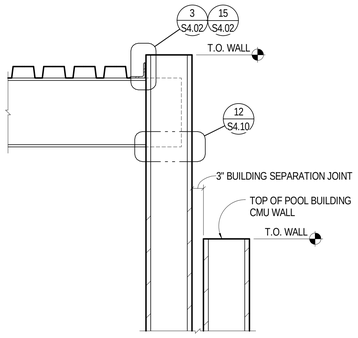
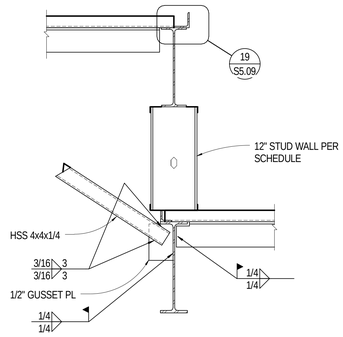
Checked By: BN, GS

S5.09

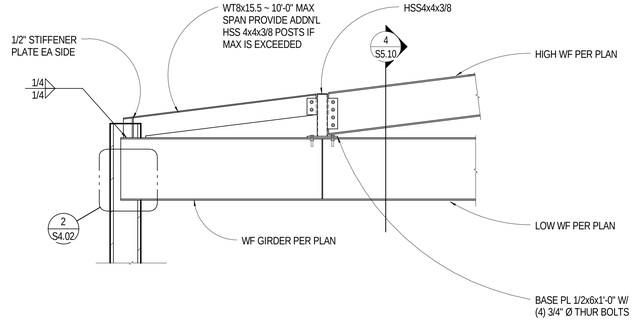
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:37:30 AM



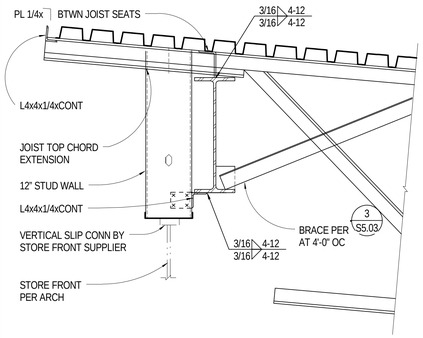
17 3/4" = 1'-0" BUILDING SEPARATION AT ROOF CMU



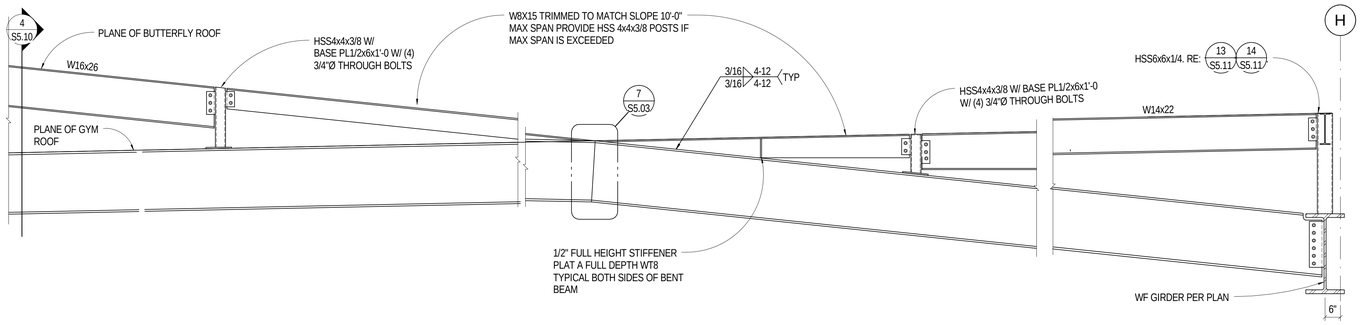
13 3/4" = 1'-0" DRAG AT BUTTERFLY GRID K



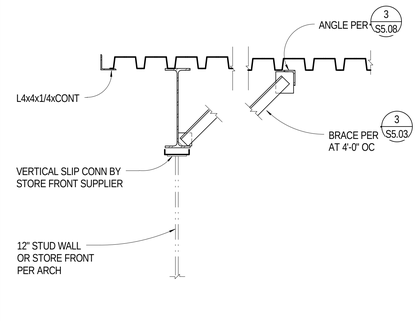
9 1/2" = 1'-0" NORTH BUTTERFLY ROOF ELEVATION



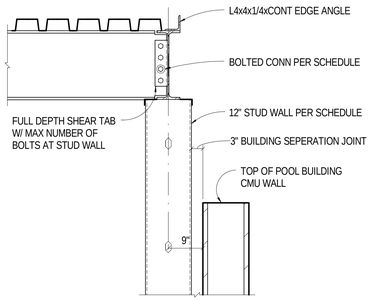
1 3/4" = 1'-0" BUTTERFLY ROOF AT JOIST BEARING



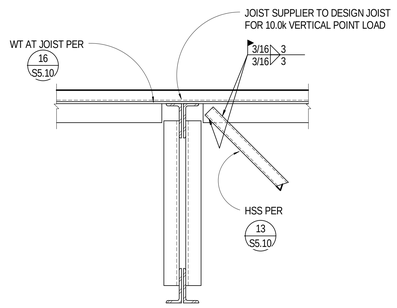
18 1/2" = 1'-0" SOUTH BUTTERFLY ROOF ELEVATION



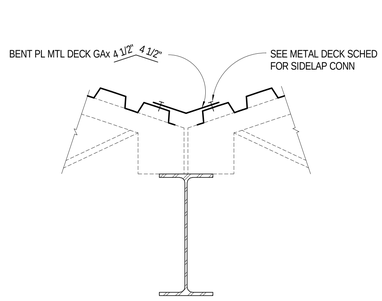
2 3/4" = 1'-0" BUTTERFLY ROOF AT JOIST PARALLEL



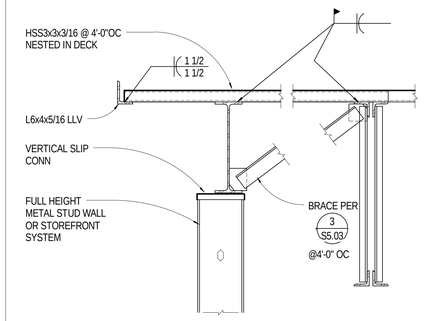
19 3/4" = 1'-0" BUILDING SEPARATION AT ROOF STEEL STUDS



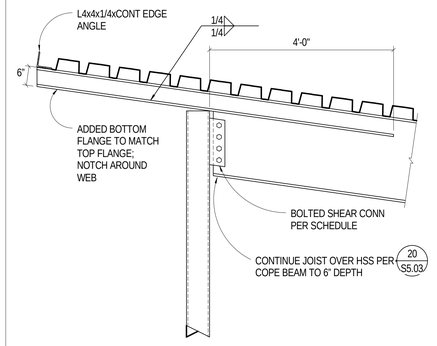
15 3/4" = 1'-0" DRAG AT BUTTERFLY



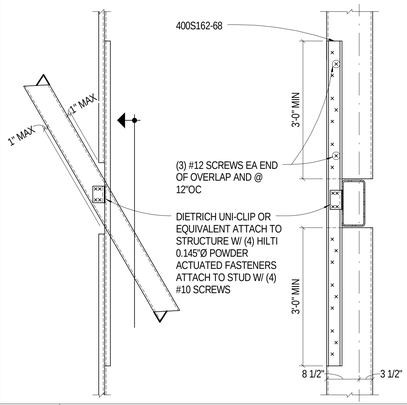
11 1 1/2" = 1'-0" TYP MTL DECK AT JOIST VALLEY



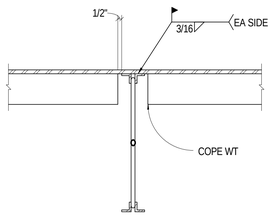
7 3/4" = 1'-0" BUTTERFLY ROOF AT FULL HEIGHT STUD WALL



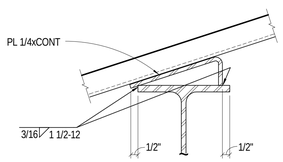
3 3/4" = 1'-0" EXTENDED WF AT BUTTERFLY EDGE



20 3/4" = 1'-0" STUD WALL AT BRACE

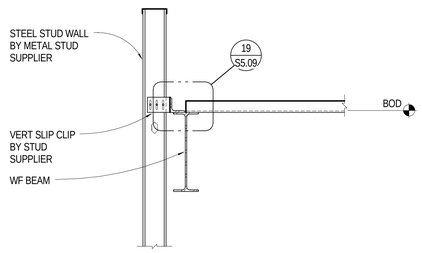


16 1 1/2" = 1'-0" TYP STEEL JOIST DRAG MEMBER CONNECTION

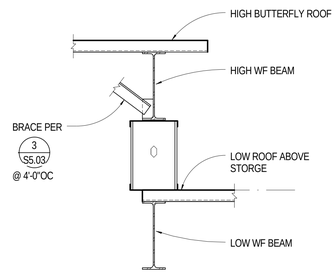


NOTES:
1. PLATE REQUIRED WHEN SLOPE IS 1/2:12 OR STEEPER

12 3" = 1'-0" TYP MTL DECK AT BM PERP TO SLOPE



8 3/4" = 1'-0" STUD WALL AT ROOF



4 3/4" = 1'-0" ROOF AT BUTTERFLY ABOVE STORAGE

COLORADO REGISTERED 26118 PROFESSIONAL ENGINEER BENJAMIN R. NELSON

09-22-09

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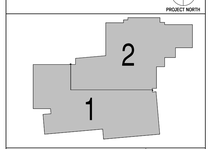
KEY PLAN



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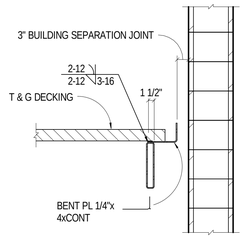
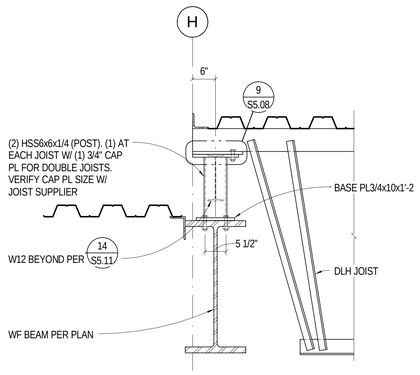
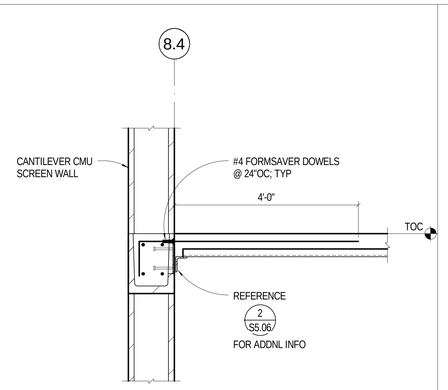


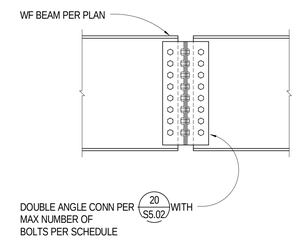
17 3/4" = 1'-0" AWNING AT BUILDING SEPARATION POINT



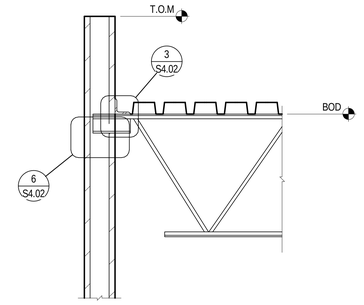
13 3/4" = 1'-0" GYM JOIST BRG AT GRID H



9 3/4" = 1'-0" CMU SCREEN WALL AT GRID 8.4



5 3/4" = 1'-0" WF BEAM SHEAR SPLICE



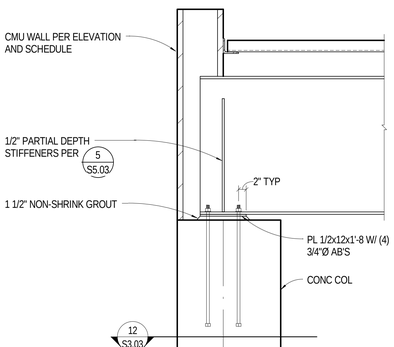
1 3/4" = 1'-0" CMU WALL AT JOIST BEARING

18 3/4" = 1'-0" CANTILEVER AWNING AT BUILDING SEPARATION

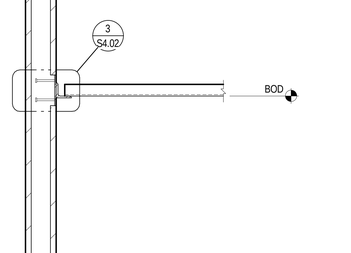
14 3/4" = 1'-0" HIGH WALL AT GRID H

NOTES:
1. FRAME WILL SUPPORT THE WEIGHT OF A 500 LB MECH UNIT
2. FRAME NOT REQD FOR ROUND OPNGS THAT DO NOT CUT VERT LEG OF DECK

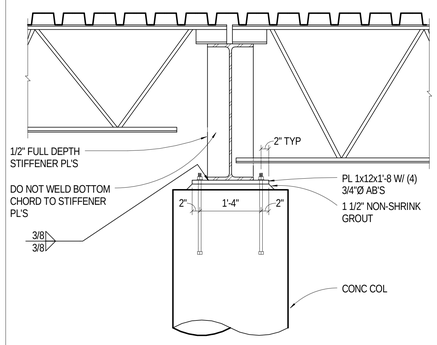
10 NO SCALE TYP METAL DECK ROOF OPENING



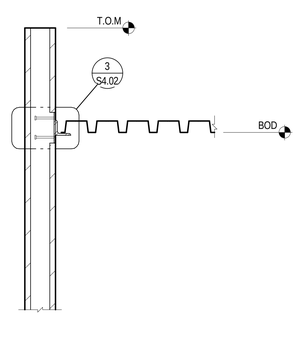
6 1 1/2" = 1'-0" TYP MTL DECK AT JOIST RIDGE



2 3/4" = 1'-0" JOIST BEARING AT TOP OF WALL



7 3/4" = 1'-0" WF BEAM AT CONC COL



3 3/4" = 1'-0" PERPENDICULAR DECK BEARING AT CMU WALL

8 3/4" = 1'-0" WF BEAM AT END WALL CONC COL

4 3/4" = 1'-0" PARALLEL DECK BEARING AT CMU WALL

COLORADO REGISTERED BENJAMIN NELSON 26118 PROFESSIONAL ENGINEER

09-22-09

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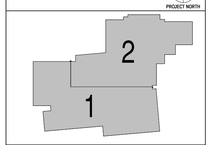
KEY PLAN



Issues/Revisions	Date:
SCHEMATIC DESIGN	04-13-09
DESIGN DEVELOPMENT	07-10-09
90% CD'S	09-07-09
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FRUITA COLORADO

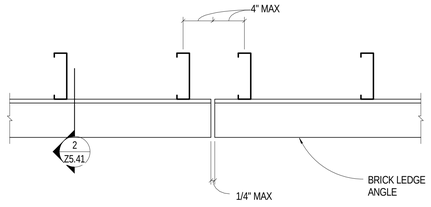
M/M Project No.: 21468.S.01

STEEL DETAILS

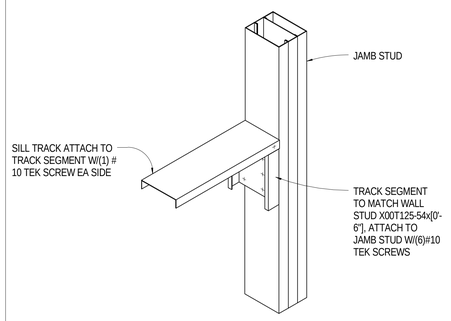
Drawn By: DE, LB
Checked By: BN, GS

S5.11

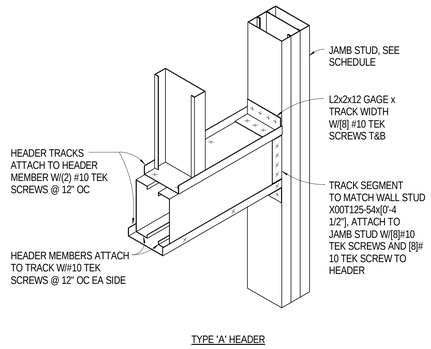
MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
DATE PRINTED: 9/22/2009 8:37:37 AM



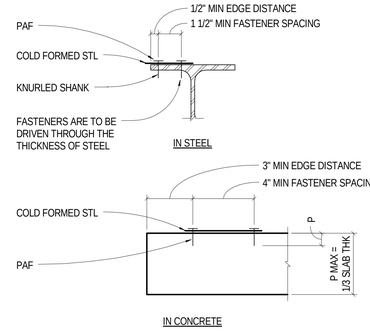
17 NO SCALE TYP CF CONSTRUCTION JOINT FRAMING



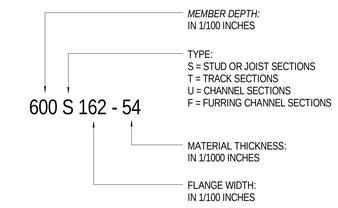
11 NO SCALE TYP CF SILL



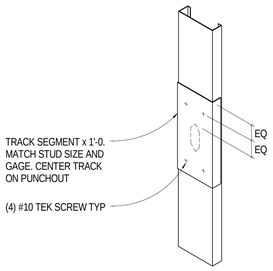
TYPE 'A' HEADER



5 NO SCALE TYP CF POWDER ACT FASTENER (PAF)

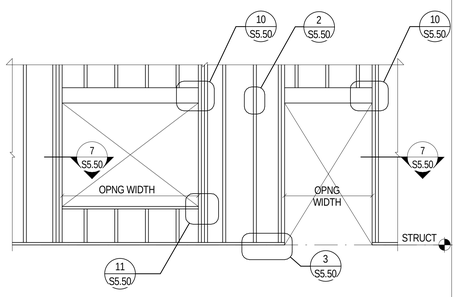


1 NO SCALE TYP CF ANNOTATION

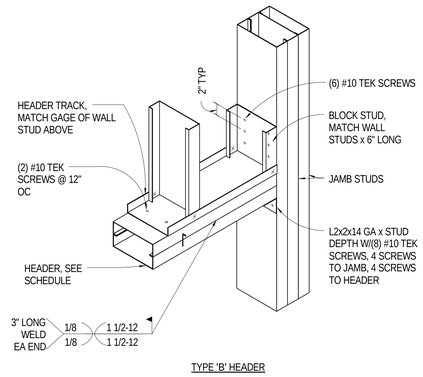


REINFORCING REQUIRED WHEN PUNCHOUT LOCATION SPECIFIED IN OTHER DETAILS CANNOT BE ACHIEVED.

18 NO SCALE TYP CF PUNCHOUT REINFORCING

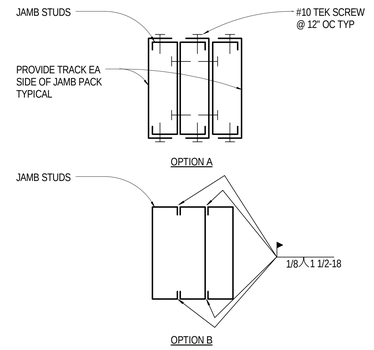


6 NO SCALE TYP CF OPENING FRAMING



TYPE 'B' HEADER

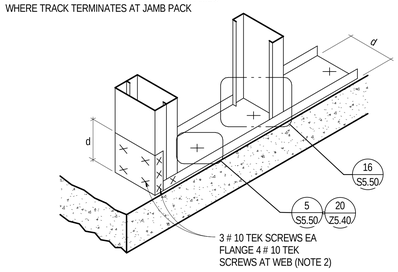
10 NO SCALE TYP CF HEADER



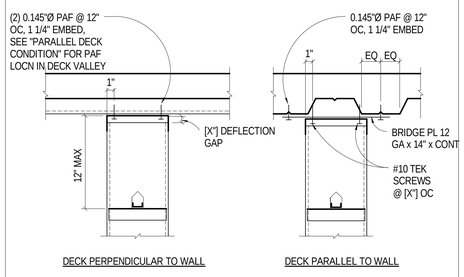
7 NO SCALE TYP CF EXT STUD JAMB

LOCATION	NUMBER OF FASTENERS REQUIRED
TYP FRAMING	(2) 0.145"Ø PAF @ 16" OC
JAMBS	(2) 0.145"Ø PAFs PER JAMB STUD

NOTES:
1. 1 1/4" EMBED REQUIRED FOR ALL PAFs
2. CUT AND BEND TRACK UP AT EXTERIOR JAMBS WHERE TRACK TERMINATES AT JAMB PACK



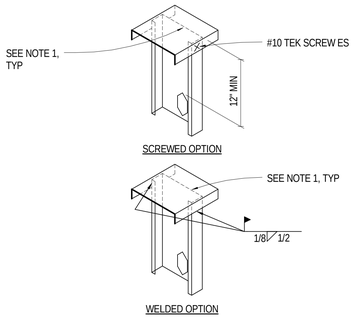
3 NO SCALE TYP CF BOTTOM TRACK TO CONC



DECK PERPENDICULAR TO WALL

DECK PARALLEL TO WALL

19 NO SCALE TYP CF DEFL TRACK AT MTL DECK SLAB



SCREWED OPTION

WELDED OPTION

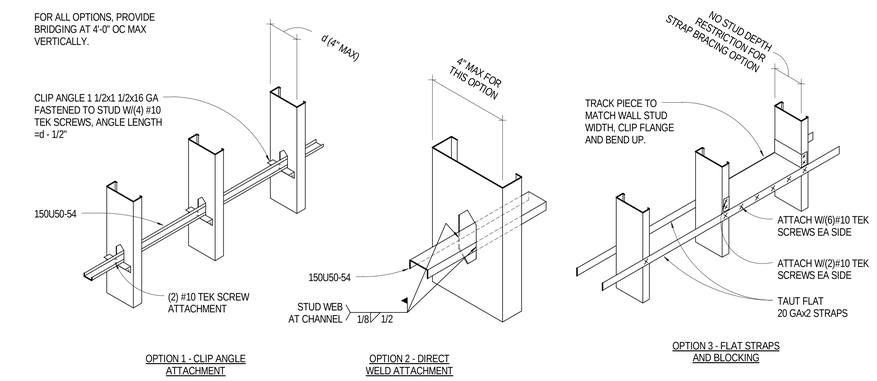
NOTES:
1. 1/8" MAX GAP BTWN T/STUD AND TRACK

15 NO SCALE TYP CF STUD TO TOP TRACK

JAMB SCHEDULE				WALL SCHEDULE			HEADER AND SILL SCHEDULE				
								TYPICAL AREAS		CORNER AREAS	
OPNG WIDTH	TYPICAL AREAS	CORNER AREAS	TOP CONN TO STRUCTURE PER	HEIGHT	TYPICAL WALL AREAS	WALL CORNERS	OPNG WIDTH	HEADER	SILL	HEADER	SILL
6'-0" FOR 15'-0" WALL HT	(2) 600S162-43	(2) 600S162-43	1/S5.51	15'-0"	600S162-33 @ 16" OC	600S162-33 @ 12" OC	6'-0"	(2) 600S137-33 AND (2) 600T150-54	600T150-54	(2) 600S137-33 AND (2) 600T150-54	600T150-68
6'-0" FOR 17'-0" WALL HT	(2) 600S162-43	(2) 600S162-54	1/S5.51	17'-0"	600S162-33 @ 16" OC	600S162-33 @ 12" OC	6'-0"	(2) 600S137-33 AND (2) 600T150-54	600T150-68	(2) 600S137-33 AND (2) 600T150-54	600T150-68
--	--	--	1/S5.51	20'-0"	1200S162-68 @ 16" OC	1200S162-68 @ 12" OC	--	--	--	--	--

NOTES:
1. CORNER AREA DEFINED AS 22'-0" PAST EXTERIOR CONER IN EACH DIRECTION.
2. TYPICAL ATTACHMENT TO STRUCTURE PER 3/S5.50 AND 5/S5.51.

2 NO SCALE TYP CF WALL, HEADER, AND SILL SCHEDULE



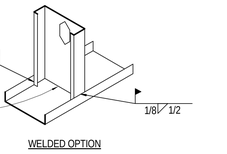
OPTION 1 - CLIP ANGLE ATTACHMENT

OPTION 2 - DIRECT WELD ATTACHMENT

OPTION 3 - FLAT STRAPS AND BLOCKING

SEE NOTE 1, TYP
#10 TEK SCREW ES
12" MIN

SCREWED OPTION



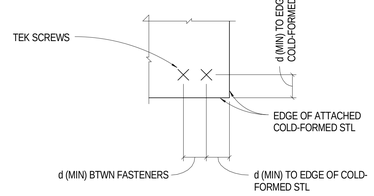
WELDED OPTION

NOTES:
1. 1/8" MAX GAP BTWN B/STUD AND TRACK

16 NO SCALE TYP CF STUD TO BOTTOM TRACK

12 NO SCALE TYP CF WALL BRIDGING

TEK SCREW SIZE	d
#10	5/8"
#12	3/4"



NOTE - TEK SCREWS SHALL PENETRATE A MIN OF 3 THREADS PAST THE FINAL PLY

4 NO SCALE TYP CF TEK SCREW SPACING DETAIL

COLORADO REGISTERED BENJAMIN S. NELSON 26118 PROFESSIONAL ENGINEER

09-22-09

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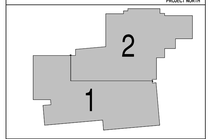
KEY PLAN



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FRUITA COLORADO

M/M Project No.: 21468.S.01

METAL STUD DETAILS

Drawn By: DE, LB
Checked By: BN, GS

S5.50

MM JOB #: 21468.S.01
PRINCIPAL: BEN NELSON
EOR: BEN NELSON
PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
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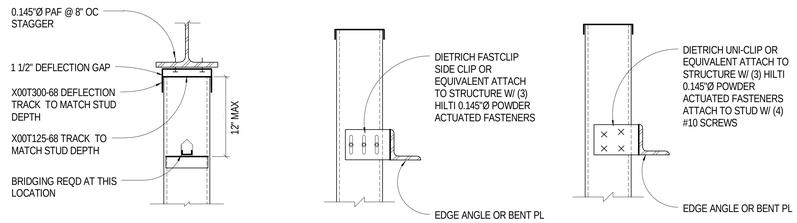
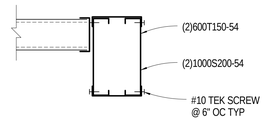


5 NO SCALE STUD CONNECTION TO STRUCTURE



2 1 1/2" = 1'-0" LONG INTERIOR HEADER AT LIBRARY

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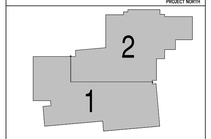
KEY PLAN



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M/M Project No.: 21468.S.01

METAL STUD DETAILS

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Checked By: BN, GS

S5.51

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PROJECT MANAGER: GARTH SCHOL
DESIGNERS: GARTH SCHOL
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