#### **CONCRETE MATERIAL**

1. ALL CONCRETE SHALL BE NORMAL WEIGHT (DENSITY=145 PCF) AND SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH IN ACCORDANCE WITH THE FOLLOWING, U.N.O.: **ALL FOUNDATIONS** FOUNDATION WALLS 3000 PSI

DRILLED PIERS 4000 PSI INTERIOR SLABS 3000 PSI SLAB ON MTL. DECK 3000 PSI **TILT-WALL PANELS** 4000 PSI EXTERIOR STRUCTURAL SLABS 4500 PSI ALL OTHER CONCRETE (U.N.O.) 3000 PSI CURBS & SIDEWALKS

WATER-TO-CEMENT PLUS POZZOLANIC MATERIALS RATIO SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

	F'c (psi)	NON-AIR ENTRAINED	AIR ENTRAINE
$\triangle$	4,500	0.52	0.44
<u></u>	4,000	0.57	0.48
	3,000	0.68	0.59

- 2. ALL FOUNDATION CONCRETE SHALL BE 4-6% AIR ENTRAINED. SLAB CONCRETE
- SHALL NOT HAVE ENTRAINED AIR, U.N.O. 3. THE SLUMP OF ALL CONCRETE SHALL NOT EXCEED 4" UNLESS A HIGH RANGE WATER-REDUCING ADMIXTURE IS USED. THE SLUMP OF CONCRETE PRIOR TO ADDITION OF A HIGH-RANGE WATER-REDUCING ADMIXTURE SHALL NOT EXCEED 4". THE SLUMP OF CONCRETE CONTAINING A HIGH RANGE WATER-REDUCING ADMIXTURE SHALL NOT EXCEED 9". DRILLED PIER CONCRETE SHALL HAVE A SLUMP OF 5"-7".
- THE COARSE AGGREGATE SIZE SHALL BE #57 OR LARGER. 5. THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS FOR REVIEW A MINIMUM OF ONE WEEK PRIOR TO PLACEMENT OF ANY CONCRETE. THE CONCRETE MIX DESIGNS SHALL INCLUDE ALL STRENGTH DATA NECESSARY TO SHOW COMPLIANCE WITH THE PROJECT SPECIFICATIONS FOR EITHER THE TRIAL
- BATCH OR FIELD EXPERIENCE METHOD. 6. FLY ASH TO BE LIMITED TO 25% OF TOTAL CEMENTITIOUS MATERIAL BY WEIGHT.

#### CONCRETE REINFORCING STEEL

- 1. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED
- OTHERWISE. ALL WELDED REINFORCING BARS SHALL CONFORM TO ASTM A706. 2. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. WIRE FABRIC SHALL BE SUPPLIED IN SHEETS. ROLLED FABRIC WILL NOT BE ACCEPTED. WIRE FABRIC SHALL BE PLACED AT THE MID-DEPTH OF THE SLAB. WIRE FABRIC SHALL BE SUPPORTED ON CONTINUOUS HIGH CHAIRS
- SPACED NOT MORE THAN 4 FEET O.C. 3. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE DETAILING MANUAL. ALL DOWELS ARE TO BE TIED IN PLACE. IF ANY DOWELS ARE 'STABBED' AFTER THE CONCRETE HAS BEEN PLACED,
- THE CONCRETE SHALL BE REMOVED AND REPLACED. 4. ALL REINFORCING SHALL BE SUPPORTED IN FORMS, SPACED WITH NECESSARY ACCESSORIES AND SHALL BE SECURELY WIRED TOGETHER, IN ACCORDANCE WITH THE LATEST EDITION OF
- THE CRSI "MANUAL OF STANDARD PRACTICE".

MINIMUM CONCRETE COVER, UNLESS NOTED OTHERWISE:	
UNFORMED SURFACE IN CONTACT WITH THE GROUND	3 IN.
FORMED SURFACES EXPOSED TO EARTH OR WEATHER:	
#6 BARS AND LARGER	2 IN.
#5 BARS AND SMALLER	1⅓ IN.
FORMED SURFACES NOT EXPOSED TO EARTH OR WEATHER:	
BEAMS, GIRDERS AND COLUMNS	1⅓ IN.
SLABS, WALLS AND JOISTS:	
#11 BARS AND SMALLER	3/4 IN.
#14 AND #10 DADC	41/INI

- #14 AND #18 BARS 6. ALL BASE PLATES, ANCHOR BOLTS, SUPPORT ANGLES, ETC., WHICH ARE BELOW GRADE SHALL BE
- COVERED WITH A MINIMUM OF 3" OF CONCRETE. 7. PROVIDE CORNER BARS AT ALL CORNERS AND INTERSECTIONS OF CONCRETE WALLS, CONCRETE BEAMS, CONTINUOUS FOOTINGS, THICKENED SLABS AND TURNDOWNS. CORNER BAR
- SIZE SHALL MATCH HORIZONTAL BAR SIZE. CORNER BARS ARE TO BE LAPPED 40 BAR DIAMETERS. 8. ALL LAP SPLICES SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE, UNLESS NOTED OTHERWISE. WHERE CLASSES ARE NOT CALLED OUT ON DRAWINGS, USE CLASS "B" SPLICES.

	TENSION SPLICE (IN.)				
BAR TOF				R BARS CLASS B	COMPRESSION SPLICES (IN.)
#3	16	21	12	16	12
#3	10	21	12	10	12
#4	21	28	16	21	15
#5	27	35	21	27	19
#6	32	42	25	32	23
#7	47	61	36	47	26
#8	53	69	41	53	30
#9	60	78	46	60	34
#10	68	88	52	68	38
#11	75	98	58	75	42

## FOUNDATION, SLAB-ON-GRADE - GENERAL

- 1. FOUNDATION DESIGN IS BASED ON THE INFORMATION & RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL
- REPORT PREPARED BY BUILDING & EARTH DATED JANUARY 17, 2018. 2. PIERS ARE DESIGNED FOR A NET ALLOWABLE END BEARING PRESSURE OF 100 KSF IN THE LIMESTONE MATERIAL 3. DRILLED PIERS MUST EXTEND THROUGH THE RESIDUAL SOILS AND SOCKETED AT LEAST 3 FEET INTO THE
- LIMESTONE MATERIAL. RE: GEOTECHNICAL REPORT. 4. ALL BEARING MATERIAL SHALL BE INSPECTED BY THE INDEPENDENT TESTING AGENCY PRIOR TO CONCRETE PLACEMENT. THE INDEPENDENT TESTING AGENCY SHALL BE THE SOLE JUDGE AS TO THE SUITABILITY OF THE
- BEARING MATERIAL. FOOTING ELEVATIONS SHALL BE ADJUSTED AS REQUIRED. 5. FOOTINGS MAY BE POURED INTO AN EARTHEN FORMED TRENCH IF SOIL CONDITIONS PERMIT
- FOUNDATION WALLS THAT RETAIN EARTH SHALL BE BRACED AGAINST BACK FILLING PRESSURES UNTIL FLOOR
- SLABS AT TOP AND BOTTOM ARE IN PLACE OR UNTIL THE CONCRETE HAS ATTAINED ITS FULL COMPRESSIVE STRENGTH FOR CANTILEVER WALLS.
- 7. WHERE FOUNDATION WALLS ARE TO HAVE EARTH PLACED ON EACH SIDE, PLACE FILL SIMULTANEOUSLY SO AS TO MAINTAIN A COMMON ELEVATION ON EACH SIDE OF THE WALL.
- 8. VERIFY THE USE AND EXTENT OF PERIMETER INSULATION WITH ARCHITECTURAL DRAWINGS PRIOR TO THE INSTALLATION OF FOUNDATIONS. INSTALL PERIMETER INSULATION AS REQUIRED.
- UNDER-SLAB DRAINAGE FILL TO BE A MINIMUM 4-INCH COMPACTED LAYER OF WASHED ASTM No. 57 STONE 10. NO BUILDING FOUNDATIONS, INCLUDING GRADE BEAMS, ARE TO BE PENETRATED WITH CONDUITS, PIPES, ETC. UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL PLANS OR EXPRESS CONSENT IS GIVEN BY THE E.O.R.

## POST-INSTALLED ANCHORS

- 1. ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY HILTI OR SUCH OTHER METHOD AS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE
- INSTALL ANCHORS PER THE MANUFACTURER INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.

CONCRETE ANCHORS, BY HILTI FERROSCAN, GPR, X-RAY, CHIPPING OR OTHER MEANS.

- OVERHEAD ADHESIVE ANCHORS MUST BE INSTALLED USING THE HILTI PROFI SYSTEM. 4.  $\,\,$  THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.
- 5. ANCHOR CAPACITY IS DEPENDANT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE
- OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS. 6. EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE
- 7. MECHANICAL ANCHORS FOR USE IN CONCRETE TO BE HILTI KWIK BOLT-TZ EXPANSION ANCHORS PER ICC ESR-1917. 8. MECHANICAL ANCHORS FOR USE IN GROUTED MASONRY TO BE HILTI KWIK BOLT 3 EXPANSION ANCHORS PER ICC ESR-1385.

#### STRUCTURAL STEEL

1. STEEL SHALL CONFORM TO THE FOLLOWING GRADES: ALL CHANNELS, ANGLES, PLATES, ETC. (UNLESS NOTED OTHERWISE)

ALL WIDE FLANGES (UNLESS NOTED OTHERWISE) STRUCTURAL TUBE STEEL PIPE **ANCHOR RODS** 

A992 (FY=50 KSI) A500, GRADE B (FY=46 KSI) A53 (FY-35 KSI) F1554, GRADE 55 A325-N (UNLESS NOTED OTHERWISE) WELD ELECTRODES

2. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE (LATEST EDITION), EXCEPT AS MODIFIED IN THESE NOTES AND THE PROJECT SPECIFICATIONS 3. THE STEEL STRUCTURE IS A NON-SELF-SUPPORTING STEEL FRAME AND IS DEPENDENT UPON DIAPHRAGM ACTION OF THE ROOF

DECK, FLOOR SLABS AND ATTACHMENT TO THE WALL SYSTEM FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES. PROVIDE ALL TEMPORARY SUPPORTS REQUIRED FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES UNTIL THESE ELEMENTS ARE COMPLETE AND ARE CAPABLE OF PROVIDING THIS SUPPORT. 4. WHERE A325 BOLTS OF ANY DIAMETER OR A490 EQUAL TO OR LESS THAN 1 INCH IN DIAMETER ARE TO BE INSTALLED AND TIGHTENED

IN AN OVERSIZE OR SHORT SLOTTED HOLE IN AN OUTER PLY, A HARDENED WASHER CONFORMING TO ASTM F436 SHALL BE USED. 5. ALL STRUCTURAL STEEL SHALL BE PAINTED WITH RED OR GRAY PRIMER. DO NOT PAINT TOP OF BEAMS WHERE HEADED STUD

6. AFTER ANCHOR RODS HAVE BEEN SET, AND BEFORE CONCRETE IS PLACED, IT IS STRONGLY SUGGESTED THAT THE CONTRACTOR ENGAGE A SURVEYOR TO VERIFY THE PROPER LOCATION AND ELEVATION OF THE ANCHOR RODS. 7. PER THE AISC MANUAL OF STEEL CONSTRUCTION, ANCHOR ROD HOLES IN BASE PLATES AND WASHERS SHALL BE THE FOLLOWING

ANCHOR ROD Ø	MAX. HOLE SIZE IN BASE PL	WASHER SIZE	MIN. WASHER THICK.	MAX HOLE SIZE IN WASHER
3/4"	1-5/16"	2"	1/4"	13/16"
7/4 7/8"	1-9/16"	2½"	5/16"	15/16"
7° 1"	1-13/16"	3"	3/8"	1-1/16"
11/4"	2-1/16"	3"	1/2"	1-5/16"
1½"	2-5/16"	3½"	1/2"	1-9/16"
13/4"	2-3/4"	4"	5/8"	1-13/16"
2"	3-1/4"	5"	3/4"	2-1/16"
21/2"	3-3/4"	5½"	7/8"	2-9/16"

#### METAL DECK

- 1. METAL DECK SHALL COMPLY WITH THE REQUIREMENTS OF THE STEEL DECK INSTITUTE
- "SPECIFICATIONS AND COMMENTARY FOR STEEL DECK" (LATEST EDITION) 2. ALL METAL DECK SHALL BE OF CONFIGURATION, DEPTH, AND MINIMUM GA., AS SPECIFIED ON THE DRAWINGS. ATTACHMENT OF METAL DECK TO THE SUPPORTING STRUCTURAL MEMBERS SHALL BE, AT A MINIMUM, AS SPECIFIED ON THE DRAWINGS. SEE THE PLAN NOTES.
- 3. DO NOT HANG OR SUPPORT ANY LOADS FROM METAL DECK.
- 4. ALL METAL DECK SHEETS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE SPANS. 5. ALL NON COMPOSITE METAL DECK SHEET ENDS SHALL BE LAPPED A MINIMUM OF 2". BUTTED ENDS ARE
- NOT PERMITTED. END LAPS SHALL BE STAGGERED WHEN THE THICKNESS OF THE DECK EXCEEDS 20GA.

#### STEEL JOISTS AND JOIST GIRDERS

- 1. ALL STEEL JOISTS AND JOIST GIRDERS SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE STEEL JOIST INSTITUTE SJI STANDARD SPECIFICATIONS FOR STEEL JOISTS AND JOIST GIRDERS (LATEST EDITION).
- 2. ALL STEEL JOISTS AND JOIST GIRDERS SHALL BE DESIGNED BY THE JOIST MANUFACTURER. THE MANUFACTURER'S ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN, ADEQUACY, AND SAFETY OF ALL STEEL JOISTS AND JOIST GIRDERS. JOIST MANUFACTURER SHALL PROVIDE A LETTER, SIGNED AND SEALED, STATING THAT ALL JOIST AND JOIST GIRDERS HAVE BEEN DESIGNED BY OR UNDER THE DIRECT SUPERVISION OF AN ENGINEER LICENSED IN THE STATE WHERE THE STRUCTURE IS LOCATED.
- EXCEPT WHERE ADDITIONAL AND/OR SPECIFIC DESIGN LOADS ARE SPECIFIED ON THE STRUCTURAL DRAWINGS, STEEL JOISTS SHALL BE DESIGNED AS SIMPLY SUPPORTED, UNIFORMLY LOADED TRUSSES WITH THE TOP CHORD BRACED AGAINST LATERAL BUCKLING. THE UNIFORM DESIGN LOAD SHALL BE THE TOTAL SAFE UNIFORMLY DISTRIBUTED LOAD AS SHOWN IN THE SJI STANDARD LOAD TABLE, OR INDICATED ON THE DRAWINGS. THE JOIST DESIGN SHALL ALSO INCLUDE A MAXIMUM OF 2-200# POINT LOADS ON THE TOP OR BOTTOM CHORD AT ANY LOCATION WITHOUT ADDITIONAL WEB REINFORCING
- 4. EXCEPT WHERE ADDITIONAL AND/OR SPECIFIC DESIGN LOADS ARE SPECIFIED ON THE STRUCTURAL DRAWINGS, STEEL JOIST GIRDERS SHALL BE DESIGNED AS SIMPLY SUPPORTED PRIMARY MEMBERS, WITH ALL LOADS EQUAL IN MAGNITUDE AND EVENLY SPACED ALONG THE JOIST GIRDER TOP CHORD (UNLESS NOTED OTHERWISE).
- 5. ALL FLOOR JOISTS AND JOIST GIRDERS, UNLESS NOTED OTHERWISE, SHALL BE DESIGNED TO SUPPORT THE LIVE DESIGN LOAD WITHOUT EXCEEDING A DEFLECTION OF L/360, AND THE TOTAL DESIGN LOAD WITHOUT EXCEEDING A DEFLECTION OF L/180.
- 6. ALL ROOF JOISTS AND JOIST GIRDERS, UNLESS NOTED OTHERWISE, SHALL BE DESIGNED TO SUPPORT THE LIVE (OR SNOW) DESIGN LOAD
- WITHOUT EXCEEDING A DEFLECTION OF L/240, AND THE TOTAL DESIGN LOAD WITHOUT EXCEEDING A DEFLECTION OF L/180.  $^{\prime}$ . STEEL JOIST BRIDGING SHOWN ON THE DRAWINGS IS FOR ILLUSTRATIVE PURPOSES ONLY. ALL STEEL JOIST BRIDGING SHALL BE PROVIDED IN ACCORDANCE WITH THE SJI SPECIFICATION, AND SHALL BE SPECIFIED BY THE JOIST MANUFACTURER. ALL BRIDGING AND BRIDGING ANCHORS SHALL BE INSTALLED, AND STEEL JOIST ENDS FIXED, PRIOR TO THE APPLICATION OF ANY LOADS, BRIDGING THAT TERMINATES AT, OR IS INTERRUPTED BY, STRUCTURAL STEEL BEAMS, OR CONCRETE WALLS SHALL BE ATTACHED THERETO. THE JOIST MANUFACTURER MUST
- COORDINATE BRIDGING LOCATIONS TO AVOID INTERFERENCE WITH ALL MECHANICAL, ELECTRICAL, AND FIRE PROTECTION EQUIPMENT : THE JOIST MANUFACTURER SHALL DESIGN ALL ROOF JOISTS AND JOIST GIRDERS, AND SHALL DESIGN AND SPECIFY ALL REQUIRED
- ADDITIONAL BRIDGING AND/OR BRACING, FOR MINIMUM NET UPLIFT FORCES OF 20 PSF, U.N.O. 9. ALL JOIST GIRDERS SHALL BE PROPORTIONED SUCH THAT THEY CAN BE ERECTED WITHOUT BRIDGING.
- 10. UNLESS NOTED OTHERWISE, K-SERIES JOISTS SHALL BE ATTACHED TO SUPPORTING STEEL MEMBERS, OR STEEL BEARING PLATES, WITH (2)-?" LONG 3/16" FILLET WELDS (ONE EACH SIDE)
- 11. UNLESS NOTED OTHERWISE, LH-SERIES JOISTS AND JOIST GIRDERS SHALL BE ATTACHED TO SUPPORTING STEEL MEMBERS, OR STEEL BEARING PLATES, WITH (2)-2" LONG 1/4" FILLET WELDS (ONE EACH SIDE).
- 12. STEEL JOIST AT COLUMN CENTERLINES SHALL BE BOLTED TO THE SUPPORTING STEEL MEMBER WITH TWO ERECTION BOLTS, 1/2"Ø FOR K-SERIES JOISTS & 3/4 FOR LH-SERIES JOISTS. WHERE STEEL JOISTS DO NOT SPACE TO COLUMN CENTER LINES, USE BOLTED CONNECTIONS FOR THE STEEL JOIST CLOSEST TO THE CENTER LINE. WHERE THE DRAWINGS INDICATE THAT THE JOIST SEAT IS TO BE WELDED TO THE
- SUPPORTING STEEL, THE BOLTS PROVIDED ARE FOR ERECTION ONLY AND MAY BE REMOVED AFTER THE WELDS ARE COMPLETED. 13. STEEL JOISTS AT COLUMN CENTER LINES SHALL BE PROVIDED WITH 6"SQ. x ½" KNIFE PLATE AT THE BOTTOM CHORD, WELDED TO THE
- COLUMN, FOR STABILIZATION. DO NOT WELD THE JOIST CHORD TO THE PLATE. 14. STEEL JOIST GIRDERS AT COLUMN CENTERLINES SHALL BE BOLTED TO THE STRUCTURAL STEEL COLUMN WITH (2)-3/4 BOLTS. 15. HOLES IN STEEL JOIST CHORDS WILL NOT BE PERMITTED, EXCEPT FOR BOLTED CONNECTIONS AT THE BEARING END OF THE STEEL JOIST, OR
- WHERE SPECIFIED ON THE DRAWINGS AND SPECIFICALLY DESIGNED FOR BY THE JOIST MANUFACTURER. 16. ALL ITEMS SUCH AS MECHANICAL, EQUIPMENT, DUCT WORK, PIPES, CEILING SUPPORTS, FIXTURES, DISPLAYS, ETC., WHICH ARE TO BE SUPPORTED BY, OR HUNG FROM, STEEL JOISTS OR JOIST GIRDERS SHALL BE FRAMED WITH AUXILIARY FRAMING TO THE PANEL POINTS OF THE STEEL JOIST OR GIRDER WHEN THE CONCENTRATED LOAD EXCEEDS 50LBS. METHODS OF FRAMING THAT INDUCE BENDING IN THE STEEL
- JOIST OR GIRDER CHORDS OR WEB MEMBERS WILL NOT BE PERMITTED. 17. ADDITIONAL DESIGN LOADS FROM ARCHITECTURAL FEATURES, ROOF TOP EQUIPMENT, OR ANY OTHER CONCENTRATED LOADS SHOWN ON THE DRAWINGS, SHALL BE CONSIDERED AS COLLATERAL LOADS. THESE LOADS SHALL BE CONSIDERED IN THE DESIGN OF THE JOISTS AND JOIST GIRDERS, IN ADDITION TO THE SPECIFIED UNIFORM AND PANEL LOADS. COORDINATE WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS AND WEIGHTS OF ALL EQUIPMENT. WHERE SUCH LOADS DO NOT OCCUR AT THE PANEL POINTS OF THE JOISTS OR JOIST GIRDERS, AUXILIARY FRAMING SHALL BE ADDED, OR THE TOP CHORD SHALL BE DESIGNED FOR THE EFFECTS OF THE LOAD.
- GIRDER AS SPECIFIED. 19. ALL DAMAGED JOISTS AND JOIST GIRDERS SHALL BE REPAIRED OR REPLACED. THE PROFESSIONAL-OF-RECORD SHALL BE THE SOLE JUDGE AS TO WHETHER A JOIST, OR JOIST GIRDER, CAN BE REPAIRED OR MUST BE REPLACED. ALL REPAIRS TO JOISTS SHALL BE DESIGNED AND

18. NO LOADS SHALL BE PLACED ON ANY JOIST GIRDER UNTIL THE STEEL JOISTS BEARING ON THE GIRDER ARE IN PLACE, AND FASTENED TO THE

- SPECIFIED BY THE JOIST SUPPLIER'S ENGINEER.
- 20. JOIST SEATS TO HAVE A MINIMUM PLATE THICKNESS OF 3/16".
- 21. ALL NECESSARY JOIST TOP CHORD EXTENSIONS SHALL BE "R" TYPE, MEETING OR EXCEEDING THE LOAD CAPACITY OF THE JOIST, U.N.O. 22. ALL JOIST & JOIST GIRDERS SHALL BE PAINTED WITH RED OR GRAY PRIMER.

# LIGHT-GAUGE STRUCTURAL STEEL FRAMING

 TYPICAL LIGHT-GAGE IDENTIFICATION LEGEND: MEMBER DEPTH FLANGE WIDTH IN 1/100" IN 1/100"

(6"=600x1/100) (1%"=162x1/100) (600)(S)(162) - (54) |MATERIAL THICKNESS| S=STUD OR JOIST IN MILS (1/1000") T=TRACK SECTION U=CHANNEL SECTION F=FURRING CHANNEL

- 2. LIGHT-GAUGE MATERIALS SHALL CONFORM TO THE FOLLOWING: A. ZINC-COATED STEEL SHEET MATERIAL:
  - a. ALL STEEL SHEET MATERIAL, FOR STUDS AND JOISTS, OF 12, 14 AND 16 GAUGE SHALL BE FORMED FROM STEEL THAT CORRESPONDS TO THE MINIMUM REQUIREMENTS OF ASTM A653 SS, GRADE 50, CLASS 1 OR 3 WITH A MINIMUM YIELD OF 50,000 PSI.
  - b. ALL STEEL SHEET MATERIAL, FOR STUDS AND JOISTS, OF 18 GAUGE AND LIGHTER, AND ALL STEEL SHEET MATERIAL FOR TRACK, BRIDGING, END CLOSURES AND ACCESSORIES SHALL BE FORMED FROM STEEL THAT CORRESPONDS TO THE REQUIREMENTS OF ASTM A653 SS, GRADE 33 WITH A MINIMUM YIELD OF 33,000 PSI.
- c. ALL STEEL SHEET MATERIAL FOR STUDS, JOISTS, TRACK, BRIDGING AND ACCESSORIES SHALL BE FORMED FROM STEEL HAVING A ZINC COATING MEETING THE REQUIREMENTS OF ASTM A525. B. SECTION PROPERTIES: THE PHYSICAL AND STRUCTURAL PROPERTIES LISTED BY THE STEEL STUD MANUFACTURER ASSOCIATION AND AISI DESIGN MANUAL SHALL BE CONSIDERED THE MINIMUM PERMITTED FOR ALL FRAMING MEMBERS. SPECIFICALLY, THE FOLLOWING MINIMUM PROPERTIES,
- SX (IN.3), AREA (IN.2), RX (IN.), FY (KSI), RESISTING MOMENT (IN.-LB.). C. SUBSTITUTIONS: ANY SUBSTITUTIONS MUST BE APPROVED IN WRITING, PRIOR TO DELIVERY, BY THE ARCHITECT AND/OR ENGINEER-OF-RECORD.

CALCULATED IN ACCORDANCE WITH THE LATEST AISI SPECIFICATION, SHALL BE PROVIDED: IX (IN.4),

- 3. DO NOT WELD 33 MIL AND LIGHTER FRAMING, U.N.O.
- 4. IN METAL STUD WALLS, HORIZONTAL BRIDGING SHALL BE PLACED AT 4'-0" O.C. OR AS PER THE
- MANUFACTURERS RECOMMENDATION IF LESS THAN 4'-0" O.C. 5. ALL AXIALLY LOADED STUDS SHALL HAVE FULL FLANGE BEARING AGAINST UPPER AND LOWER TRACK
- WEBS. SPLICES IN AXIALLY STUDS ARE NOT PERMITTED. 6. EXTERIOR METAL STUDS TO BE 800S162-54 @ 16" O.C. W/ 800T125-54 TRACKS, U.N.O.



#### **GENERAL NOTES**

- 1. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF ANY SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS WHICH MIGHT BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THE COMPLETION OF THE PROJECT.
- 2. IT IS SOLELY THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.
- ALL DIMENSIONS ON THE STRUCTURAL DRAWINGS SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS. THE ENGINEER OF RECORD SHALL BE NOTIFIED OF ANY RELEVANT DIMENSIONAL DISCREPANCIES. 4. GOVERNING CODE: 2015 IBC
- 5. ALL FRAMING SHALL BE COORDINATED WITH THE MECHANICAL DRAWINGS TO ENSURE ADEQUATE CLEARANCES FOR CHASES, DUCT WORK, PIPING, ETC.

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6. DESIGN LOADS:
      ROOF DEAD LOAD:
      ROOF THEMING LOAD:
                                                15 PSF
      ROOF LIVE LOAD:
      SAFER ROOM:
                                                65 PSF (INCLUDING SLAB WT)
         DEAD LOAD
                                                100 PSF
         LIVE LOAD:
      SNOW DESIGN CRITERIA
         GROUND SNOW LOAD:
         SNOW IMPORTANCE FACTOR:
         FLAT ROOF SNOW LOAD:
                                                11 PSF
      WIND DESIGN CRITERIA:
          RISK CATEGORY:
            FOR RISK CATEGORY I - BASIC WIND SPEED = 105 mph
            FOR RISK CATEGORY II - BASIC WIND SPEED = 115 mph
            FOR RISK CATEGORY III/IV - BASIC WIND SPEED = 120 mph
         EXPOSURE CATEGORY:
         COMPONENT AND CLADDING LOADS PER IBC TABLE 1609.6.2.1(2)
       SEISMIC DESIGN CRITERIA:
         SITE CLASS:
          SEISMIC RISK CATEGORY:
         SEISMIC IMPORTANCE FACTOR:
          SEISMIC DESIGN CATEGORY:
         Ss = 0.152 Fa = 1.2 SMS = 0.182
                                                SDS = 0.122
         S1 = 0.081 Fv = 1.7 SM1 = 0.137
          BASIC SEISMIC-FORCE-RESISTING SYSTEM:
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# <u>MISCELLANEOUS</u>

1. THESE GENERAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE

ANALYSIS PROCEDURE: EQUIVALENT LATERAL-FORCE PROCEDURE

BASIC SÉISMIC-FORCE-RESISTING SYSTEM FOR PORTE COCHERE:

ANALYSIS PROCEDURE: EQUIVALENT LATERAL-FORCE PROCEDURE

RESPONSE MODIFICATION COEFFICIENT, R: 3.0

RESPONSE MODIFICATION COEFFICIENT, R: 1.25

SEISMIC RESPONSE COEFFICIENT, C<sub>S</sub>: 0.122

SEISMIC RESPONSE COEFFICHENT, Cs:\// 0.05/1/

STEEL ORDINARY CATILEVER COLUMN SYSTEM

- 2. THE STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING REQUIREMENTS FROM SUCH DRAWINGS INTO THEIR SHOP DRAWINGS AND WORK. ANY DETAIL TITLED AS A TYPICAL DETAIL IS APPLICABLE THROUGHOUT THE DESIGN DRAWINGS. THESE DETAILS ARE DEFINED AS GENERAL STANDARDS THAT ARE USUALLY
- IDENTIFIED BY SPECIFIC REFERENCE WITHIN THE DRAWINGS. 4. NO OPENINGS SHALL BE MADE IN ANY STRUCTURAL MEMBER WITHOUT THE WRITTEN
- APPROVAL OF THE PROFESSIONAL-OF-RECORD. 5. NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERS SHALL BE MADE
- WITHOUT WRITTEN APPROVAL OF THE PROFESSIONAL-OF-RECORD. 6. OPENINGS IN WALLS AND DECK, WHICH ARE 1'-4" AND LESS ON A SIDE, ARE GENERALLY NOT SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO THE ARCHITECTURAL AND
- MECHANICAL DRAWINGS FOR SUCH OPENINGS. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED. 8. 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. DO NOT SCALE THESE DRAWINGS. USE SPECIFIED DIMENSIONS. 10. CONTRACTORS CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING
- 11. THE CONTRACTOR SHALL INFORM THE PROFESSIONAL-OF-RECORD IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY OF SUCH DEVIATION BY THE PROFESSIONAL-OF-RECORD'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE PROFESSIONAL-OF-RECORD OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE PROFESSIONAL-OF-RECORD HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.

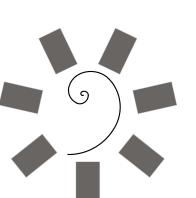
## SUBMITTAL PROCEDURES

THE CONSTRUCTION PERIOD.

- 1. SHOP DRAWINGS SHALL BE PRODUCED FROM SCRATCH. THE SHOP DRAWINGS SHALL NOT BE PRODUCED FROM DIGITAL COPIES OR SCANS OF THE E.O.R. DRAWINGS. IF THE E.O.R. DRAWINGS ARE DIGITALLY REPRODUCED AND USED IN SUBMITTED SHOP DRAWINGS. THE
- SHOP DRAWINGS SHALL BE REJECTED IN WHOLE. 2. TRANSMIT SUBMITTALS SUFFICIENTLY IN ADVANCE OF RELATED CONSTRUCTION ACTIVITIES TO AVOID UNNECESSARY DELAY. THE STRUCTURAL ENGINEER FOR THIS PROJECT MAY WITHHOLD ACTION ON A SUBMITTAL REQUIRING COORDINATION WITH OTHER SUBMITTALS UNTIL ALL RELATED SUBMITTALS ARE RECEIVED.
- 3. SHOP DRAWINGS SHALL BE SUBMITTED IN AN UNLOCKED 'PDF' ELECTRONIC FORMAT. LOCKED 'PDF' FILES WILL NOT BE ACCEPTED. THE SHOP DRAWINGS WILL BE REVIEWED, MARKED UP, AND RETURNED IN 'PDF' ELECTRONIC FORMAT.

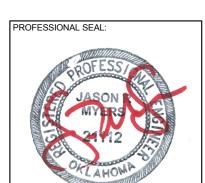
# **ABBREVIATIONS**

A.B.	ANCHOR BOLT	LL	LIVE LOAD
AFF	ABOVE FINISH FLOOR	LLH	LONG LEG HORIZONTAL
ARCH.	ARCHITECT	LLV	LONG LEG VERTICAL
B.O.D.	BOTTOM OF DECK	LONG.	LONGITUDINAL
B.O.S.	BOTTOM OF STEEL	LW	LIGHTWEIGHT
BFF	BELOW FINISH FLOOR	MANUF.	MANUFACTURER
BLDG.	BUILDING	MAX.	
BOT.	BOTTOM	MIN.	
C.J.	CONSTRUCTION JOINT	MISC.	MISCELLANEOUS
C.L.	CENTERLINE	NW	
CLR.	CLEAR	O.C.	
CMU	~ <del></del>		
COL.		OH	
CONC.	CONCRETE	PEMB	
CONT.	CONTINUOUS	PCF	POUNDS PER CUBIC FOOT
DB	CONTINUOUS DECK BEARING	PCI	POUNDS PER CUBIC INCH
D.B.A.	DEFORMED BAR ANCHOR	PLF	POUNDS PER LINEAR FOOT
DIA.	DIAMETER	PSF	POUNDS PER SQUARE FOOT
E.E.	EACH END	PSI	POUNDS PER SQUARE INCH
E.F.	EACH EACE	QTY.	QUANTITY
E.W.	DIAMETER EACH END EACH FACE EACH WAY ELEVATION		
ELEV.	ELEVATION	DEINIE	REFER REINFORCEMENT REQUIRED SAW CUT
FFE	FINISH FLOOR ELEVATION	DEO'D	DECLIDED
	FOUNDATION	REQD.	CAM CUT
	FOUNDATION FOOTING GRADE BEAM GAUGE GALVANIZED HORIZONTAL HORIZONTAL	SCHED.	SCHEDULE
G.B.	CDADE DEAM	SIM.	SIMILAR
G.B. GA.	CALICE	STD.	STANDARD
GA. GALV.	CALVANIZED	T&B	
GALV. H.	HODIZONIAL	TF	TOP AND BOTTOM TOP OF FOOTING
	HORIZONTAL	TOD	
HORIZ.	HORIZONTAL	TGB	
HSA	HEADED STUD ANCHOR		
IMP	INSULATED METAL PANEL		
ICP	INSULATED CONCRETE PANEL		
INSUL.	INSULATION	TW	TOP OF WALL
INT.	INTERIOR	TYP.	
JB	JOIST BEARING	U.N.O.	
KSI	KIPS PER SQUARE INCH	V.	VERTICAL
LGST	LIGHT GAGE STEEL TRUSS	VERT.	VERTICAL



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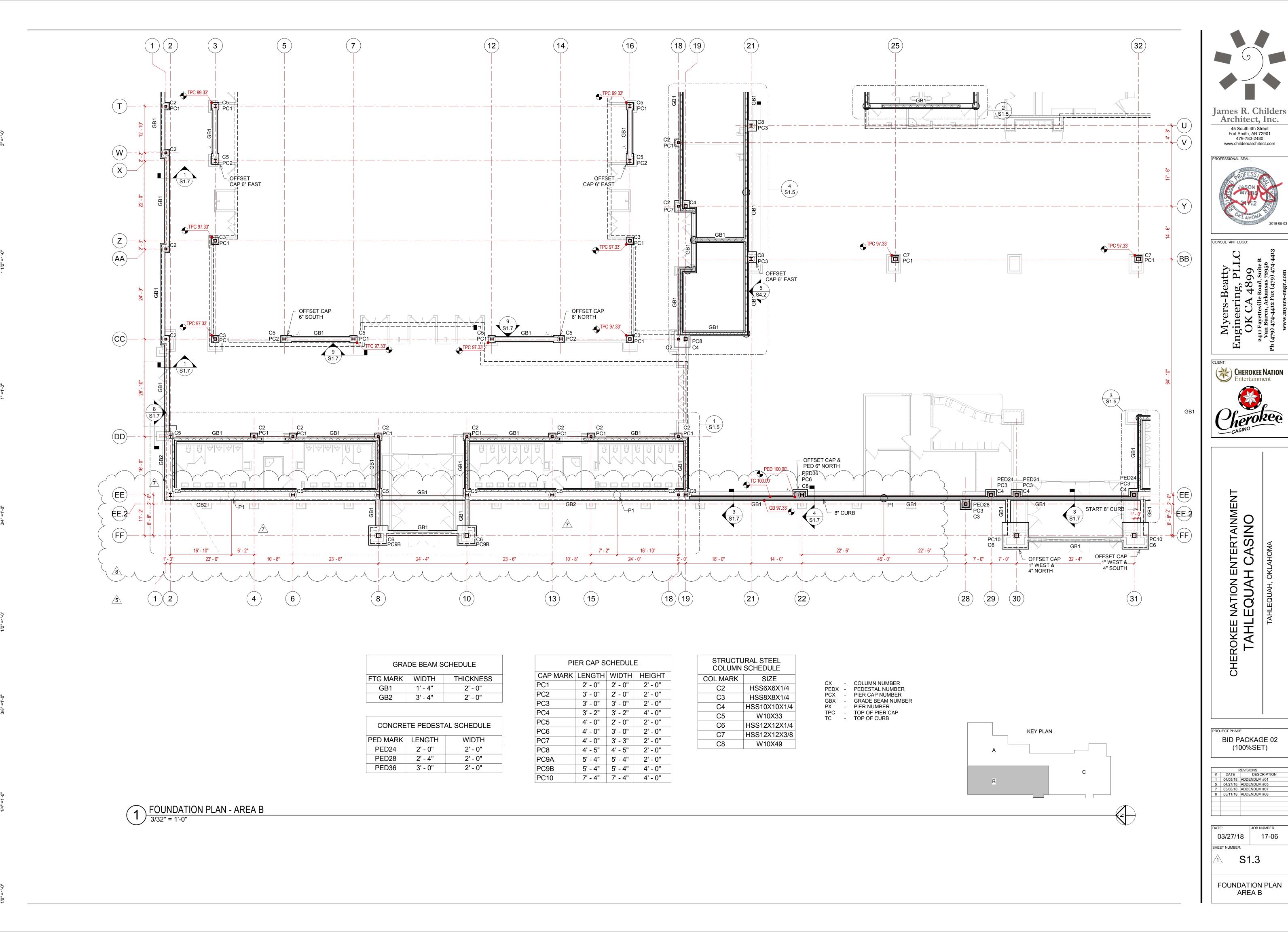
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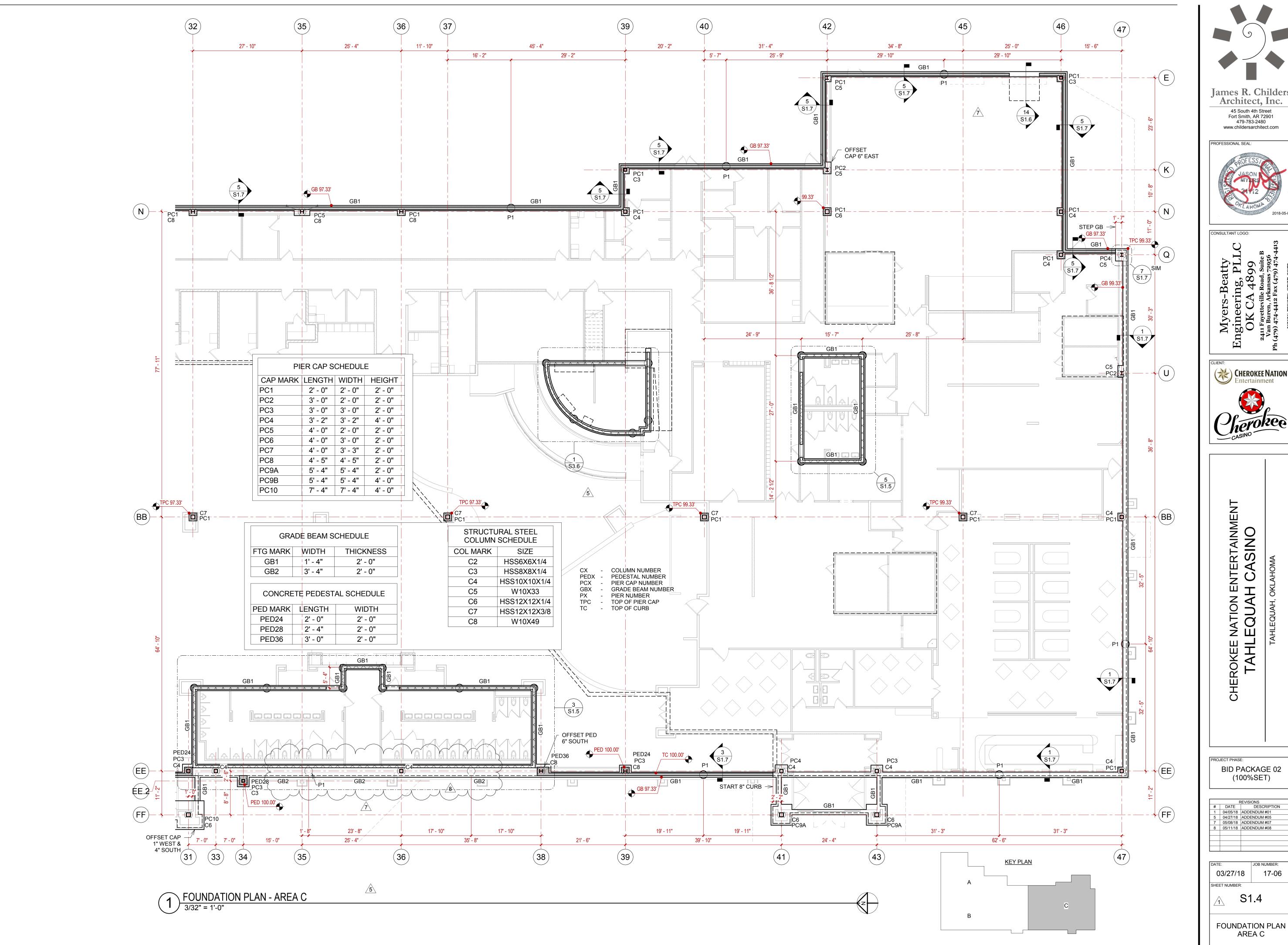
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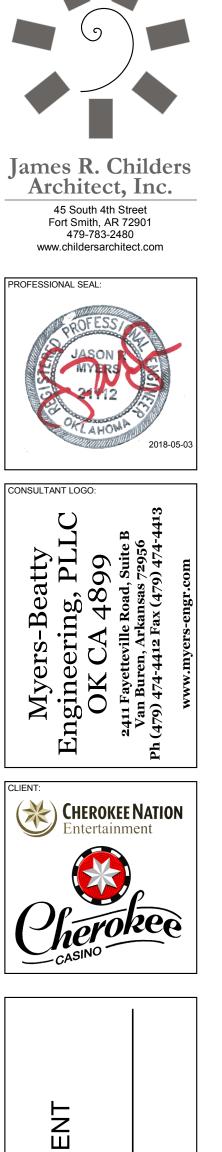
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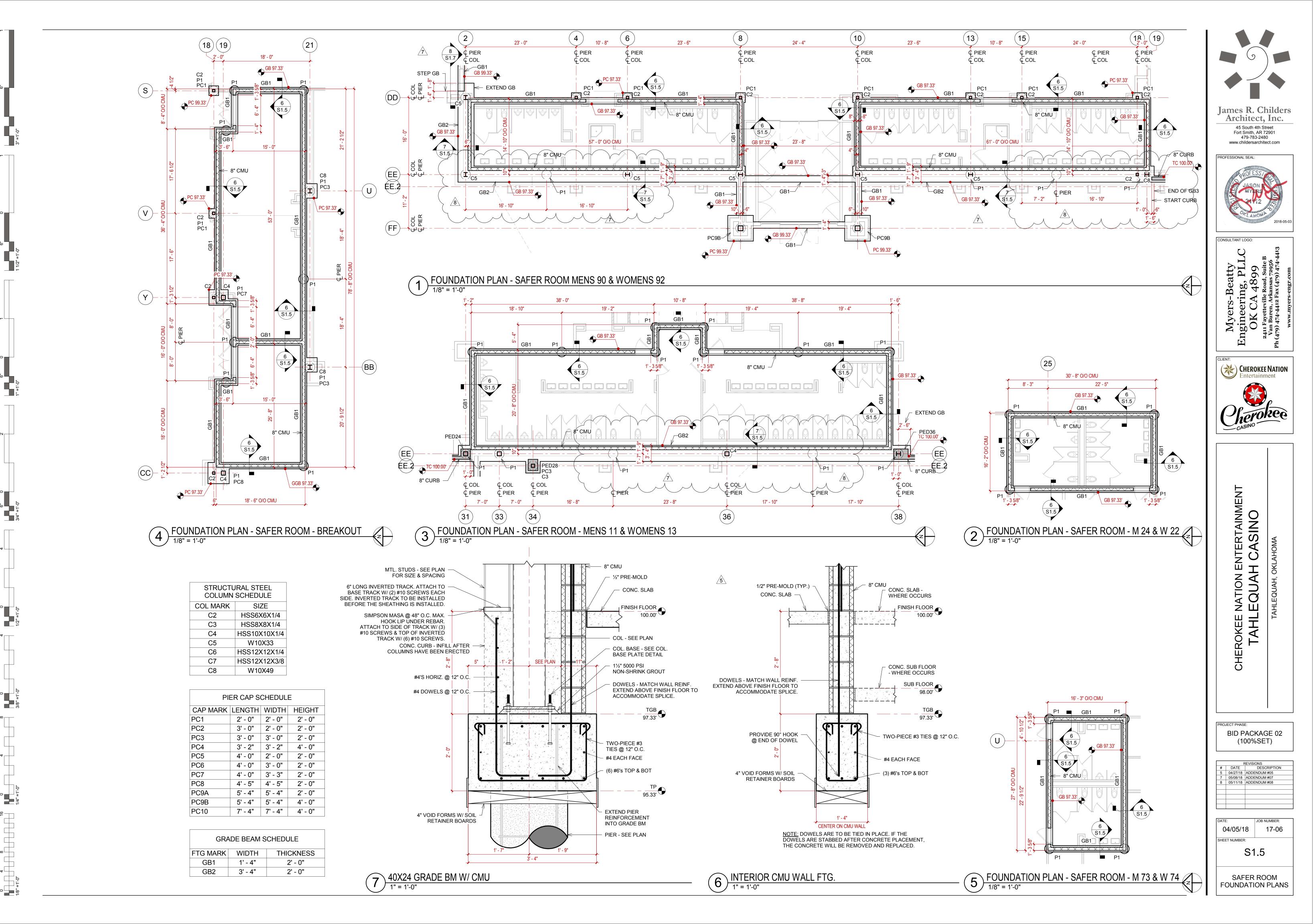
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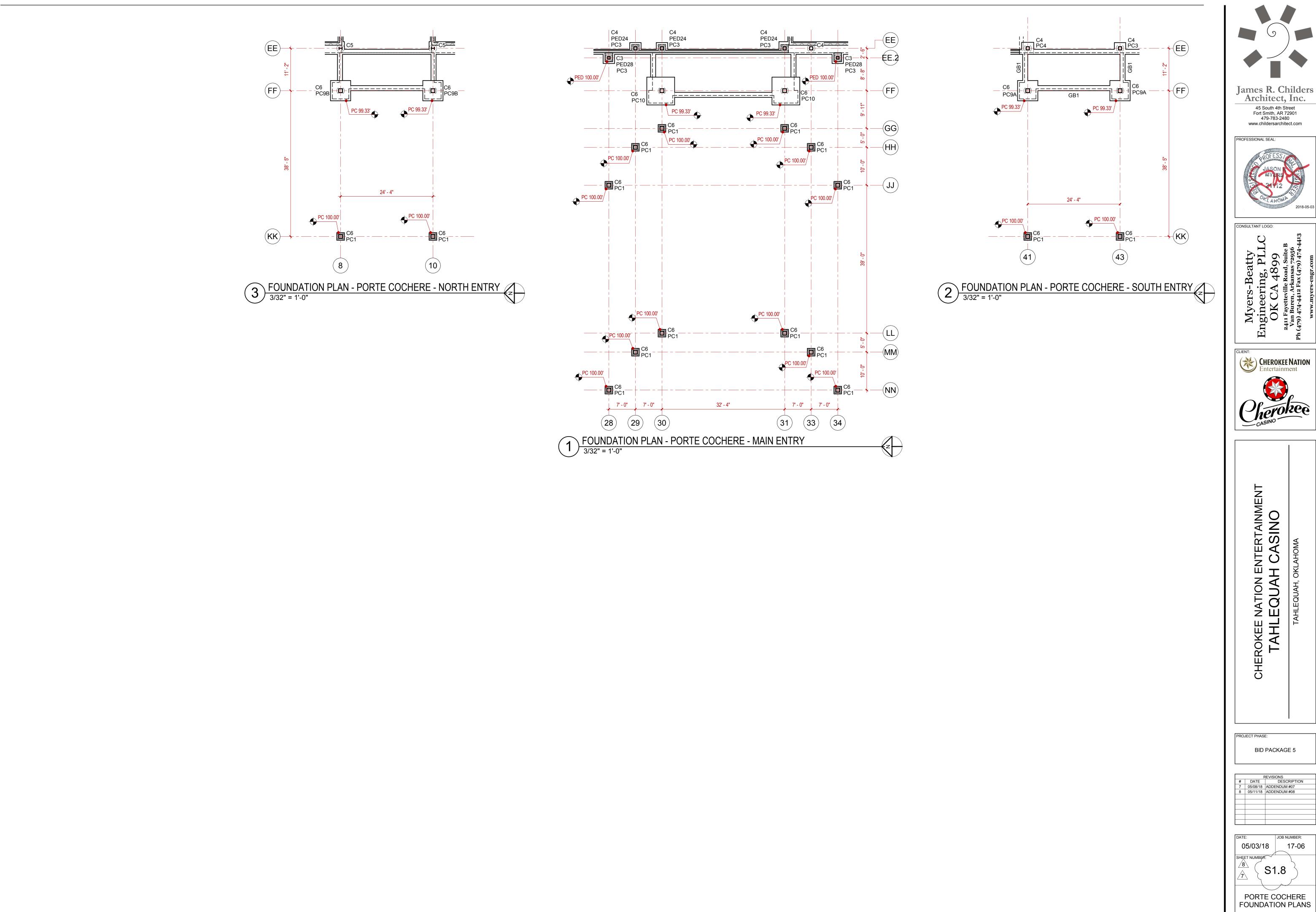
STRUCTURAL NOTES







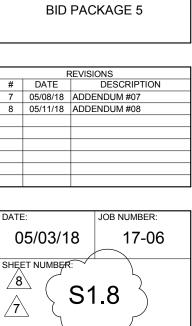




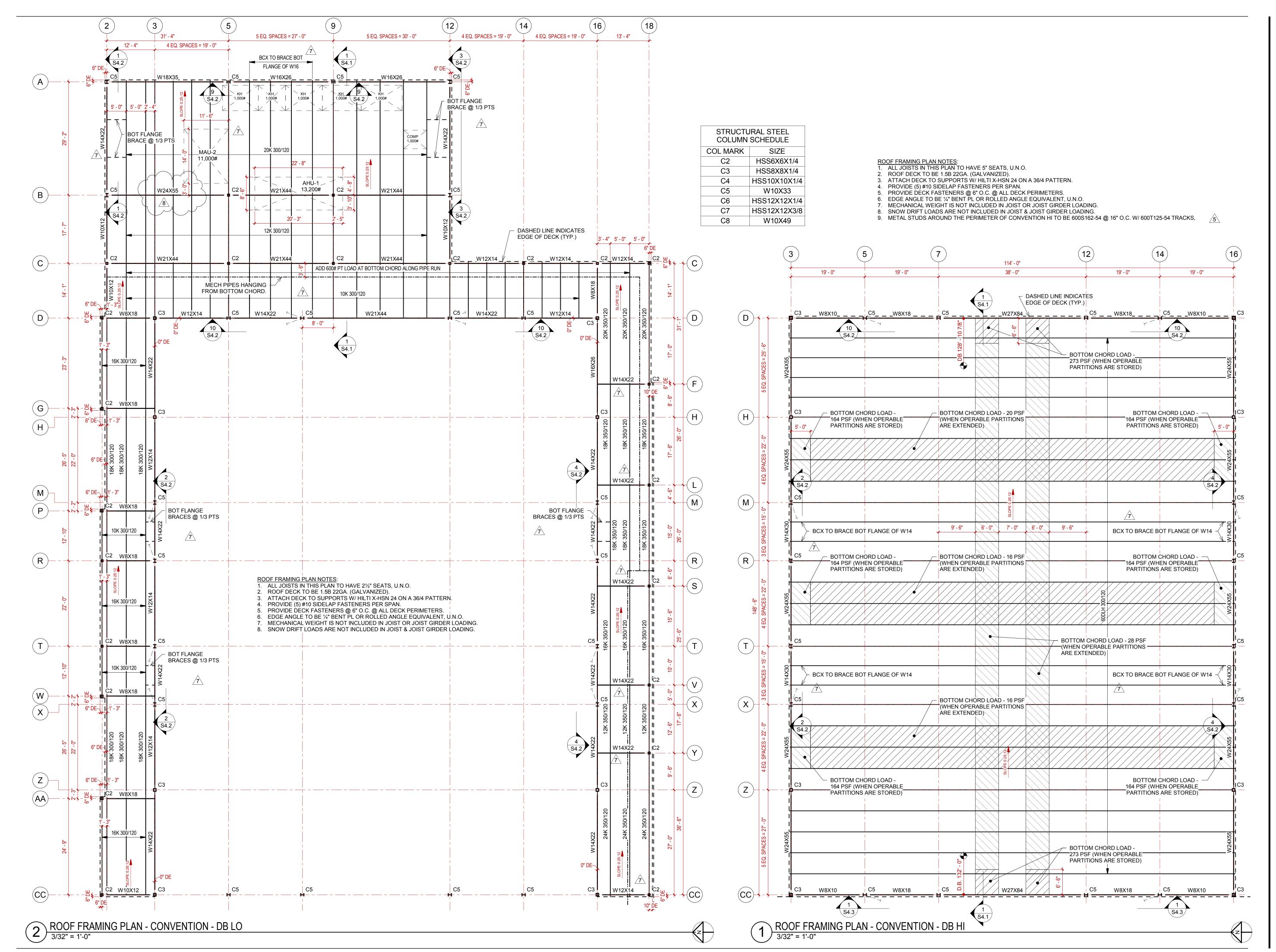


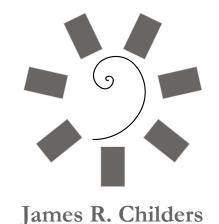


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TAHLEQUAH CASINO





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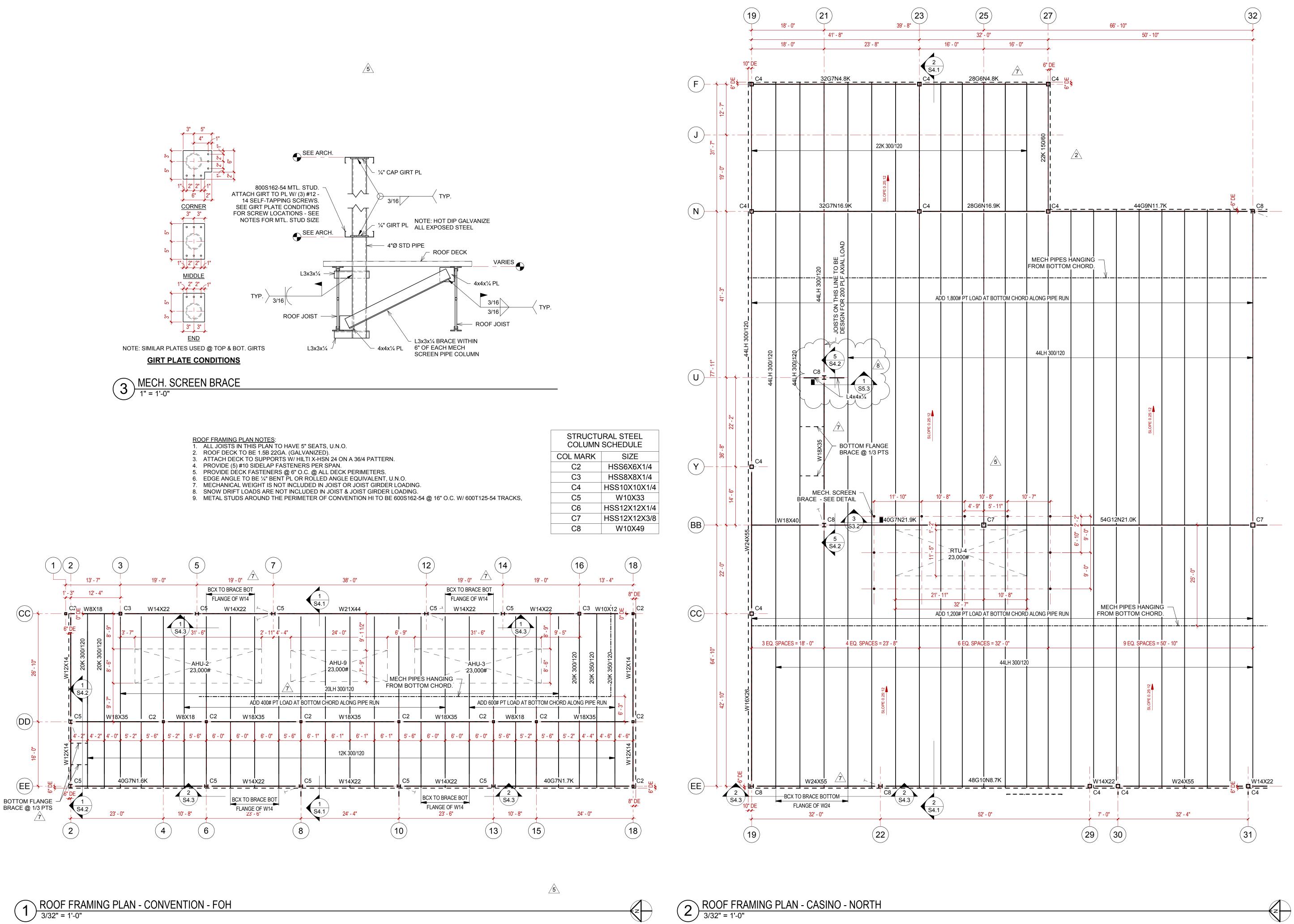
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DATE DESCRIPTION 04/05/18 ADDENDUM #01 04/27/18 ADDENDUM #05 05/08/18 ADDENDUM #07

8 05/11/18 ADDENDUM #08 JOB NUMBER:

03/27/18 17-06 

ROOF FRAMING **PLANS** 



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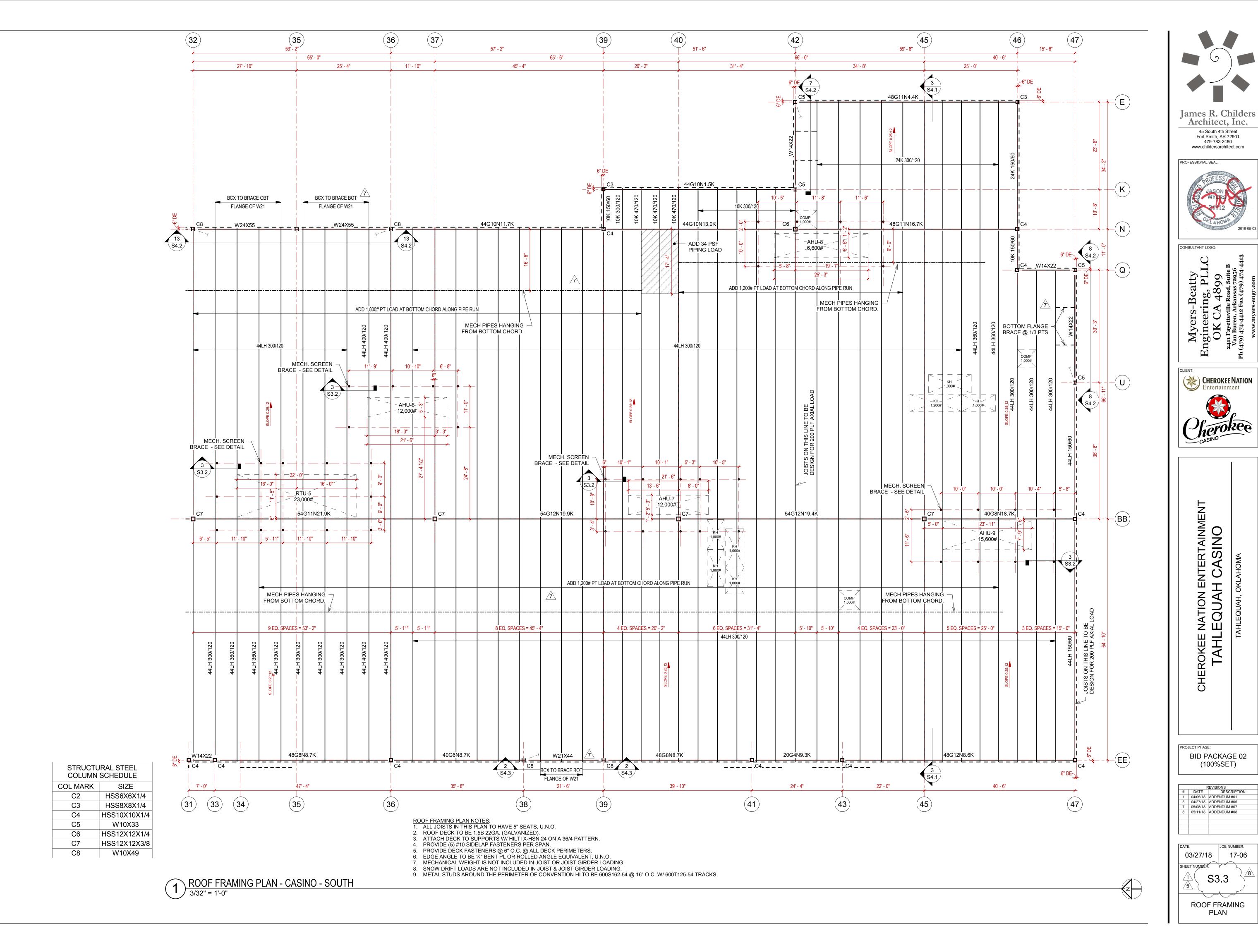
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JOB NUMBER: 03/27/18 17-06 S3.2

> **ROOF FRAMING PLANS**



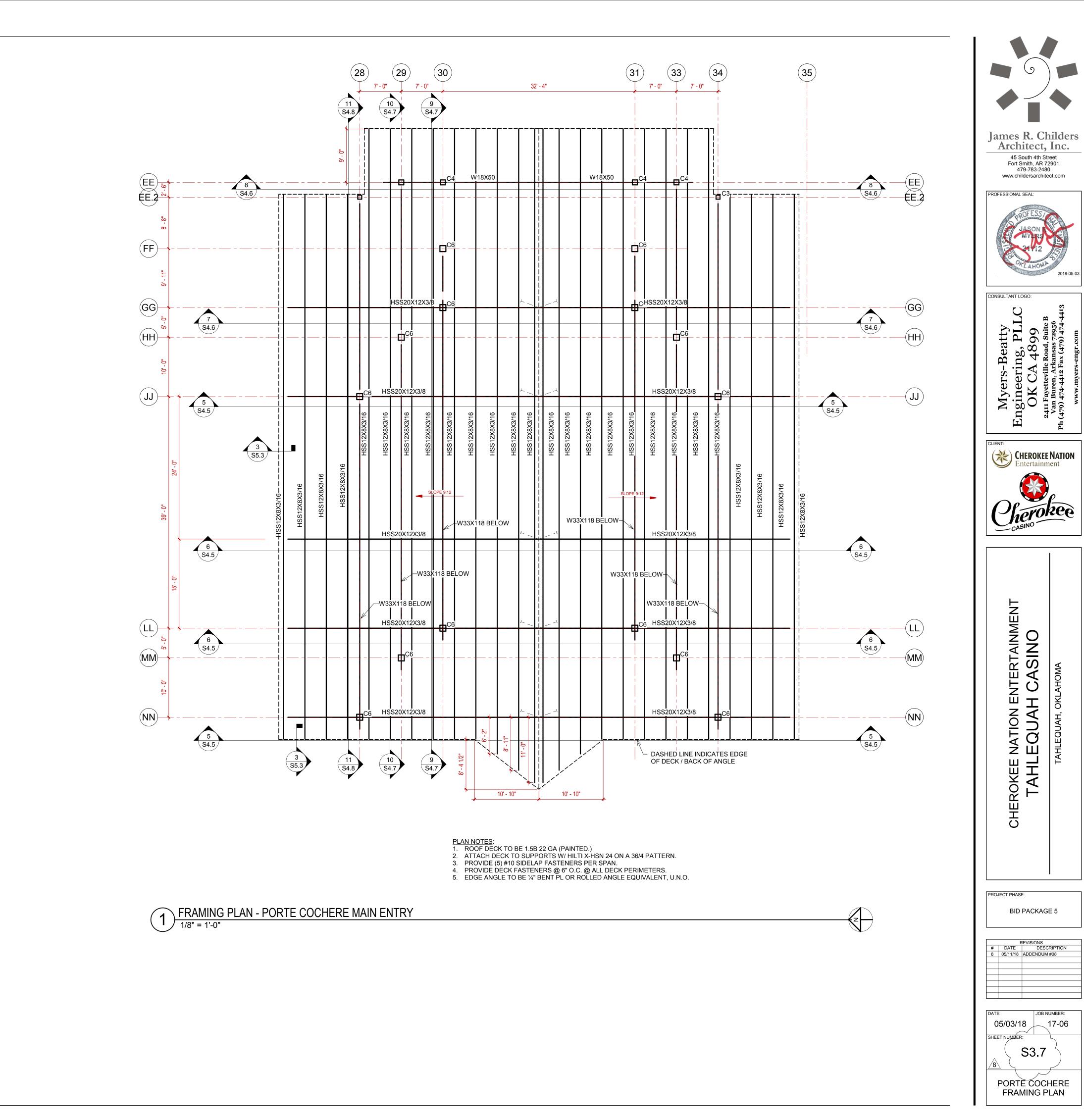
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> **ROOF FRAMING** PLAN

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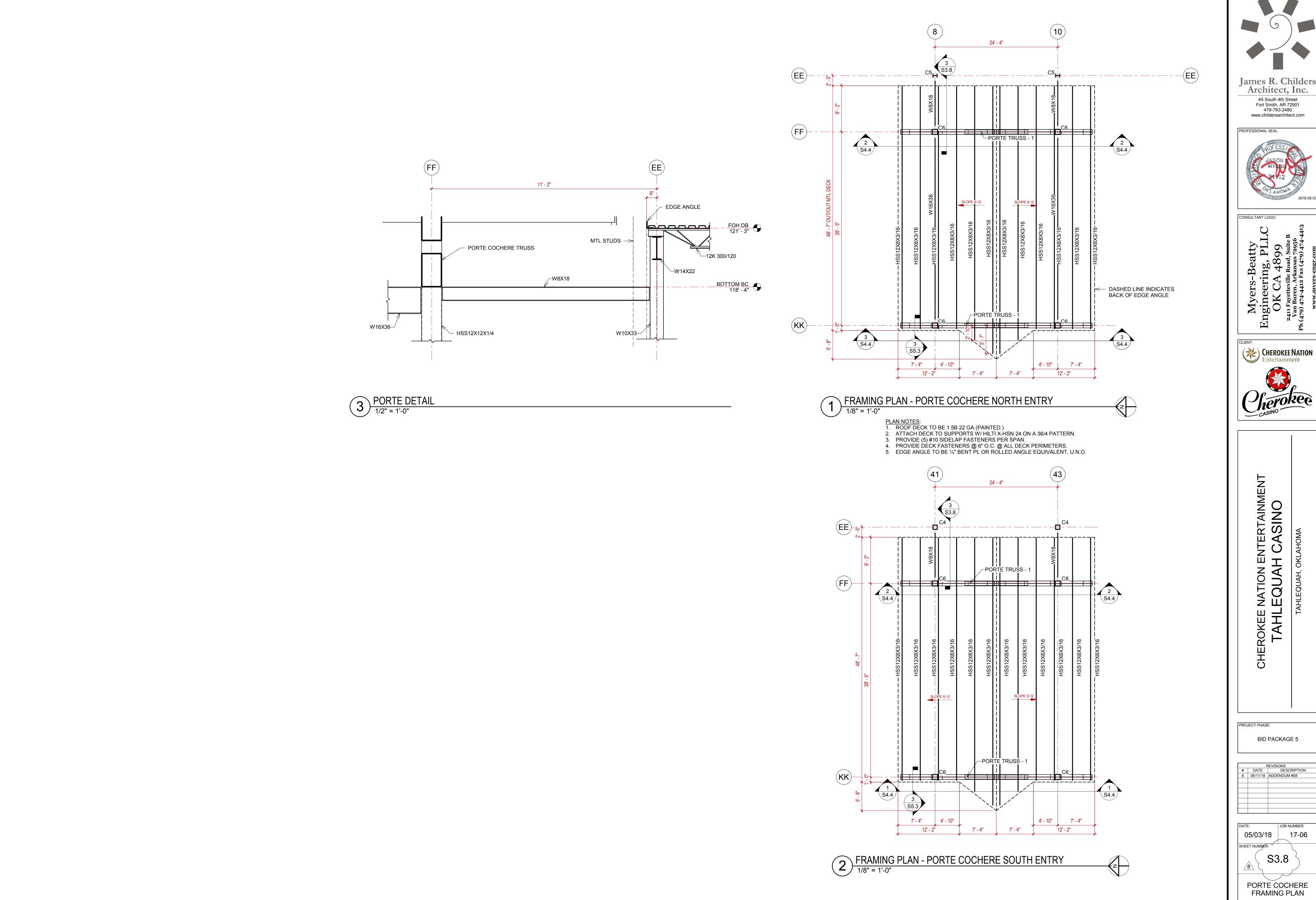
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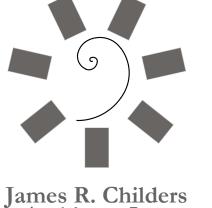
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TAHLEQUAH CASINO PROJECT PHASE: BID PACKAGE 5 # DATE DESCRIPTION
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S3.7





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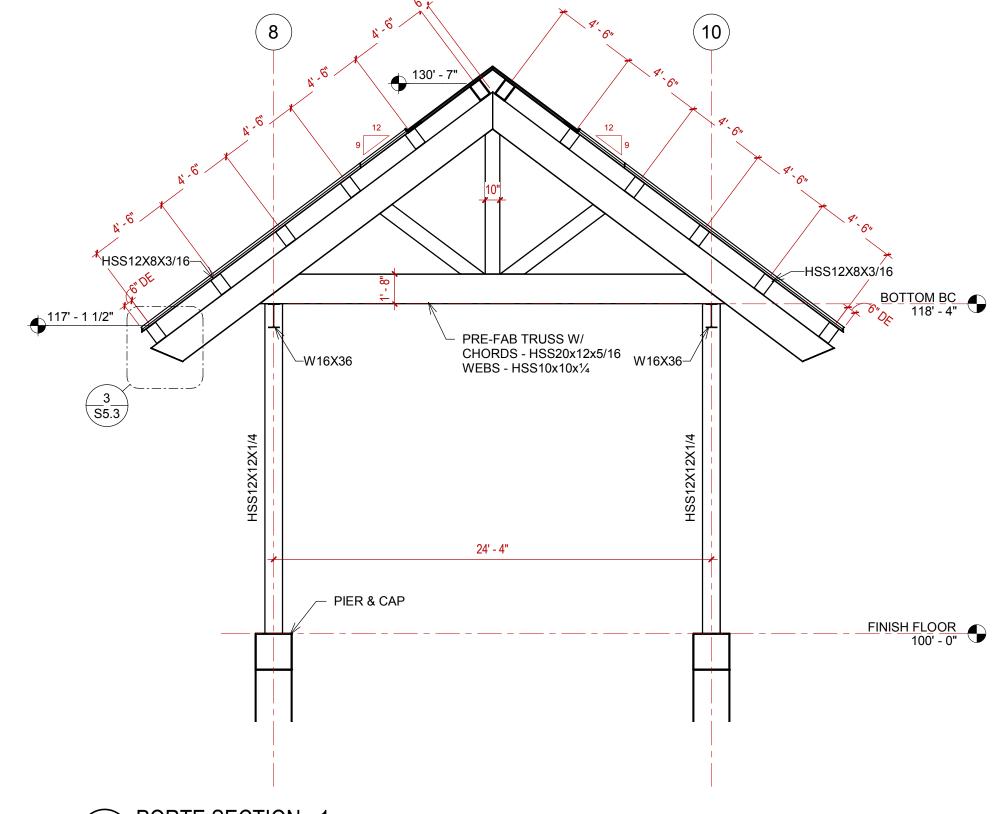
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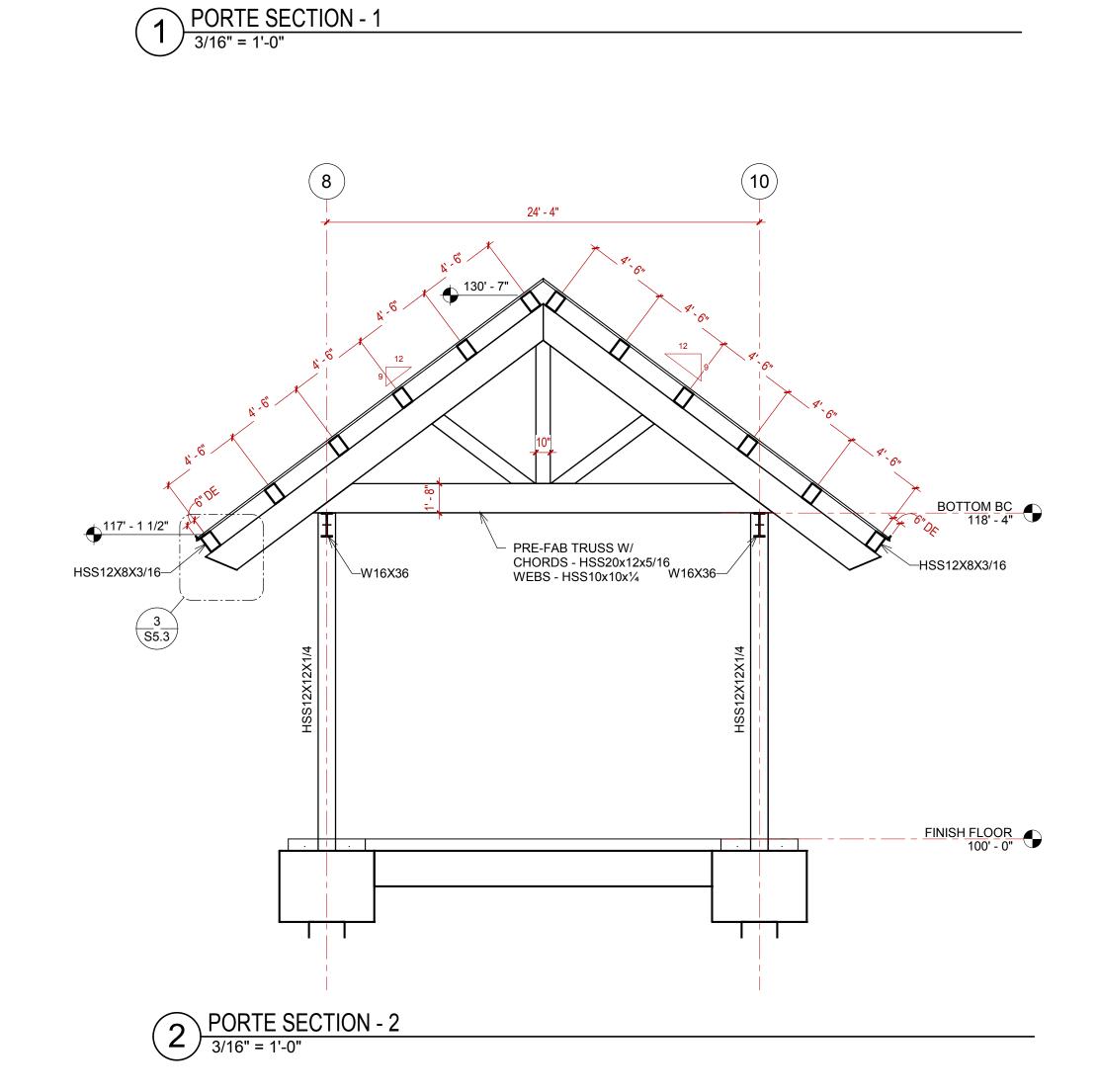
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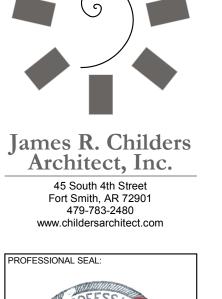
S3.8 PORTE COCHERE FRAMING PLAN

117' - 1 1/2"

3
S5.3











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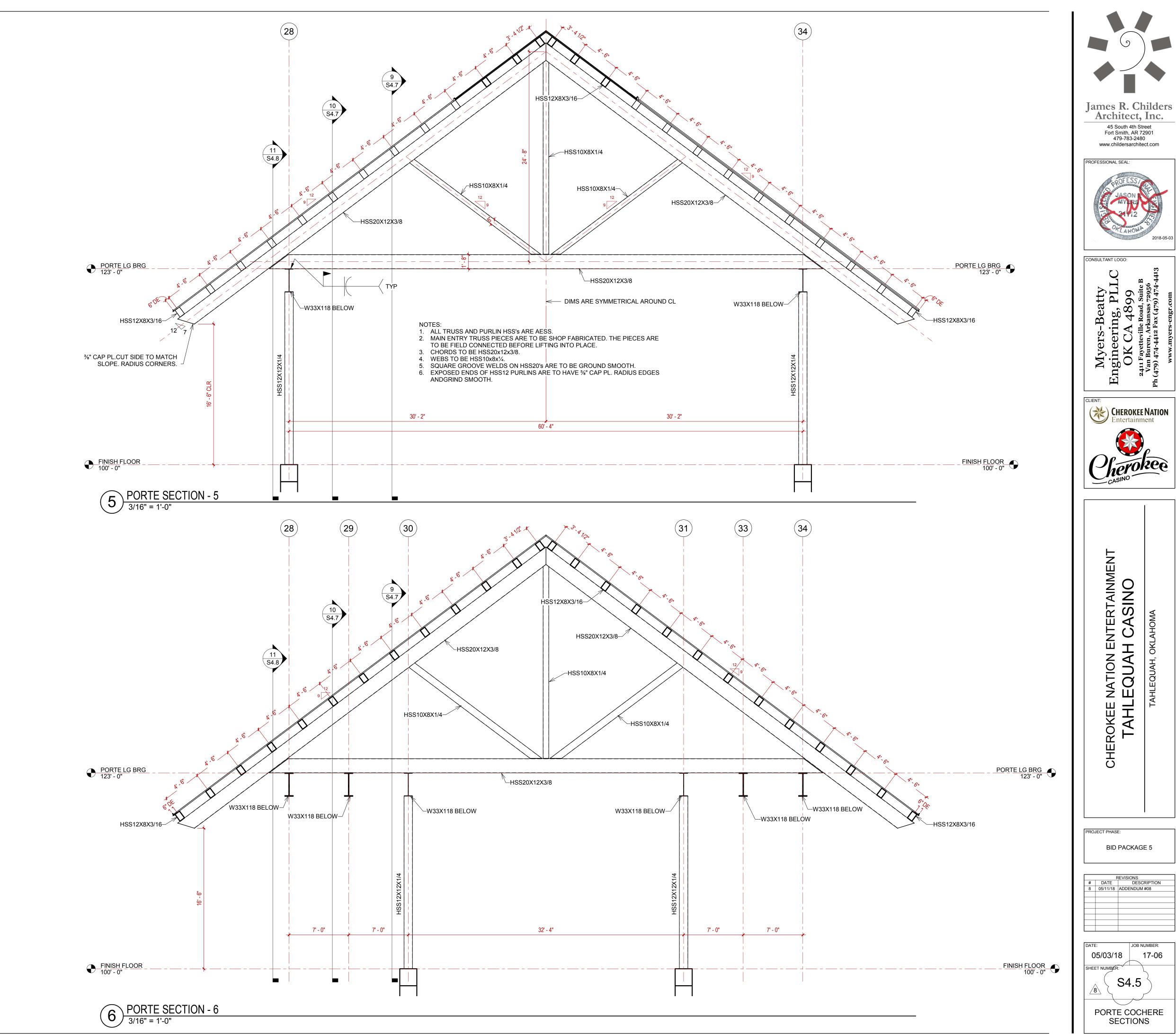
TAHLEQUAH. OKLAHOMA

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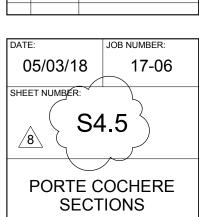
PORTE COCHERE SECTIONS

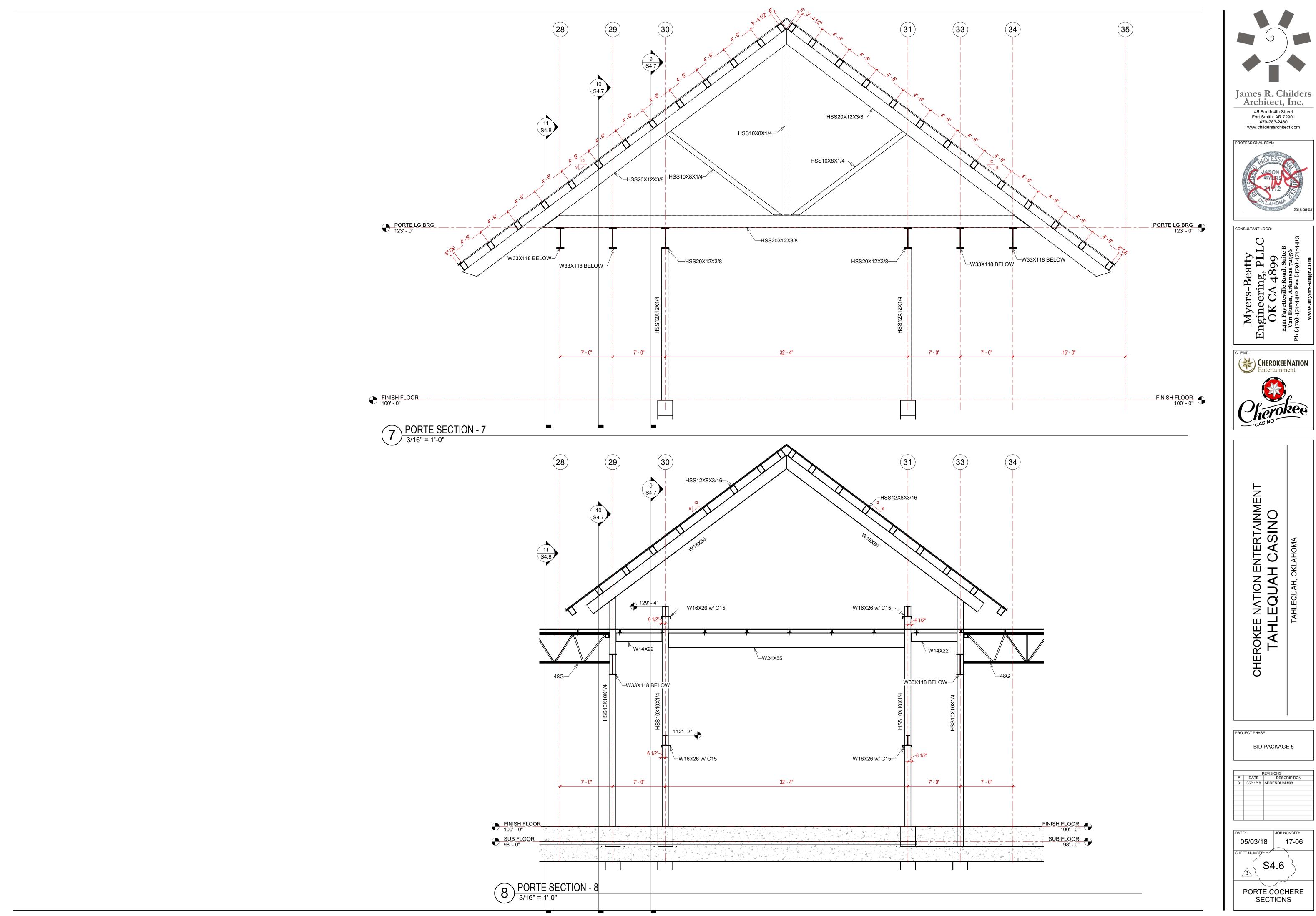




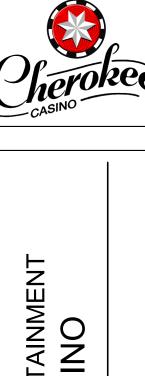
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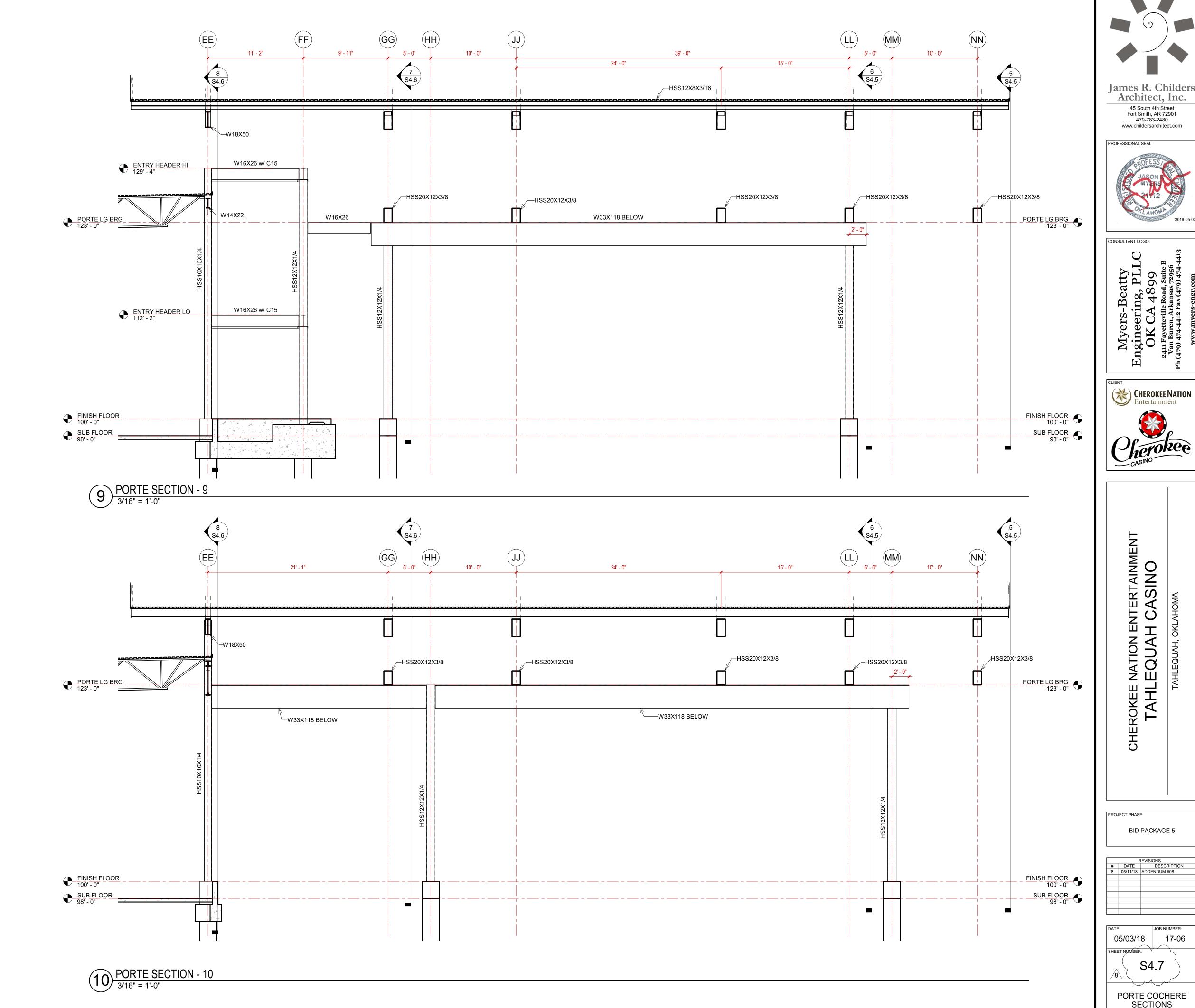
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05/03/18 17-06 PORTE COCHERE SECTIONS



0 4 8 16 1/8" = 1'-0"

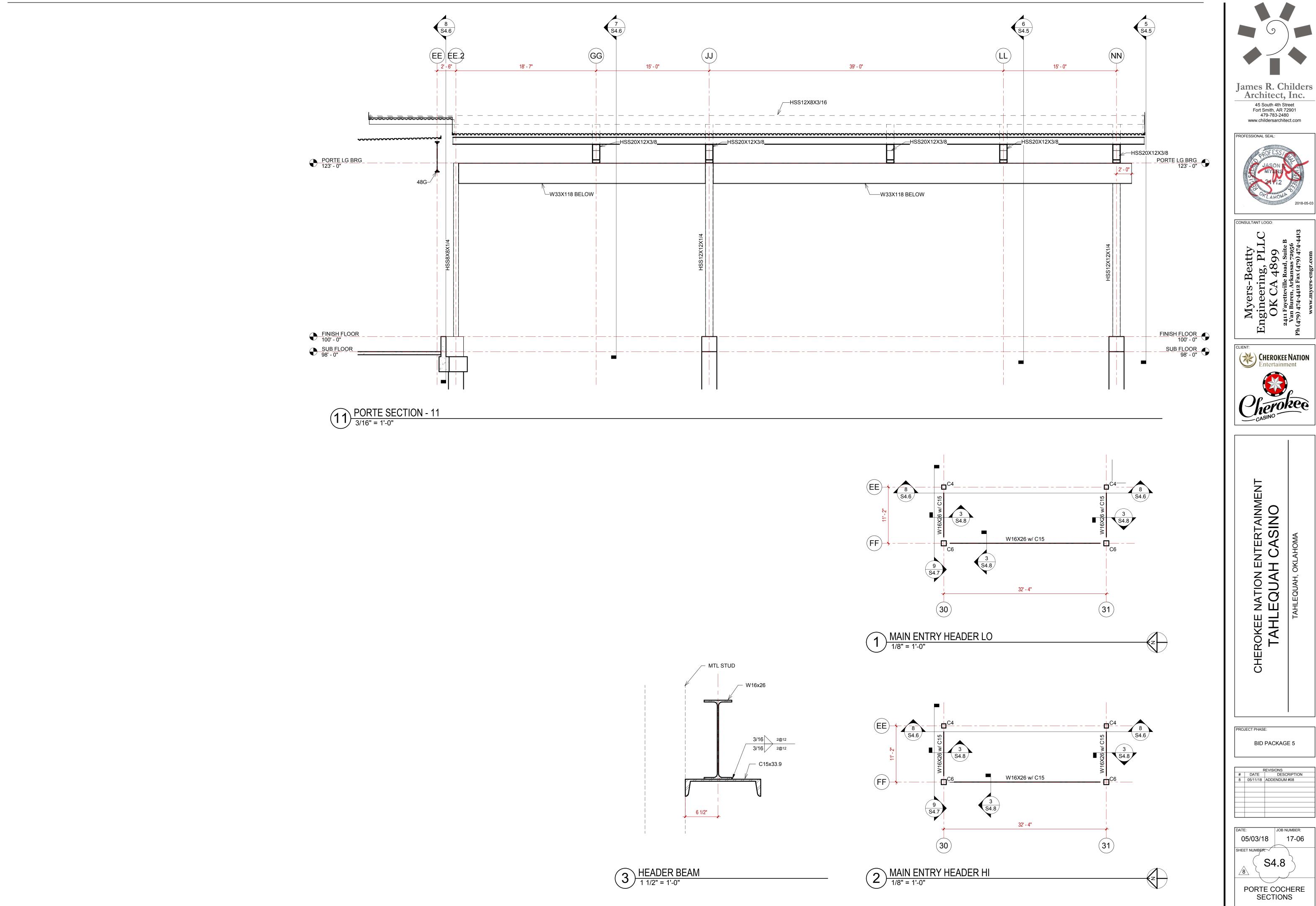
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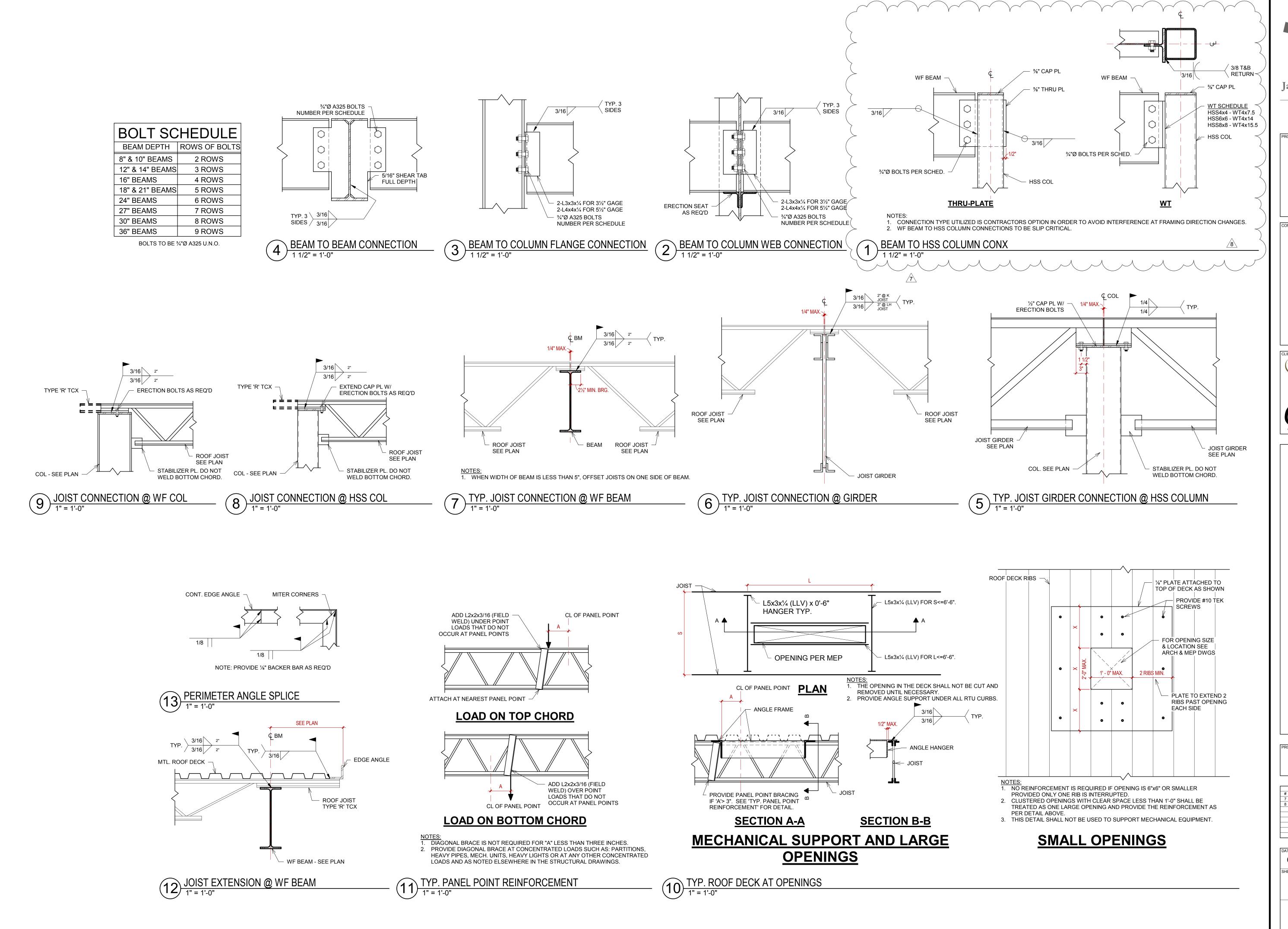
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S4.8 PORTE COCHERE SECTIONS



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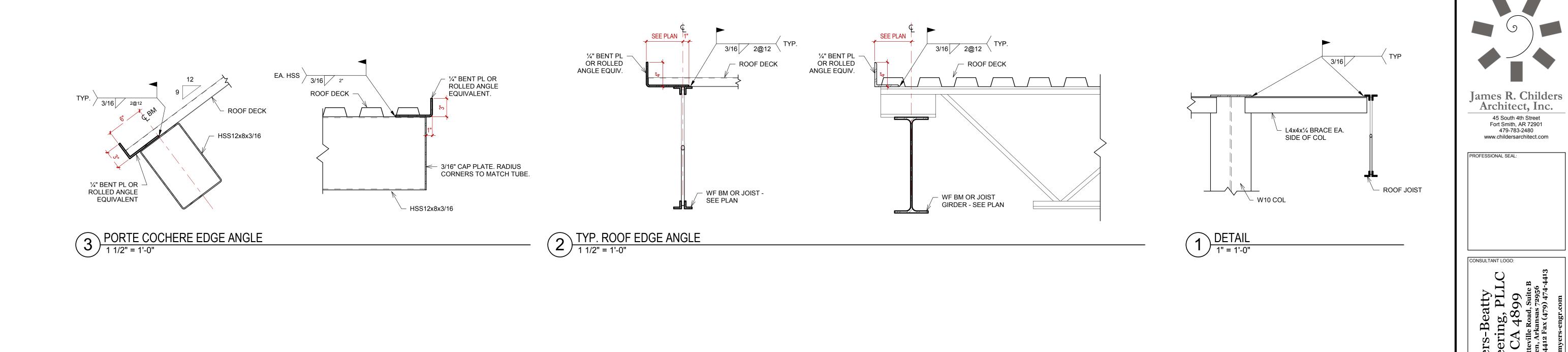
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> > STRUCTURAL **DETAILS**







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