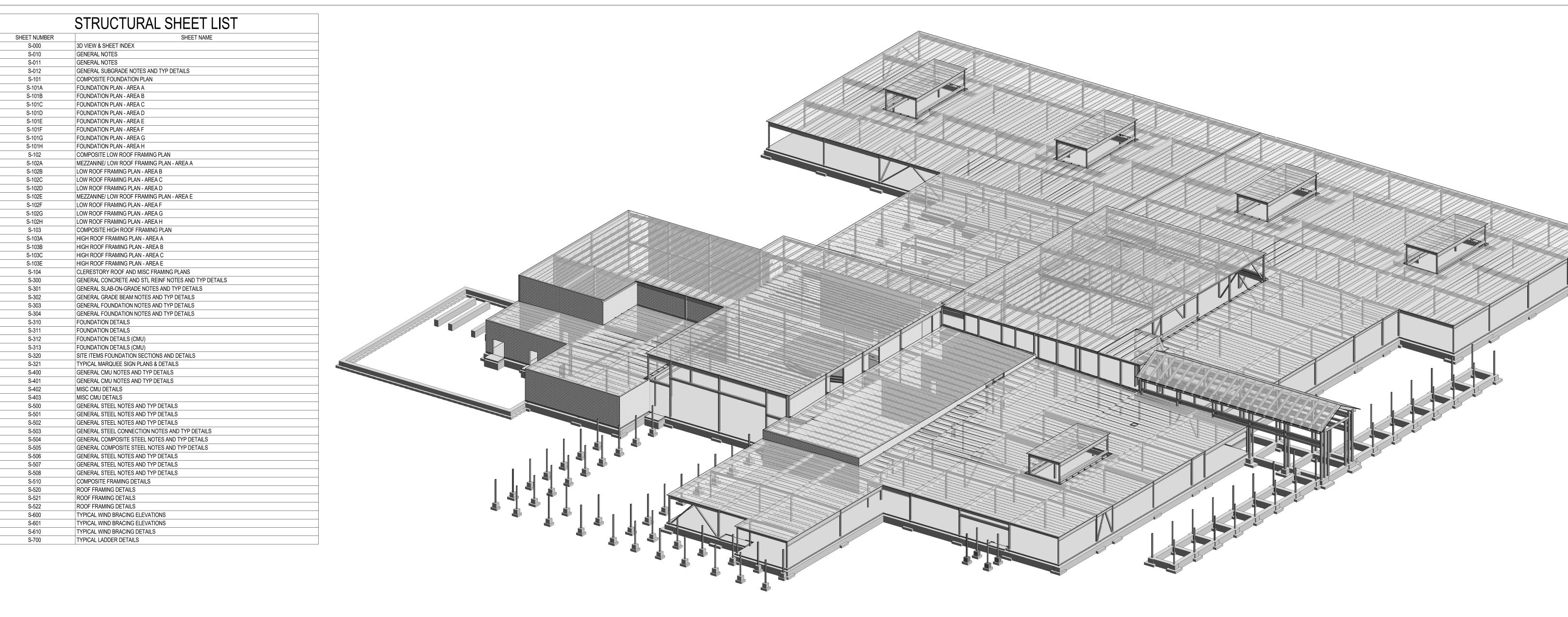
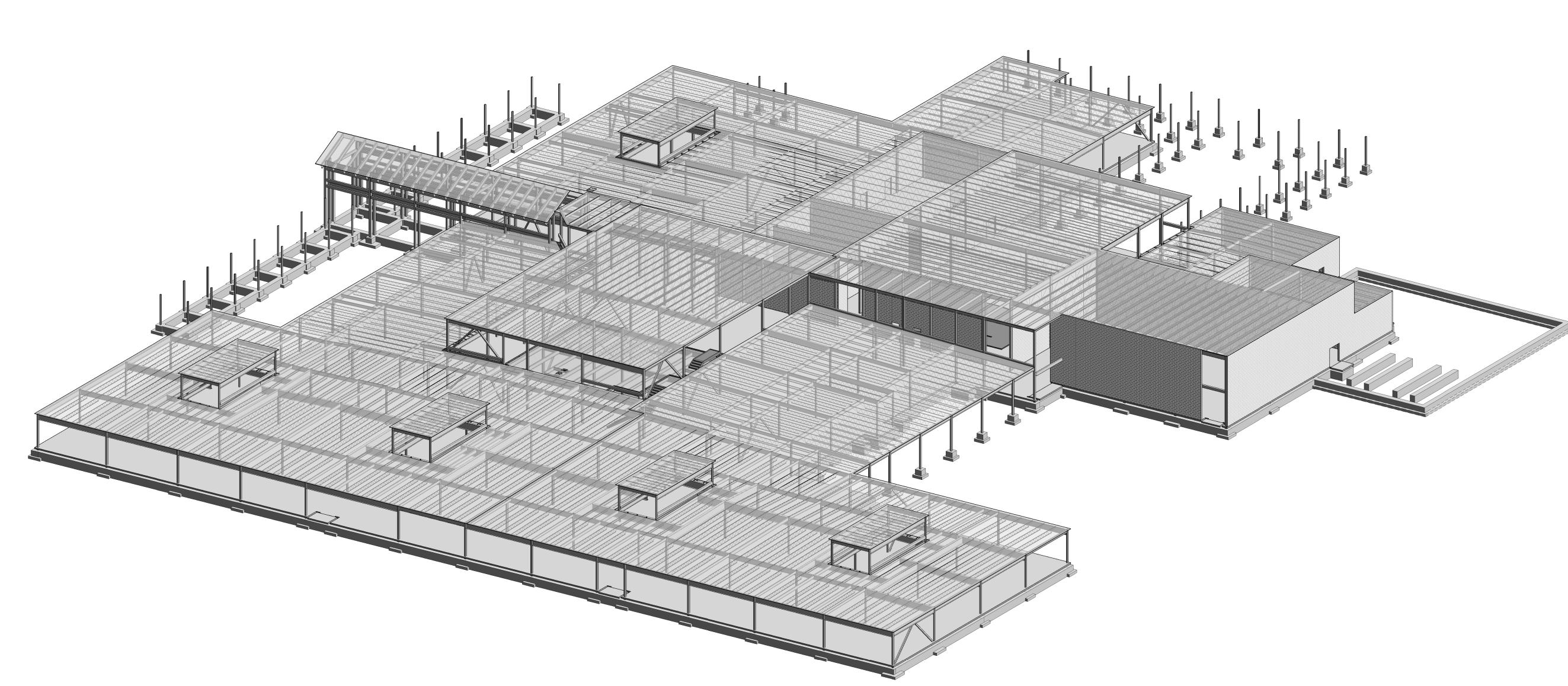
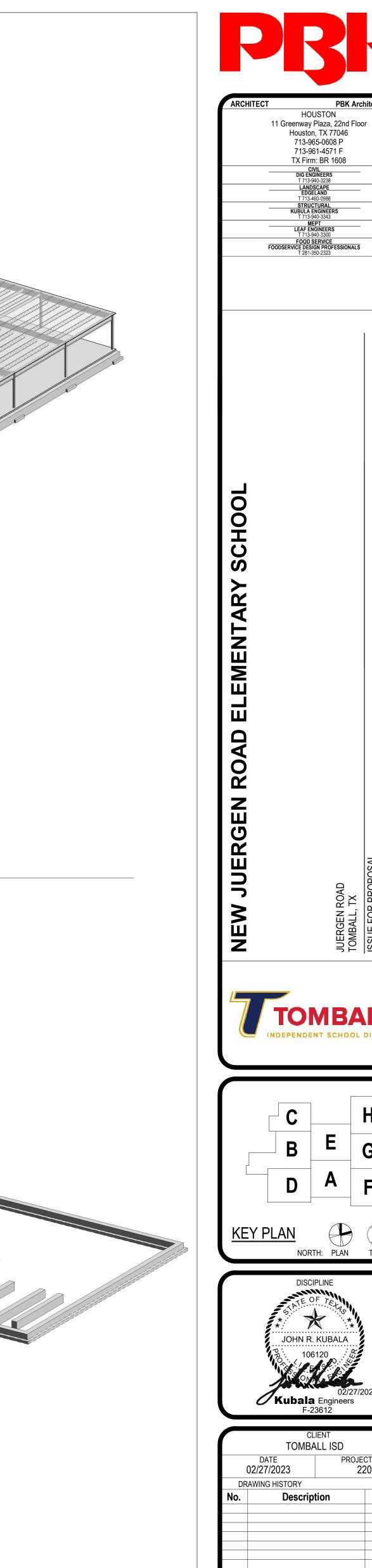
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CHECKED BY: ES DRAWN BY:	VIEWS ARE PROVIDED FOR A GENERAL UNDERSTANDING OF THE OVERALL STRUCTURAL FRAME. NOT ALL STRUCTURAL ELEMENTS ARE NECESSARILY SHOWN. THESE VIEWS SHOULD NOT BE USED FOR BIDDING, DETAILING OR ERECTION.
JD	
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3D VIEW 1

3D VIEW 2





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TOMBALL
INDEPENDENT SCHOOL DISTRICT NORTH: PLAN TRUE **ISSUE FOR PROPOSAL 3D VIEW & SHEET INDEX** Kubala

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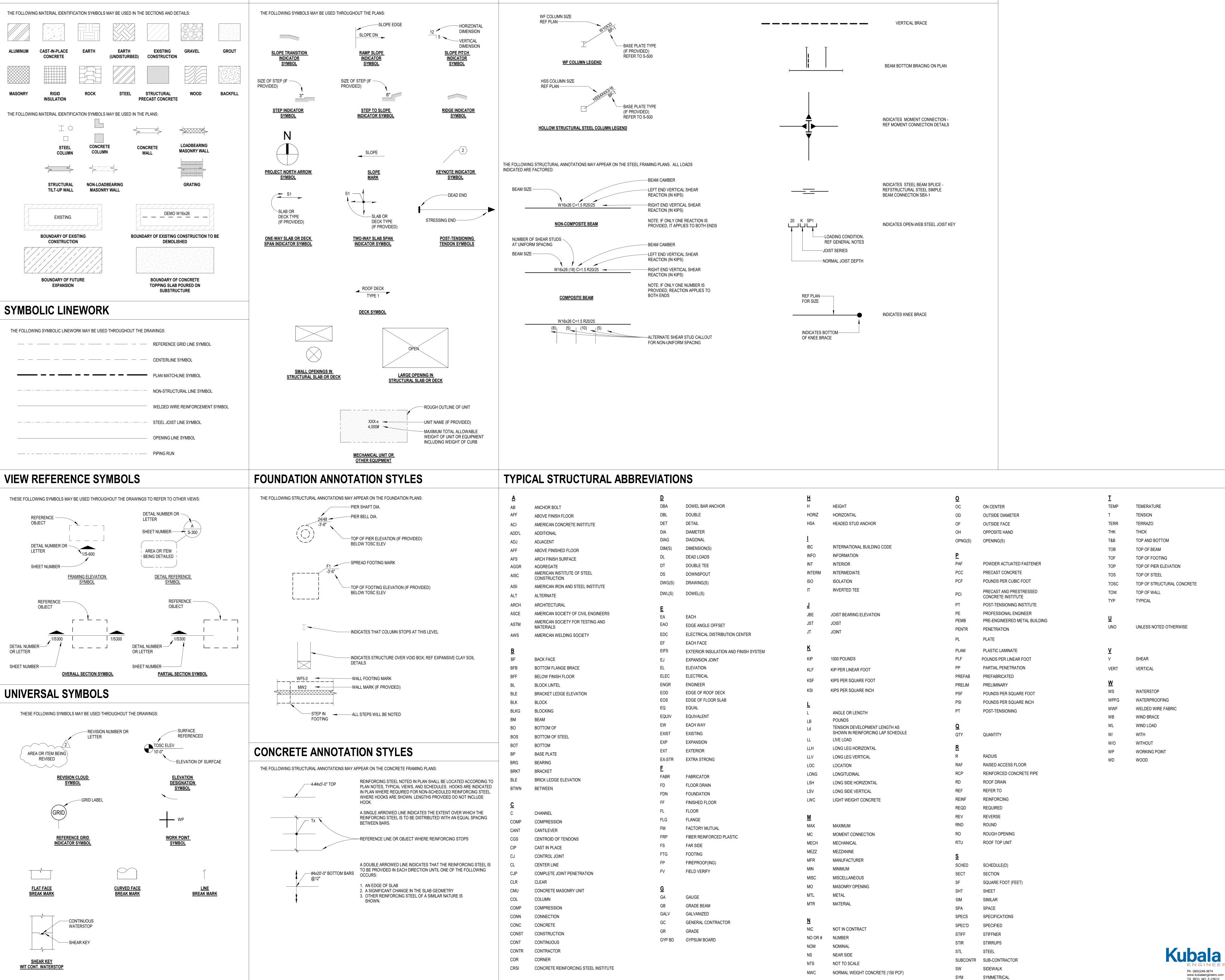
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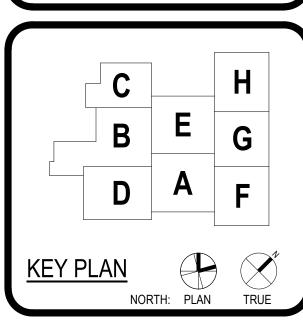
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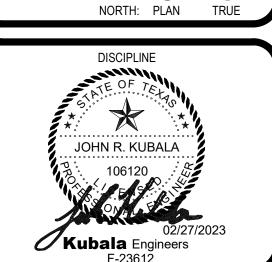


STEEL ANNOTATION STYLES



11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm: BR 1608 FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS





TOMBALL ISD DATE PROJECT NUMBER 02/27/2023 220137 DRAWING HISTORY				
No.	Descript	tion	Date	
	ISSUE FOR	PROPOSAL		
BU	ILDING NUMBER			
CENEDAL NOTES				
GENERAL NOTES				

TX. REG. NO. F-23612

TO THE ATTENTION OF THE ARCHITECT FOR RESOLUTION.

. THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE IBC 2018. ALL CODES AND SPECIFICATIONS LISTED ABOVE SHALL INCLUDE ALL AMENDMENTS AND ADDENDA IN FORCE AT THE DATE OF THE CONTRACT DOCUMENTS.

GENERAL

1. TYPICAL DETAILS SHOWN ON THE DRAWINGS SHALL APPLY TO ALL SIMILAR LIKE CONDITIONS OCCURRING ON THE PROJECT WETHER OR NOT THEY ARE KEYED IN AT EACH PARTICULAR LOCATION. **MISCELLANEOUS:**

1. WHERE CONFLICTS EXIST BETWEEN THE VARIOUS PUBLICATIONS AS SPECIFIED HEREIN, THE STRICTER REQUIREMENTS SHALL GOVERN UNLESS NOTED OTHERWISE.WHERE CONFLICTS EXIST BETWEEN THE VARIOUS PARTS OF THE STRUCTURAL CONTRACT DOCUMENTS (STRUCTURAL DOCUMENTS, SPECIFICATIONS) AS SPECIFIED HEREIN, THE STRICTER REQUIREMENTS SHALL GOVERN.

2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS, FABRICATION OF ANY STRUCTURAL MEMBERS, AND ERECTION IN THE FIELD. 3. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF

LOCATIONS AND DETAILS FOR THESE ITEMS PRIOR TO FABRICATION OR CONSTRUCTION OF THE STRUCTURE. ANY CONFLICTS BETWEEN THESE ITEMS AND THE BUILDING STRUCTURE SHALL BE BROUGHT

CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND 4. SLEEVES AND BLOCKOUTS REQUIRED FOR PASSAGE OF DUCTWORK, PIPING, DRAINS, CONDUIT, ETC., AND ANCHORS REQUIRED FOR ANCHORING EQUIPMENT AND PIPING ARE NOT GENERALLY INDICATED ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL DETERMINE SUCH REQUIREMENTS FROM OTHER SERIES DRAWINGS, SUBCONTRACTORS, AND SUPPLIERS AND SHALL COORDINATE THE

5. VERIFY, OR ESTABLISH, LOCATIONS AND DIMENSIONS OF ALL FRAMED OPENINGS RELATED TO EQUIPMENT OR DUCTWORK, INCLUDING INSULATION, IF ANY. WHERE SUBSTANTIAL RELOCATION OR RECONFIGURATION IS REQUIRED, SUBMIT A DRAWING TO THE ARCHITECT FOR REVIEW.

6. MATERIALS OR PRODUCTS SUBMITTED FOR APPROVAL WHICH ARE NOT AS SPECIFIED IN THE DOCUMENTS SHALL BE ACCOMPANIED BY A CURRENT ES REPORT (BY ICC EVALUATION SERVICE, INC.) OR ICBO REPORT (BY INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS). MATERIALS OR PRODUCTS THAT DO NOT HAVE AN ES OR ICBO REPORT INDICATING THE SUBSTITUTED MATERIAL OR PRÓDUCT TO BE EQUAL TO THAT SPECIFIED, WILL NOT BE CONSIDERED.

7. IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SHOWN OR SPECIFIED IN SIMILAR CONDITIONS.

8. THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND REPORT ANY DISCREPANCY BETWEEN EACH SET OF DRAWINGS AND WITHIN EACH SET OF DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBERS.

9. ALL HEAVILY LOADED VEHICLES, CONCRETE TRUCKS AND CRANES SHALL NOT BE DRIVEN ACROSS GRADE BEAMS OR BUILDING SLABS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO THE SLAB INDUCED FROM THIS TYPE OF EQUIPMENT.

10. ERECTION OF STRUCTURAL STEEL MAY NOT BEGIN UNTIL CONCRETE FOUNDATION HAS CURED FOR A MINIMUM OF THREE DAYS. STRUCTURAL STEEL OR OTHER HEAVY LOADS SHALL NOT BE STOCKPILED ON ANY SLAB UNTIL IT HAS CURED FOR A MINIMUM OF SEVEN DAYS.

11. NOTE THAT THE GROUND FLOOR SLAB IS A GROUND SUPPORTED SLAB AT GRADE AS PER THE DESIGN RECOMMENDED IN THE SOIL REPORT. IT IS NOT A STRUCTURAL SLAB AND AS SUCH IT IS NOT DESIGNED FOR ANY EXTERNAL UPWARD OR DOWNWARD LOADS, IT IS INTENDED TO BE ENTIRELY SUPPORTED BY THE PREPARED GROUND UNDER THE SLAB. THE CONTRACTOR SHOULD NOTE THAT THE PERFORMANCE OF THE SLAB AS DESIGNED AND INTENDED BY THE SOIL ENGINEER IS HIGHLY DEPENDENT ON HOW WELL THE CONTRACTOR FOLLOWS THE SITE PREPARATION INSTRUCTION IN THE SOIL

12. ALL STRUCTURAL ELEMENTS OF THE PROJECT HAVE BEEN DESIGNED BY THE STRUCTURAL ENGINEER TO RESIST THE REQUIRED CODE VERTICAL AND LATERAL FORCES THAT COULD OCCUR IN THE FINAL COMPLETED STRUCTURE ONLY. THE ABILITY OF THE STRUCTURAL FRAME TO RESIST THE REQUIRED CODE FORCES DERIVES FROM THE COMPLETE INSTALLATION OF THE LATERAL FORCE RESISTING SYSTEMS AND DIAPHRAGMS DESCRIBED BELOW. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL REQUIRED BRACING DURING CONSTRUCTION TO MAINTAIN THE STABILITY AND SAFETY OF ALL STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PROCESS UNTIL THE LATERAL-LOAD RESISTING OR STABILITY-PROVIDING SYSTEM IS COMPLETELY INSTALLED AND ALL DESIGNATED CONCRETE ELEMENTS (IF ANY) HAVE REACHED A MINIMUM OF 75% OF THEIR DESIGN STRENGTH.

13. THE STRUCTURE HAS BEEN DESIGNED FOR THE LOADS IDENTIFIED WITHIN THESE STRUCTURAL DRAWINGS THAT ARE ANTICIPATED TO BE APPLIED TO THE FINAL STRUCTURE ONCE COMPLETED AND OCCUPIED. THE CONTRACTOR SHALL NOT OVERLOAD THE STRUCTURE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING THE ADEQUACY OF THE STRUCTURE TO SUPPORT ANY APPLIED CONSTRUCTION LOADS, INCLUDING THOSE DUE TO CONSTRUCTION VEHICLES OR EQUIPMENT, MATERIAL HANDLING OR STORAGE, SHORING OR RESHORING, OR ANY OTHER CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL SUBMIT CALCULATIONS SIGNED AND SEALED BY AN ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED VERIFYING THE ADEQUACY OF THE STRUCTURE FOR ANY PROPOSED CONSTRUCTION LOADS THAT ARE IN EXCESS OF THE STATED DESIGN LOADS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE TO DESIGN OR CHECK THE STRUCTURE FOR LOADS APPLIED TO THE STRUCTURE FOR ANY CONSTRUCTION ACTIVITY.

SPECIAL INSPECTIONS:

SPECIAL INSPECTION WORK AND THE FINAL LETTER OF COMPLIANCE HAVE NOT BEEN INCLUDED IN THE STRUCTURAL ENGINEERS SCOPE OF SERVICES. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING THE SERVICES OF THE SPECIAL INSPECTOR AND THE TESTING LABORATORY. SPECIAL INSPECTIONS CAN BE PROVIDED BY AN INDEPENDENT SPECIAL INSPECTOR WHO IS APPROVED BY THE BUILDING AUTHORITY OR THE ENGINEER OF RECORD. THE SPECIAL INSPECTION WORK DOES NOT INCLUDE THE TESTING LABORATORY SERVICES AS CALLED FOR ON THE DRAWINGS. ARRANGEMENTS FOR SPECIAL INSPECTIONS SHOULD BE MADE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE OWNER IF SPECIAL INSPECTIONS ARE REQUIRED ON THE APPROVED PERMIT DRAWINGS AND FOR NOTIFYING THE TESTING LABORATORY AND SPECIAL INSPECTOR IN A TIMELY MANNER BEFORE CONSTRUCTION OPERATIONS CONTINUE. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK REQUIRING INSPECTIONS WITHOUT THE TESTING LABORATORY'S OR SPECIAL INSPECTOR'S PRESENCE. THE STRUCTURAL ENGINEER WILL NOT PROVIDE A FINAL LETTER OF COMPLIANCE AFTER THE WORK IS COMPLETE UNLESS HE HAS REVIEWED ALL SPECIAL INSPECTIONS/TESTING LABORATORY TEST RESULTS

CHAPTER 17 OF THE 2018 INTERNATIONAL BUILDING CODE, INCLUDING ANY LOCAL AMENDMENTS, REQUIRES SPECIAL INSPECTION ON THE FOLLOWING ITEMS:

SOILS (SECTION 1705.6) FABRICATED ITEMS (SECTION 1705.10)

CONCRETE CONSTRUCTION (SECTION 1705.3) STEEL (SECTION 1705.2)

MASONRY (SECTION 1705.4)

DESIGN CRITERIA:

DEAD LOADS:

1. DEAD LOADS INCLUDE THE WEIGHT OF THE STRUCTURAL COMPONENTS AND ALLOWANCES FOR PERMANENT PARTITIONS, FEITHMANENT FIXTURES, FINISHES, ROOFING, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION MATERIALS SHOWN OR SPECIFIED.

2. LOADINGS FOR MECHANICAL ROOMS ARE BASED ON THE WEIGHTS OF ASSUMED EQUIPMENT, AS INDICATED ON THE MECHANICAL DRAWINGS (INCLUDING THE WEIGHT OF CONCRETE PADS, WHERE INDICATED). ANY CHANGES IN TYPE, SIZE, LOCATION OR NUMBER OF PIECES OF EQUIPMENT SHOULD BE REPORTED TO THE ARCHITECT FOR VERIFICATION OF THE ADEQUACY OF SUPPORTING MEMBERS PRIOR TO THE PLACEMENT OF SUCH EQUIPMENT.

3. DESIGN DEAD LOADING IS AS FOLLOWS:

ELEVATOR MACHINE ROOM

SELF WEIGHT + 25 PSF COLLATERAL SELF WEIGHT + 25 PSF COLLATERAL

150 PSF (UNREDUCIBLE)

SPECIAL INSPECTIONS FOR WIND RESISTANCE (SECTION 1705.11)

LIVE LOADS:

FLOOR

1. DESIGN LIVE LOADING IS AS FOLLOWS:

20 PSF, 300# CONCENTRATED LOAD (REDUCIBLE) TYPICAL FLOORS 100 PSF, 1000# CONCENTRATED LOAD (REDUCIBLE) ALL SLABS-ON-GRADE MECHANICAL/ELECTRICAL ROOM (MIN.) 150 PSF (UNREDUCIBLE)

HANDRAILS AND GUARDRAILS 50 PLF OR 200# APPLIED AT TOP RAIL IN ANY DIRECTION LIBRARY, COMPUTER ROOM 150 PSF (UNREDUCIBLE) LIGHT STORAGE 125 PSF (UNREDUCIBLE)

125 PSF (UNREDUCIBLE) STAIRWAYS AND EXITS 100 PSF + 300# CONCENTRATED LOAD AT TREAD MIDSPAN

SNOW LOADS:

1. DESIGN SNOW LOADING IS AS FOLLOWS:

GROUND SNOW LOAD, Pg SNOW LOAD IMPORTANCE FACTOR SNOW RISK CATEGORY SNOW THERMAL FACTOR, C

SNOW EXPOSURE FACTOR, Ce FLAT SNOW LOAD, Pf 3.5 PSF UNIFORM ROOF DESIGN SNOW LOAD 8.5 PSF

SEISMIC LOADS:

1. THE STRUCTURE AND COMPONENTS OF THE BUILDING HAVE BEEN DESIGNED IN ACCORDANCE WITH AFOREMENTIONED BUILDING CODE WITH THE FOLLOWING CRITERIA:

RISK CATEGORY IMPORTANCE FACTOR Ss = 0.107gMAPPED SPECTRAL RESPONSE COEFFICIENT: S1 = 0.057gSITE CLASS Sds = 0.114g DESIGN SPECTRAL RESPONSE COEFFICIENTS:

Sd1 = 0.092gSEISMIC DESIGN CATEGORY LATERAL SYSTEM STEEL ORDINARY MOMENT FRAMES BASE SHEAR V = 47K

SEISMIC RESPONSE COEFFICIENT CS = 0.041

RESPONSE MODIFICATION FACTOR, R = 3.5

ANALYSIS PROCEDURE EQUIVALENT LATERAL FORCE PROCEDURE

WIND LOADS:

. WIND PRESSURES ARE BASED ON THE PROVISIONS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-10, HARRIS COUNTY AMENDMENTS, AND THE FOLLOWING CRITERIA:

A. WIND DESIGN DATA (USED FOR PRESSURE DETERMINATION FOR THE DESIGN OF BUILDING)

136 MPH (3-SECOND GUST) (ULTIMATE) 2. WIND OCCUPANCY CATEGORY WIND IMPORTANCE FACTOR. I

6. WIDTH OF END ZONE, 2a B. WIND-BORNE DEBRIS DATA*** (USED TO DETERMINE IF BUILDING IS LOCATED WITHIN A WIND-BORNE DEBRIS REGION)

1. WIND-BORNE DEBRIS BASIC WIND SPEED TRIGGER, V 140 MPH (3-SECOND GUST) (ULTIMATE)

2. BASIC WIND SPEED, V 3. WIND OCCUPANCY CATEGORY 4. WIND-BORNE DEBRIS PROTENTION REQUIRED?

*** - THE INFORMATION SHOWN IN WIND LOADS SECTION 1.B IS ONLY PROVIDED TO INDICATE IF THE BUILDING IS WITHIN A WIND-BORNE DEBRIS AREA. THIS SECTION DOES NOT APPLY TO ANY COMPONENTS THAT ARE LISTED AS DELEGATED DESIGN. ALL DELEGATED DESIGN COMPONENTS SHALL BE DESIGN FOR THE WIND DESIGN DATA AND DESIGN WIND PRESSURES PROVIDED IN SECTION 1.A AND 1.C.

+/-0.18

C. DESIGN WIND PRESSURES (FOR ALL ROOFS WITH 1/4" / 1'-0" SLOPE)

1. MAIN WIND-FORCE RESISTING SYSTEM (MWFRS)

 WALLS (WW+LW) 0'-15' 15'-20' 41.2 PSF 42.4 PSF 20'-25' 25'-28' 43.1 PSF 43 4 PSF

28'-29.7'

WIND EXPOSURE CATEGORY

5. INTERNAL PRESSURE COEFFICIENT, Gcpi

2. COMPONENTS AND CLADDING I. WALLS (AREA = 75 SF)

INTERIOR ZONE 42.0 PSF END ZONE 47.4 PSF III. ROOF UPLIFT (GROSS) - ROOF ATTACHMENTS (AREA = 10 SF) (AT LOW SLOPE ROOFS)

INTERIOR ZONE 1 INTERIOR ZONE 73.3 PSF END ZONE 96.6 PSF 131.7 PSF CORNER ZONE **OVERHANG INTERIOR ZONE*** 66.2 PSF 89.6 PSF OVERHANG END ZONE* **OVERHANG CORNER ZONE*** 124.7 PSF

IV. ROOF UPLIFT (GROSS) - JOISTS (AREA = 300 SF) (AT LOW SLOPE ROOFS)

INTERIOR ZONE 1 INTERIOR ZONE 49.5 PSF END ZONE 66.1 PSF CORNER ZONE 70.7 PSF 46.4 PSF **OVERHANG INTERIOR ZONE*** OVERHANG END ZONE* 49.0 PSF 53.5 PSF OVERHANG CORNER ZONE*

V. ROOF UPLIFT (GROSS) - GIRDERS (AREA > 700 SF) (AT LOW SLOPE ROOFS)

28' TO 54' 23.6 PSF 16.9 PSF WINDWARD ROOF OVERHANGS 26.5 PSF (UPWARD) (ADD TO WINDWARD ROOF PRESSURE)

* - OVERHANG PRESSURES IN THE TABLE ABOVE ASSUME AN INTERNAL PRESSURE COEFFICIENT (Gcdi) OF 0.0 AND OVERHANG SOFFIT PRESSURES EQUALS ADJACENT WALL PRESSURE (WHICH INCLUDES INTERNAL PRESSURE OF 7.0 PSF)

VI. ROOF UPLIFT (GROSS) - ROOF ATTACHMENTS (AREA = 10 SF) (SLOPED ENTRY ROOF) NEGATIVE ZONE 1 & 2e NEGATIVE ZONE 2n, 2r, 3e 100.0 PSF

NEGATIVE ZONE 3r 116.7 PSF 111.9 PSF OVERHANG ZONE 2n & 2r** 134.3 PSF OVERHANG ZONE 3e** OVERHANG 3r** 142.9 PSF

VII. ROOF UPLIFT (GROSS) - JOISTS (AREA = 300 SF) (SLOPED ENTRY ROOF)

INTERIOR ZONE 1' INTERIOR ZONE 51.5 PSF END ZONE 73.9 PSF CORNER ZONE 67.2 PSF OVERHANG INTERIOR ZONE* 82.1 PSF 63.4 PSF OVERHANG END ZONE* 85.8 PSF **OVERHANG CORNER ZONE***

VIII. ROOF UPLIFT (GROSS) - GIRDERS (AREA > 700 SF) (SLOPED ENTRY ROOF)

22.8' TO 45.6' 22.6 PSF 16.2 PSF WINDWARD ROOF OVERHANGS 25.4 PSF (UPWARD)

(ADD TO WINDWARD ROOF PRESSURE) ** - OVERHANG PRESSURES IN THE TABLE ABOVE ASSUME AN INTERNAL PRESSURE COEFFICIENT (Gcpi) OF 0.0 AND OVERHANG SOFFIT PRESSURES EQUALS ADJACENT WALL PRESSURE (WHICH INCLUDES INTERNAL PRESSURE OF 6.7 PSF)

IX. ROOF UPLIFT (GROSS) - ROOF ATTACHMENTS (AREA = 10 SF) (CLERESTORY ROOFS)

END ZONE 61.5 PSF CORNER ZONE 106.4 PSF X. ROOF UPLIFT (GROSS) - JOISTS (AREA = 300 SF) (CLERESTORY ROOFS)

INTERIOR ZONE

47.7 PSF END ZONE CORNER ZONE 75.3 PSF XI. ROOF UPLIFT (GROSS) - GIRDERS (AREA > 700 SF) (CLERESTORY ROOFS)

32.6 PSF 0' TO 15.8' 15.8' TO 31.6' 20.9 PSF 15.0 PSF WINDWARD ROOF OVERHANGS 23.5 PSF (UPWARD)

MISCELLANEOUS LOADS:

ADDITIO

MECHANIC

PIPE SIZE

(DIAMETER)

4"

1. ALL JOISTS ALONG PIPE RUN SHALL BE DESIGNED FOR SUSPENDED PIPE WEIGHT. IT'S THE GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE HOW OFTEN PIPES WILL BE HUNG (5'-0" OC OR 10'-0" OC) SO THAT PROPER LOADING MAY BE ACCOUNTED FOR. IT IS RECOMMENDED TO HANG FROM EACH JOIST (GC MUST COORDINATE WITH MEP CONTRACTOR TO ENSURE SAME HANGING PATTERN IS FOLLOWED):

NAL JOIST DEAD-LOAD FOR CAL PIPE LOADS WITH WATER				
PERPENDICULAR PARALLEL CONDITION CONDITION				
110 LBS AT 10'-0"	11 PLF			
170 LBS AT 10'-0"	17 PLF			
240 LBS AT 10'-0"	24 PLF			
320 LBS AT 10'-0"	32 PLF			
510 LBS AT 10'-0"	51 PLF			
750 LBS AT 10'-0"	75 PLF			

(ADD TO WINDWARD ROOF PRESSURE)

51 PLF — — — 51 PLF — — — — — 51 PLF — — — < 51,PLF > 51 RLF -→ 51 PLF ----- 51 PLF --- 51 PLF --- --JOIST —POINT LOAD 5'-0" OR | 5'-0" OR (MAY OCCUR AT -CONCENTRATED LOAD ANYWHERE WITHIN THIS MAX- GC MAX- GC MAX- GC ANY POINT) AREA - REF NOTE 1 COORD COORD COORD W/ MEP W/ MEP W/ MEP WHERE JOISTS ARE PERPENDICULAR WHERE JOISTS ARE PARALLEL

PIPE RUN JOIST LOADING WHERE PIPES RUN PERPENDICULAR TO JOISTS, JOISTS THAT ARE SUPPORTING PIPES SHALL BE DESIGNED FOR ADDITIONAL

CONCENTRATED DEAD LOAD AT ANY POINT ALONG JOIST SPAN WITHING THE HATCHED AREA.

2. ARCHITECTURAL BARRIER ACT STANDARD:

REQUIRED CAPACITY **GRAB BAR** 250 POUNDS ANY DIRECTION TUB OR SHOWER SEAT 250 POUNDS ANY DIRECTION **FASTENERS & MOUNTING DEVICES** 250 POUNDS ANY DIRECTION

BUILDING MOVEMENT AND DEFLECTION:

A. ROOF MEMBERS DEFLECTION LIMIT LIVE LOAD MAXIMUM ALLOWABLE DEFLECTION SPAN/360 2. TOTAL LOAD MAXIMUM ALLOWABLE DEFLECTION SPAN/240

B. FLOOR MEMBERS

D. BUILDING FRAME

LIVE LOAD MAXIMUM ALLOWABLE DEFLECTION

LIVE LOAD MAXIMUM ALLOWABLE DEFLECTION

2. TOTAL LOAD MAXIMUM ALLOWABLE DEFLECTION C. MEMBERS SUPPORTING MASONRY

SPAN/360 SPAN/240

SPAN/600 OR 3/8 INCH

 MAXIMUM ALLOWABLE STORY DRIFT HEIGHT/500 (TOTAL BUILDING HEIGHT)

STRUCTURAL SUBMITTALS:

PECIFICATION SECTION	<u>ITEM</u>	SUBMITTAL
03 10 00	FORMWORK SHOP DRAWINGS	FOR INFORMATION ONLY/SIGNED AND SEALE
03 10 00	MANUFACTURER'S PRODUCT DATA	FOR APPROVAL
03 10 00	CONSTRUCTION JOINT LAYOUT	FOR INFORMATION ONLY
03 20 00	STEEL REINFORCING SHOP DRAWINGS	FOR APPROVAL
03 20 00	EMBEDDED METAL ASSEMBLY SHOP DRAWINGS	FOR APPROVAL
03 20 00	MANUFACTURER'S PRODUCT INFORMATION FOR BAR SUPPORTS	FOR APPROVAL
03 20 00	MILL TEST CERTIFICATE OF STEEL REINFORCING	FOR INFORMATION ONLY
03 20 00	QUALIFICATION DATA	FOR INFORMATION ONLY
03 20 00	WELDING CERTIFICATES	FOR INFORMATION ONLY
03 30 00	CONCRETE MIX DESIGN	FOR APPROVAL
03 30 00	SLAB ON GRADE AND COMPOSITE SLAB CONSTRUCTION JOINT	FOR APPROVAL
03 30 00	LAYOUT AND POUR SEQUENCE	FOR AFFROVAL
03 30 00	MATERIAL CERTIFICATES FOR CONCRETE RELATED PRODUCTS	FOR APPROVAL
03 30 00	PRODUCT DATA	FOR INFORMATION ONLY
03 30 00	QUALIFICATION DATA	FOR INFORMATION ONLY
03 30 00	MATERIAL TEST REPORTS	FOR INFORMATION ONLY
03 30 00	FLOOR SURFACE FLATNESS	FOR INFORMATION ONLY
03 30 00	FIELD QUALITY CONTROL REPORTS	FOR INFORMATION ONLY
03 30 00	MINUTES OF PREINSTALLATION CONFERENCE	FOR INFORMATION ONLY
03 52 16	LIGHTWEIGHT INSULATING CONCRETE SHOP DRAWINGS	FOR APPROVAL
03 52 16	MANUFACTURER'S PRODUCT DATA	FOR APPROVAL
03 52 16	LIGHTWEIGHT CONCRETE MIX DESIGN	FOR APPROVAL
03 52 16	PRODUCT CERTIFICATES	FOR INFORMATION ONLY
03 52 16	MATERIAL TEST REPORTS	FOR INFORMATION ONLY
03 52 16	RESEARCH EVALUATION REPORT	FOR INFORMATION ONLY
03 52 16	FIELD QUALITY CONTROL TEST	FOR INFORMATION ONLY
04 22 00	CMU WALL SHOP DRAWINGS	FOR APPROVAL
04 22 00	MIX DESIGN (MORTAR AND GROUT)	FOR APPROVAL
04 22 00	MASONRY COMPRESSIVE STRENGTH	FOR APPROVAL
04 22 00	SAMPLES FOR SELECTION AND VERIFICATION	FOR APPROVAL
04 22 00	MATERIAL CERTIFICATES	FOR INFORMATION ONLY
04 22 00	COLD/HOT WEATHER PROCEDURES	FOR INFORMATION ONLY
04 22 00	QUALIFICATION DATA	FOR INFORMATION ONLY
05 12 00	STRUCTURAL STEEL FRAMING SHOP DRAWINGS	FOR APPROVAL
05 12 00	STEEL CONNECTION CALCULATIONS	FOR INFORMATION ONLY/SIGNED AND SEALE
05 12 00	WELDING PROCEDURE SPECIFICATION	FOR INFORMATION ONLY
05 12 00	WELDING CERITIFICATES	FOR INFORMATION ONLY
05 12 00	MILL TEST CERTIFICATE OF STRUCTURAL STEEL	FOR INFORMATION ONLY
05 12 00	PAINT COMPATIBILITY CERTIFICATE	FOR INFORMATION ONLY
05 12 00	QUALIFICATION DATA	FOR INFORMATION ONLY
05 21 00	STEEL JOIST FRAMING SHOP DRAWINGS	FOR APPROVAL
05 21 00	WELDING CERTIFICATES	FOR INFORMATION ONLY
05 21 00	MILL CERTIFICATES	FOR INFORMATION ONLY
05 21 00	ENGINEERING ANALYSIS OF SPECIAL JOISTS	FOR INFORMATION ONLY/SIGNED AND SEALE
		FOR INFORMATION ONLY/SIGNED AND SEALED
05 21 00 05 21 00	ENGINEERING ANALYSIS OF COMPOSITE JOISTS PRODUCT DATA	FOR INFORMATION ONLY
05 31 13	STEEL FLOOR DECK SHOP DRAWINGS	FOR APPROVAL
05 31 13 05 31 13	PRODUCT CERTIFICATE PRODUCT TEST REPORT	FOR INFORMATION ONLY FOR INFORMATION ONLY
00 01 10	TROBUST TEST NET SIXT	TOTAIN ONWINTION ONLY
05 31 23	STEEL ROOF DECK SHOP DRAWINGS	FOR APPROVAL
05 31 23	PRODUCT CERTIFICATE	FOR INFORMATION ONLY
05 31 23	PRODUCT TEST REPORT	FOR INFORMATION ONLY
05 40 00	COLD FORMED METAL STUD SHOP DRAWINGS	FOR APPROVAL
05 40 00	COLD FORMED METAL STUD CALCULATIONS	FOR INFORMATION ONLY/SIGNED AND SEALEI
05 40 00	PRODUCT TEST REPORT	FOR INFORMATION ONLY
05 40 00	RESEARCH REPORT	FOR INFORMATION ONLY
05 40 00	WELDING CERTIFICATE	FOR INFORMATION ONLY
_		
05 50 00	METAL FABRICATION-LADDERS	FOR APPROVAL/SIGNED AND SEALED
05 50 00	METAL FABRICATION-TOILET PARTITION SUPPORT	FOR APPROVAL/SIGNED AND SEALED
		FOR APPROVAL/SIGNED AND SEALED

DELEGATED STRUCTURAL DESIGN OF COMPONENTS:

1. A STRUCTURAL COMPONENT IS AN INDIVIDUAL STRUCTURAL MEMBER DESIGNED TO BE PART OF A STRUCTURAL SYSTEM. A LIST OF STRUCTURAL COMPONENTS THAT ARE TO BE DESIGNED BY THE COMPONENT SUPPLIERS'S ENGINEERS IS PROVIDED IN THESE PLANS AND SPECIFICATIONS.

2. A COMPONENT'S DELEGATED ENGINEER AND RESPONSIBLE CHARGE, SHALL BE A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT

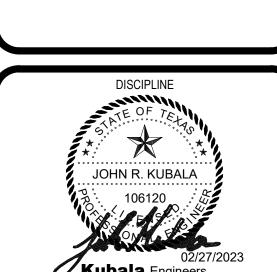
3. ALL DRAWINGS AND CALCULATIONS FOR COMPONENTS IN QUESTION, OR THEIR ASSEMBLY INTO STRUCTURAL SYSTEMS SHALL REQUIRE THE SEAL AND SIGNATURE OF THE DELEGATED ENGINEER WHO PREPARED THEM.

4. THE DESIGN OF PRE-ENGINEERED SYSTEMS SPECIFIED IN THE CONTRACT DOCUMENTS WHICH ARE DESIGNED/ENGINEERED BY THE SYSTEM SUPPLIER IS THE SOLE RESPONSIBILITY OF THE SUPPLIER AND ITS DESIGN ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. SUBMITTALS OF SUCH SYSTEMS TO THE STRUCTURAL ENGINEER OF RECORD SHALL BE REVIEWED FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS WITH REGARD TO THE ARRANGEMENT AND/OR SIZES OF MEMBERS SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS AND THE SUPPLIERS INTERPRETATION OF THE DESIGN INFORMATION INCLUDED IN THE CONTRACT DOCUMENTS. SUCH REVIEW BY THE STRUCTURAL ENGINEER OF RECORD SHALL NOT IMPLY ANY RESPONSIBILITY FOR THE ACTUAL DESIGN OF SUCH SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DIMENSIONAL ACCURACY AND CONFORMANCE WITH THE INFORMATION CONTAINED IN CONTRACT

5. SEE APPLICABLE SECTIONS OF GENERAL NOTES AND SPECIFICATIONS FOR THE APPROPRIATE DESIGN RESPONSIBILITIES OF THE SUPPLIER AND ITS LICENSED ENGINEER.



11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm: BR 1608 FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS



F-23612

TOMBALL ISD PROJECT NUMBER 220137 DRAWING HISTORY Date Description **ISSUE FOR PROPOSAL BUILDING NUMBER GENERAL NOTES**

Kubala

TX. REG. NO. F-23612

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GENERAL FOUNDATION NOTES:

DATE OF REPORT:

 THE FOUNDATION DESIGN AND SUBSURFACE INFORMATION IS BASED ON THE GEOTECHNICAL INVESTIGATION REPORT AS FOLLOWS: GEOTECHNICAL CONSULTANT: ALPHA TESTING GEOTECHNICAL REPORT NUMBER: H221862 GEOTECHNICAL REPORT LOCATION: TOMBALL, TEXAS

SEPTEMBER 13, 2022

OF THE ADJACENT GRADE BEAM. SOIL RETAINERS ARE REQUIRED, GRADE BEAMS TO BE FORMED EACH SIDE.

2. ALL RECOMMENDATIONS THEREIN THAT RELATE TO THE WORK SHOWN ON THESE DRAWINGS SHALL BE USED. FOR ANY CONFLICTS BETWEEN THE GEOTECHNICAL REPORT AND THESE DRAWINGS, THE GC SHALL ISSUE A REQUEST FOR INFORMATION/CLARIFICATION.

3. GEOTECHNICAL REPORT IS AVAILABLE TO THE GENERAL CONTRACTOR UPON REQUEST TO THE OWNER. THE INFORMATION INCLUDED THEREIN MAY BE USED BY THE GENERAL CONTRACTOR FOR HIS GENERAL INFORMATION ONLY. THE ARCHITECT AND ENGINEER WILL NOT BE RESPONSIBLE FOR THE ACCURACY OR APPLICABILITY OF SUCH DATA THEREIN.

4. PREPARED GRADE AREA UNDER ALL BUILDING SLABS AND GRADE BEAMS SHALL BE COVERED WITH A 15 MIL WATER VAPOR BARRIER MEETING THE REQUIREMENTS OF ASTM E 1745 (LATEST EDITION), CLASS A OR BETTER WITH MAXIMUM WATER PERMEANCE OF 0.01 PERMS WHEN TESTED IN ACCORDANCE WITH ASTM E96. THE RETARDER/BARRIER/MEMBRANE SHALL BE INSTALLED AND LAPPED IN ACCORDANCE WITH

THE REQUIREMENTS OF ASTM E1643 (LATEST EDITION). PENETRATIONS SHALL BE SEALED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS. 5. WHERE VOID FORMS ARE REQUIRED, THESE FORMS SHALL BE CAPABLE OF SUPPORTING THE WEIGHT OF THE WET CONCRETE AND REINFORCEMENT. AFTER PLACEMENT ON THE SUBGRADE, THE FORMS SHALL BE TAPED AT ALL JOINTS. 1/8" THICK HARDBOARD SHALL BE LAID OVER THE TOP OF THE VOID FORMS PRIOR TO PLACEMENT OF THE REINFORCEMENT, AT LARGE AREAS AS REQUIRED. VOID FORMS SHALL BE SECURED TO THE SUBGRADE PER MANUFACTURER'S RECOMMENDATIONS. VOID FORMS SHALL BE WAX COATED FOR MOISTURE PROTECTION, RECTANGULAR IN PROFILE, AND EQUAL TO THE WIDTH

EARTHWORK STRUCTURAL TESTING AND INSPECTIONS:

1. UNLESS NOTED OTHERWISE BY THE OWNER OR ARCHITECT, THE GENERAL CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL ENGINEER OR OTHER AUTHORIZED INSPECTOR DURING EARTHWORK OPERATIONS, AND KEEP A COMPETENT TRAINED TECHNICIAN ASSIGNED TO THE PROJECT ON SITE DURING OPERATIONS. SERVICES PROVIDED SHALL INCLUDE:

A. OBSERVE STRIPPING OPERATIONS AND EVALUATE THE REQUIRED STRIPPING DEPTH DURING THESE OPERATIONS.

C. VERIFY THAT THE SUBGRADE IS SCARIFIED, MOISTURE CONDITIONED, AND LIME STABILIZED (IF REQUIRED) PER SUBGRADE PREPARATION.

B. OBSERVE PROOFROLLING OPERATIONS AFTER SITE STRIPPING AND DETERMINE IF ANY SOFT SPOTS NEED TO BE UNDERCUT TO FIRM SOILS, REPLACED WITH SELECT FILL AND RECOMPACTED.

D. THE SELECT FILL PAD MATERIAL SHALL BE TESTED FOR ACCEPTABILITY AND A MOISTURE DENSITY CURVE SHALL BE ESTABLISHED. SELECT FILL MATERIAL SHALL BE AS INDICATED ON SUBGRADE

E. VERIFY THAT THE SELECT FILL IS PLACED IN EIGHT INCH LOOSE LIFTS AND COMPACTED PER SUBGRADE PREPARATION.

F. SELECT FILL MATERIAL SHALL BE TESTED DURING PLACEMENT OF EACH LIFT FOR THE ATTERBERG LIMITS IN ACCORDANCE WITH ASTM D4318-98 METHOD B "STANDARD TEST METHOD FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS" TO VERIFY THAT THE SELECT FILL MATERIAL IS IN ACCORDANCE WITH THE ORIGINALLY APPROVED SELECT FILL MATERIAL. PROVIDE TESTS PER SUBGRADE PREPARATION.

G. PROVIDE FIELD MOISTURE TESTS FOR THE FULL DEPTH OF THE PAD PER SUBGRADE PREPARATION.

H. OBSERVE THE EXCAVATION DAILY AND ENSURE THAT THE CONTRACTOR MAINTAINS A CLEAN EXCAVATION THAT IS FREE OF WATER 100% OF THE TIME. CONTRACTOR SHALL PROVIDE PUMPS AS REQUIRED TO REMOVE WATER AT ALL TIMES.

J. OBSERVE GRADING OPERATIONS TO ENSURE THAT PROPER DRAINAGE AWAY FROM THE BUILDING PAD IS PROVIDED.

SUBGRADE PREPARATION:

1. THE CONTRACTOR SHALL READ THE GEOTECHNICAL REPORT AND BE THOROUGHLY FAMILIAR WITH SITE AND SUBGRADE INFORMATION GIVEN THEREIN. ALL SUBGRADE PREPARATION, FILL, FILL PLACEMENT, AND FOUNDATION CONSTRUCTION SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE STRUCTURAL DOCUMENTS AND THE GEOTECHNICAL REPORT, AND SHALL BE OBSERVED, TESTED, AND APPROVED BY THE PROJECT'S GEOTECHNICAL-ENGINEER-OF-RECORD (GER) PRIOR TO PROCEEDING WITH FOUNDATION CONSTRUCTION.

2. SITE PREPARATION FOR THE BUILDING PAD SHALL CONSIST OF THE REMOVAL OF EXISTING PAVEMENT, TOPSOIL, VEGETATION, ORGANIC MATTER, AND OTHER DEBRIS/UNSUITABLE SURFACE MATERIAL AS NECESSARY TO PROVIDE THE REQUIRED AMOUNT OF FILL UNDER THE BUILDING AND EXTENDING OUT BEYOND THE PERIMETER OF THE BUILDING AS SHOWN IN THE SITE PREPARATION DETAIL. PROPER SITE DRAINAGE SHOULD BE MAINTAINED DURING CONSTRUCTION SO THAT PONDING OF SURFACE RUNOFF DOES NOT OCCUR AND CAUSE CONSTRUCTION DELAYS AND/OR INHIBIT SITE ACCESS.

3. THE SUBGRADE SHALL BE PROOFROLLED WITH A HEAVY, RUBBER-TIRED VEHICLE (STATIC WEIGHT OF AT LEAST 20 TONS AND WITH TIRE PRESSURES OF AT LEAST 90 PSI). THE CONTRACTOR SHALL MAKE AT LEAST TWO COMPLETE PASSES OVER THE AREA WITH THE SECOND PASS PERPENDICULAR TO THE FIRST PASS. AREAS OF THE SUBGRADE THAT ARE OBSERVED TO BE SOFT OR WEAK SHALL BE OVEREXCAVATED AND REPLACED WITH PROPERLY COMPACTED SOILS EXHIBITING SIMILAR CLASSIFICATION, MOISTURE CONTENT, AND DENSITY AS THE ADJACENT IN-SITU SOILS, PROOFROLLING SHOULD BE PERFORMED UNDER THE DIRECT OBSERVATION OF THE GEOTECHNICAL ENGINEER OR HIS/HER REPRESENTATIVE.

4. PREPARE THE BUILDING SUBGRADE SOILS IN DIRECT ACCORDANCE WITH THE RECOMMENDATIONS LISTED IN THE "EARTHWORK" AND "FLOOR SLABS" SECTIONS OF THE GEOTECHNICAL REPORT. SUBGRADE SHAL BE SCARIFIED AND MOISTURE CONDITIONED TO A DEPTH OF SIX (6) INCHES AND THEN RECOMPACTED TO BETWEEN 95 AND 100 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR DENSITY TEST (ASTM D698). THE MOISTURE CONTENT SHALL BE BETWEEN OPTIMUM AND +4 PERCENT OF THE OPTIMUM MOISTURE CONTENT. PROVIDE A MINIMUM OF FOUR (4) FIELD DENSITY TESTS PER LIFT OR ONE (1) FOR EVERY 2.500 SQUARE FEET WHICHEVER IS GREATER. IF WET WEATHER CONDITIONS ARE ENCOUNTERED AND WILL NOT ALLOW FOR ADEQUATE SUBGRADE COMPACTION EFFORTS. THEN THE SUBGRADE SHALL BE LIME STABILIZED WITH 6 TO 8 PERCENT BY VOLUME HYDRATED LIME IN ACCORDANCE WITHTHE LIME ASSOCIATION RECOMMENDATIONS. THE OPTIMUM LIME CONTENT SHALL BE DETERMINED AT THE TIME OF CONSTRUCTION BY A LIME SERIES TEST TO DETERMINE THE REQUIRED OPTIMUM LIME CONTENT NECESSARY TO ACHIEVE A pH OF 12.4 WHILE ACHIEVING A PLASTICITY INDEX OF LESS THAN 20. PRIOR TO PROCEEDING WITH THE SELECT FILL PLACEMENT, THE LIME STABILIZED SUBGRADE SHALL BE TESTED AND APPROVED BY THE TESTING LABORATORY.

5. THE FINAL BUILDING PAD SHALL BE TESTED AND APPROVED BY THE PROJECT'S GER PRIOR TO INSTALLATION OF ANY FOUNDATION AND/OR SLAB-ON-GRADE RELATED CONSTRUCTION. IF THE BUILDING PAD HAS BEEN INSTALLED MORE THAN TWO MONTHS PRIOR TO THE PLACEMENT OF THE VAPOR RETARDER, PROVIDE FIELD MOISTURE TESTS FOR THE FULL DEPTH OF THE PAD 96 HOURS PRIOR TO PLACEMENT OF THE WATER VAPOR BARRIER TO ENSURE THAT THE FILL MOISTURE CONTENT HAS BEEN MAINTAINED PRIOR TO CONCRETE PLACEMENT, MOISTURE CONTENTS SHALL BE TAKEN AT 12 INCH VERTICAL INTERVALS WITH A MINIMUM OF TWO TESTS PER BORING AT A RATE OF ONE (1) BORING FOR EVERY 2,500 SQUARE FEET OF PAD WITH A MAXIMUM OF TEN (10). IF THE PAD TESTS SHOW MOISTURE CONTENT OUT OF THE SPECIFIED RANGES, THE TOP SIX (6) INCHES TO ONE FOOT OF MATERIAL SHALL BE REWORKED, MOISTURE CONDITIONED AND RECOMPACTED TO BETWEEN 95 AND 100 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR DENSITY TEST (ASTM D698). THE MOISTURE CONTENT SHALLBE BETWEEN OPTIMUM AND +2 PERCENT OF THE OPTIMUM MOISTURE CONTENT FOR SELECT FILL.

6. CONTRACTOR SHALL MAINTAIN A CLEAN EXCAVATION THAT IS FREE OF WATER 100% OF THE TIME. CONTRACTOR SHALL PROVIDE PUMPS AS REQUIRED TO REMOVE ANY WATER AT ALL TIMES.

7. BACKFILL AGAINST THE OUTSIDE FACE OF THE GRADE BEAMS SHOULD CONSIST OF SELECT FILL USED TO PREPARE THE BUILDING PAD. THE SELECT FILL SHOULD BE UNIFORMLY COMPACTED TO AT LEAST 95 PERCENT OF THE STANDARD EFFORT (ASTM D 698) MAXIMUM DRY DENSITY AT A MOISTURE CONTENT WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT.

8. A MINIMUM OF 2 FT OF SELECT FILL MATERIAL IS REQUIRED UNDER THE FLOOR SLAB, AND SHALL EXTEND A MINIMUM OF 10'-0" BEYOND THE BUILDING PERIMETER. THE FINAL EXTERIOR GRADE ADJACENT TO THE STRUCTURE SHOULD BE SLOPED TO PROMOTE EFFECTIVE DRAINAGE AWAY FROM THE STRUCTURE.

9. EXERCISE CARE IN PLACEMENT AND COMPACTION OF FILL IN ALL LEAVE-OUTS. ALL FILL SHALL BE PLACED IN LOOSE LIFTS AND COMPACTED AT ELEVATED MOISTURE CONTENT AS DETAILED IN THE PROJECT'S GEOTECHNICAL REPORT. ANY REINFORCING SHALL BE APPROPRIATELY MANIPULATED TO ENSURE PROPER COMPACTION. VAPOR RETARDER SHALL BE SUITABLY PLACED AND LAPPED.

SITE DRAINAGE:

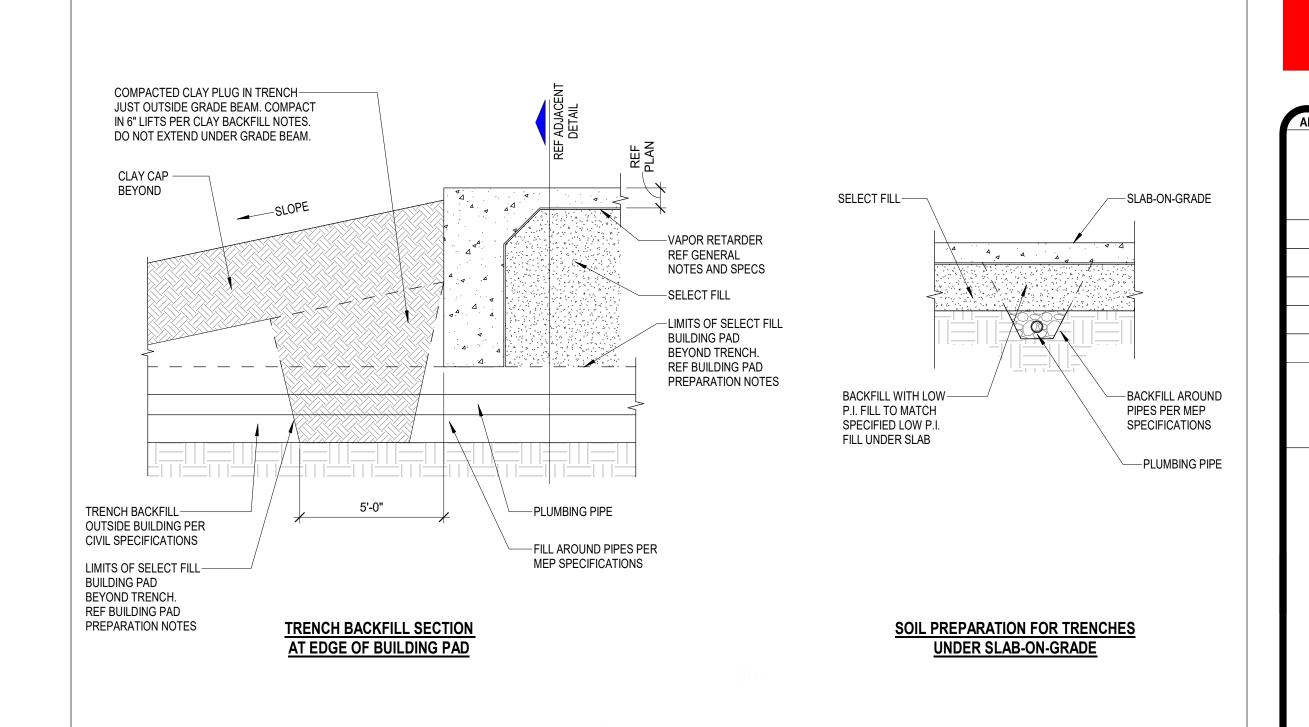
1. THE SITE SHALL BE GRADED TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS AND SLABS. WATER SHALL NOT BE ALLOWED TO POND ADJACENT TO THE FOUNDATION.

2. WATER FROM ROOF DRAINS AND DOWNSPOUTS SHALL BE COLLECTED AND PIPED AWAY FROM THE BUILDING.

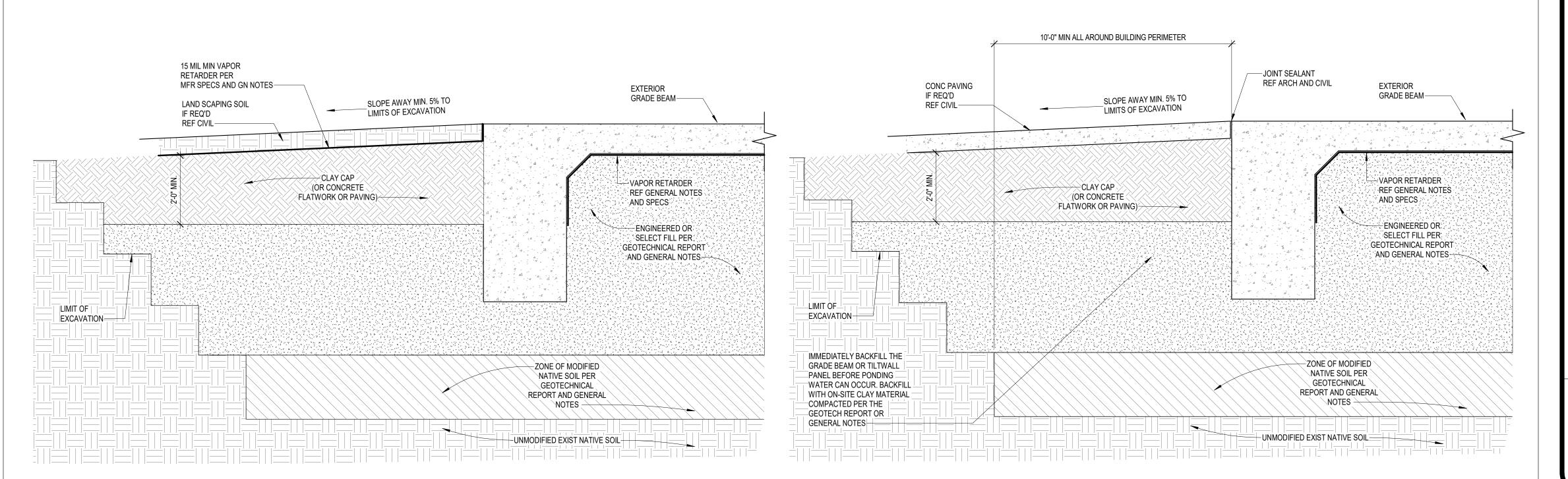
3. TREES AND VEGETATION SHALL NOT BE ALLOWED WITHIN A DISTANCE EQUAL TO THREE QUARTERS THEIR ULTIMATE HEIGHT AWAY FROM THE BUILDING.

1. PIPES OR CONDUITS SHALL BE PLACED IN THE SELECT FILL MATERIAL. ALL PENETRATIONS TO THE VAPOR BARRIER SHALL BE SEALED PER THE MANUFACTURER'S RECOMMENDATIONS 2. BACKFILL DIRECTLY AROUND PIPE SHALL BE CEMENT STABILIZED SAND (1-SACK MIX). THE REMAINDER OF THE TRENCH INFILL MAY BE SELECT FILL ONLY IF IT CAN BE COMPACTED AND TESTED BY THE TESTING LAB; OTHERWISE, THE GC SHALL USE CEMENT STABILIZED SAND **BUILDING FOUNDATIONS-**BACK FILL IN UTILITY TRENCH -FINAL GRADING COMP SELECT FILL -COMP SELECT FIL AS REQ'D PIPE OR CONDUIT-BENTONITE PLUG FULL WIDTH -AND DEPTH OF TRENCH 1'-0" —BOTTOM OF TRENCH MINIMUM ABOVE BOTTOM OF GRADE BEAM

PIPE/CONDUIT ENTRY DETAIL



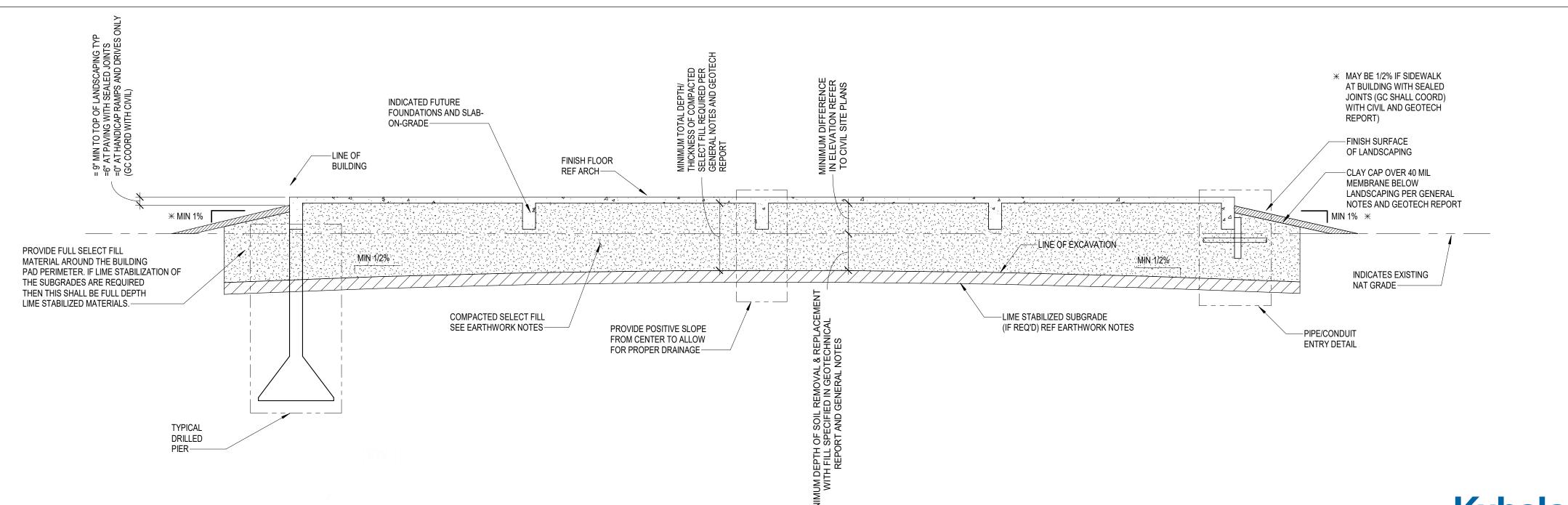
2 TYPICAL DETAIL FOR TRENCH BACKFILL AT EDGE OF BUILDING NO SCALE



SITE NOTES: . ROOF RUNOFF AND SURFACE DRAINAGE SHALL BE COLLECTED AND DISCHARGE AWAY FROM THE STRUCTURES TO PREVENT WETTING OF THE FOUNDATION SOILS. ROOF GUTTERS SHALL BE INSTALLED AND CONNECTED TO DOWNSPOUTS AND PIPES DIRECTING ROOF RUNOFF AT LEAST 10 FEET AWAY FROM THE BUILDINGS, OR DISCHARGED ON TO POSITIVELY SLOPED IMPERVIOUS FLATWORK SUCH AS SIDEWALKS AND /OR PAVING AREAS. . SPRINKLER MAINS AND SPRAY HEADS SHALL BE LOCATED AT LEAST 5 FEET AWAY FROM THE BUILDING SUCH THAT THEY CANNOT BECOME A POTENTIAL POINT SOURCE OF WATER DIRECTLY ADJACENT TO THE BUILDING. WATERING OF VEGETATION SHALL BE PERFORMED IN A TIMELY AND CONTROLLED MANNER AND PROLONGER WATERING SHALL BE AVOIDED. LANDSCAPED IRRIGATION ADJACEN TO THE FOUNDATION STRUCTURE SHALL BE MINIMIZED OR ELIMINATED. SPECIAL CARE SHALL BE TAKEN SUCH THAT UNDERGROUND UTILITIES DO NOT DEVELOP

LEAKS WITH TIME.

3 TYPICAL EXTERIOR GB BACKFILL DETAIL NO SCALE



-SLAB-ON-GRADE —FILL AS SPECIFIED - TYPICAL REF GENERAL NOTES -PERIMETER OF EXCAVATION PLUMBING PIPE-REF MEP DWGS LINE OF RECONDITIONED BACKFILL AROUND PIPE -PRE MEP SPECS

TYPICAL DETAIL FOR SUBGRADE PROFILE BELOW SLAB-ON-GRADE 4 NO SCALE

Kubala 5 TYPICAL BUILDING PAD PREPARATION DETAIL NO SCALE

ISSUE FOR PROPOSAL GENERAL SUBGRADE **NOTES AND TYP DETAILS**

PROJECT NUMBER

220137

KEY PLAN

NORTH: PLAN TRUE

JOHN R. KUBALA

F-23612

TOMBALL ISD

Description

DRAWING HISTORY

11 Greenway Plaza, 22nd Floor

Houston, TX 77046

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713-961-4571 F

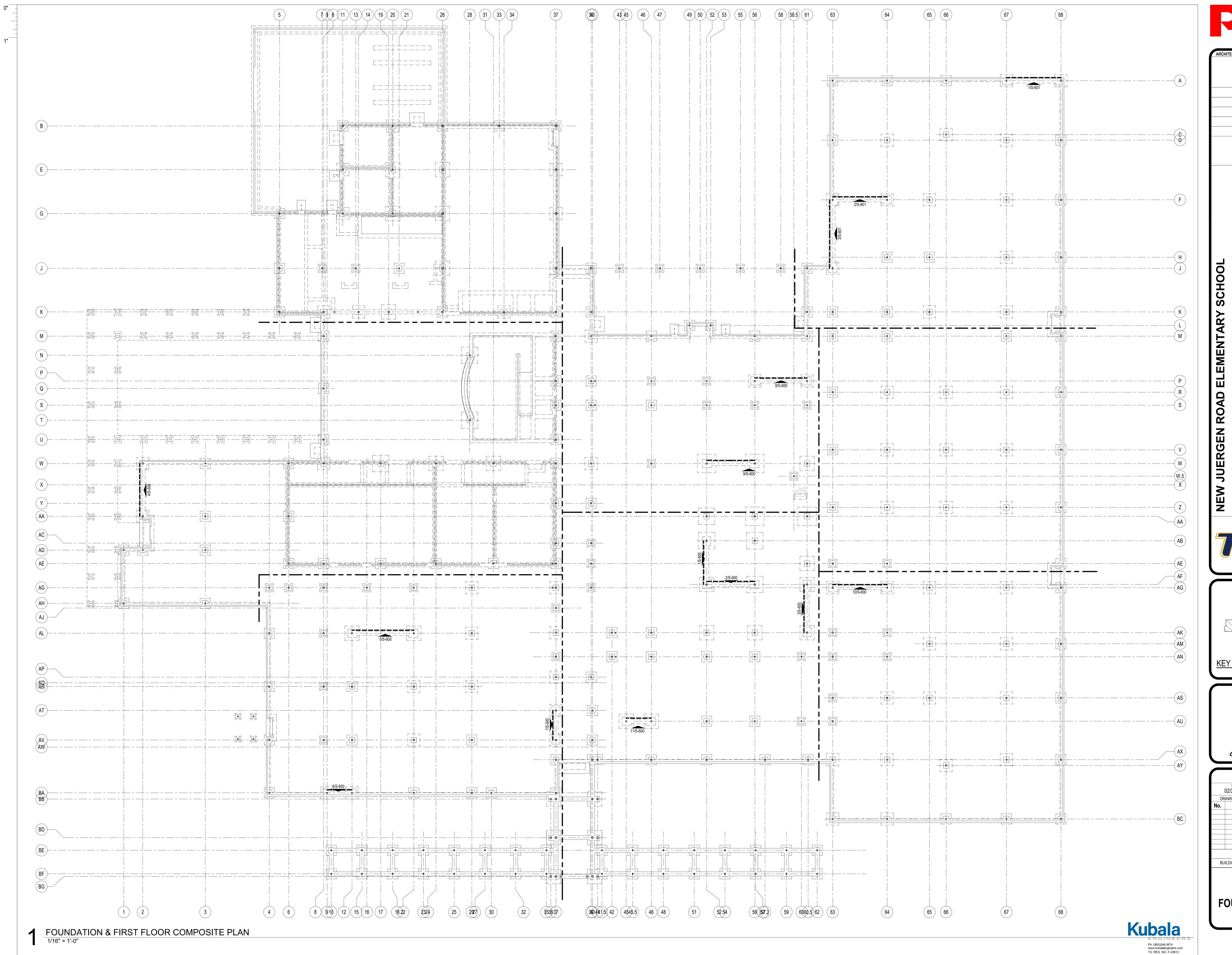
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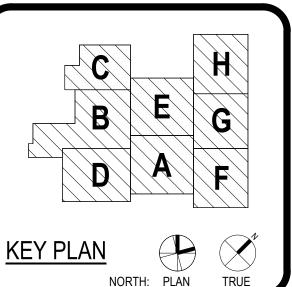
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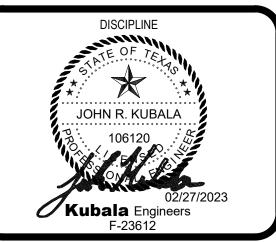
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FOUNDATION PLAN NOTES

1. REFER TO PLAN FOR TOP OF STRUCTURAL CONCRETE ELEVATIONS (TOSC EL). ALL ELEVATIONS SHOWN ON THE PLAN ARE BASED ON A LEVEL ONE REFERENCE ELEVATION = 0'-0". THIS REFERENCE ELEVATION IS EQUIVALENT TO THE LEVEL ONE MEAN SEA LEVEL ELEVATION = REF CIVIL SHOWN IN THE CIVIL AND ARCHITECTURAL DRAWINGS AND IS NOT INTENDED TO ESTABLISH THE ACTUAL SEA LEVEL ELEVATION OF ANY PORTION OF THE STRUCTURE.

2. 5" THICK CONCRETE SLAB ON GRADE REINFORCED WITH #3@10" OC EACH WAY OR #4@16" OC EACH WAY, ON 3 1/2" CHAIRS SPACED AT 36" OC EACH WAY. PLACE THE SLAB ON 15 MIL WATER VAPOR BARRIER OVER COMPACTED SELECT

PLACE THE SLAB ON 15 MIL WATER VAPOR BARRIER OVER COMPACTED SELECT FILL (SOIL REPORT) FOR SLAB JOINT DETAILS REFER TO 1/S-300 AND 2/S-300.

3. TOP OF INTERIOR/ EXTERIOR PLINTH ELEVATION SHALL BE = -1'-0" UON. TOP OF GRADE BEAM ELEVATION SHALL BE = -1'-0" UON. TOP OF FOOTING ELEVATION SHALL BE = -3'-0" UON.

 REFER TO ARCHITECTURAL DRAWINGS FOR EXTENTS AND DIMENSIONS OF RAISED OR DEPRESSED SLAB AREAS, SLOPES, CURBS, AND DRAINS. REFER TO TYPICAL DETAILS FOR REINFORCEMENT REQUIREMENTS.
 GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH

MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL DETAILS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.

6. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT AND STRUCTURAL ENGINEER OF ANY DISCREPANCIES.

7. GC COORDINATE ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.

PLAN OR DETAILS WITH ARCHITECTURAL DRAWINGS.

8. PROVIDE (2) - #5 x 5'-0" LONG BAR IN SLAB AT RE-ENTRANT CORNERS, TYPICAL. INCLUDING RE-ENTRANT CORNERS AROUND THE PERIMETER OF THE

BUILDINGS, FLOOR RECESSES AND OPENINGS.

9. GC COORDINATE ALLTHE SIZE AND EXTENT OF ALL BRICK LEDGES SHOWN ON

10. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS

11. REF S3.xx SERIES DRAWINGS FOR FOUNDATION AND SLAB-ON-GRADE

12. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.

13. REF S5.xx SERIES DRAWINGS FOR STEEL DETAILS.

NOTED ABOVE.

14. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.15. REFER TO ARCH AND PLUMBING DWGS FOR THE SIZE, NUMBER AND

TRENCH DETAIL AND REF 4/S-301 FOR FLOOR DRAIN DETAIL.

LOCATION OF ALL THE TRENCHES, AND FLOOR DRAINS. REF 10/S-301 FOR

16. AT INTERIOR CMU WALL LOCATIONS, WHERE THE GRADE BEAM IS NOT SHOWN, PROVIDE SLAB TURNDOWN PER DETAIL 4/S-312 TYPICAL. AT INTERIOR GLAZING LOCATIONS, WHERE THE GRADE BEAM IS NOT SHOWN, PROVIDE DETAIL 13/S-301; TYPICAL.

7. PIERS/FOOTINGS WITHOUT CENTERLINES SHOWN ON PLANS, SECTIONS AND/OR DETAILS SHALL BE LOCATED AS FOLLOWS:

A. COLUMNS AND PILASTERS: CENTERLINE OF THE COLUMN.
B. GRADE BEAMS AND WALLS: CENTERLINE OF THE GRADE BEAM OR WALL.
C. ALONG THE LENGTH OF GRADE BEAMS AND WALLS: INTERMEDIATE
PIERS/FOOTINGS SHALL BE SPACED EQUALLY BETWEEN

PIERS/FOOTINGS THAT ARE DIMENSIONALLY SET ON PLAN OR AS

<u>D.</u> PIERS SUPPORTING SLABS ON CARTON FORMS: UNLESS NOTED OTHERWISE, PIERS NOT DIMENSIONED SHALL BE SPACED EQUALLY BETWEEN PIERS THAT ARE DIMENSIONALLY SET ON PLAN.

18. GC TO COORDINATE THE LOCATION OF ALL CONC CURBS WITH ARCH DWGS. REF 7/S-301 FOR DETAIL TYP

19. GC COORDINATE THE LOCATION OF ALL CANOPY COLUMNS WITH ARCH DRAWINGS.

20. ALL CMU SHOWN ON PLAN ARE PART OF THE STRUCTURAL LATERAL FORCE RESISTING SYSTEM AND SUPPORTS GRAVITY LOADS. NON-STRUCTURAL CMU EXISTS IN OTHER LOCATION (REF ARCH DWGS). A 3/8" VERT CONTROL JOINT SHALL BE PROVIDED WHEREVER STRUCTURAL AND NON-STRUCTURAL CMU ABUT.

21. IT CAN BE COMMON PRACTICE FOR STEEL STUB-UPS WITH STRUCTURAL STEEL SILL SUPPORT MEMBERS TO BE PROVIDED AT LONG FIRST FLOOR WINDOW SILLS (REF DETAIL 4/S-311); HOWEVER, FOR FIRST FLOOR WINDOWS, 8'-0" AND NARROWER, THE GC SHALL PROVIDE PRE-ENGINEERED COLD-FORM SILL SUPPORTS UTILIZING COLD-FORM FRAMING ONLY. THESE COLD-FORM SILL SHALL BE DESIGNED BY THE DRYWALL SUBCONTRACTOR'S ENGINEER AND SUBMITTED IN THE SHOP DRAWINGS FOR REVIEW. WHERE FIRST FLOOR WINDOW SILLS EXCEED 8'-0" THE CONTRACTOR SHALL PROVIDE MISC. STRUCTURAL STEEL PER 4/S-311 (TYP.)

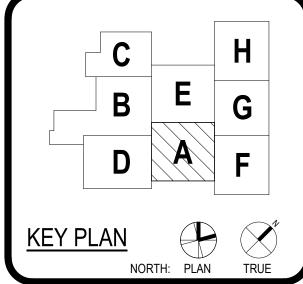
22. PROVIDE STRUCTURAL GEO-FOAM WITH 4" CONCRETE TOPPING SLAB WITH WWF OVER STRUCTURAL TWO WAY SLAB FOR HATCHED AREAS. GEO-FOAM AND TOPPING SLAB BY MANUFACTURER -REF ARCH AND GENERAL NOTES. GC NOTE: ORIGINAL BASE / FLAT SLAB EXTENDS CONTINOUS BELOW RAISED PLATFORM AND STAIRS. PROVIDE GEOFOAM FILL BELOW PLATFORM WITH 4" CONCRETE TOPPING WITH 6x6X2.9x2.9 W.W.M. AT MID-HEIGHT OF SLAB. ADDITIONALLY PROVIDE 4" CONCRETE WALLS WITH #3 BARS AT 12" OC EACH WAY.

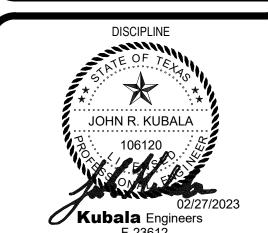
DRILL AND EPOXY 4' INTO BASE / FLAT SLAB WITH HILTI HY-200 ADHESIVE.

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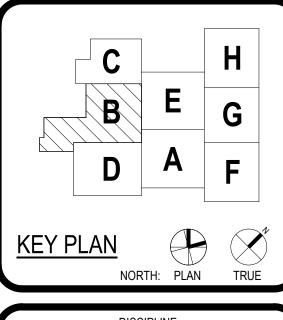
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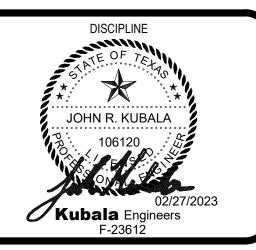
Ph: (800)248-3674 www.kubalaengineers.com TX. REG. NO. F-23612

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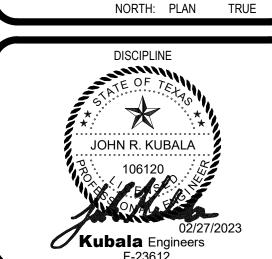
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Houston, TX 77046

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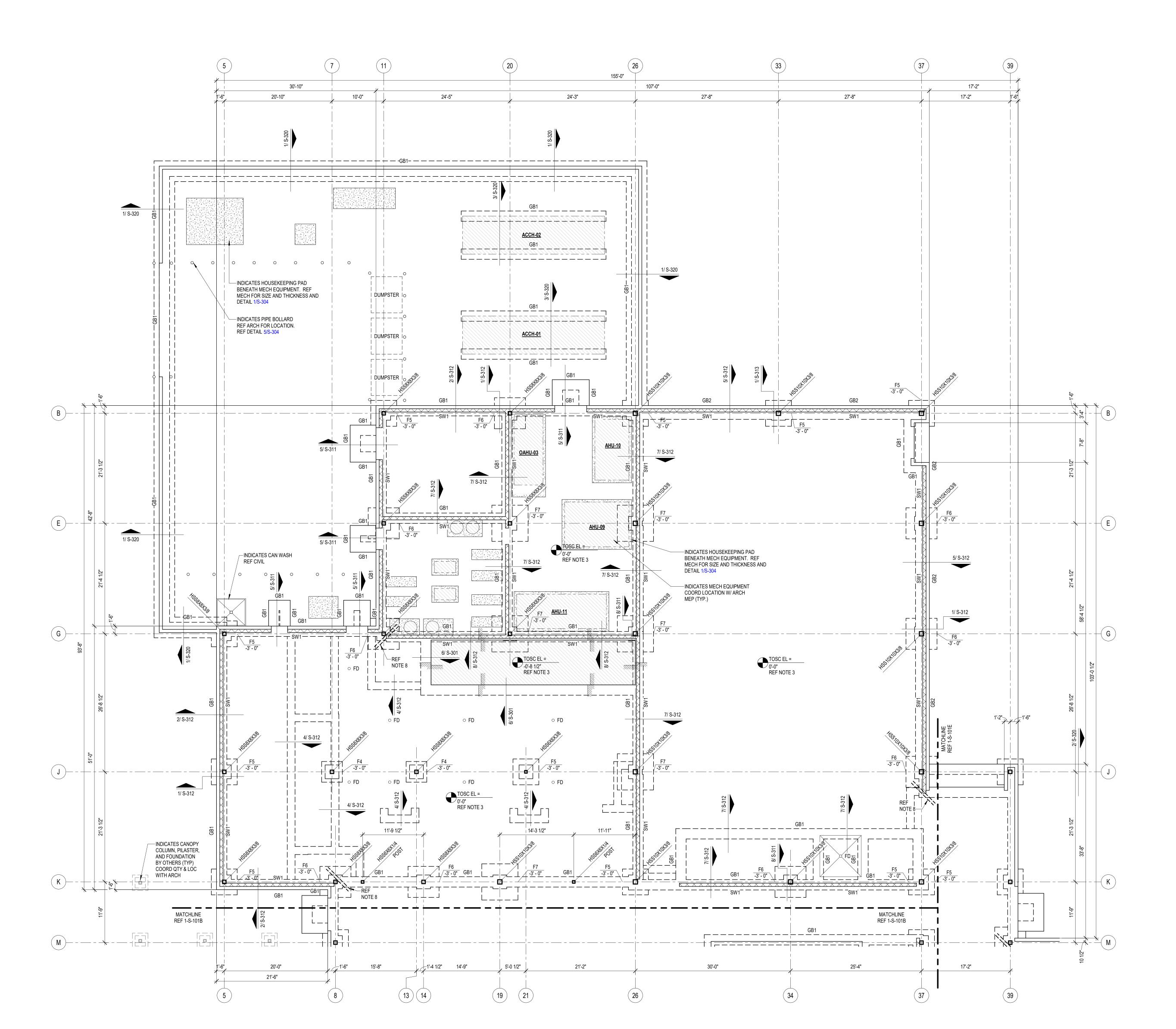
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EQUIVALENT TO THE LEVEL ONE MEAN SEA LEVEL ELEVATION = REF CIVIL SHOWN IN THE CIVIL AND ARCHITECTURAL DRAWINGS AND IS NOT INTENDED TO ESTABLISH THE ACTUAL SEA LEVEL ELEVATION OF ANY PORTION OF THE STRUCTURE.

2. 5" THICK CONCRETE SLAB ON GRADE REINFORCED WITH #3@10" OC EACH

FOUNDATION PLAN NOTES

2. 5" THICK CONCRETE SLAB ON GRADE REINFORCED WITH #3@10" OC EACH WAY OR #4@16" OC EACH WAY, ON 3 1/2" CHAIRS SPACED AT 36" OC EACH WAY. PLACE THE SLAB ON 15 MIL WATER VAPOR BARRIER OVER COMPACTED SELECT FILL (SOIL REPORT) FOR SLAB JOINT DETAILS REFER TO 1/S-300 AND 2/S-300.

3. TOP OF INTERIOR/ EXTERIOR PLINTH ELEVATION SHALL BE = -1'-0" UON.
TOP OF GRADE BEAM ELEVATION SHALL BE = -1'-0" UON.
TOP OF FOOTING ELEVATION SHALL BE = -3'-0" UON.

 REFER TO ARCHITECTURAL DRAWINGS FOR EXTENTS AND DIMENSIONS OF RAISED OR DEPRESSED SLAB AREAS, SLOPES, CURBS, AND DRAINS. REFER TO TYPICAL DETAILS FOR REINFORCEMENT REQUIREMENTS.
 GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH

DETAILS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.

6. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT AND STRUCTURAL ENGINEER OF ANY DISCREPANCIES.

MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL

7. GC COORDINATE ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.

8. PROVIDE (2) - #5 x 5'-0" LONG BAR IN SLAB AT RE-ENTRANT CORNERS, TYPICAL. INCLUDING RE-ENTRANT CORNERS AROUND THE PERIMETER OF THE BUILDINGS, FLOOR RECESSES AND OPENINGS.

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9. GC COORDINATE ALLTHE SIZE AND EXTENT OF ALL BRICK LEDGES SHOWN ON PLAN OR DETAILS WITH ARCHITECTURAL DRAWINGS.

10. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS

11. REF S3.xx SERIES DRAWINGS FOR FOUNDATION AND SLAB-ON-GRADE

12. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.

NOTED ABOVE.

13. REF S5.xx SERIES DRAWINGS FOR STEEL DETAILS.

14. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.
15. REFER TO ARCH AND PLUMBING DWGS FOR THE SIZE, NUMBER AND LOCATION OF ALL THE TRENCHES, AND FLOOR DRAINS. REF10/S-301 FOR

TRENCH DETAIL AND REF 4/S-301 FOR FLOOR DRAIN DETAIL.

16. AT INTERIOR CMU WALL LOCATIONS, WHERE THE GRADE BEAM IS NOT SHOWN, PROVIDE SLAB TURNDOWN PER DETAIL 4/S-312 TYPICAL. AT INTERIOR GLAZING LOCATIONS, WHERE THE GRADE BEAM IS NOT SHOWN, PROVIDE DETAIL 13/S-301; TYPICAL.

17. PIERS/FOOTINGS WITHOUT CENTERLINES SHOWN ON PLANS, SECTIONS AND/OR DETAILS SHALL BE LOCATED AS FOLLOWS:

A. COLUMNS AND PILASTERS: CENTERLINE OF THE COLUMN.
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<u>D.</u> PIERS SUPPORTING SLABS ON CARTON FORMS: UNLESS NOTED OTHERWISE, PIERS NOT DIMENSIONED SHALL BE SPACED EQUALLY BETWEEN PIERS THAT ARE DIMENSIONALLY SET ON PLAN.

18. GC TO COORDINATE THE LOCATION OF ALL CONC CURBS WITH ARCH DWGS. REF 7/S-301 FOR DETAIL TYP

19. GC COORDINATE THE LOCATION OF ALL CANOPY COLUMNS WITH ARCH DRAWINGS.

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21. IT CAN BE COMMON PRACTICE FOR STEEL STUB-UPS WITH STRUCTURAL STEEL SILL SUPPORT MEMBERS TO BE PROVIDED AT LONG FIRST FLOOR WINDOW SILLS (REF DETAIL 4/S-311); HOWEVER, FOR FIRST FLOOR WINDOWS, 8'-0" AND NARROWER, THE GC SHALL PROVIDE PRE-ENGINEERED COLD-FORM SILL SUPPORTS UTILIZING COLD-FORM FRAMING ONLY. THESE COLD-FORM SILL SHALL BE DESIGNED BY THE DRYWALL SUBCONTRACTOR'S ENGINEER AND SUBMITTED IN THE SHOP DRAWINGS FOR REVIEW. WHERE FIRST FLOOR WINDOW SILLS EXCEED 8'-0" THE CONTRACTOR SHALL PROVIDE MISC. STRUCTURAL STEEL PER 4/S-311 (TYP.)

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DRILL AND EPOXY 4' INTO BASE / FLAT SLAB WITH HILTI HY-200 ADHESIVE.

FOUNDATION PLAN - AREA C
1/8" = 1'-0"

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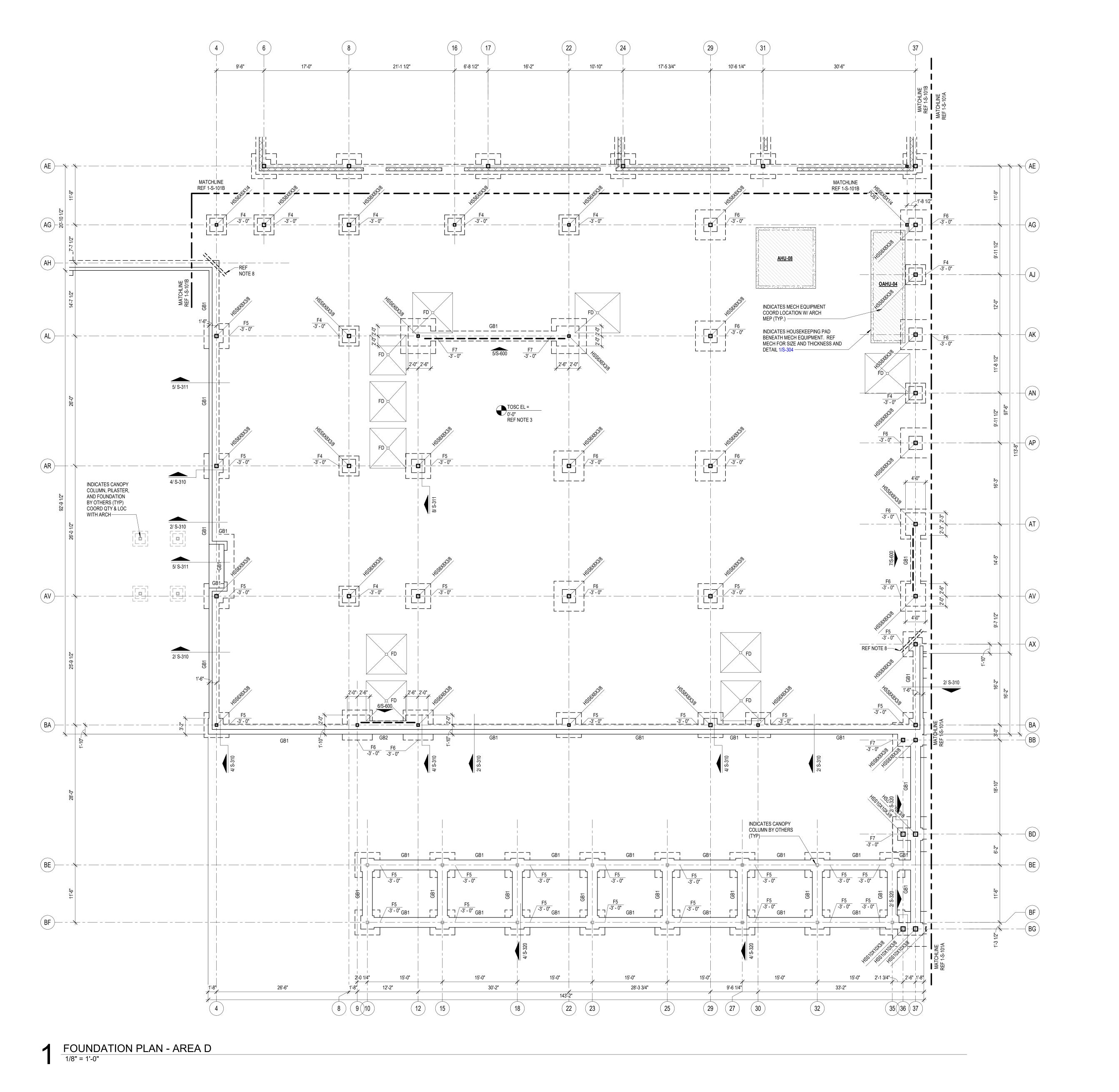
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Kubala ENGINEERS
Ph: (800)248-3674
www.kubalaengineers.com
TX. REG. NO. F-23612

TOMBALL ISD **ISSUE FOR PROPOSAL** FOUNDATION PLAN -



FOUNDATION PLAN NOTES

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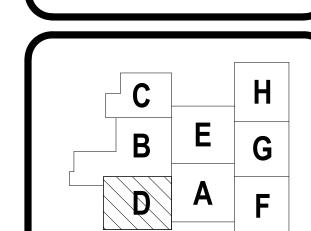
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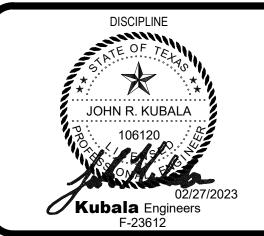
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Kubala

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CHECKED BY: DRAWN BY: Plot Stamp: 2/27/2023 8:15:03 AM 132'-0"

13'-4"

5'-2" 3'-2" 2'-0"

10'-4"

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L _ _ | _ _ _

(52)

26'-11 1/2"

15'-6 1/2"

INDICATES MECH EQUIPMENT
COORD LOCATION W/ ARCH
MEP (TYP.)

(46)

FOUNDATION PLAN - AREA E

17'-2"

___|

7/ S-312

14'-6"

17'-2"

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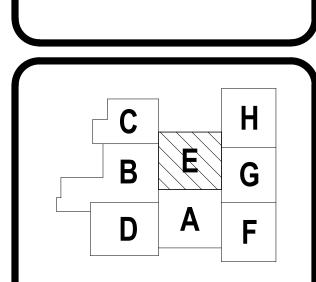
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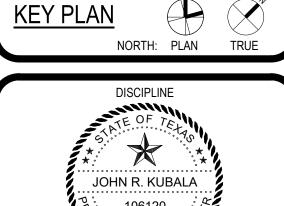
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RGEN ROAD ELEMENTARY SCHOOI

JUERGEN RO, TOMBALL, TX ISSUE FOR PF







FOUNDATION PLAN -AREA E

S-101F

Kubala

MATCHLINE

L — — - — — J

REF 1-S-101A- +

└ — — ┼ — — ┛

12'-6"

12'-10"

12'-8"

12'-6"

REF 1-S-101H

MATCHLINE

REF 1-S-101G

29'-4 1/2"

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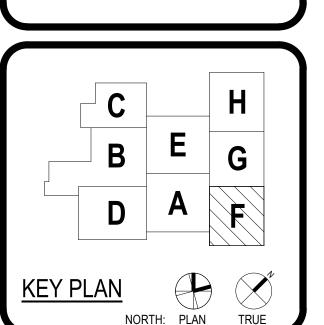
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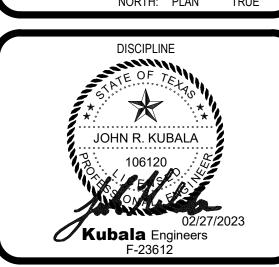
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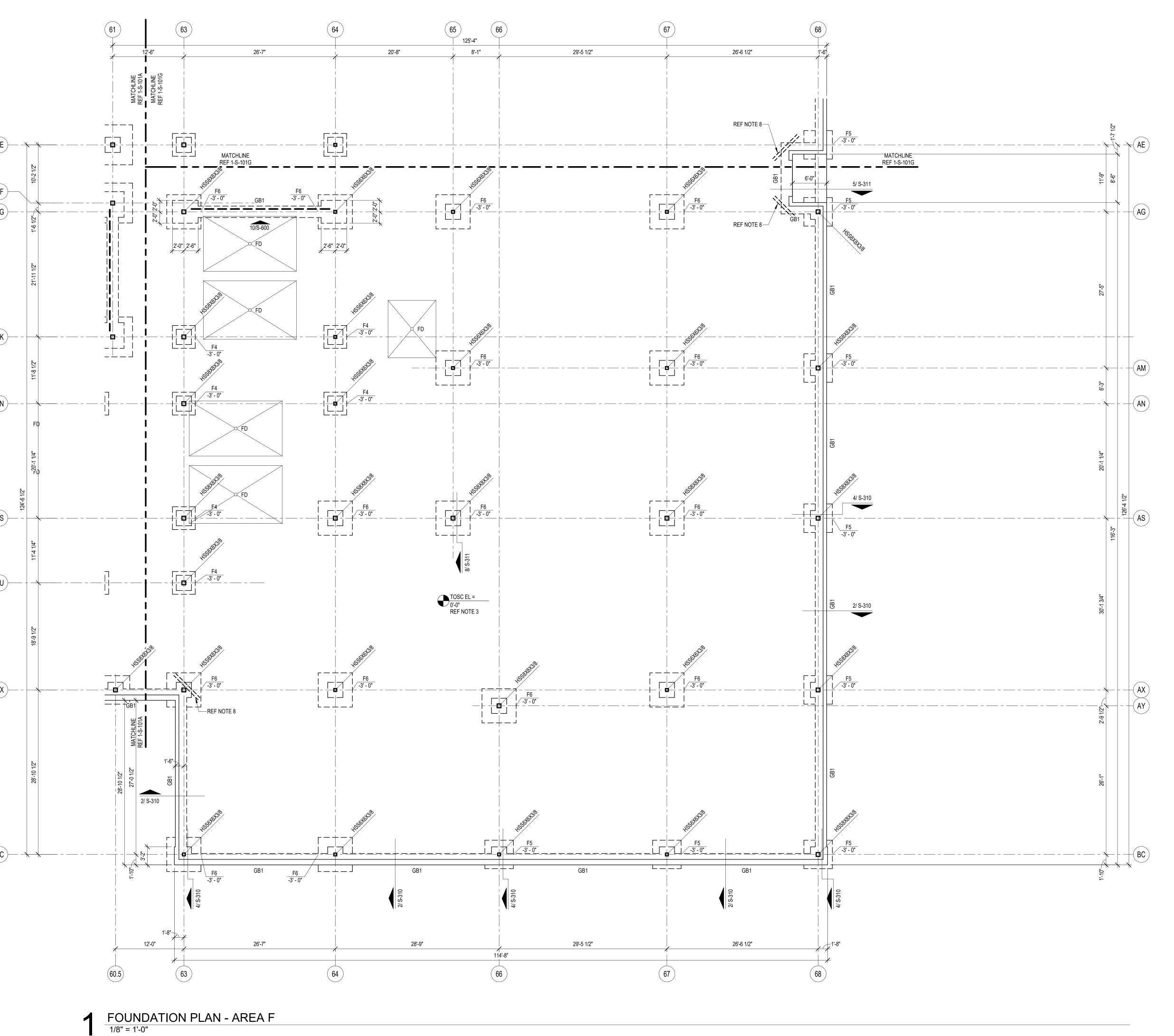


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Houston, TX 77046

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713-961-4571 F

TX Firm: BR 1608

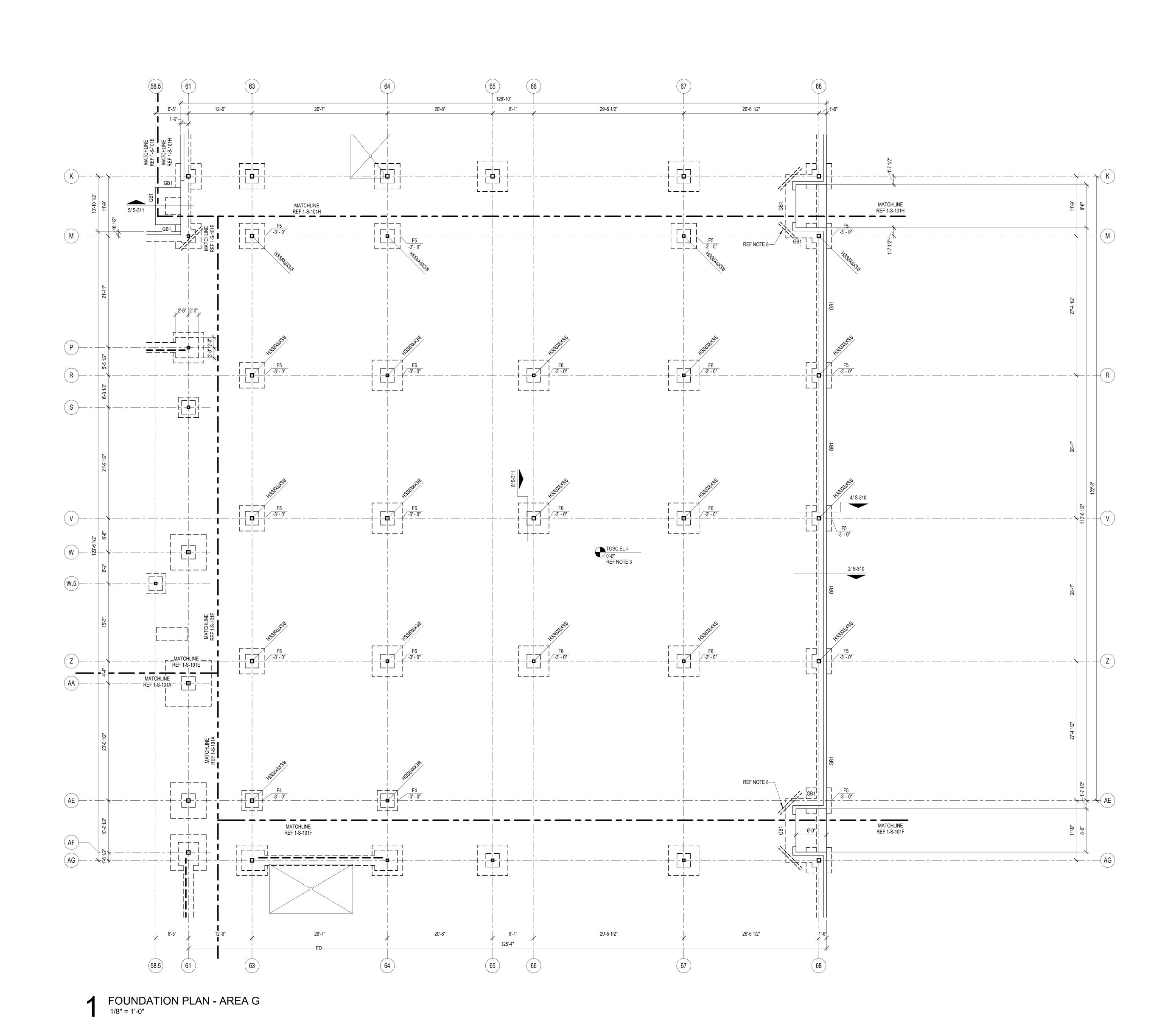
FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS

NORTH: PLAN TRUE

ISSUE FOR PROPOSAL

FOUNDATION PLAN -**AREA G**

S-101G



1. REFER TO PLAN FOR TOP OF STRUCTURAL CONCRETE ELEVATIONS (TOSC EL). ALL ELEVATIONS SHOWN ON THE PLAN ARE BASED ON A LEVEL ONE REFERENCE ELEVATION = 0'-0". THIS REFERENCE ELEVATION IS EQUIVALENT TO THE LEVEL ONE MEAN SEA LEVEL ELEVATION = REF CIVIL SHOWN IN THE CIVIL AND ARCHITECTURAL DRAWINGS AND IS NOT INTENDED TO ESTABLISH THE ACTUAL SEA LEVEL ELEVATION OF ANY

2. 5" THICK CONCRETE SLAB ON GRADE REINFORCED WITH #3@10" OC EACH WAY OR #4@16" OC EACH WAY, ON 3 1/2" CHAIRS SPACED AT 36" OC EACH WAY. PLACE THE SLAB ON 15 MIL WATER VAPOR BARRIER OVER COMPACTED SELECT

TOP OF GRADE BEAM ELEVATION SHALL BE = -1'-0" UON.

TOP OF FOOTING ELEVATION SHALL BE = -3'-0" UON. 4. REFER TO ARCHITECTURAL DRAWINGS FOR EXTENTS AND DIMENSIONS OF

TO TYPICAL DETAILS FOR REINFORCEMENT REQUIREMENTS.

DETAILS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.

7. GC COORDINATE ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL

8. PROVIDE (2) - #5 x 5'-0" LONG BAR IN SLAB AT RE-ENTRANT CORNERS, TYPICAL.

PLAN OR DETAILS WITH ARCHITECTURAL DRAWINGS.

11. REF S3.xx SERIES DRAWINGS FOR FOUNDATION AND SLAB-ON-GRADE

12. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.

13. REF S5.xx SERIES DRAWINGS FOR STEEL DETAILS.

14. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.

16. AT INTERIOR CMU WALL LOCATIONS, WHERE THE GRADE BEAM IS NOT SHOWN, PROVIDE SLAB TURNDOWN PER DETAIL 4/S-312 TYPICAL. AT INTERIOR GLAZING LOCATIONS, WHERE THE GRADE BEAM IS NOT SHOWN, PROVIDE DETAIL 13/S-301; TYPICAL.

17. PIERS/FOOTINGS WITHOUT CENTERLINES SHOWN ON PLANS, SECTIONS

A. COLUMNS AND PILASTERS: CENTERLINE OF THE COLUMN. B. GRADE BEAMS AND WALLS: CENTERLINE OF THE GRADE BEAM OR WALL. C. ALONG THE LENGTH OF GRADE BEAMS AND WALLS: INTERMEDIATE PIERS/FOOTINGS SHALL BE SPACED EQUALLY BETWEEN

<u>D.</u> PIERS SUPPORTING SLABS ON CARTON FORMS: UNLESS NOTED OTHERWISE, PIERS NOT DIMENSIONED SHALL BE SPACED EQUALLY

18. GC TO COORDINATE THE LOCATION OF ALL CONC CURBS WITH ARCH DWGS.

19. GC COORDINATE THE LOCATION OF ALL CANOPY COLUMNS WITH ARCH

20. ALL CMU SHOWN ON PLAN ARE PART OF THE STRUCTURAL LATERAL FORCE RESISTING SYSTEM AND SUPPORTS GRAVITY LOADS. NON-STRUCTURAL CMU EXISTS IN OTHER LOCATION (REF ARCH DWGS). A 3/8" VERT CONTROL JOINT SHALL BE PROVIDED WHÈREVER STRUCTURAL AND

21. IT CAN BE COMMON PRACTICE FOR STEEL STUB-UPS WITH STRUCTURAL STEEL SILL SUPPORT MEMBERS TO BE PROVIDED AT LONG FIRST FLOOR WINDOW SILLS (REF DETAIL 4/S-311); HOWEVER, FOR FIRST FLOOR WINDOWS, 8'-0" AND NARROWER, THE GC SHALL PROVIDE PRE-ENGINEERED COLD-FORM SILL SUPPORTS UTILIZING COLD-FORM FRAMING ONLY. THESE COLD-FORM SILL SHALL BE DESIGNED BY THE DRYWALL SUBCONTRACTOR'S ENGINEER AND SUBMITTED IN THE SHOP DRAWINGS FOR REVIEW. WHERE FIRST FLOOR WINDOW SILLS EXCEED 8'-0" THE CONTRACTOR SHALL PROVIDE MISC. STRUCTURAL

22. PROVIDE STRUCTURAL GEO-FOAM WITH 4" CONCRETE TOPPING SLAB WITH WWF OVER STRUCTURAL TWO WAY SLAB FOR HATCHED AREAS. GEO-FOAM AND TOPPING SLAB BY MANUFACTURER -REF ARCH AND GENERAL NOTES. GC NOTE: ORIGINAL BASE / FLAT SLAB EXTENDS CONTINOUS BELOW RAISED PLATFORM AND STAIRS. PROVIDE GEOFOAM FILL BELOW PLATFORM WITH 4" CONCRETE TOPPING WITH 6x6X2.9x2.9 W.W.M. AT MID-HEIGHT OF SLAB. ADDITIONALLY PROVIDE 4" CONCRETE WALLS WITH #3 BARS AT 12" OC EACH WAY. DRILL AND EPOXY 4' INTO BASE / FLAT SLAB WITH HILTI HY-200 ADHESIVE.

FOUNDATION PLAN NOTES

PORTION OF THE STRUCTURE.

FILL (SOIL REPORT) FOR SLAB JOINT DETAILS REFER TO 1/S-300 AND 2/S-300.

3. TOP OF INTERIOR/ EXTERIOR PLINTH ELEVATION SHALL BE = -1'-0" UON.

RAISED OR DEPRESSED SLAB AREAS, SLOPES, CURBS, AND DRAINS. REFER

5. GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL

6. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT AND STRUCTURAL ENGINEER OF ANY DISCREPANCIES.

DRAWINGS PRIOR TO CONSTRUCTION.

INCLUDING RE-ENTRANT CORNERS AROUND THE PERIMETER OF THE BUILDINGS, FLOOR RECESSES AND OPENINGS. 9. GC COORDINATE ALLTHE SIZE AND EXTENT OF ALL BRICK LEDGES SHOWN ON

10. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS

NOTED ABOVE.

15. REFER TO ARCH AND PLUMBING DWGS FOR THE SIZE, NUMBER AND LOCATION OF ALL THE TRENCHES, AND FLOOR DRAINS. REF 10/S-301 FOR TRENCH DETAIL AND REF 4/S-301 FOR FLOOR DRAIN DETAIL.

AND/OR DETAILS SHALL BE LOCATED AS FOLLOWS:

PIERS/FOOTINGS THAT ARE DIMENSIONALLY SET ON PLAN OR AS

BETWEEN PIERS THAT ARE DIMENSIONALLY SET ON PLAN.

REF 7/S-301 FOR DETAIL TYP

NON-STRUCTURAL CMU ABUT.

STEEL PER 4/S-311 (TYP.)

Kubala

29'-5 1/2"

26'-6 1/2"

20'-8"

FOUNDATION PLAN - AREA H

FOUNDATION PLAN NOTES

- 1. REFER TO PLAN FOR TOP OF STRUCTURAL CONCRETE ELEVATIONS (TOSC EL). ALL ELEVATIONS SHOWN ON THE PLAN ARE BASED ON A LEVEL ONE REFERENCE ELEVATION = 0'-0". THIS REFERENCE ELEVATION IS EQUIVALENT TO THE LEVEL ONE MEAN SEA LEVEL ELEVATION = REF CIVIL SHOWN IN THE CIVIL AND ARCHITECTURAL DRAWINGS AND IS NOT INTENDED TO ESTABLISH THE ACTUAL SEA LEVEL ELEVATION OF ANY PORTION OF THE STRUCTURE.
- 2. 5" THICK CONCRETE SLAB ON GRADE REINFORCED WITH #3@10" OC EACH WAY OR #4@16" OC EACH WAY, ON 3 1/2" CHAIRS SPACED AT 36" OC EACH WAY. PLACE THE SLAB ON 15 MIL WATER VAPOR BARRIER OVER COMPACTED SELECT
- FILL (SOIL REPORT) FOR SLAB JOINT DETAILS REFER TO 1/S-300 AND 2/S-300.

 3. TOP OF INTERIOR/ EXTERIOR PLINTH ELEVATION SHALL BE = -1'-0" UON.
 TOP OF GRADE BEAM ELEVATION SHALL BE = -1'-0" UON.
- 4. REFER TO ARCHITECTURAL DRAWINGS FOR EXTENTS AND DIMENSIONS OF RAISED OR DEPRESSED SLAB AREAS, SLOPES, CURBS, AND DRAINS. REFER TO TYPICAL DETAILS FOR REINFORCEMENT REQUIREMENTS.

TOP OF FOOTING ELEVATION SHALL BE = -3'-0" UON.

- 5. GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL DETAILS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.
- 6. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT AND STRUCTURAL ENGINEER OF ANY DISCREPANCIES.
- 7. GC COORDINATE ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
- 8. PROVIDE (2) #5 x 5'-0" LONG BAR IN SLAB AT RE-ENTRANT CORNERS, TYPICAL. INCLUDING RE-ENTRANT CORNERS AROUND THE PERIMETER OF THE
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 9. GC COORDINATE ALLTHE SIZE AND EXTENT OF ALL BRICK LEDGES SHOWN ON
- 10. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS11. REF S3.xx SERIES DRAWINGS FOR FOUNDATION AND SLAB-ON-GRADE

PLAN OR DETAILS WITH ARCHITECTURAL DRAWINGS.

- 12. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.
- 13. REF S5.xx SERIES DRAWINGS FOR STEEL DETAILS.
- 14. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.
 15. REFER TO ARCH AND PLUMBING DWGS FOR THE SIZE, NUMBER AND LOCATION OF ALL THE TRENCHES, AND FLOOR DRAINS. REF 10/S-301 FOR

TRENCH DETAIL AND REF 4/S-301 FOR FLOOR DRAIN DETAIL.

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- DETAIL 13/S-301; TYPICAL.

 17. PIERS/FOOTINGS WITHOUT CENTERLINES SHOWN ON PLANS, SECTIONS
- A. COLUMNS AND PILASTERS: CENTERLINE OF THE COLUMN.
 B. GRADE BEAMS AND WALLS: CENTERLINE OF THE GRADE BEAM OR WALL.
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 PIERS/FOOTINGS SHALL BE SPACED EQUALLY BETWEEN

PIERS/FOOTINGS THAT ARE DIMENSIONALLY SET ON PLAN OR AS

- NOTED ABOVE.

 D. PIERS SUPPORTING SLABS ON CARTON FORMS: UNLESS NOTED OTHERWISE, PIERS NOT DIMENSIONED SHALL BE SPACED EQUALLY BETWEEN PIERS THAT ARE DIMENSIONALLY SET ON PLAN.
- 18. GC TO COORDINATE THE LOCATION OF ALL CONC CURBS WITH ARCH DWGS. REF 7/S-301 FOR DETAIL TYP
- 19. GC COORDINATE THE LOCATION OF ALL CANOPY COLUMNS WITH ARCH
- 20. ALL CMU SHOWN ON PLAN ARE PART OF THE STRUCTURAL LATERAL FORCE RESISTING SYSTEM AND SUPPORTS GRAVITY LOADS. NON-STRUCTURAL CMU EXISTS IN OTHER LOCATION (REF ARCH DWGS). A 3/8" VERT CONTROL JOINT SHALL BE PROVIDED WHEREVER STRUCTURAL AND NON-STRUCTURAL CMU ABUT.
- 21. IT CAN BE COMMON PRACTICE FOR STEEL STUB-UPS WITH STRUCTURAL STEEL SILL SUPPORT MEMBERS TO BE PROVIDED AT LONG FIRST FLOOR WINDOW SILLS (REF DETAIL 4/S-311); HOWEVER, FOR FIRST FLOOR WINDOWS, 8'-0" AND NARROWER, THE GC SHALL PROVIDE PRE-ENGINEERED COLD-FORM SILL SUPPORTS UTILIZING COLD-FORM FRAMING ONLY. THESE COLD-FORM SILL SHALL BE DESIGNED BY THE DRYWALL SUBCONTRACTOR'S ENGINEER AND SUBMITTED IN THE SHOP DRAWINGS FOR REVIEW. WHERE FIRST FLOOR WINDOW SILLS EXCEED 8'-0" THE CONTRACTOR SHALL PROVIDE MISC. STRUCTURAL STEEL PER 4/S-311 (TYP.)
- 22. PROVIDE STRUCTURAL GEO-FOAM WITH 4" CONCRETE TOPPING SLAB WITH WWF OVER STRUCTURAL TWO WAY SLAB FOR HATCHED AREAS. GEO-FOAM AND TOPPING SLAB BY MANUFACTURER -REF ARCH AND GENERAL NOTES. GC NOTE: ORIGINAL BASE / FLAT SLAB EXTENDS CONTINOUS BELOW RAISED PLATFORM AND STAIRS. PROVIDE GEOFOAM FILL BELOW PLATFORM WITH 4" CONCRETE TOPPING WITH 6x6X2.9x2.9 W.W.M. AT MID-HEIGHT OF SLAB. ADDITIONALLY PROVIDE 4" CONCRETE WALLS WITH #3 BARS AT 12" OC EACH WAY. DRILL AND EPOXY 4' INTO BASE / FLAT SLAB WITH HILTI HY-200 ADHESIVE.

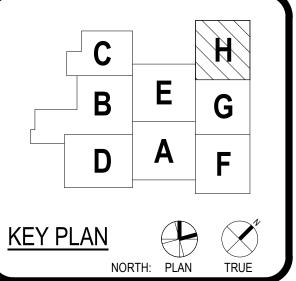


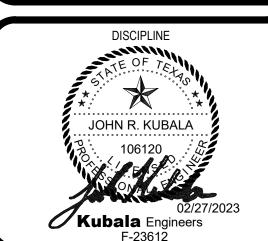
ARCHITECT PBK Architects, In HOUSTON PBK.or HOUSTON PBK.or HOUSTON 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-965-0608 P 713-961-4571 F TX Firm: BR 1608 CIVIL DIG ENGINEERS T713-940-3238 LANDSCAPE EDGELAND T713-460-0988 STRUCTURAL KUBULA ENGINEERS T713-940-3343 MEPT LEAF ENGINEERS T713-940-3300 FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS T 281-350-2323

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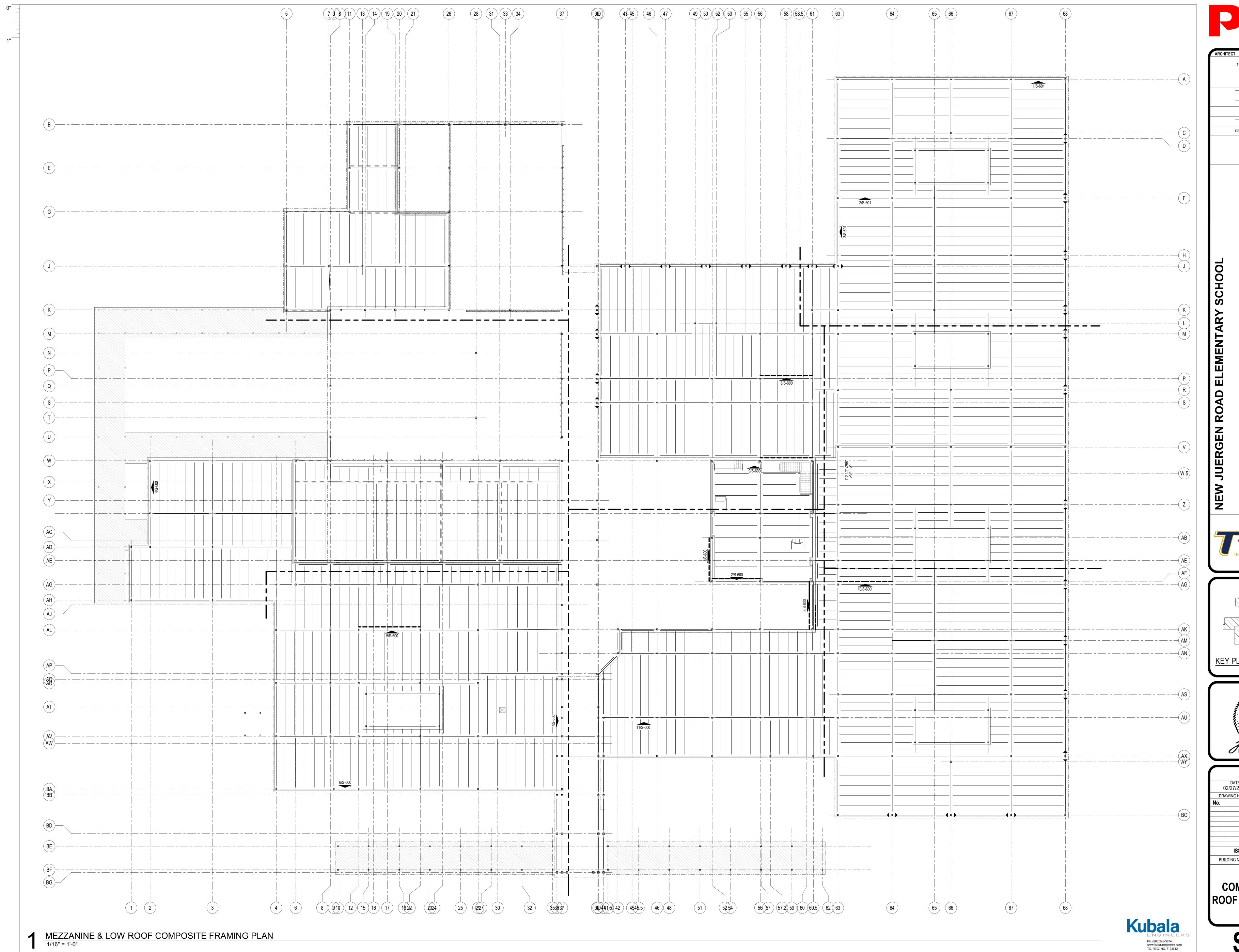






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FOUNDATION PLAN - AREA H			

Kubala ENGINEERS Ph: (800)248-3674 www.kubalaenqineers.com



PBK

HOUSTON PBK.com

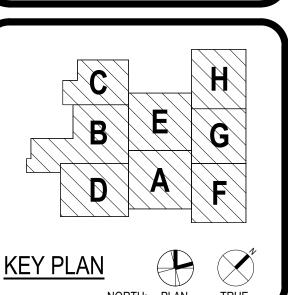
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm: BR 1608

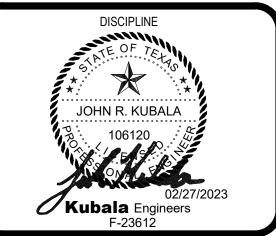
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DIG ENGINEERS
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LANDSCAPE
EDGELAND
T713-460-0988
STRUCTURAL
KUBULA ENGINEERS
T713-940-3343

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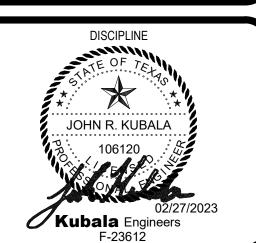


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11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm: BR 1608 FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS

KEY PLAN NORTH: PLAN TRUE



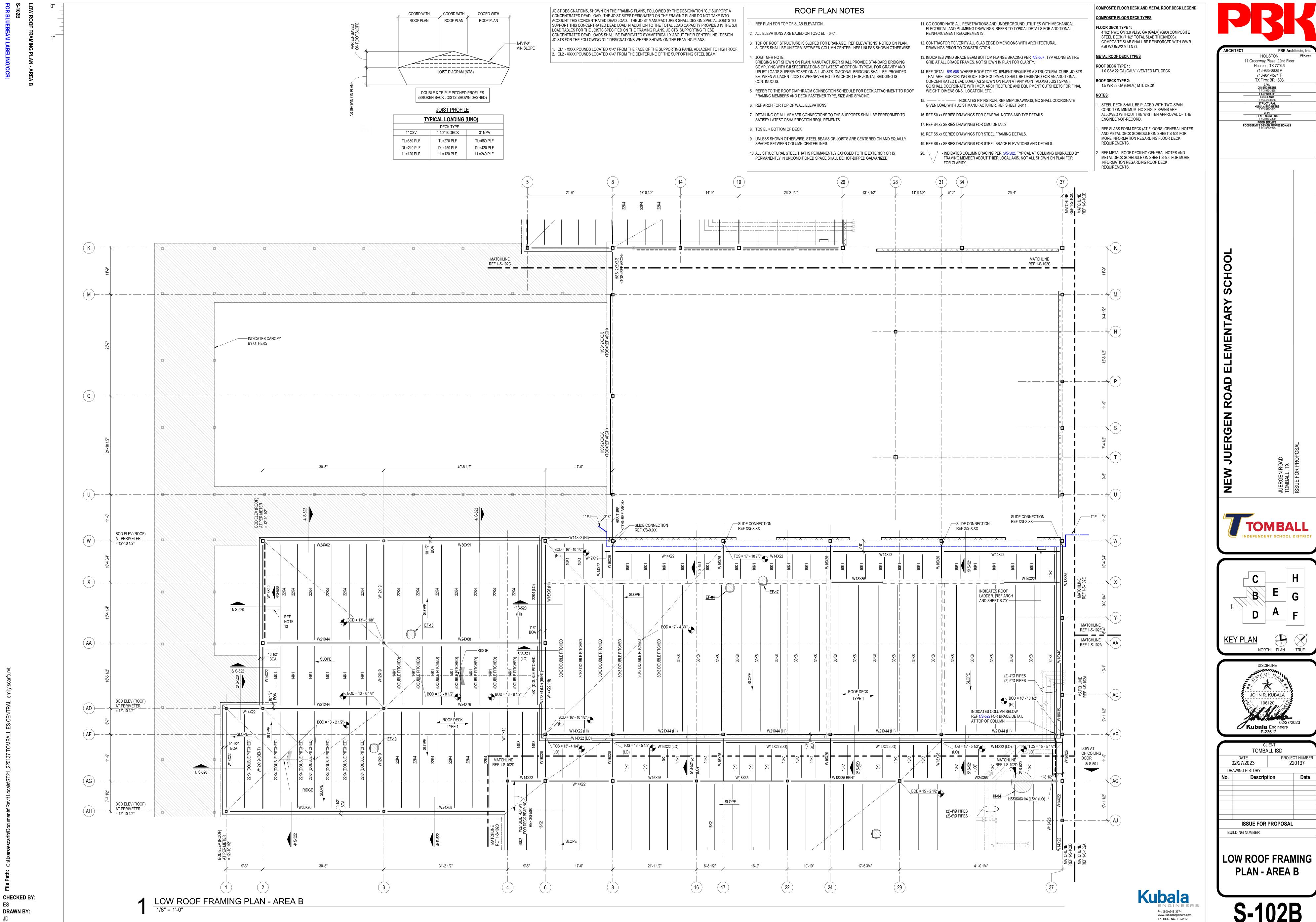
TOMBALL ISD PROJECT NUMBER 220137 DRAWING HISTORY Description **ISSUE FOR PROPOSAL BUILDING NUMBER**

MEZZANINE/ LOW ROOF FRAMING PLAN - AREA A

Ph: (800)248-3674 www.kubalaengineers.com

CHECKED BY: ES DRAWN BY: Plot Stamp: 2/27/2023 8:15:28 AM

MEZZANINE/ LOW ROOF FRAMING PLAN - AREA A



Plot Stamp:

2/27/2023 8:15:29 AM

1. REF PLAN FOR TOP OF SLAB ELEVATION.

2. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0".

3. TOP OF ROOF STRUCTURE IS SLOPED FOR DRAINAGE. REF ELEVATIONS NOTED ON PLAN. SLOPES SHALL BE UNIFORM BETWEEN COLUMN CENTERLINES UNLESS SHOWN OTHERWISE.

BRIDGING NOT SHOWN ON PLAN. MANUFACTURER SHALL PROVIDE STANDARD BRIDGING COMPLYING WITH SJI SPECIFICATIONS OF LATEST ADOPTION, TYPICAL FOR GRAVITY AND UPLIFT LOADS SUPERIMPOSED ON ALL JOISTS. DIAGONAL BRIDGING SHALL BE PROVIDED BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS

5. REFER TO THE ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF FRAMING MEMBERS AND DECK FASTENER TYPE, SIZE AND SPACING.

6. REF ARCH FOR TOP OF WALL ELEVATIONS.

'. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.

8. TOS EL = BOTTOM OF DECK.

9. UNLESS SHOWN OTHERWISE, STEEL BEAMS OR JOISTS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES.

10. ALL STRUCTURAL STEEL THAT IS PERMANENTLY EXPOSED TO THE EXTERIOR OR IS

PERMANENTLY IN UNCONDITIONED SPACE SHALL BE HOT-DIPPED GALVANIZED.

11. GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH MECHANICAL,

ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL DETAILS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.

12. CONTRACTOR TO VERIFY ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.

13. INDICATES WIND BRACE BEAM BOTTOM FLANGE BRACING PER 4/S-507, TYP ALONG ENTIRE GRID AT ALL BRACE FRAMES. NOT SHOWN IN PLAN FOR CLARITY.

14. REF DETAIL 5/S-506 WHERE ROOF TOP EQUIPMENT REQUIRES A STRUCTURAL CURB. JOISTS THAT ARE SUPPORTING ROOF TOP EQUIPMENT SHALL BE DESIGNED FOR AN ADDITIONAL CONCENTRATED DEAD LOAD (AS SHOWN ON PLAN AT ANY POINT ALONG JOIST SPAN). GC SHALL COORDINATE WITH MEP, ARCHITECTURE AND EQUIPMENT CUTSHEETS FOR FINAL WEIGHT, DIMENSIONS, LOCATION, ETC.

15. —— - - INDICATES PIPING RUN, REF MEP DRAWINGS; GC SHALL COORDINATE

GIVEN LOAD WITH JOIST MANUFACTURER. REF SHEET S-011. 16. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS

17. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.

18. REF S5.xx SERIES DRAWINGS FOR STEEL FRAMING DETAILS.

19. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.

/ - INDICATES COLUMN BRACING PER 5/S-502. TYPICAL AT COLUMNS UNBRACED BY FRAMING MEMBER ABOUT THIER LOCAL AXIS. NOT ALL SHOWN ON PLAN FOR FOR CLARITY.

> COMPOSITE FLOOR DECK AND METAL ROOF DECK LEGEND COMPOSITE FLOOR DECK TYPES FLOOR DECK TYPE 1: 4 1/2" NWC ON 3.0 VLI 20 GA (GALV) (G90) COMPOSITE STEEL DECK (7 1/2" TOTAL SLAB THICKNESS). COMPOSITE SLAB SHALL BE REINFORCED WITH WWR 6x6-W2.9xW2.9, U.N.O. METAL ROOF DECK TYPES

ROOF DECK TYPE 1: 1.0 CSV 22 GA (GALV.) VENTED MTL DECK.

ROOF DECK TYPE 2: 1.5 WR 22 GA (GALV.) MTL DECK.

1. STEEL DECK SHALL BE PLACED WITH TWO-SPAN CONDITION MINIMUM. NO SINGLE SPANS ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER-OF-RECORD.

AND METAL DECK SCHEDULE ON SHEET S-504 FOR MORE INFORMATION REGARDING FLOOR DECK REQUIREMENTS.

REF SLABS FORM DECK (AT FLOORS) GENERAL NOTES

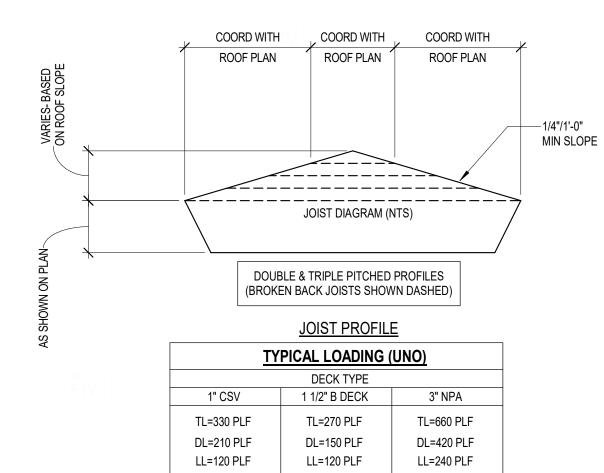
REF METAL ROOF DECKING GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-506 FOR MORE INFORMATION REGARDING ROOF DECK REQUIREMENTS.

Kubala

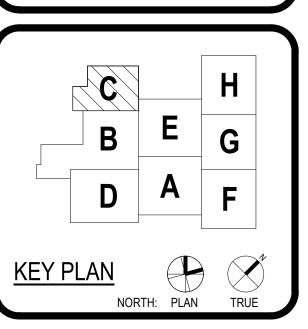
Ph: (800)248-3674 www.kubalaengineers.com TX. REG. NO. F-23612

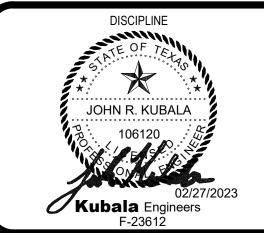
JOIST DESIGNATIONS, SHOWN ON THE FRAMING PLANS, FOLLOWED BY THE DESIGNATION "CL" SUPPORT A CONCENTRATED DEAD LOAD. THE JOIST SIZES DESIGNATED ON THE FRAMING PLANS DO NOT TAKE INTO ACCOUNT THIS CONCENTRATED DEAD LOAD. THE JOIST MANUFACTURER SHALL DESIGN SPECIAL JOISTS TO SUPPORT THIS CONCENTRATED DEAD LOAD IN ADDITION TO THE TOTAL LOAD CAPACITY PROVIDED IN THE SJI LOAD TABLES FOR THE JOISTS SPECIFIED ON THE FRAMING PLANS. JOISTS SUPPORTING THESE CONCENTRATED DEAD LOADS SHALL BE FABRICATED SYMMETRICALLY ABOUT THEIR CENTERLINE. DESIGN JOISTS FOR THE FOLLOWING "CL" DESIGNATIONS WHERE SHOWN ON THE FRAMING PLANS:

1. CL1 - XXXX POUNDS LOCATED X'-X" FROM THE FACE OF THE SUPPORTING PANEL ADJACENT TO HIGH ROOF. 2. CL2 - XXXX POUNDS LOCATED X'-X" FROM THE CENTERLINE OF THE SUPPORTING STEEL BEAM.



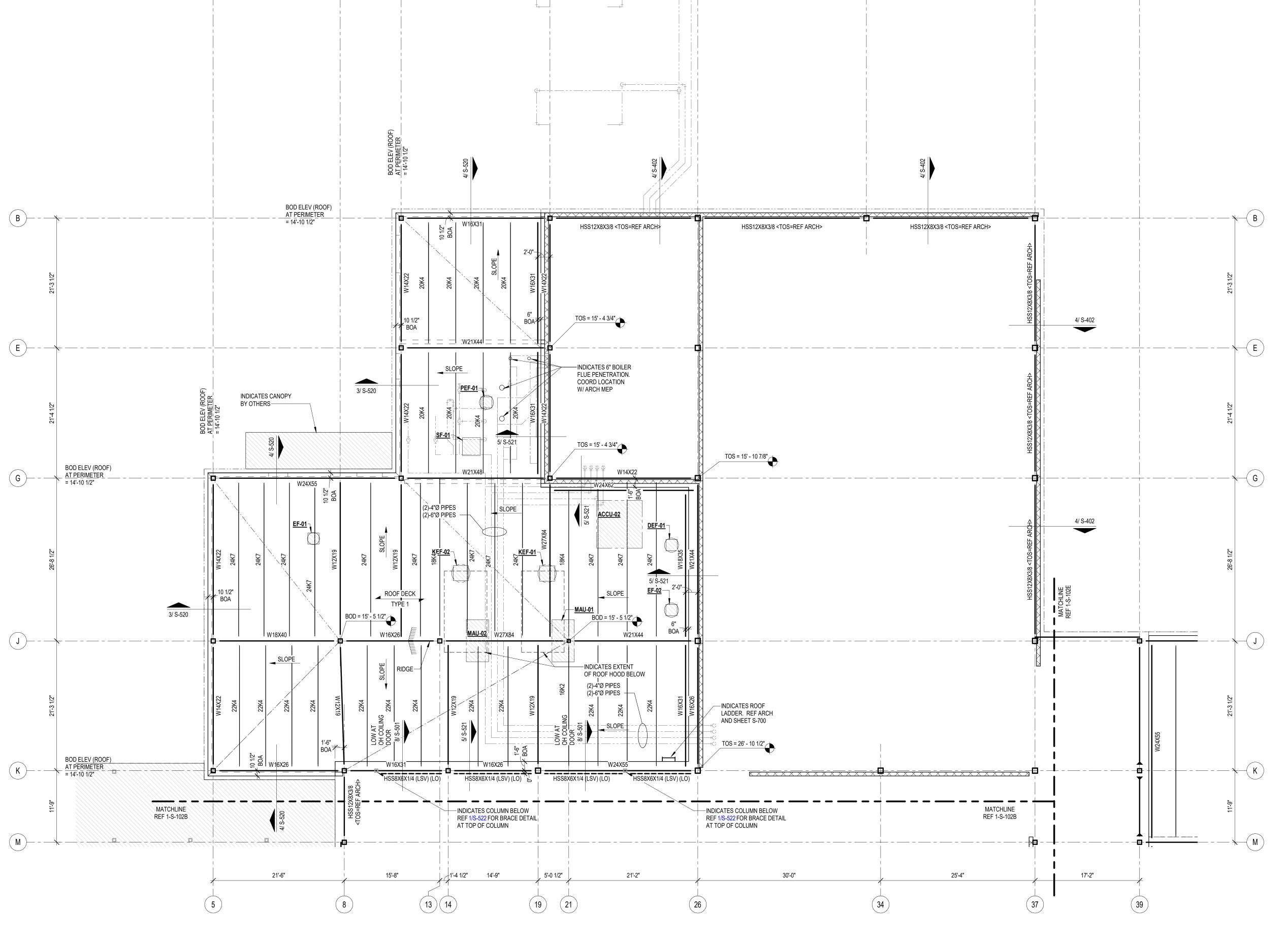
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	DATE PROJECT NUMBE 02/27/2023 220137				
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No.	Descrip	tion	Date		
	ISSUE FOR PROPOSAL				
BUILDING NUMBER					

LOW ROOF FRAMING PLAN - AREA C



24'-3"

27'-8"

27'-8"

17'-2"

10'-0"

24'-5"

20'-10"

CHECKED BY:

15'-0"

26'-6 1/4"

12'-2"

26'-6"

LOW CANOPY

19'-0 1/4"

25

9'-6 1/4"

BY OTHERS

9'-3 1/2"

ROOF PLAN NOTES

- 1. REF PLAN FOR TOP OF SLAB ELEVATION.
- 2. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0".
- B. TOP OF ROOF STRUCTURE IS SLOPED FOR DRAINAGE. REF ELEVATIONS NOTED ON PLAN. SLOPES SHALL BE UNIFORM BETWEEN COLUMN CENTERLINES UNLESS SHOWN OTHERWISE.
- BRIDGING NOT SHOWN ON PLAN. MANUFACTURER SHALL PROVIDE STANDARD BRIDGING COMPLYING WITH SJI SPECIFICATIONS OF LATEST ADOPTION, TYPICAL FOR GRAVITY AND UPLIFT LOADS SUPERIMPOSED ON ALL JOISTS. DIAGONAL BRIDGING SHALL BE PROVIDED BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS
- REFER TO THE ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF FRAMING MEMBERS AND DECK FASTENER TYPE, SIZE AND SPACING.
- 6. REF ARCH FOR TOP OF WALL ELEVATIONS.

REINFORCEMENT REQUIREMENTS.

- '. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.
- 8. TOS EL = BOTTOM OF DECK.
- 9. UNLESS SHOWN OTHERWISE, STEEL BEAMS OR JOISTS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES.
- 10. ALL STRUCTURAL STEEL THAT IS PERMANENTLY EXPOSED TO THE EXTERIOR OR IS PERMANENTLY IN UNCONDITIONED SPACE SHALL BE HOT-DIPPED GALVANIZED.
- 11. GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL DETAILS FOR ADDITIONAL
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- 13. INDICATES WIND BRACE BEAM BOTTOM FLANGE BRACING PER 4/S-507, TYP ALONG ENTIRE
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- GIVEN LOAD WITH JOIST MANUFACTURER. REF SHEET S-011. 16. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS
- 17. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.

WEIGHT, DIMENSIONS, LOCATION, ETC.

- 18. REF S5.xx SERIES DRAWINGS FOR STEEL FRAMING DETAILS.
- 19. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.
- INDICATES COLUMN BRACING PER 5/S-502. TYPICAL AT COLUMNS UNBRACED BY FRAMING MEMBER ABOUT THIER LOCAL AXIS. NOT ALL SHOWN ON PLAN FOR FOR CLARITY.

COMPOSITE FLOOR DECK AND METAL ROOF DECK LEGEND COMPOSITE FLOOR DECK TYPES

FLOOR DECK TYPE 1: 4 1/2" NWC ON 3.0 VLI 20 GA (GALV) (G90) COMPOSITE STEEL DECK (7 1/2" TOTAL SLAB THICKNESS). COMPOSITE SLAB SHALL BE REINFORCED WITH WWR 6x6-W2.9xW2.9, U.N.O.

METAL ROOF DECK TYPES

ROOF DECK TYPE 1: 1.0 CSV 22 GA (GALV.) VENTED MTL DECK.

ROOF DECK TYPE 2: 1.5 WR 22 GA (GALV.) MTL DECK.

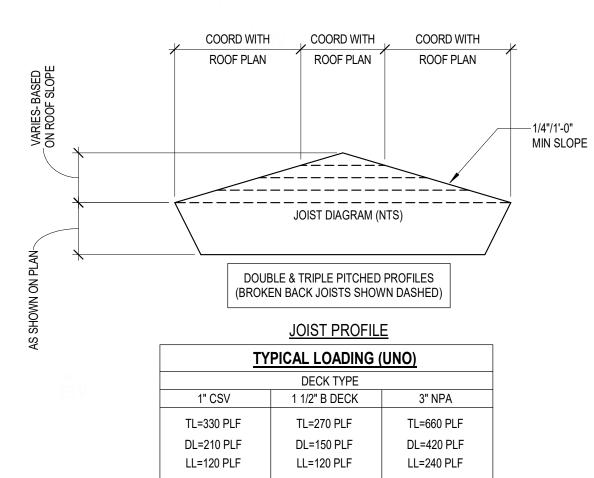
1. STEEL DECK SHALL BE PLACED WITH TWO-SPAN CONDITION MINIMUM. NO SINGLE SPANS ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER-OF-RECORD.

REF SLABS FORM DECK (AT FLOORS) GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-504 FOR MORE INFORMATION REGARDING FLOOR DECK REQUIREMENTS.

REF METAL ROOF DECKING GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-506 FOR MORE INFORMATION REGARDING ROOF DECK REQUIREMENTS.

JOIST DESIGNATIONS, SHOWN ON THE FRAMING PLANS, FOLLOWED BY THE DESIGNATION "CL" SUPPORT A CONCENTRATED DEAD LOAD. THE JOIST SIZES DESIGNATED ON THE FRAMING PLANS DO NOT TAKE INTO ACCOUNT THIS CONCENTRATED DEAD LOAD. THE JOIST MANUFACTURER SHALL DESIGN SPECIAL JOISTS TO SUPPORT THIS CONCENTRATED DEAD LOAD IN ADDITION TO THE TOTAL LOAD CAPACITY PROVIDED IN THE SJI LOAD TABLES FOR THE JOISTS SPECIFIED ON THE FRAMING PLANS. JOISTS SUPPORTING THESE CONCENTRATED DEAD LOADS SHALL BE FABRICATED SYMMETRICALLY ABOUT THEIR CENTERLINE. DESIGN

1. CL1 - XXXX POUNDS LOCATED X'-X" FROM THE FACE OF THE SUPPORTING PANEL ADJACENT TO HIGH ROOF. 2. CL2 - XXXX POUNDS LOCATED X'-X" FROM THE CENTERLINE OF THE SUPPORTING STEEL BEAM.



---BOD ELEV (ROOF) AT PERIMETER

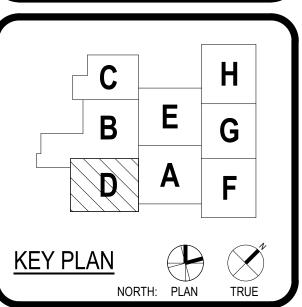
= 12'-10 1/2"

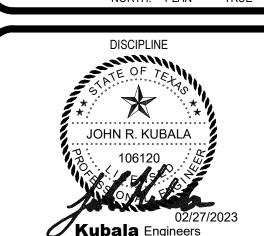
15'-0" 2'-1 3/4"-

29'-0"



11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm: BR 1608 FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS





F-23612

TOMBALL ISD

PROJECT NUMBER **ISSUE FOR PROPOSAL BUILDING NUMBER** LOW ROOF FRAMING

PLAN - AREA D

Kubala

Ph: (800)248-3674 www.kubalaengineers.com TX. REG. NO. F-23612

LOW ROOF FRAMING PLAN - AREA D 1/8" = 1'-0"

4

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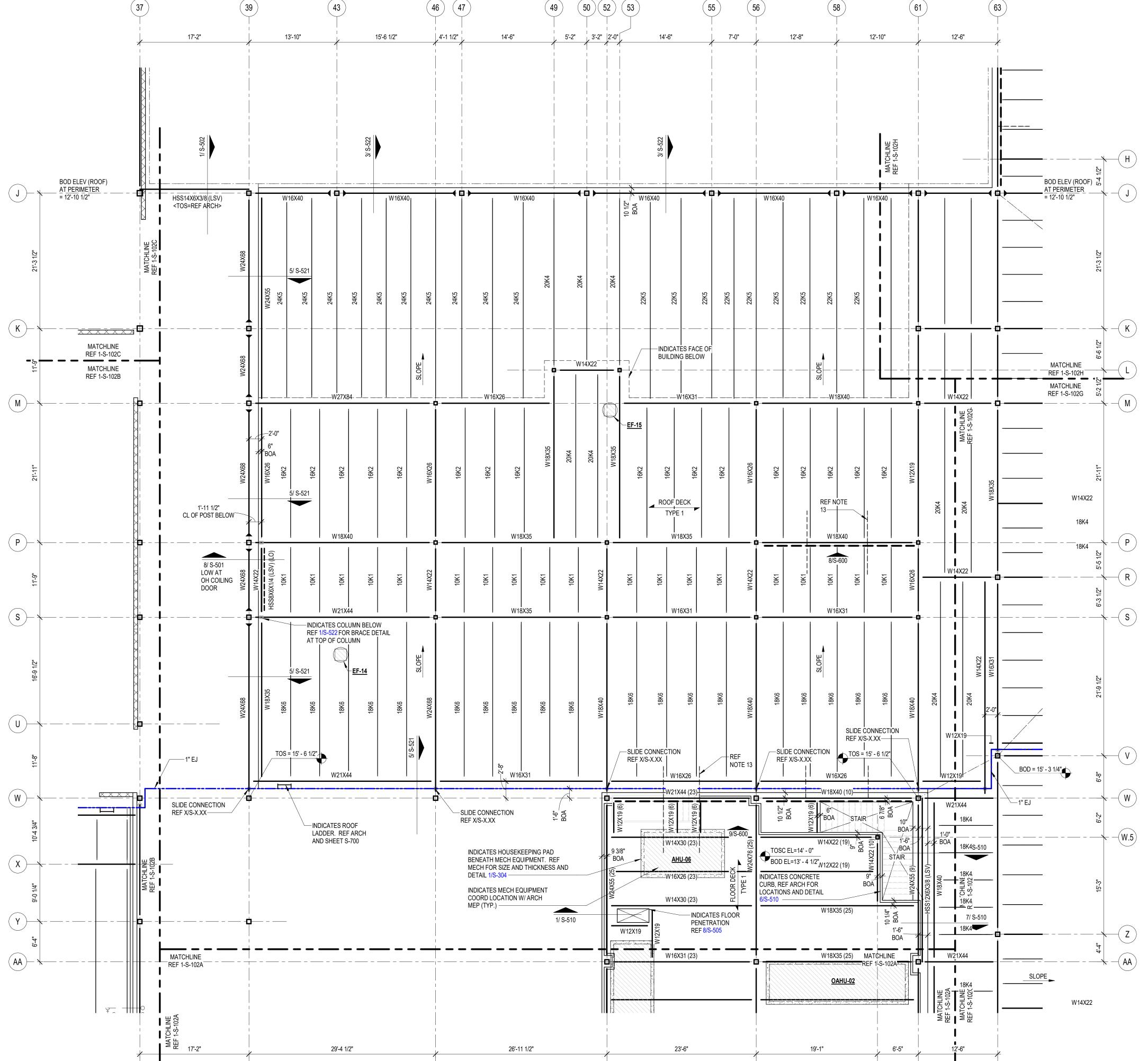
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JOHN R. KUBALA

ISSUE FOR PROPOSAL

MEZZANINE/ LOW ROOF FRAMING PLAN - AREA E



(58.5)

COORD WITH COORD WITH **ROOF PLAN** ROOF PLAN ROOF PLAN _____ -----------JOIST DIAGRAM (NTS) DOUBLE & TRIPLE PITCHED PROFILES (BROKEN BACK JOISTS SHOWN DASHED) JOIST PROFILE TYPICAL LOADING (UNO) DECK TYPE 1 1/2" B DECK 3" NPA TL=270 PLF TL=660 PLF TL=330 PLF DL=210 PLF DL=150 PLF DL=420 PLF LL=120 PLF LL=120 PLF LL=240 PLF

> JOIST DESIGNATIONS, SHOWN ON THE FRAMING PLANS, FOLLOWED BY THE DESIGNATION "CL" SUPPORT A CONCENTRATED DEAD LOAD. THE JOIST SIZES DESIGNATED ON THE FRAMING PLANS DO NOT TAKE INTO ACCOUNT THIS CONCENTRATED DEAD LOAD. THE JOIST MANUFACTURER SHALL DESIGN SPECIAL JOISTS TO SUPPORT THIS CONCENTRATED DEAD LOAD IN ADDITION TO THE TOTAL LOAD CAPACITY PROVIDED IN THE SJI LOAD TABLES FOR THE JOISTS SPECIFIED ON THE FRAMING PLANS. JOISTS SUPPORTING THESE CONCENTRATED DEAD LOADS SHALL BE FABRICATED SYMMETRICALLY ABOUT THEIR CENTERLINE. DESIGN

MORE INFORMATION REGARDING FLOOR DECK

REF METAL ROOF DECKING GENERAL NOTES AND

INFORMATION REGARDING ROOF DECK

METAL DECK SCHEDULE ON SHEET S-506 FOR MORE

REQUIREMENTS.

REQUIREMENTS.

1. CL1 - XXXX POUNDS LOCATED X'-X" FROM THE FACE OF THE SUPPORTING PANEL ADJACENT TO HIGH ROOF. 2. CL2 - XXXX POUNDS LOCATED X'-X" FROM THE CENTERLINE OF THE SUPPORTING STEEL BEAM.

MEZZANINE/ LOW ROOF FRAMING PLAN - AREA E

Kubala

4. COMPOSITE BEAM CONSTRUCTION IS UNSHORED. 5. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO

ARE ALLOWED WITHOUT WRITTEN APPROVAL OF ENGINEER-OF-RECORD.

1. REF PLAN FOR TOP OF SLAB ELEVATION.

SATISFY LATEST OSHA ERECTION REQUIREMENTS. 6. TOS EL = BOTTOM OF DECK.

7. UNLESS SHOWN OTHERWISE, STEEL BEAMS OR JOISTS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES.

8. ALL STRUCTURAL STEEL THAT IS PERMANENTLY EXPOSED TO THE EXTERIOR OR IS PERMANENTLY IN UNCONDITIONED SPACE SHALL BE HOT-DIPPED GALVANIZED.

9. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR PENETRATIONS NOT SHOWN. REFER TO TYPICAL DETAILS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS AT

SLAB AND AROUND OPENINGS. EXTEND BARS 10'-0" PAST CORNERS OF OPENINGS. PROVIDE STD HOOK AT TERMINATION ENDS. ALL LAPS IN REINFORCING SHALL BE WITH MECHANICAL COUPLERS OR 20'-0" LAP SPLICE (TYP).

10. PROVIDE ADDITIONAL (5) - #6 CONT. BARS IN COMPOSITE SLAB ALONG FULL PERIMETER OF

11. CONTRACTOR TO VERIFY ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.

12. INDICATES WIND BRACE BEAM BOTTOM FLANGE BRACING PER 2/S-505 TYP ALONG ENTIRE GRIDAT ALL BRACE FRAMES. AT LOCATIONS WHERE BEAM SPACING EXCEEDS 4'-0" OC

13. REF DETAIL FOR ADDITIONAL REINF UNDER INTERIOR CMU WALLS PARALLEL TO DECK SPAN. GC TO COORDINATE THE LOCATION OF ALL CMU WALLS WITH ARCH DRAWINGS.

14. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS.

15. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.

16. REF S5.xx SERIES DRAWINGS FOR STEEL FRAMING DETAILS.

17. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.

18. ALL CMU SHOWN ON PLAN ARE PART OF THE STRUCTURAL LATERAL FORCE RESISTING SYSTEM AND SUPPORTS GRAVITY LOADS. NON-STRUCTURAL CMU EXISTS IN OTHER LOCATION (REF ARCH DWGS). A 3/8" VERT CONTROL JOINT SHALL BE PROVIDED WHEREVER STRUCTURAL AND NON-STRUCTURAL CMU ABUT.

ROOF PLAN NOTES

1. REF PLAN FOR TOP OF SLAB ELEVATION.

2. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0".

3. TOP OF ROOF STRUCTURE IS SLOPED FOR DRAINAGE. REF ELEVATIONS NOTED ON PLAN. SLOPES SHALL BE UNIFORM BETWEEN COLUMN CENTERLINES UNLESS SHOWN OTHERWISE.

BRIDGING NOT SHOWN ON PLAN. MANUFACTURER SHALL PROVIDE STANDARD BRIDGING COMPLYING WITH SJI SPECIFICATIONS OF LATEST ADOPTION, TYPICAL FOR GRAVITY AND UPLIFT LOADS SUPERIMPOSED ON ALL JOISTS. DIAGONAL BRIDGING SHALL BE PROVIDED BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS CONTINUOUS.

REFER TO THE ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF FRAMING MEMBERS AND DECK FASTENER TYPE, SIZE AND SPACING. 6. REF ARCH FOR TOP OF WALL ELEVATIONS.

7. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.

8. TOS EL = BOTTOM OF DECK.

9. UNLESS SHOWN OTHERWISE, STEEL BEAMS OR JOISTS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES.

10. ALL STRUCTURAL STEEL THAT IS PERMANENTLY EXPOSED TO THE EXTERIOR OR IS PERMANENTLY IN UNCONDITIONED SPACE SHALL BE HOT-DIPPED GALVANIZED.

11. GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL DETAILS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.

12. CONTRACTOR TO VERIFY ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.

13. INDICATES WIND BRACE BEAM BOTTOM FLANGE BRACING PER 4/S-507, TYP ALONG ENTIRE GRID AT ALL BRACE FRAMES. NOT SHOWN IN PLAN FOR CLARITY.

14. REF DETAIL 5/S-506 WHERE ROOF TOP EQUIPMENT REQUIRES A STRUCTURAL CURB. JOISTS THAT ARE SUPPORTING ROOF TOP EQUIPMENT SHALL BE DESIGNED FOR AN ADDITIONAL CONCENTRATED DEAD LOAD (AS SHOWN ON PLAN AT ANY POINT ALONG JOIST SPAN). GC SHALL COORDINATE WITH MEP, ARCHITECTURE AND EQUIPMENT CUTSHEETS FOR FINAL WEIGHT, DIMENSIONS, LOCATION, ETC.

15. —— - - INDICATES PIPING RUN, REF MEP DRAWINGS; GC SHALL COORDINATE GIVEN LOAD WITH JOIST MANUFACTURER. REF SHEET S-011.

16. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS

17. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS. 18. REF S5.xx SERIES DRAWINGS FOR STEEL FRAMING DETAILS.

19. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.

/ - INDICATES COLUMN BRACING PER 5/S-502. TYPICAL AT COLUMNS UNBRACED BY FRAMING MEMBER ABOUT THIER LOCAL AXIS. NOT ALL SHOWN ON PLAN FOR FOR CLARITY.

COMPOSITE FLOOR DECK AND METAL ROOF DECK LEGEND COMPOSITE FLOOR DECK TYPES FLOOR DECK TYPE 1: 4 1/2" NWC ON 3.0 VLI 20 GA (GALV) (G90) COMPOSITE STEEL DECK (7 1/2" TOTAL SLAB THICKNESS). COMPOSITE SLAB SHALL BE REINFORCED WITH WWR 6x6-W2.9xW2.9, U.N.O. — 1/4"/1'-0" METAL ROOF DECK TYPES MIN SLOPE **ROOF DECK TYPE 1:** 1.0 CSV 22 GA (GALV.) VENTED MTL DECK. **ROOF DECK TYPE 2:** 1.5 WR 22 GA (GALV.) MTL DECK. STEEL DECK SHALL BE PLACED WITH TWO-SPAN CONDITION MINIMUM. NO SINGLE SPANS ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER-OF-RECORD. REF SLABS FORM DECK (AT FLOORS) GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-504 FOR

JOISTS FOR THE FOLLOWING "CL" DESIGNATIONS WHERE SHOWN ON THE FRAMING PLANS:

17'-6 3/4"

11'-2 1/4"

11'-2 3/4"

18'-2 3/4"

26'-6 1/2"

ROOF PLAN NOTES

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 SLOPES SHALL BE UNIFORM BETWEEN COLUMN CENTERLINES UNLESS SHOWN OTHERWISE.
- 4. JOIST MFR NOTE:
 BRIDGING NOT SHOWN ON PLAN. MANUFACTURER SHALL PROVIDE STANDARD BRIDGING
 COMPLYING WITH SJI SPECIFICATIONS OF LATEST ADOPTION, TYPICAL FOR GRAVITY AND

BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS

CONTINUOUS.

5. REFER TO THE ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF

UPLIFT LOADS SUPERIMPOSED ON ALL JOISTS. DIAGONAL BRIDGING SHALL BE PROVIDED

- 6. REF ARCH FOR TOP OF WALL ELEVATIONS.
- 7. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.

FRAMING MEMBERS AND DECK FASTENER TYPE, SIZE AND SPACING.

- 8. TOS EL = BOTTOM OF DECK.
- 9. UNLESS SHOWN OTHERWISE, STEEL BEAMS OR JOISTS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES.
- 10. ALL STRUCTURAL STEEL THAT IS PERMANENTLY EXPOSED TO THE EXTERIOR OR IS
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 11. GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH MECHANICAL,

ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL DETAILS FOR ADDITIONAL

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- 12. CONTRACTOR TO VERIFY ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
- 13. INDICATES WIND BRACE BEAM BOTTOM FLANGE BRACING PER 4/S-507, TYP ALONG ENTIRE GRID AT ALL BRACE FRAMES. NOT SHOWN IN PLAN FOR CLARITY.
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FOR CLARITY.

- 18. REF 55.XX SERIES DRAWINGS FOR STEEL FRAMING DETAILS.
- 19. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.
 20. / INDICATES COLUMN BRACING PER 5/S-502. TYPICAL AT COLUMNS UNBRACED BY FRAMING MEMBER ABOUT THIER LOCAL AXIS. NOT ALL SHOWN ON PLAN FOR

COMPOSITE FLOOR DECK AND METAL ROOF DECK LEGEND

COMPOSITE FLOOR DECK TYPES

FLOOR DECK TYPE 1:

4 1/2" NWC ON 3.0 VLI 20 GA (GALV) (G90) COMPOSITE STEEL DECK (7 1/2" TOTAL SLAB THICKNESS).

COMPOSITE SLAB SHALL BE REINFORCED WITH WWR

6x6-W2.9xW2.9, U.N.O.

ROOF DECK TYPE 1:

METAL ROOF DECK TYPES

1.0 CSV 22 GA (GALV.) VENTED MTL DECK.

ROOF DECK TYPE 2:

1.5 WR 22 GA (GALV.) MTL DECK.

ENGINEER-OF-RECORD.

NOTES:

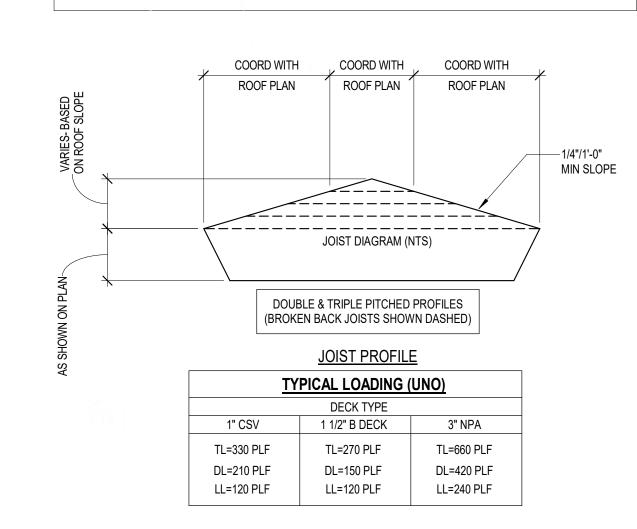
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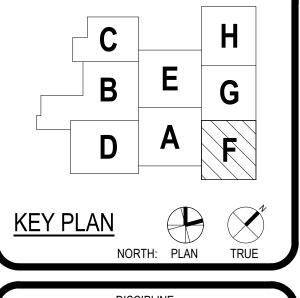
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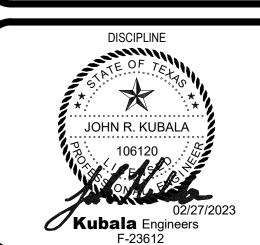


RBK

JERGEN ROAD ELEMENTARY SCHOO

TOMBALL
INDEPENDENT SCHOOL DISTRICT





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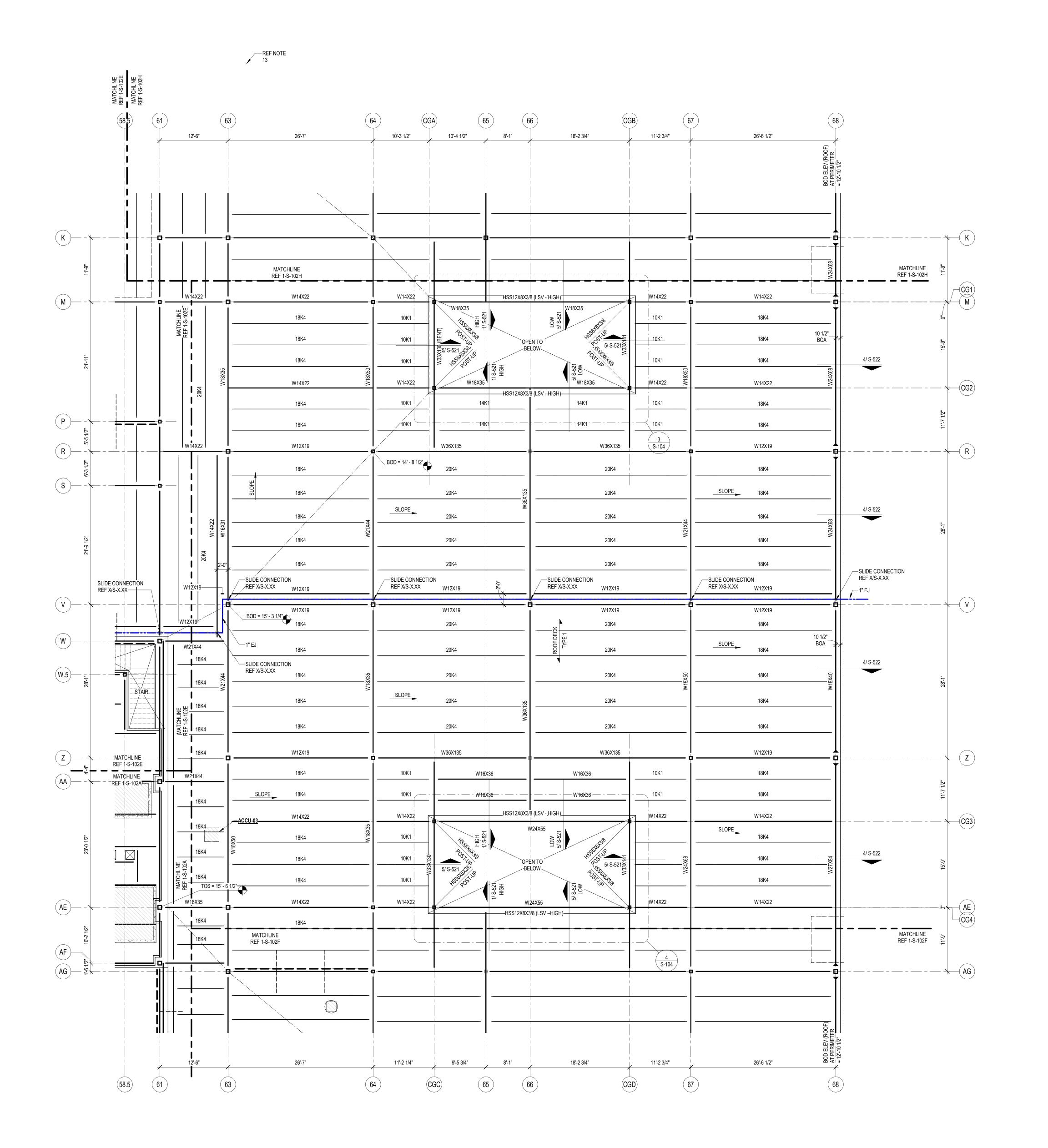
PLAN - AREA F

Kubala ENGINEERS Ph: (800)248-3674

LOW ROOF FRAMING PLAN - AREA F

12'-0"





ROOF PLAN NOTES

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- 2. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0".
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- 5. REFER TO THE ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF

BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS

6. REF ARCH FOR TOP OF WALL ELEVATIONS.

REINFORCEMENT REQUIREMENTS.

DRAWINGS PRIOR TO CONSTRUCTION.

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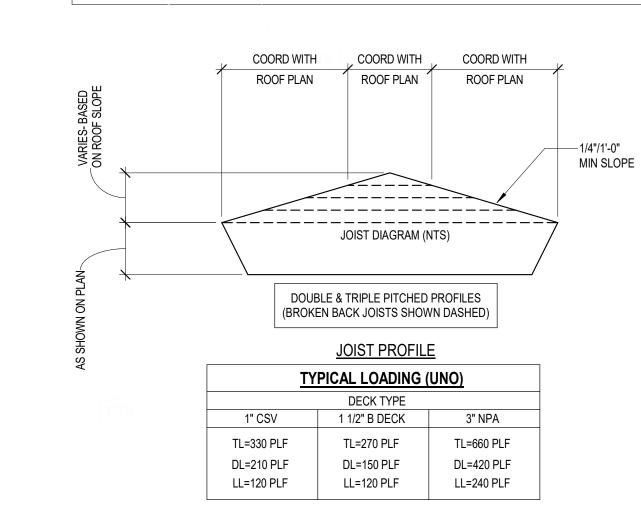
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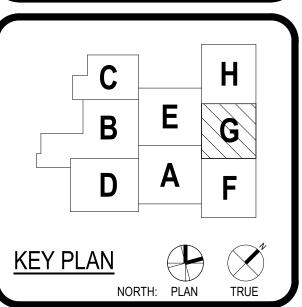
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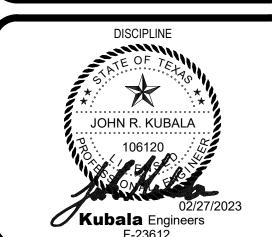
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11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm: BR 1608 FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS

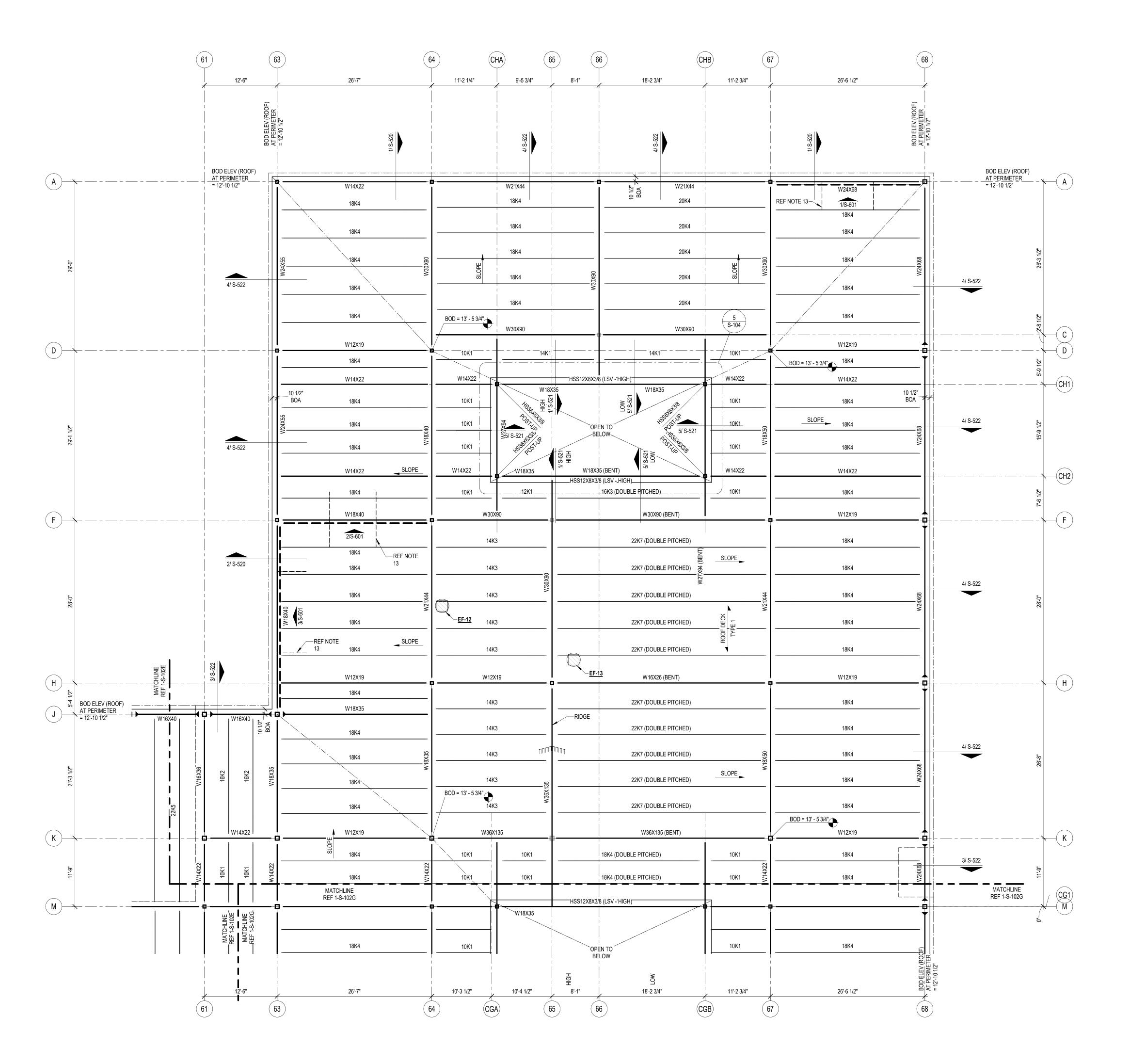




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Kubala

PLAN - AREA G



LOW ROOF FRAMING PLAN - AREA H

ROOF PLAN NOTES

- 1. REF PLAN FOR TOP OF SLAB ELEVATION.
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- 7. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.
- 8. TOS EL = BOTTOM OF DECK.
- 9. UNLESS SHOWN OTHERWISE, STEEL BEAMS OR JOISTS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES.
- 10. ALL STRUCTURAL STEEL THAT IS PERMANENTLY EXPOSED TO THE EXTERIOR OR IS PERMANENTLY IN UNCONDITIONED SPACE SHALL BE HOT-DIPPED GALVANIZED.
- 11. GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL DETAILS FOR ADDITIONAL
- 12. CONTRACTOR TO VERIFY ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
- 13. INDICATES WIND BRACE BEAM BOTTOM FLANGE BRACING PER 4/S-507, TYP ALONG ENTIRE GRID AT ALL BRACE FRAMES. NOT SHOWN IN PLAN FOR CLARITY.
- 14. REF DETAIL 5/S-506 WHERE ROOF TOP EQUIPMENT REQUIRES A STRUCTURAL CURB. JOISTS THAT ARE SUPPORTING ROOF TOP EQUIPMENT SHALL BE DESIGNED FOR AN ADDITIONAL CONCENTRATED DEAD LOAD (AS SHOWN ON PLAN AT ANY POINT ALONG JOIST SPAN). GC SHALL COORDINATE WITH MEP, ARCHITECTURE AND EQUIPMENT CUTSHEETS FOR FINAL WEIGHT, DIMENSIONS, LOCATION, ETC.
- 15. —— - INDICATES PIPING RUN, REF MEP DRAWINGS; GC SHALL COORDINATE GIVEN LOAD WITH JOIST MANUFACTURER. REF SHEET S-011.
- 16. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS
- 17. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.
- 18. REF S5.xx SERIES DRAWINGS FOR STEEL FRAMING DETAILS.
- 19. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.
- INDICATES COLUMN BRACING PER 5/S-502. TYPICAL AT COLUMNS UNBRACED BY FRAMING MEMBER ABOUT THIER LOCAL AXIS. NOT ALL SHOWN ON PLAN FOR FOR CLARITY.

COMPOSITE FLOOR DECK AND METAL ROOF DECK LEGEND COMPOSITE FLOOR DECK TYPES FLOOR DECK TYPE 1:

4 1/2" NWC ON 3.0 VLI 20 GA (GALV) (G90) COMPOSITE STEEL DECK (7 1/2" TOTAL SLAB THICKNESS). COMPOSITE SLAB SHALL BE REINFORCED WITH WWR 6x6-W2.9xW2.9, U.N.O.

METAL ROOF DECK TYPES ROOF DECK TYPE 1:

1.0 CSV 22 GA (GALV.) VENTED MTL DECK.

ROOF DECK TYPE 2: 1.5 WR 22 GA (GALV.) MTL DECK.

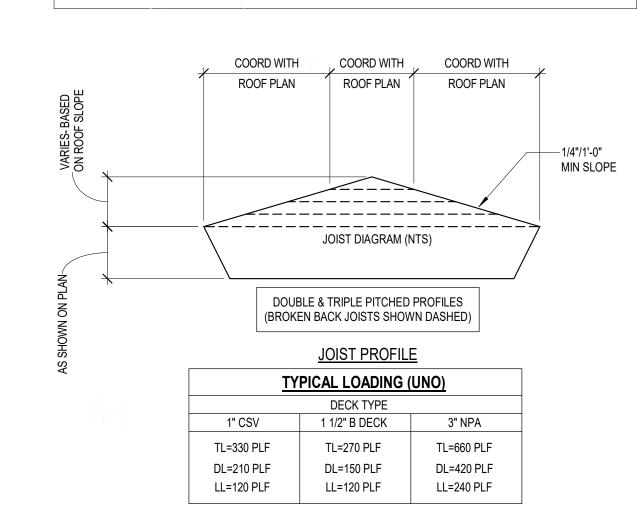
1. STEEL DECK SHALL BE PLACED WITH TWO-SPAN CONDITION MINIMUM. NO SINGLE SPANS ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER-OF-RECORD.

REF SLABS FORM DECK (AT FLOORS) GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-504 FOR MORE INFORMATION REGARDING FLOOR DECK REQUIREMENTS.

REF METAL ROOF DECKING GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-506 FOR MORE INFORMATION REGARDING ROOF DECK REQUIREMENTS.

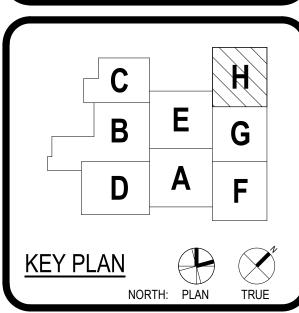
JOIST DESIGNATIONS, SHOWN ON THE FRAMING PLANS, FOLLOWED BY THE DESIGNATION "CL" SUPPORT A CONCENTRATED DEAD LOAD. THE JOIST SIZES DESIGNATED ON THE FRAMING PLANS DO NOT TAKE INTO ACCOUNT THIS CONCENTRATED DEAD LOAD. THE JOIST MANUFACTURER SHALL DESIGN SPECIAL JOISTS TO SUPPORT THIS CONCENTRATED DEAD LOAD IN ADDITION TO THE TOTAL LOAD CAPACITY PROVIDED IN THE SJI LOAD TABLES FOR THE JOISTS SPECIFIED ON THE FRAMING PLANS. JOISTS SUPPORTING THESE CONCENTRATED DEAD LOADS SHALL BE FABRICATED SYMMETRICALLY ABOUT THEIR CENTERLINE. DESIGN JOISTS FOR THE FOLLOWING "CL" DESIGNATIONS WHERE SHOWN ON THE FRAMING PLANS:

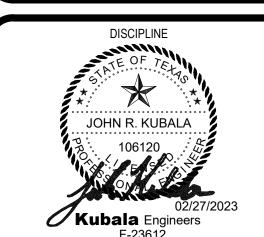
1. CL1 - XXXX POUNDS LOCATED X'-X" FROM THE FACE OF THE SUPPORTING PANEL ADJACENT TO HIGH ROOF. 2. CL2 - XXXX POUNDS LOCATED X'-X" FROM THE CENTERLINE OF THE SUPPORTING STEEL BEAM.





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LEAF ENGINEERS

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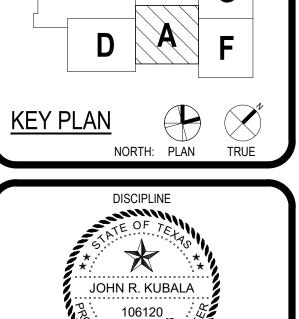
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PROJECT NUMBER
220137
DRAWING HISTORY

No. Description Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

Kubala Engineers F-23612

HIGH ROOF FRAMING PLAN - AREA A

S-103A



HOUSTON

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Houston, TX 77046
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713-961-4571 F
TX Firm: BR 1608

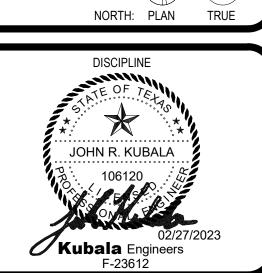
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HIGH ROOF FRAMING PLAN - AREA B

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ROOF PLAN NOTES

REF PLAN FOR TOP OF SLAB ELEVATION.

2. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0".

3. TOP OF ROOF STRUCTURE IS SLOPED FOR DRAINAGE. REF ELEVATIONS NOTED ON PLAN. SLOPES SHALL BE UNIFORM BETWEEN COLUMN CENTERLINES UNLESS SHOWN OTHERWISE.

4. JOIST MFR NOTE:
BRIDGING NOT SHOWN ON PLAN. MANUFACTURER SHALL PROVIDE STANDARD BRIDGING
COMPLYING WITH SJI SPECIFICATIONS OF LATEST ADOPTION, TYPICAL FOR GRAVITY AND
UPLIFT LOADS SUPERIMPOSED ON ALL JOISTS. DIAGONAL BRIDGING SHALL BE PROVIDED
BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS

5. REFER TO THE ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF FRAMING MEMBERS AND DECK FASTENER TYPE, SIZE AND SPACING.

6. REF ARCH FOR TOP OF WALL ELEVATIONS.

REINFORCEMENT REQUIREMENTS.

7. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.

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11. GC COORDINATE ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH MECHANICAL,

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12. CONTRACTOR TO VERIFY ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.

13. INDICATES WIND BRACE BEAM BOTTOM FLANGE BRACING PER 4/S-507, TYP ALONG ENTIRE GRID AT ALL BRACE FRAMES. NOT SHOWN IN PLAN FOR CLARITY.

14. REF DETAIL 5/S-506 WHERE ROOF TOP EQUIPMENT REQUIRES A STRUCTURAL CURB. JOISTS THAT ARE SUPPORTING ROOF TOP EQUIPMENT SHALL BE DESIGNED FOR AN ADDITIONAL CONCENTRATED DEAD LOAD (AS SHOWN ON PLAN AT ANY POINT ALONG JOIST SPAN). GC SHALL COORDINATE WITH MEP, ARCHITECTURE AND EQUIPMENT CUTSHEETS FOR FINAL WEIGHT, DIMENSIONS, LOCATION, ETC.

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COMPOSITE FLOOR DECK AND METAL ROOF DECK LEGEND

COMPOSITE FLOOR DECK TYPES

FLOOR DECK TYPE 1:

4 1/2" NWC ON 3.0 VLI 20 GA (GALV) (G90) COMPOSITE STEEL DECK (7 1/2" TOTAL SLAB THICKNESS).

COMPOSITE SLAB SHALL BE REINFORCED WITH WWR 6x6-W2.9xW2.9, U.N.O.

METAL ROOF DECK TYPES

ROOF DECK TYPE 1:

1.0 CSV 22 GA (GALV.) VENTED MTL DECK.

1.0 CSV 22 GA (GALV.) VENTED MTL DE

1.5 WR 22 GA (GALV.) MTL DECK.

NOTES:

1. STEEL DECK SHALL BE PLACED WITH TWO-SPAN

CONDITION MINIMUM. NO SINGLE SPANS ARE
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ENGINEER-OF-RECORD.

REF SLABS FORM DECK (AT FLOORS) GENERAL NOTES
AND METAL DECK SCHEDULE ON SHEET S-504 FOR

REQUIREMENTS.

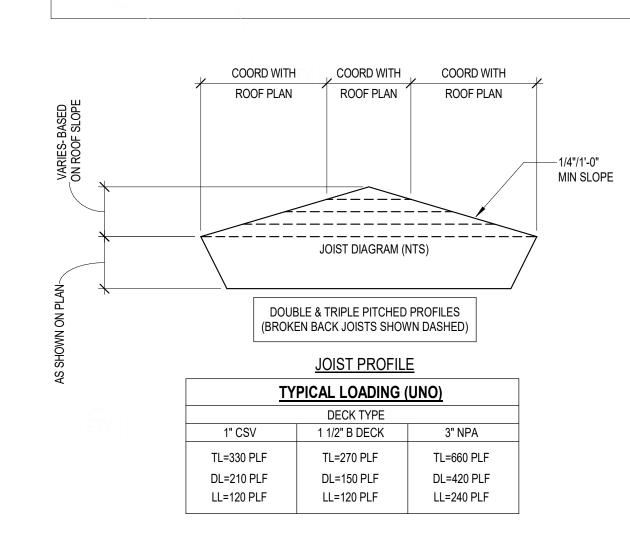
REF METAL ROOF DECKING GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-506 FOR MORE INFORMATION REGARDING ROOF DECK

MORE INFORMATION REGARDING FLOOR DECK

JOIST DESIGNATIONS, SHOWN ON THE FRAMING PLANS, FOLLOWED BY THE DESIGNATION "CL" SUPPORT A CONCENTRATED DEAD LOAD. THE JOIST SIZES DESIGNATED ON THE FRAMING PLANS DO NOT TAKE INTO ACCOUNT THIS CONCENTRATED DEAD LOAD. THE JOIST MANUFACTURER SHALL DESIGN SPECIAL JOISTS TO SUPPORT THIS CONCENTRATED DEAD LOAD IN ADDITION TO THE TOTAL LOAD CAPACITY PROVIDED IN THE SJI LOAD TABLES FOR THE JOISTS SPECIFIED ON THE FRAMING PLANS. JOISTS SUPPORTING THESE CONCENTRATED DEAD LOADS SHALL BE FABRICATED SYMMETRICALLY ABOUT THEIR CENTERLINE. DESIGN JOISTS FOR THE FOLLOWING "CL" DESIGNATIONS WHERE SHOWN ON THE FRAMING PLANS:

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1. CL1 - XXXX POUNDS LOCATED X'-X" FROM THE FACE OF THE SUPPORTING PANEL ADJACENT TO HIGH ROOF.
2. CL2 - XXXX POUNDS LOCATED X'-X" FROM THE CENTERLINE OF THE SUPPORTING STEEL BEAM.





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TX Firm: BR 1608

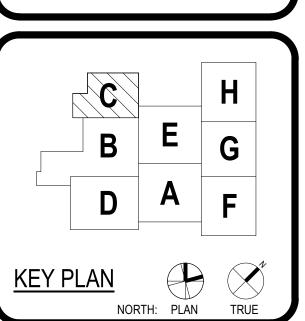
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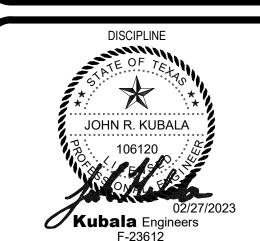
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Kubala

PLAN - AREA C

HIGH ROOF FRAMING PLAN - AREA C

W16X26

22K4

22K4

22K4

- 22K4

23'-6"

12K1 MATCHLINE REF 1-S-103C

— 5 + — — + — Ş | — | MATCHLINE 12K1 REF 1-S-103B

W12X19 12K1 INDICATÉS LOW ROOF BELOW (2)-4"Ø PIPES / REF SHEET S-102E/

(2)-6"Ø PIPES—1 12K1 W12X19

32LH11

12K1 (DOUBLE PITCHED) ✓ SLIDE CONNECTION W12X19 ลี W12X19 W12X19 REF NOTE 20 SLIDE CONNECTION / 12K1 REF X/S-X.XX --- INDICATES ROOF LADDER. REF ARCH

AND SHEET S-700

(2)-6"Ø PIPES 12K1 BOD = 27' - 3 1/2" _32LH11_ - -W12X19[∓] 32LH11 (DOUBLE PITCHED)

W12X19

₩ H 17'-2" 29'-4 1/2" 26'-11 1/2"

HIGH ROOF FRAMING PLAN - AREA E

ROOF PLAN NOTES

- 1. REF PLAN FOR TOP OF SLAB ELEVATION.
- 2. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0".
- 3. TOP OF ROOF STRUCTURE IS SLOPED FOR DRAINAGE. REF ELEVATIONS NOTED ON PLAN. SLOPES SHALL BE UNIFORM BETWEEN COLUMN CENTERLINES UNLESS SHOWN OTHERWISE.
- BRIDGING NOT SHOWN ON PLAN. MANUFACTURER SHALL PROVIDE STANDARD BRIDGING COMPLYING WITH SJI SPECIFICATIONS OF LATEST ADOPTION, TYPICAL FOR GRAVITY AND UPLIFT LOADS SUPERIMPOSED ON ALL JOISTS. DIAGONAL BRIDGING SHALL BE PROVIDED

BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS

- 5. REFER TO THE ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF FRAMING MEMBERS AND DECK FASTENER TYPE, SIZE AND SPACING.
- 6. REF ARCH FOR TOP OF WALL ELEVATIONS.
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- 8. TOS EL = BOTTOM OF DECK.
- 9. UNLESS SHOWN OTHERWISE, STEEL BEAMS OR JOISTS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES.
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- REINFORCEMENT REQUIREMENTS. 12. CONTRACTOR TO VERIFY ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL
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- 16. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS 17. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.

WEIGHT, DIMENSIONS, LOCATION, ETC.

- 18. REF S5.xx SERIES DRAWINGS FOR STEEL FRAMING DETAILS.
- 19. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.
- / INDICATES COLUMN BRACING PER 5/S-502. TYPICAL AT COLUMNS UNBRACED BY FRAMING MEMBER ABOUT THIER LOCAL AXIS. NOT ALL SHOWN ON PLAN FOR FOR CLARITY.

COMPOSITE FLOOR DECK AND METAL ROOF DECK LEGEND

FLOOR DECK TYPE 1: 4 1/2" NWC ON 3.0 VLI 20 GA (GALV) (G90) COMPOSITE STEEL DECK (7 1/2" TOTAL SLAB THICKNESS). COMPOSITE SLAB SHALL BE REINFORCED WITH WWR 6x6-W2.9xW2.9, U.N.O.

METAL ROOF DECK TYPES ROOF DECK TYPE 1:

COMPOSITE FLOOR DECK TYPES

1.0 CSV 22 GA (GALV.) VENTED MTL DECK.

ROOF DECK TYPE 2: 1.5 WR 22 GA (GALV.) MTL DECK.

1. STEEL DECK SHALL BE PLACED WITH TWO-SPAN CONDITION MINIMUM. NO SINGLE SPANS ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER-OF-RECORD.

REF SLABS FORM DECK (AT FLOORS) GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-504 FOR MORE INFORMATION REGARDING FLOOR DECK REQUIREMENTS.

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JOIST DESIGNATIONS, SHOWN ON THE FRAMING PLANS, FOLLOWED BY THE DESIGNATION "CL" SUPPORT A CONCENTRATED DEAD LOAD. THE JOIST SIZES DESIGNATED ON THE FRAMING PLANS DO NOT TAKE INTO ACCOUNT THIS CONCENTRATED DEAD LOAD. THE JOIST MANUFACTURER SHALL DESIGN SPECIAL JOISTS TO SUPPORT THIS CONCENTRATED DEAD LOAD IN ADDITION TO THE TOTAL LOAD CAPACITY PROVIDED IN THE SJI LOAD TABLES FOR THE JOISTS SPECIFIED ON THE FRAMING PLANS. JOISTS SUPPORTING THESE CONCENTRATED DEAD LOADS SHALL BE FABRICATED SYMMETRICALLY ABOUT THEIR CENTERLINE. DESIGN JOISTS FOR THE FOLLOWING "CL" DESIGNATIONS WHERE SHOWN ON THE FRAMING PLANS:

1. CL1 - XXXX POUNDS LOCATED X'-X" FROM THE FACE OF THE SUPPORTING PANEL ADJACENT TO HIGH ROOF. 2. CL2 - XXXX POUNDS LOCATED X'-X" FROM THE CENTERLINE OF THE SUPPORTING STEEL BEAM.

/BOD ELEV (ROOF)/

AT PERIMETER/ = 26'-10 1/2" /

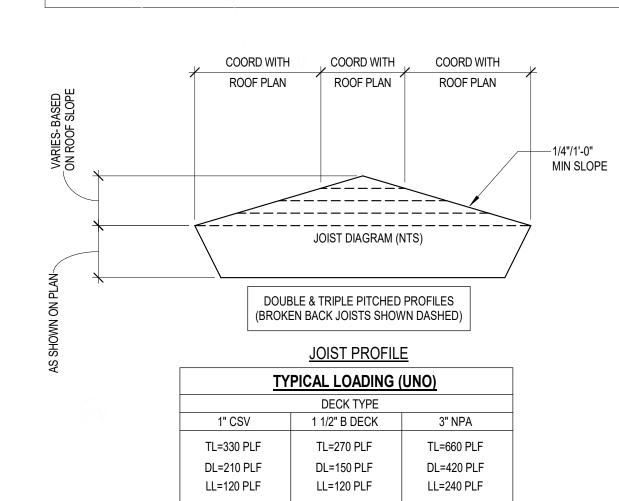
W18X40

25'-6"

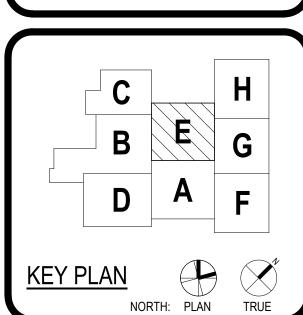
MATCHLINE

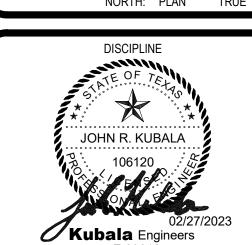
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REF NOTE 13-



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HIGH ROOF FRAMING PLAN - AREA E

Kubala

1/8" = 1'-0"

CLERESTORY ROOF FRAMING PLAN - AREA D

35'-9 3/4"

2 CLERESTORY ROOF FRAMING PLAN - AREA F

1/ S-520

35'-9 1/2"

ROOF DECK

CGA

36-8 1/4*

W24X68
ROOF DECK
TYPE 1
1/S-520

BOD EL = 23'-3"

W24X68
W24X68

ROOF DECK
TYPE 1
1/S-520

BOD EL = 23'-3"

W24X68

ROOF DECK
TYPE 1
1/S-520

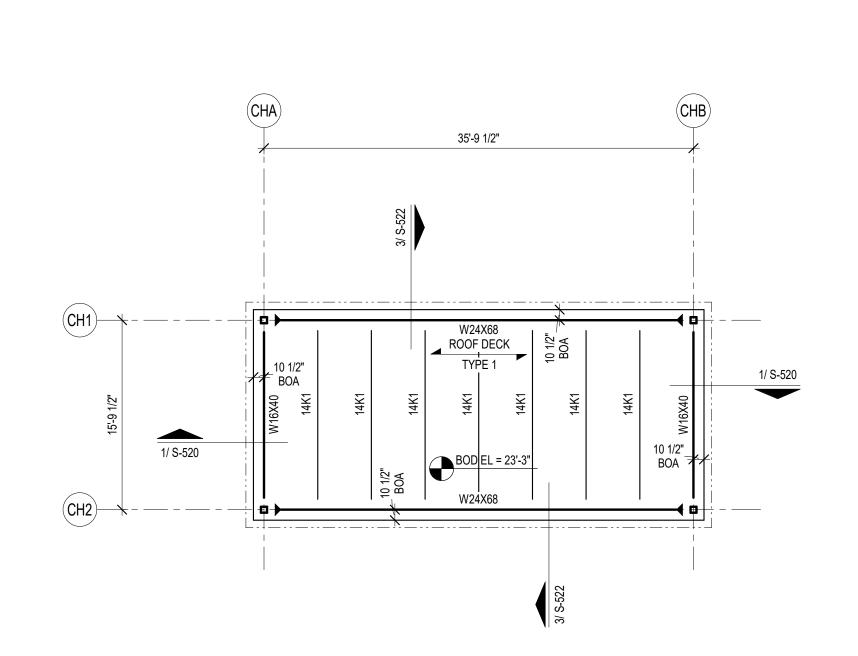
ROOF DECK
TYPE 1

3 CLERESTORY ROOF FRAMING PLAN - AREA G

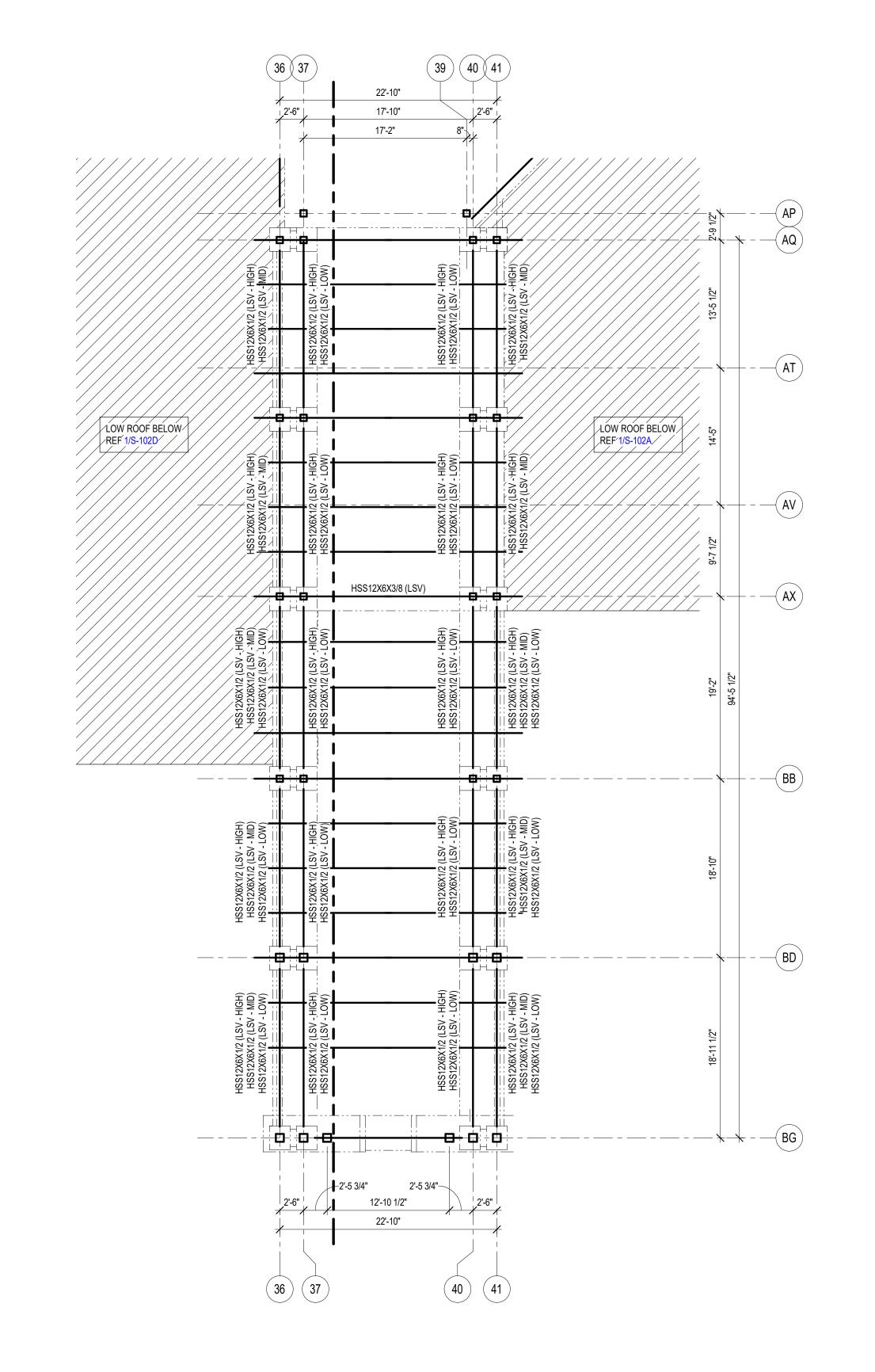
CGC CGD 35.9 1/2* W24X68 ROOF DECK TYPE 1 1/ S-520 BOA 1/ S-520 W24X68 ROOF DECK TYPE 1 W24X68 W24X68 ROOF DECK TYPE 1 W24X68 W24X68 ROOF DECK TYPE 1 W24X68

4 CLERESTORY ROOF FRAMING PLAN - AREA G

1/8" = 1'-0"



5 CLERESTORY ROOF FRAMING PLAN - AREA H



6 ENTRY CANOPY MISC STEEL

1/8" = 1'-0"

ROOF PLAN NOTES

1. REF PLAN FOR TOP OF SLAB ELEVATION.

1. REF PLAN FOR TOP OF SLAB ELEVATION

2. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0".

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12. CONTRACTOR TO VERIFY ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.

13. INDICATES WIND BRACE BEAM BOTTOM FLANGE BRACING PER 4/S-507, TYP ALONG ENTIRE GRID AT ALL BRACE FRAMES. NOT SHOWN IN PLAN FOR CLARITY.

14. REF DETAIL 5/S-506 WHERE ROOF TOP EQUIPMENT REQUIRES A STRUCTURAL CURB. JOISTS THAT ARE SUPPORTING ROOF TOP EQUIPMENT SHALL BE DESIGNED FOR AN ADDITIONAL CONCENTRATED DEAD LOAD (AS SHOWN ON PLAN AT ANY POINT ALONG JOIST SPAN). GC SHALL COORDINATE WITH MEP, ARCHITECTURE AND EQUIPMENT CUTSHEETS FOR FINAL WEIGHT, DIMENSIONS, LOCATION, ETC.

15. —— – – INDICATES PIPING RUN, REF MEP DRAWINGS; GC SHALL COORDINATE

GIVEN LOAD WITH JOIST MANUFACTURER. REF SHEET S-011.

16. REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS

17. REF S4.xx SERIES DRAWINGS FOR CMU DETAILS.

18. REF S5.xx SERIES DRAWINGS FOR STEEL FRAMING DETAILS.

20. \ / - INDICATES COLUMN BRACING PER 5/S-502. TYPICAL AT COLUMNS UNBRACED BY

19. REF S6.xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.

- INDICATES COLUMN BRACING PER 5/S-502. TYPICAL AT COLUMNS UNBRACED E FRAMING MEMBER ABOUT THIER LOCAL AXIS. NOT ALL SHOWN ON PLAN FOR FOR CLARITY.

COMPOSITE FLOOR DECK AND METAL ROOF DECK LEGEND

COMPOSITE FLOOR DECK TYPES

FLOOR DECK TYPE 1:

4 1/2" NWC ON 3.0 VLI 20 GA (GALV) (G90) COMPOSITE STEEL DECK (7 1/2" TOTAL SLAB THICKNESS).

COMPOSITE SLAB SHALL BE REINFORCED WITH WWR 6x6-W2.9xW2.9, U.N.O.

METAL ROOF DECK TYPES

ROOF DECK TYPE 1:

1.0 CSV 22 GA (GALV.) VENTED MTL DECK.

ROOF DECK TYPE 2: 1.5 WR 22 GA (GALV.) MTL DECK.

TES:

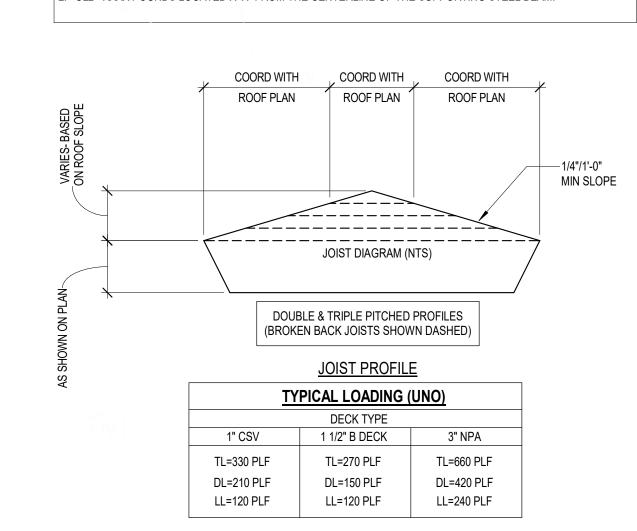
1. STEEL DECK SHALL BE PLACED WITH TWO-SPAN CONDITION MINIMUM. NO SINGLE SPANS ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER-OF-RECORD.

. REF SLABS FORM DECK (AT FLOORS) GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-504 FOR MORE INFORMATION REGARDING FLOOR DECK REQUIREMENTS.

PREF METAL ROOF DECKING GENERAL NOTES AND METAL DECK SCHEDULE ON SHEET S-506 FOR MORE INFORMATION REGARDING ROOF DECK REQUIREMENTS.

JOIST DESIGNATIONS, SHOWN ON THE FRAMING PLANS, FOLLOWED BY THE DESIGNATION "CL" SUPPORT A CONCENTRATED DEAD LOAD. THE JOIST SIZES DESIGNATED ON THE FRAMING PLANS DO NOT TAKE INTO ACCOUNT THIS CONCENTRATED DEAD LOAD. THE JOIST MANUFACTURER SHALL DESIGN SPECIAL JOISTS TO SUPPORT THIS CONCENTRATED DEAD LOAD IN ADDITION TO THE TOTAL LOAD CAPACITY PROVIDED IN THE SJI LOAD TABLES FOR THE JOISTS SPECIFIED ON THE FRAMING PLANS. JOISTS SUPPORTING THESE CONCENTRATED DEAD LOADS SHALL BE FABRICATED SYMMETRICALLY ABOUT THEIR CENTERLINE. DESIGN JOISTS FOR THE FOLLOWING "CL" DESIGNATIONS WHERE SHOWN ON THE FRAMING PLANS:

1. CL1 - XXXX POUNDS LOCATED X'-X" FROM THE FACE OF THE SUPPORTING PANEL ADJACENT TO HIGH ROOF.
2. CL2 - XXXX POUNDS LOCATED X'-X" FROM THE CENTERLINE OF THE SUPPORTING STEEL BEAM.



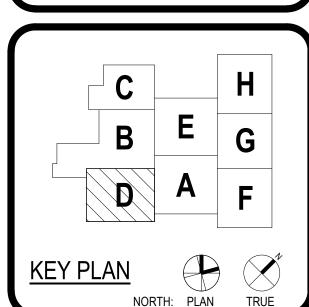


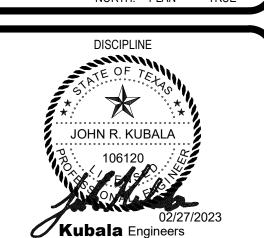
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CONCRETE MIX:

1. CONCRETE SPECIFICATIONS SHALL BE AS FOLLOWS

USAGE	CONCRETE MIX DESIGN SCHEDULE											
		28 DAY ST (PS			MAX	SLUMP		MAX CURE	CEMENT	MAX ALLOWABLE %	% AIR	
	3000	3500	4000	5000	AGGREGATE SIZE (IN)	(IN)	W/C RATIO	DENSITY (PCF)	TYPE	FLY ASH (REF CM5)	ENTRAINMENT	
1. PIERS			•		1 1/2	6-8	0.55	150	1/11	40	-	
2. FOOTINGS			•		1	3-5	0.50	150	1/11	30	5	
3. SLAB-ON-GRADE **			•		1	3-5	0.50	150	1/11	20	-	
5. GRADE BEAMS AND PLINTHS **			•		1	3-5	0.50	150	1/11	20	-	
6. COLUMNS			•		1	3-5	0.50	150	1/11	20	-	
7. BEAMS			•		1	3-5	0.50	150	1/11	20	-	
8. WALLS **			•		1	6-8	0.50	150	1/11	30	5	
9. BASEMENT WALLS **				•	1	6-8	0.50	150	1/11	30	-	
10. RETAINING WALLS **				•	1	6-8	0.50	150	1/11	20	3-5	
11. TILT-UP PANELS **				•	3/4	3-5	0.50	150	1/11	15	2-4	
12. NORMAL WEIGHT SLAB ON COMPOSITE METAL DECK			•		1	3-5	0.45	150	1/11	20	-	
13. LIGHT WEIGHT SLAB ON COMPOSITE METAL DECK			•		1	3-5	0.45	117 ± 3	1/11	20	5.5	
14. SLAB-ON-VOID FORMS **			•		1	3-5	0.50	150	1/11	20	-	
15. SLAB FOR EQUIPMENT PADS			•		1	3-5	0.45	150	1/11	20	5- 7 IF EXPOSED TO WEATHER	
16. MASS CONCRETE(ALSO REFER TO MASS CONCRETE NOTES AT 56 DAYS)			•		1	3-5	0.40	150	II	40	-	
17. NON-COMPOSITE TOPPING SLAB		•			1	5-7	0.45	150	1/11	-	-	

- ** SPECIAL GC NOTE FOR CONCRETE WHICH IS PART OF A DEPRESSED AREA. SEE CONCRETE MIX NOTE 10
- 2. PORTLAND CEMENT SHALL BE TYPE I OR TYPE III (CONFORM TO ASTM C150), EXCEPT AS FOLLOWS:

MASS CONCRETE ONLY CEMENT TYPE II

- NORMAL WEIGHT AGGREGATE SHALL CONFORM TO ASTM C33. LIGHT WEIGHT AGGREGATE SHALL CONFORM TO ASTM C330. ALL AGGREGATE SHALL BE FROM A SINGLE SOURCE.
- 3. FLY ASH WILL NOT BE PERMITTED IN ARCHITECTURALLY EXPOSED CONCRETE. FLY ASH MAY BE USED ELSEWHERE, WITHIN THE SPECIFIED PROPORTION LIMITS, BUT THE CONTRACTOR SHALL FIRST VERIFY COMPATIBILITY WITH CURING COMPOUNDS, SEALERS, BOND BREAKER, FLOORING ADHESIVES AND OTHER MATERIALS PROPOSED TO BE IN CONTACT WITH THE CONCRETE.
- 4. CONCRETE MIX DESIGNS SHALL BE SUBMITTED FOR REVIEW A MINIMUM OF 7 DAYS PRIOR TO THE START OF THE WORK FOR ENGINEER AND OWNERS TESTING LABORATORY APPROVAL, PRIOR TO THE PLACEMENT OF CONCRETE. MIX DESIGNS MUST INDICATE CONFORMANCE WITH ACI 318-LATEST EDITION, CHAPTER 5, SECTION 5.3.
- 5. AT THE POINT OF DISCHARGE SLUMP TESTS, CONFORMING TO ASTM C143, SHALL BE TAKEN. SEE CONCRETE NOTE NO. 5 BELOW FOR RATE OF TESTS.
- 6. AIR CONTENT TESTS CONFORMING TO ASTM C173 (VOLUMETRIC METHOD FOR LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE; ASTM C231 PRESSURE METHOD FOR NORMAL WEIGHT CONCRETE) SHALL BE TAKEN FOR EACH DAY'S POUR FOR ALL TYPES OF AIR-ENTRAINED CONCRETE BEING USED.
- 7. CONCRETE TEMPERATURE SHALL BE TESTED HOURLY WHEN THE AIR TEMPERATURE IS 40 DEG F AND BELOW, 80 DEG F AND ABOVE AND EACH TIME A SET OF COMPRESSION TEST SPECIMENS ARE MADE.
- : ONE SET OF FOUR COMPRESSION TEST SPECIMENS CONFORMING TO ASTM C31 SHALL BE MOLDED AND STORED FOR LABORATORY-CURED SPECIMENS. COMPRESSIVE STRENGTH TESTS SHALL CONFORM TO ASTM C39 AND SHALL CONSIST OF ONE SET FOR EACH DAY'S POUR EXCEEDING 5 CU. YDS. PLUS ADDITIONAL SETS FOR EACH 50 CU. YDS. MORE THAN THE FIRST 25 CU. YDS OF EACH CONCRETE CLASS PLACED IN ANY ONE DAY. ONE SPECIMEN SHALL BE TESTED AT 7 DAYS, TWO SPECIMENS SHALL BE TESTED AT 28 DAYS, AND ONE SPECIMEN SHALL BE RETAINED FOR LATER TESTING AS REQUIRED.
- 9. VERIFY THAT POST INSTALLED ANCHORS ARE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.
- 0. SPECIAL GC NOTE FOR CONCRETE WHICH IS PART OF A DEPRESSED AREA:
- A. AT ALL DEPRESSIONS GREATER THAN OR EQUAL TO MINUS 6 INCHES FROM THE MAIN FINISH FLOOR THE GC SHALL PROVIDE XYPEX C-1000 ADMIXTURE (AT AN ASSUMED MINIMUM RATE OF 15 LBS/CU YD) INTO ALL OF THE CONCRETE. THE ADMIXTURE SHALL BE PLACED INTO THE MIX AT THE TIME OF BATCHING AT THE PLANT, DO NOT ADD DRY BAG MIX TO THE WET CONCRETE TRUCK ON-SITE. THE GC SHALL STRICTLY FOLLOW ALL MANUFACTURER'S INSTRUCTIONS FOR ADDITION, USE, HANDLING, ETC. THE ADD MIXTURE SHALL BE ADDED TO ALL OF THE CONCRETE WHICH MAKES UP ANY DEPRESSION GREATER THAN OR EQUAL TO MINUS 6 INCHES FROM THE MAIN FINISH FLOOR. THIS INCLUDES BUT IS NOT LIMITED TO: DEPRESSED SLABS (FULL THICKNESS), ALL VERTICAL STEM WALLS (FULL THICKNESS) AND/OR ANY GRADE BEAMS (FULL DEPTH AND THICKNESS) WHICH FORM ANY PORTION OF THE VERTICAL DROP AND ALL HORIZONTAL SLAB FOR THE DEPRESSED AREA. THIS DOES NOT REDUCE OR REVISE ANY WATERPROOFING TREATMENTS, LAYERS OR SUBSTRATES THAT ARE CURRENTLY REQUIRED BY THE STRUCTURAL, ARCHITECTURAL, AND/OR OTHER CONSULTANT DRAWINGS, THIS IS IN ADDITION TO THOSE CURRENT MEASURES. THE COST FOR THIS ADD MIXTURE SHALL BE ACCOUNTED FOR WITHIN THE BASE BID AND SHALL INCLUDE, BUT IS NOT LIMITED TO ALL AREAS ARCHITECTURALLY LABELED AS FOLLOWS: ORCHESTRA PIT, ALL ELEVATOR PITS, AND THE BELOW GRADE FLY-LOFT RIGGING PIT. PLEASE NOTE: XYPEX C-1000 HAS BEEN CHOSEN AS A NEUTRAL MIX ADDITIVE THAT IS NOT INTENDED TO CHANGE THE CURRENTLY PLANNED CONCRETE SET TIME. IF FOR SOME REASON THE SET TIME IS DESIRED TO BE INCREASED OR DECREASED XYPEX DOES HAVE ALTERNATIVE FORMULATIONS WHICH MAY BE USED: HOWEVER. THE GC MUST GET WRITTEN APPROVAL FROM THE EOR PRIOR TO ANY CHANGE IN THE XYPEX C-1000 FORMULATION. THE XYPEX C-1000 IS AN ADDITIONAL MOISTURE INTRUSION MITIGATION MEASURE THAT IS REQUIRED IN ADDITION TO THE SPECIFIED WATERSTOPS NOTED IN THE OTHER GENERAL NOTES AND DETAILS RELATED TO CONCRETE COLD-JOISTS AND OTHER CONCRETE TRANSITIONS OF PLANE.

CAST-IN-PLACE CONCRETE:

- 1. CONCRETE SUPPLIER SHALL BE AWARE OF CEMENTS THAT CAN CAUSE LATE ETTRINGITE FORMATION IN THE CEMENT PASTE AND BE PREPARED TO SHOW THAT THE CEMENTS USED WILL NOT CAUSE THIS PROBLEM 2. ALL MIXING, TRANSPORTING, PLACING AND CURING OF CONCRETE SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE AMERICAN CONCRETE INSTITUTE; ACI 301 AND ACI 318, LATEST EDITIONS.
- . NO HORIZONTAL JOINTS WILL BE PERMITTED IN CONCRETE EXCEPT WHERE THEY NORMALLY OCCUR OR WHERE SHOWN ON THE DETAILS. VERTICAL JOINTS SHALL OCCUR AT CENTER SPANS OR AT LOCATIONS APPROVED BY THE STRUCTURAL ENGINEER.
- 4. ALL MIXING, TRANSPORTING, PLACING AND CURING OF CONCRETE SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE AMERICAN CONCRETE INSTITUTE; ACI 301 AND ACI 318, LATEST EDITIONS. 5. ALL BASE PLATES AND ANCHOR BOLTS SHALL BE PROTECTED WITH 3" (MIN.) OF CONCRETE. ANCHOR BOLTS SHALL BE FABRICATED FROM FULL BODIED ASTM F1554, GRADE 36 LOW CARBON STEEL RODS HAVING THE
- 6. AT HORIZONTAL CONCRETE FRAMING, FORMS SHALL NOT BE REMOVED UNTIL THE CONCRETE HAS REACHED 70 PERCENT OF THE 28-DAY COMPRESSIVE STRENGTH INDICATED. FLOOR SLABS AND BEAMS SHALL REMAIN SHORED UNTIL THE UPPER MOST LEVEL OF CONCRETE HAS REACHED 70 PERCENT OF THE 28-DAY COMPRESSIVE STRENGTH. FOR BUILDINGS WITH MORE THAN THREE STORIES IN HEIGHT, SHORING SHALL BE MAINTAINED FOR THREE LEVELS BELOW, UNTIL THE UPPER MOST LEVEL HAS REACHED 70 PERCENT OF THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH.
- 7. ALL CONDUITS AND PIPES EMBEDDED IN CONCRETE SHALL COMPLY WITH ALL PROVISIONS SPECIFIED IN ACI 318, SECTION 6.3, WITH THE FOLLOWING SPECIFIC REQUIREMENTS:

SAME DIAMETER AS THE BOLT DIAMETER AND USING CUT THREADS. ROLLED THREADS ARE NOT ACCEPTABLE. BOLTS SHALL BE SET USING RIGID TEMPLATES.

- A. THE MAXIMUM OUTSIDE DIAMETER OF THE CONDUITS AND PIPES SHALL BE 1 1/2". NONE PERMITTED IN SLABS THINNER THAN 4 1/2".
- B. THE MINIMUM CLEAR DISTANCE BETWEEN CONDUITS AND PIPES SHALL BE 6". C. NONE PERMITTED IN SLABS-ON-GRADE WHICH WILL BE PERMANENTLY EXPOSED OR SCHEDULED TO RECEIVE THIN SET TILE. PLACE ALL PIPES AND CONDUITS IN THE FILL BENEATH THE VAPOR RETARDER. RE-COMPACT AS SPECIFIED.
- D. IN NON-EXPOSED SLABS-ON-GRADE, LIMIT SIZE TO 1" O.D. IN 5" SLAB SPACE 12" APART AND TIE TO UNDERSIDE OF REINFORCING MAT. WHERE LINES CONVERGE AT SOURCE, DOUBLE UP THE SLAB REINFORCING IN THE CONVERGENCE ZONE AND 3'-0" BEYOND. PLACE ALL LARGER LINES IN THE FILL BENEATH THE VAPOR RETARDER.
- E. NONE PERMITTED IN COLUMNS WITHOUT PRIOR APPROVAL. F. DO NOT DISPLACE REINFORCING STEEL FROM ITS PROPER POSITION.
- 8. PROVIDE SHEAR KEYS IN ALL CONSTRUCTION JOINTS IN BEAMS AND WALLS, IN ACCORDANCE WITH THE TYPICAL CONCRETE DETAILS.
- 9. PLACE WATERSTOPS IN ALL EXTERIOR CONSTRUCTION JOINTS BELOW GRADE AND ELSEWHERE AS CALLED FOR.
- 10. FLOORS ARE NOT DESIGNED TO SUPPORT FORMWORK AND WET CONCRETE WEIGHT OF NEXT LEVEL. CONTRACTOR SHALL DESIGN AND PROVIDE RE-SHORING TO PREVENT OVERSTRESSING THE STRUCTURE
- 11. SET FORMS TO FOLLOW SLOPES AND GRADES DEFINED ON PLAN, KEEPING MEMBER DEPTHS CONSTANT AT DEPTHS DETAILED OR SCHEDULED, UNLESS NOTED OTHERWISE. SLOPE UNIFORMLY BETWEEN ELEVATIONS GIVEN. BUILD IN CAMBER WHERE SPECIFIED.
- 12. CONSTRUCTION JOINTS PERMITTED ONLY WHERE INDICATED ON DRAWINGS. WHERE NOT SPECIFICALLY INDICATED ON DRAWINGS, LOCATE THE JOINTS AS FOLLOWS:
- A. LOCATE JOINTS NOT INDICATED TO LEAST IMPAIR STRENGTH AND APPEARANCE OF STRUCTURE. LOCATE VERTICAL JOINTS IN MIDDLE THIRD OF SPANS OF NON-POST-TENSIONED SLABS, BEAMS OR GIRDERS, UNLESS A BEAM INTERSECTS A GIRDER AT MIDDLE LOCATION, IN WHICH CASE OFFSET JOINTS IN GIRDERS TWICE WIDTH OF BEAM. LOCATE VERTICAL JOINTS WITHIN THE END THIRD OF SPANS OF POST-TENSIONED CONTINUOUS SLABS, BEAMS OR GIRDERS WHERE TENDON PROFILE IS AT OR NEAR THE CENTROID OF THE CONCRETE CROSS SECTION. B. LOCATE HORIZONTAL JOINTS IN WALLS AND COLUMNS AT UNDERSIDE OF SUPPORTED ELEMENTS AT THE TOP OF THE WALL OR COLUMN AND AT THE TOP OF FOOTINGS OR FLOOR SLABS AT THE BOTTOM OF THE WALL OR COLUMN. ROUGHEN SURFACE OF HORIZONTAL OR NEARLY HORIZONTAL CONSTRUCTION JOINTS SO THAT AGGREGATE SHALL BE EXPOSED UNIFORMLY, LEAVING NO LAITANCE, LOOSENED
- C. REFER TO PLANS FOR JOINTS IN GRADE SUPPORTED SLABS. D. JOINTS ARE NOT ALLOWED BETWEEN PILASTERS AND BEAM/WALL THAT ARE MONOLITHIC. E. SUBMIT CONSTRUCTION JOINT LAYOUT PLANS FOR APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION.

13. ***GC NOTE***

PARTICLES OR DAMAGED CONCRETE.

- A. AT ALL CONCRETE COLD JOINTS OR TRANSITIONS BETWEEN PLANES: VERTICAL TO VERTICAL POURS, HORIZONTAL TO HORIZONTAL POURS, HORIZONTAL TO VERTICAL POURS, AND VERTICAL TO HORIZONTAL POURS, THE GC SHALL PROVIDE A CONTINUOUS WATER STOP WITHIN EACH JOINT. WATERSTOP MANUFACTURERS AND TYPES SHALL BE AS APPROVED IN THE SPECS AND THE GENERAL NOTES. ALL WATER STOPS MUST BE APPROPRIATE FOR THE CONDITION BASED ON THE MANUFACTURER'S DATA. THE GC SHALL BE IN STRICT COMPLIANCE WITH ALL MANUFACTURERS' USE, HANDLING, AND
- B. ADDITIONALLY, CONCRETE USED AT A SLAB DEPRESSION WITH A DEPTH GREATER THAN 6 INCHES, THE CONCRETE ADDITIVE XYPEX C-1000 SHALL BE INCLUDED IN THE CONCRETE MIX. REFER TO CONCRETE MIX SCHEDULE FOR CONCRETE MIXES WHICH MAY REQUIRE XYPEX C-1000 AND CONCRETE MIX NOTE 10 FOR ADDITIONAL INFORMATION.

INSTALLATION INSTRUCTIONS. AT A MINIMUM, THE GC SHALL ASSUME A DUMBBELL-TYPE WATER STOP WITH WINGS THAT EXTEND TO EACH SIDE OF THE CONCRETE FOR EACH JOINT UNLESS OTHERWISE NOTED

CONCRETE REINFORCEMENT:

WITHIN THE CD'S TO BE AN ALTERNATE ACCEPTABLE WATER STOP TYPE.

1. REINFORCING STEEL SHALL CONFORM TO ASTMA615. BARS SHALL BE NEW OR RECYCLED DOMESTIC BILLET STEEL OF A DOMESTIC MANUFACTURE. REINFORCING BARS SIZE #3 THROUGH #11 SHALL BE GRADE 60.

REINFORCING BARS SIZE #11 THROUGH #18 SHALL BE GRADE 75. 2. DEFORMED BAR ANCHORS SHALL CONFORM TO ASTM A496, GRADE 70.

3. ALL WELDED WIRE FABRIC SHALL BE SMOOTH WIRE FABRIC CONFORMING TO ASTM A185, AND SHALL BE FURNISHED IN FLAT SHEETS.

4. CONCRETE COVERAGE AROUND REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 SECTION 7.7, LATEST EDITION, AND MEET REQUIREMENTS BELOW. THE REINFORCING STEEL DETAILER SHALL ADJUST REINFORCING STEEL CAGE SIZES AT INTERSECTING REINFORCING MEMBERS AS REQUIRED TO ALLOW CLEARANCE FOR INTERSECTING BARS. SLAB ON GRADE REINFORCEMENT SHALL BE SUPPORTED AT EVERY THIRD BAR, NOT TO EXCEED 45-INCH INTERVALS.

FOOTINGS/PIERS **GRADE BEAMS** 3 IN BOT; 2 IN SIDES (3" IF CAST AGAINST SOIL), 2 IN TOP SLAB ON GRADE SLAB BOTTOMS OVER VOID FORM COLUMNS NOT EXPOSED TO WEATHER OR

IN CONTACT WITH THE GROUND (TYP INTERIOR CONDITIONS) 1 5/8"

5. DETAILING OF CONCRETE REINFORCEMENT AND ACCESSORIES SHALL CONFORM TO ACI 315, LATEST EDITION. ALL HOOKED BARS SHOWN SHALL HAVE STANDARD HOOKS, U.N.O.

6. REINFORCING SHALL NOT BE WELDED WITHOUT APPROVAL FROM THE STRUCTURAL ENGINEER. 7. BOTTOM REINFORCING BARS SHALL BE SPLICED AT SUPPORTS AND CONTINUOUS TOP BARS SHALL BE SPLICED AT MID-SPAN.

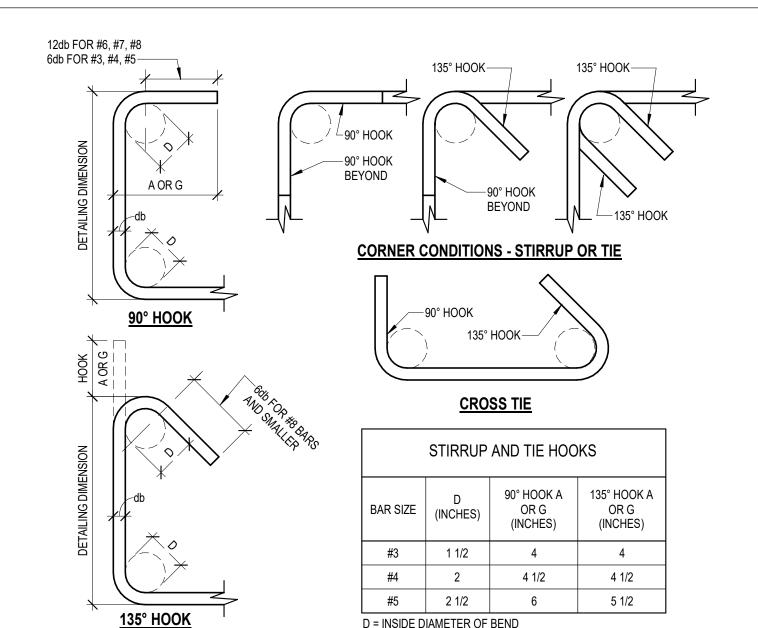
8. ALL CONTINUOUS REINFORCEMENT SHALL BE LAPPED 56 BAR DIAMETERS AT SPLICE LOCATIONS. 9. WHERE BAR TYPES FROM THE BAR BENDING DIAGRAM ARE SPECIFIED, PROVIDE BARS ACCORDINGLY. OTHERWISE, DETAIL BARS IN BEAMS, COLUMNS, SLABS, AND WALLS AS FOLLOWS:

A. RUN TOP AND BOTTOM BARS CONTINUOUS, WITH SPLICES AND HOOKS AS DESCRIBED BELOW. B. PROVIDE STANDARD 90 DEGREE HOOK ON TOP BARS AT CANTILEVER ENDS.

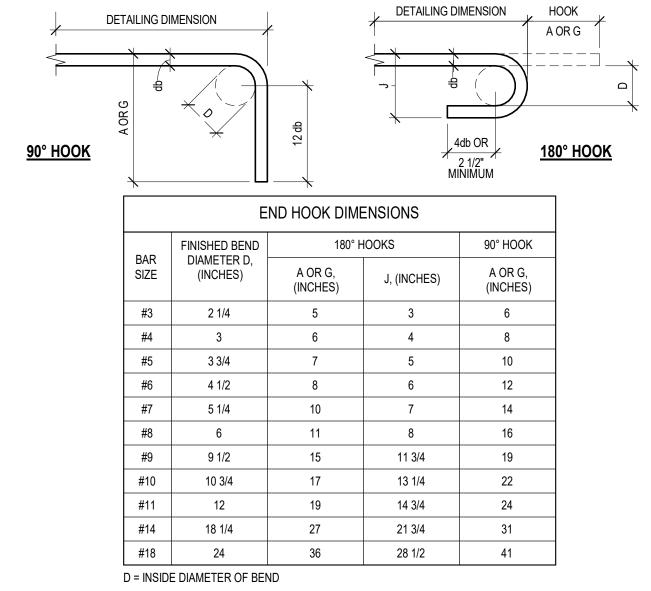
C. SPLICE TOP AND INTERMEDIATE BARS AT THE CENTER LINE BETWEEN MEMBER SUPPORTS, UNLESS NOTED OTHERWISE. D. SPLICE BOTTOM BARS DIRECTLY OVER MEMBER SUPPORTS, UNLESS NOTED OTHERWISE.

E. CENTER BARS NOTED AS "AT SUPT'S." OVER MEMBER SUPPORTS, AND CENTER BARS NOTED AS "BTWN. SUPT'S." BETWEEN SUPPORTS.

F. PLACE BARS NOTED AS "2ND LAYER" BELOW THE PRIMARY TOP BARS (OR ABOVE THE PRIMARY BOTTOM BARS) AND PROVIDE #11 SPACER BARS PLACED AT INTERVALS OF 4'-0" BETWEEN THE TWO LAYERS OF BARS G. ALL BAR SPLICES IN BEAMS, AND SLABS SHALL BE 30 BAR DIAMETERS. EXCEPT THAT SPLICES IN HORIZONTAL WALL BARS AND INTERMEDIATE BEAM BARS SHALL BE 66 BAR DIAMETERS.



TYPICAL STIRRUP AND TIE HOOK TYPES NO SCALE



ALL SPLICE LENGTHS ARE IN INCHES.

FOR OTHER MEMBERS.

CONCRETE BELOW THE BAR.

THIS TABLE SHALL BE USED FOR BEAMS AND GIRDERS

. THE TENSION DEVELOPMENT LENGTH (Ld) IS EQUAL TO

4. A BOTTOM BAR IS DEFINED AS ANY BAR THAT DOES NOT

OTHER BARS INCLUDE TOP BARS, FACE BARS, AND ALL

OTHER BARS THAT HAVE MORE THAN 12" OF FRESH

6. FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED

SPLICE LENGTHS OF BOTTOM BARS BY 1.5 AND THE TABULATED SPLICE LENGTHS OF OTHER BARS BY 1.3.

WHEN LAP SPLICING BARS OF DIFFERENT SIZES, THE LAP

LENGTH IS DETERMINED BY THE SMALLER BAR BUT MAY

NOT BE LESS THAN THE "CLASS A" SPLICE LENGTH OF THE

TABULATED HERE, USE DEVELOPMENT AND LAP SPLICE

B. FOR CONCRETE STRENGTHS IN BETWEEN THOSE

LENGTHS OF LOWER CONCRETE STRENGTH.

HAVE MORE THAN 12" OF FRESH CONCRETE BELOW THE

THE SCHEDULED "CLASS A" LAP SPLICE LENGTH.

ONLY. REFER TO OTHER DEVELOPMENT LENGTH TABLES

3 TYPICAL END HOOK TYPE NO SCALE

		BEAM AND AN		NSION DEVICE LENGT		Γ	
		GRADE 60 RI	EINFORCEMEN	IT, NORMALWE	EIGHT CONCRE	TE	
		f'c = 30	000 PSI	f'c = 40	000 PSI	f'c = 50	000 PSI
BAR SIZE	LAP CLASS	BOTTOM BARS	OTHER BARS	BOTTOM BARS	OTHER BARS	BOTTOM BARS	OTHER BARS
"0	А	12	13	12	12	12	12
#3	В	16	17	16	16	16	16
	А	16	20	14	18	12	16
#4	В	21	26	19	24	16	21
И Б	А	23	29	20	25	18	23
#5	В	30	38	26	33	24	30
410	А	31	40	27	35	24	31
#6	В	41	52	36	46	32	41
417	А	46	60	40	52	36	46
#7	В	60	78	52	68	47	60
40	А	60	78	52	67	46	60
#8	В	78	102	68	88	60	78
40	А	64	84	56	72	50	65
#9	В	84	110	73	94	65	85
#10	А	72	93	62	81	56	72
#10	В	94	121	81	106	73	94
Ш 4.4	А	85	110	74	96	66	86
#11	В	111	143	97	125	86	112

TYPICAL BEAM AND GIRDER TENSION 5 DEVELO DEVELOPMENT AND LAP SPLICE LENGTHS

	;	STANDA GRADI	RD HO	IT LENG OKS IN T FORCEME IT CONCR	TENSIC ENT,			
AR	f'c=30	00 PSI	f'c=40	00 PSI	f'c=50	00 PSI	BAR	
IZE	Lhb	0.7 Lhb	Lhb	0.7 Lhb	Lhb	0.7 Lhb	SIZE	Ldh ——OUTSIDE FACE Ldh ——OUTSIDE FACE
#3	9	7	8	6	7	6	#3	Ldh OUTSIDE FACE Ldh OUTSIDE FACE 90° HOOKS OF BAR 180° HOOKS OF BAR
‡ 4	11	8	10	7	9	7	#4	
‡ 5	14	10	12	9	11	8	#5	NOTES:
‡ 6	17	12	15	11	13	10	#6	1. Ldh = DEVELOPMENT LENGTH OF STANDARD HOOKS IN TENSION (INCHES).
‡ 7	20	14	17	12	15	11	#7	2. Ldh = Lhb UNLESS CONDITIONS OF NOTE 3 ARE SATISFIED.
‡ 8	22	16	19	14	17	12	#8	3. Ldh = 0.7Lhb FOR #11 BARS AND SMALLER WHEN SIDE COVER (NORMAL TO PLANE OF HOOK)
#9	25	18	22	16	20	14	#9	IS NOT LESS THAN 2 1/2 INCHES AND FOR 90° HOOKS COVER ON BAR EXTENSION BEYOND HOOK IS NOT LESS THAN 2 INCHES.
ŧ10	28	20	25	18	22	16	#10	
1 11	31	22	27	19	24	17	#11	4. HOOKS ARE NOT CONSIDERED EFFECTIVE FOR DEVELOPING BARS IN COMPRESSION.
‡ 14	38	-	33	-	29	-	#14	5. Ldh SHALL BE MULTIPLIED BY 1.2 FOR EPOXY-COATED HOOKED REINFORCING BARS.
£18	50	-	43	-	39	-	#18	

TYPICAL DEVELOPMENT LENGTHS OF

						1	
5.45		f'c = 300	00 PSI	f'c = 400	00 PSI	f'c = 500	00 PSI
BAR SIZE	LAP CLASS	BOTTOM BARS	OTHER BARS	BOTTOM BARS	OTHER BARS	BOTTOM BARS	OTHE BAR
4 0	А	12	13	12	12	12	12
#3	В	16	17	16	16	16	16
41	А	17	22	15	19	13	17
#4	В	23	29	20	25	17	23
#5	А	25	32	21	28	19	25
#3	В	33	42	28	37	25	33
#6	А	33	43	29	37	26	34
#0	В	43	56	38	49	34	45
#7	А	53	69	46	60	42	54
#1	В	69	90	60	78	55	71
що.	А	66	86	57	74	51	67
#8	В	86	112	75	97	67	88
40	А	80	104	69	90	62	81
#9	В	104	136	90	117	81	106

1. ALL SPLICE LENGTHS ARE IN INCHES. 2. THIS TABLE SHALL BE USED FOR SLABS ONLY. REFER TO OTHER DEVELOPMENT LENGTH TABLES FOR OTHER MEMBERS. B. THE TENSION DEVELOPMENT LENGTH (Ld) IS EQUAL TO THE SCHEDULED "CLASS A" LAP SPLICE LENGTH. 4. A BOTTOM BAR IS DEFINED AS ANY BAR THAT DOES NOT HAVE MORE THAN 12" OF FRESH CONCRETE BELOW THE BAR. 5. OTHER BARS INCLUDE TOP BARS AND ALL OTHER BARS THAT HAVE MORE THAN 12" OF FRESHCONCRETE BELOW THE BAR FOR TOP REINFORCEMENT IN SLABS THAT ARE 12" THICK OR LESS, TABULATED SPLICE LENGTHS FOR BOTTOM BARS SHALL BE USED. 6. FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED SPLICE LENGTHS OF BOTTOM BARS BY 1.5 ANDTHE TABULATED SPLICE LENGTHS OF OTHER BARS BY 1.3.

TYPICAL SLAB TENSION DEVELOPMENT AND ♠ LAP SPLICE LENGTHS NO SCALE

WALL HORIZONTAL BAR TENSION DEVELOPMENT AND LAP SPLICE LENGTHS GRADE 60 REINFORCEMENT, NORMALWEIGHT CONCRETE							
BAR SIZE	LAP CLASS	f'c = 3000 PSI	f'c = 4000 PSI	f'c = 5000 PSI			
#3	Α	13	12	12			
#3	В	17	16	16			
#4	Α	22	19	17			
#4	В	29	25	23			
#5	Α	32	28	25			
#5	В	42	37	33			
#6	Α	43	37	34			
#6	В	56	49	45			
#7	Α	69	60	54			
	В	90	78	71			
#8	Α	86	74	67			
	В	112	97	88			
#9	Α	104	90	81			
#9	В	136	117	106			

NOTES: 1. ALL SPLICE LENGTHS ARE IN INCHES. 2. THIS TABLE SHALL BE USED FOR WALL HORIZONTAL BARS ONLY. REFER TO OTHER DEVELOPMENT LENGTH TABLES FOR WALL VERTICAL BARS AND OTHER MEMBERS. 3. THE TENSION DEVELOPMENT LENGTH (Ld) IS EQUAL TO THE SCHEDULED "CLASS A" LAP SPLICE LENGTH. 4. FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED SPLICE LENGTHS BY 1.3. 5. WHEN LAP SPLICING BARS OF DIFFERENT SIZES. THE LAP LENGTH IS DETERMINED BY THE SMALLER BAR BUT MAY NOT BE LESS THAN THE "CLASS A" SPLICE LENGTH OF THE LARGER BAR.

. WHEN LAP SPLICING BARS OF DIFFERENT SIZES, THE LAP LENGTH IS DETERMINED BY THE SMALLER BAR BUT MAY NOT BE LESS

THAN THE "CLASS A" SPLICE LENGTH OF THE LARGER BAR.

TYPICAL WALL HORIZONTAL BAR TENSION 4 DEVELOPMENT AND LAP SPLICE LENGTHS NO SCALE

WALL	VERTICA	L BAR TENS GRA	ADE 60 REINFO	_		_	HS		
		f'c = 3000 PSI		f'c = 4000 PSI		f'c = 5000 PSI		f'c = 6000 PSI	
BAR SIZE	LAP CLASS	CATEGORY 1	CATEGORY 2	CATEGORY 1	CATEGORY 2	CATEGORY 1	CATEGORY 2	CATEGORY 1	CA.
11.4	А	17	17	15	15	15	15	15	
#4	В	22	22	19	19	17	17	16	
μг	Α	21	25	19	21	19	19	19	
#5	В	27	32	24	28	21	25	19	
#6	А	25	33	23	29	23	26	23	
#0	В	33	43	28	37	25	34	23	
	А	41	48	35	42	32	38	29	
#7	В	53	63	46	54	41	49	38	
що.	А	51	55	44	48	40	43	36	
#8	В	66	72	57	62	51	56	47	
40	А	62	62	54	54	48	48	44	
#9	В	81	81	70	70	63	63	57	

TYPICAL WALL VERTICAL BAR TENSION 6 DEVELOPMENT AND LAP SPLICE LENGTHS
NO SCALE

	ALL SPLICE LENGTHS ARE IN INCHES.
	2. THIS TABLE SHALL BE USED FOR WALL VERTICAL BARS ONLY. REFER TO OTHER DEVELOPMENT LENGTH TABLES FOR WALL HORIZONTAL BARS AND OTHER MEMBERS.
RY	3. THE TENSION DEVELOPMENT LENGTH (Ld) IS EQUAL TO THE SCHEDULED "CLASS A" LAP SPLICE LENGTH.
	4. FOR DETERMINING THE BAR CATEGORY, "db" IS DEFINED AS THE DIAMETER OF THE LARGER BAR BEING SPLICED.
	5. THE "CATEGORY 1" LAP LENGTH SHALL BE USED WHEN THE CLEAR SPACING BETWEEN BARS AT THE SPLICE IS EQUAL TO OR GREATER THAN 3db.
	6. THE "CATEGORY 2" LAP LENGTH SHALL BE USED WHEN THE CLEAR SPACING BETWEEN BARS AT THE SPLICE IS LESS THAN 3db AND GREATER THAN 2db.
	7. WHEN THE CLEAR SPACING BETWEEN BARS AT THE SPLICE IS EQUAL TO OR LESS THAN 2db, SPLICES SHALL BE

NOTES:

LAP LENGTH SHALL BE USED WHEN THE ETWEEN BARS AT THE SPLICE IS LESS EATER THAN 2db. SPACING BETWEEN BARS AT THE SPLICE S EQUAL TO OR LESS THAN 2db, SPLICES SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE SPLICED AT ANY GIVEN LOCATION. REFER TO "TYPICAL CLEAR SPACING CRITERIA OF LAP SPLICED BARS. STAGGERED SPLICES" FOR CRITERIA TO DETERMINE

CLEAR SPACING "S" FOR BARS AT STAGGERED SPLICES. 8. FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED SPLICE LENGTHS BY 1.5.

LARGER BAR.

9. WHEN LAP SPLICING BARS OF DIFFERENT SIZES, THE LAP LENGTH IS DETERMINED BY THE SMALLER BAR BUT MAY NOT BE LESS THAN THE "CLASS A" SPLICE LENGTH OF THE



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FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS

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	TOMBALL ISD							
	DATE 02/27/2023	PROJECT NUMBER 220137						
	AWING HISTORY		.0107					
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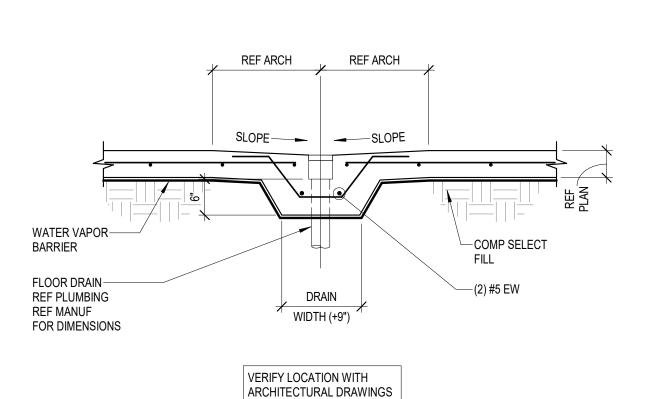
Kubala **7** STANDARD HOOKS IN TENSION NO SCALE H. PROVIDE CORNER BARS FOR EACH HORIZONTAL BAR AT THE INSIDE AND OUTSIDE FACES OF INTERSECTING BEAMS OR WALLS. REFER TO TYPICAL CORNER BAR DETAIL ON.

SLAB-ON-GRADE:

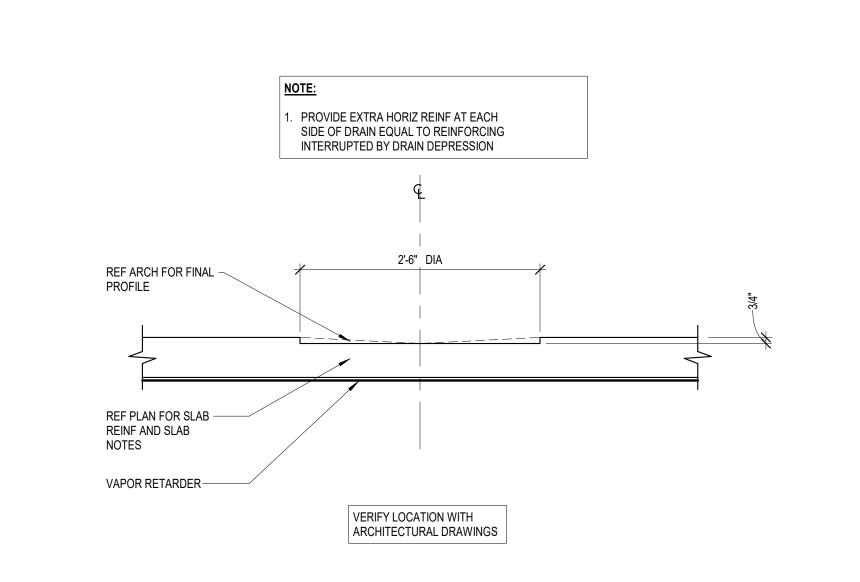
- . INSTALL VAPOR RETARDER IN ACCORDANCE WITH SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS IMMEDIATELY BELOW SLAB. PROPERLY TAPE ALL SEAMS PER MANUFACTURER'S RECOMMENDATIONS AND REMOVE ANY REMOVE STANDING WATER ON THE SURFACE OF VAPOR RETARDER PRIOR TO CONCRETE PLACEMENT.
- 2. PROVIDE (2) #5 x 5'-0" LONG BAR IN SLAB AT RE-ENTRANT CORNERS, TYPICAL. INCLUDING RE-ENTRANT CORNERS AROUND THE PERIMETER OF THE BUILDINGS, FLOOR RECESSES AND OPENINGS.
- PROVIDE CONTROL JOINTS ALONG COLUMN LINES AND AT 15'-0" ON CENTER, EACH WAY, MAXIMUM, UNLESS NOTED OTHERWISE. ALSO, PROVIDE ADDITIONAL CONTROL JOINTS AT RE-ENTRANT CORNERS. SEE TYPICAL DETAILS.
- 4. JOINT FILLER SHALL BE USED ON ALL JOINTS THAT DO NOT GET COVERED BY AN ARCHITECTURAL FLOOR COVERING. ACCEPTABLE PRODUCTS INCLUDE EDGE PRO 90. STRICTLY FOLLOW MANUFACTURER-WRITTEN RECOMMENDATIONS FOR INSTALLATION. DELAY JOINT FILLING AS LONG AS PRACTICAL TO ALLOW FOR MAXIMUM CONCRETE SHRINKAGE.
- 5. DO NOT PLACE HEAVY EQUIPMENT OR CONSTRUCTION STORAGE LOADS ON THE SLAB UNLESS CALCULATIONS PREPARED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE IN WHICH THE PROJECT IS LOCATED HAVE BEEN SUBMITTED, VERIFYING THE ADEQUACY OF THE SLAB.
- 6. TESTING LAB WILL TEST ALL PLACEMENTS IN ACCORDANCE WITH ASTM E 1155 TO CONFIRM F-NUMBERS AND ADEQUACY OF FINISHING
- 7. THE PERFORMANCE OF THE SLAB IS HIGHLY DEPENDENT ON HOW WELL THE CONTRACTOR FOLLOWS THE BUILDING PAD PREPARATION RECOMMENDATIONS AS SPECIFIED IN THE GEOTECHNICAL REPORT AND EARTHWORK SECTION OF THE GENERAL NOTES. THE CONTRACTOR AND OWNER SHOULD CONSULT WITH THE GEOTECHNICAL ENGINEER IF THERE ARE ANY QUESTIONS CONCERNING DESIGN, CONSTRUCTION METHODS, PERFORMANCE AND RISKS INVOLVED IN THE CONSTRUCTION OF A GRADE SUPPORTED SLAB.
- 8. SLAB REINFORCEMENT SHALL BE CHAIRED BY SOIL SUPPORTED SLAB BOLSTERS.

GEO-FOAM WITH CONCRETE TOPPING:

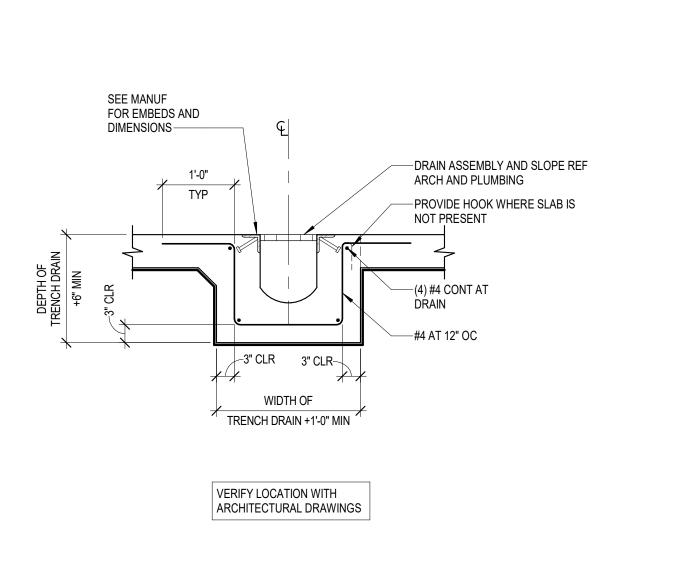
- 1. ALL EPS GEO-FOAM SHALL BE PER ASTM D6817 AND TYPE EPS XI OR BETTER.
- 2. U.N.O. ON PLANS/DETAILS ALL GEO-FOAM SHALL BE FINISHED WITH 4" THICK CONCRETE TOPPING SLAB WITH #3 AT 12" O.C. EACH WAY CENTERED IN THE SLAB.
- 3. CONSTRUCTION JOINTS SHALL BE FOLLOWED PER PLANS. ADJACENT POURS SHOULD BE SCHEDULED MINIMUM 4 DAYS APART.
- 4. ALL GEO-FOAM SHALL BE ADHERED TO THE BASE SLAB AND TO EACH OTHER WITH A NON-SOLVENT ADHESIVE WITH A MINIMUM SHEAR STRENGTH OF 5 PSF.



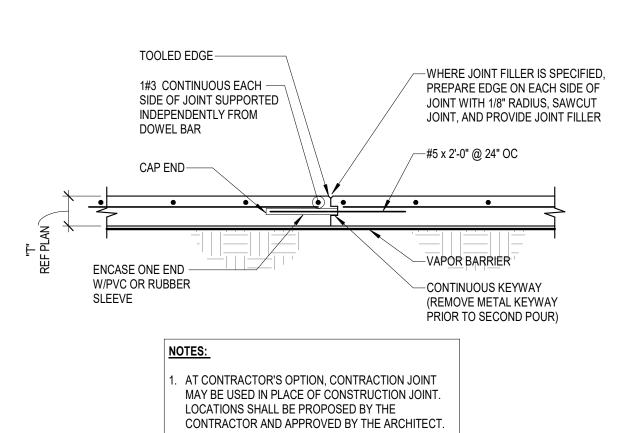
4 FLOOR DRAIN DETAIL NO SCALE



5 TYPICAL SLAB RECESS AT RESTROOM DRAIN NO SCALE



1 OTYPICAL TRENCH DRAIN AT SLAB-ON-GRADE NO SCALE



1. GC SHALL COORDINATE DEPTH AND LOCATION OF ALL FLOOR DEPRESSIONS WITH THE ARCHITECTURAL DRAWINGS.

SLAB RECESS LESS THAN 3" DEEP

SLAB RECESS 3" TO 10" DEEP

1'-0"

VERIFY LOCATION WITH ARCHITECTURAL DRAWINGS

SLAB RECESS 10" TO 36" DEEP

#4 AT 12" OC EW EF-

6 TYPICAL SLAB DEPRESSION DETAILS NO SCALE

REFER MFR FOR SLEEVE AND —

REF ARCH FOR BLOCKOUT

LOCATIONS

VAPOR RETARDER—

BLOCKOUT SIZE REQUIREMENTS

TYPICAL VOLLEYBALL POLE INSERT NO SCALE

-REF PLAN FOR REINF

-VOLLEYBALL POLE

----#4 AT 12" OC EACH WAY

—ADDITIONAL #4x5'-0" EACH SIDE

CONTINUOUS WATERSTOP

SLAB CONSTRUCTION JOINT NO SCALE

MAINTAIN SPECIFIED

DEPRESSIONS (TYP)-

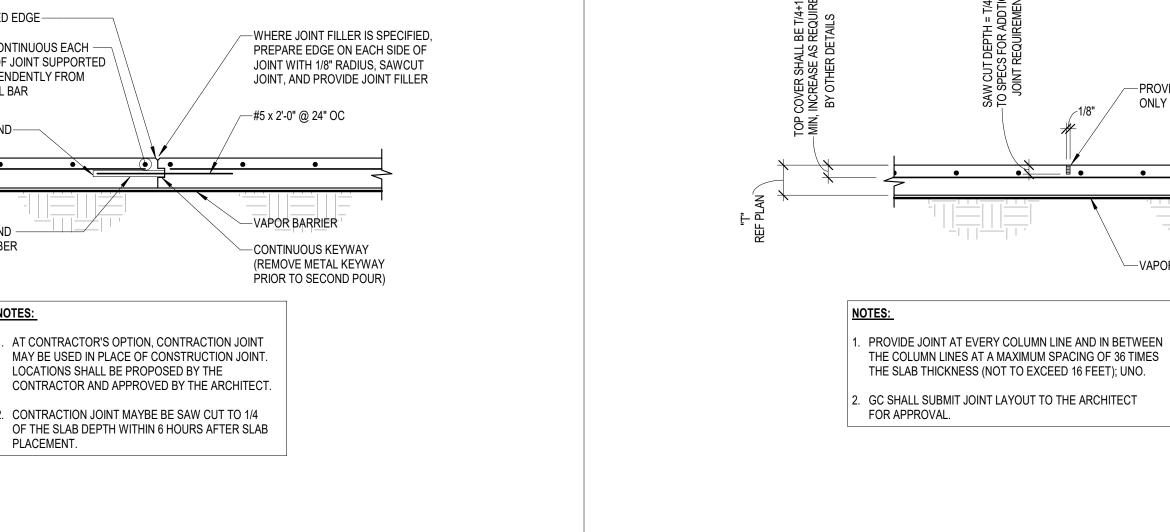
#4 DOWEL TO MATCH SPACING OF SLAB ON

SLAB THICKNESS AT

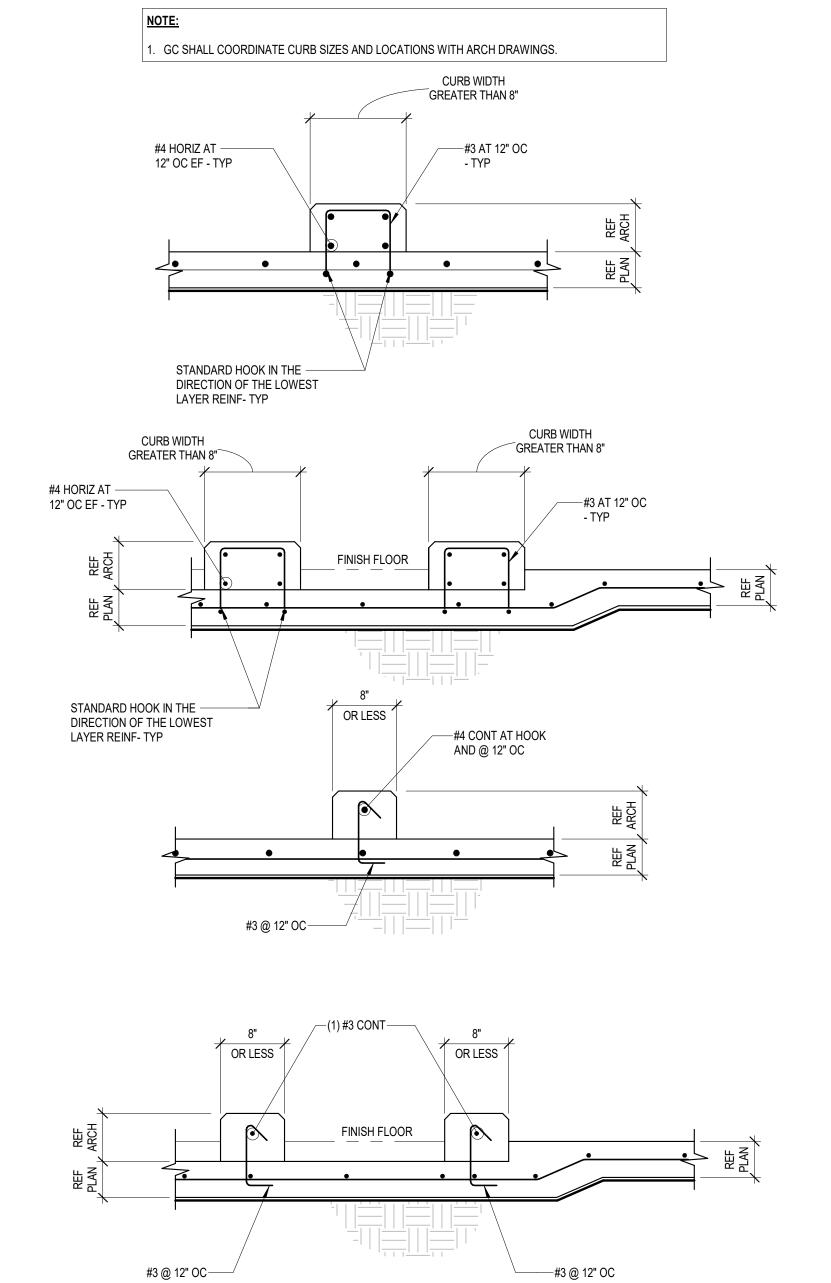
#4 AT 12" OC WITH (3) #5 CONT—

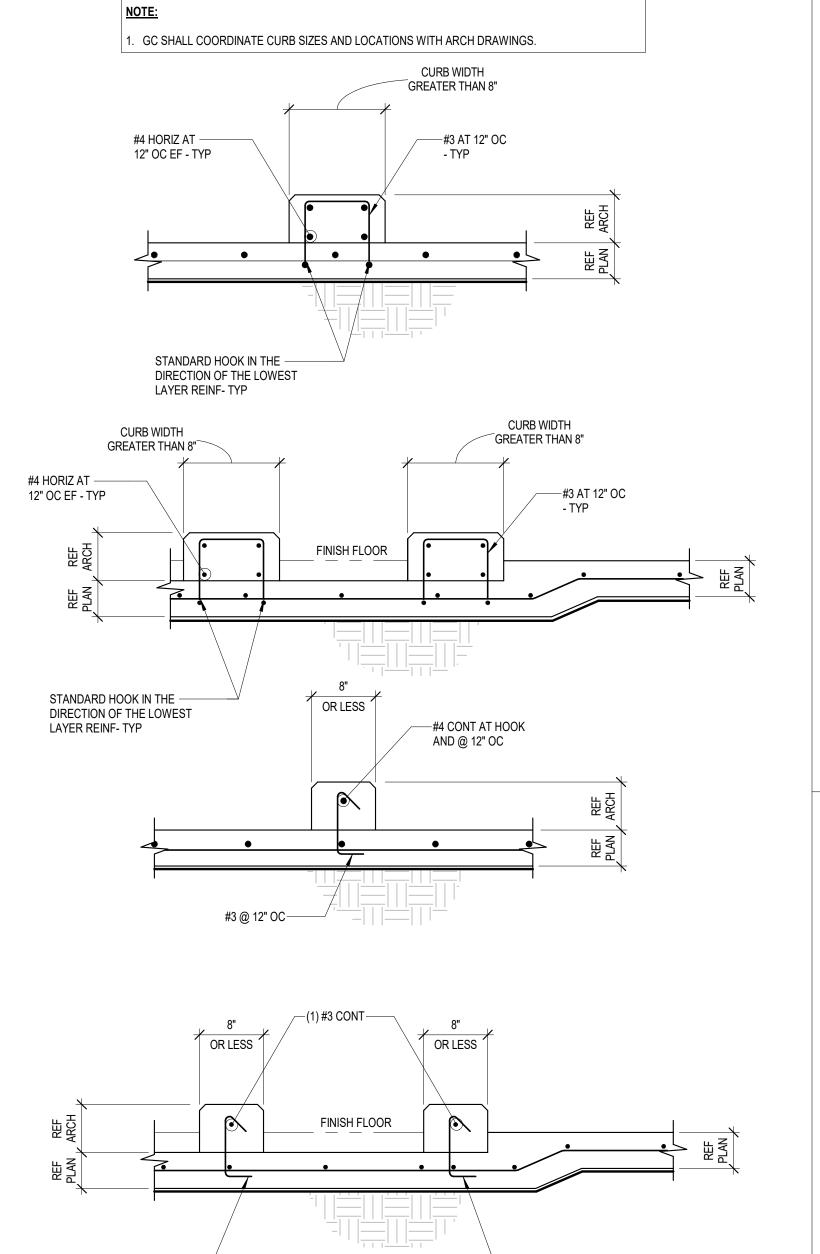
MAINTAIN SPECIFIED SLAB THICKNESS AT DEPRESSIONS (TYP)-

SLAB THICKNESS AT



2 CONTRACTION (CONTROL) JOINT NO SCALE



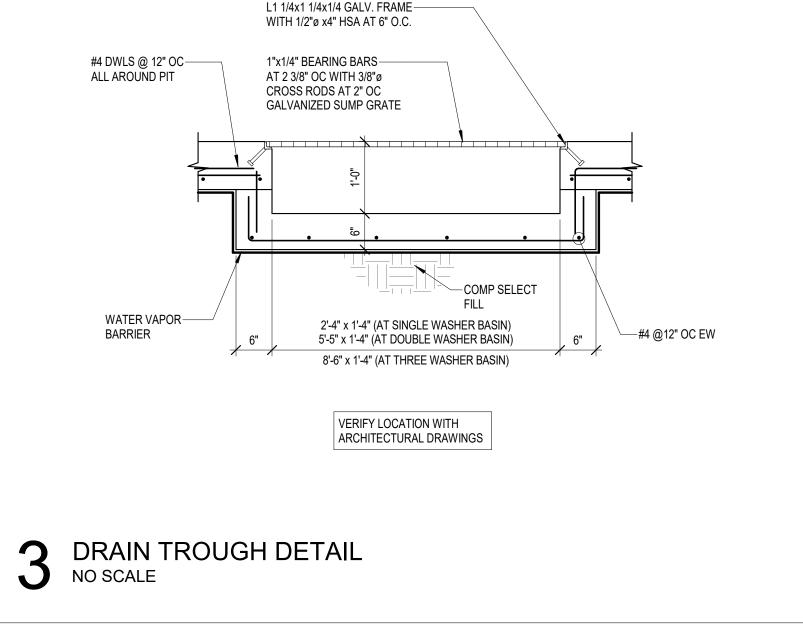


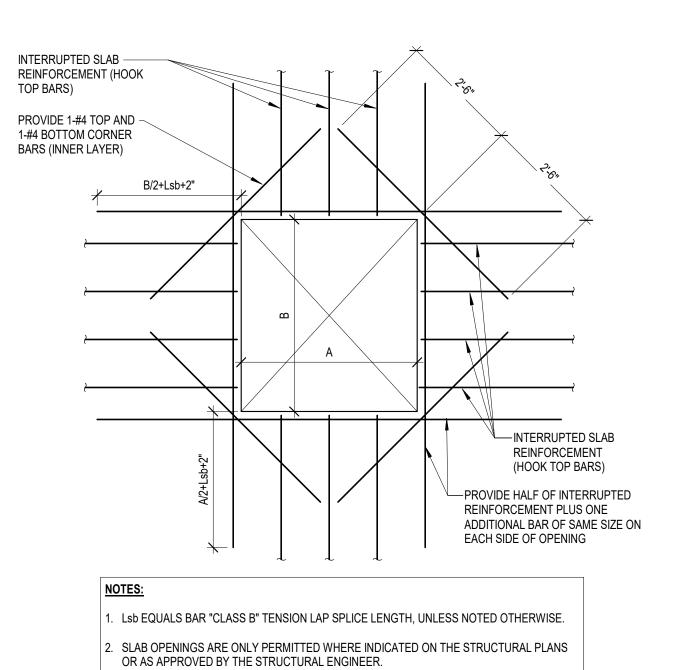
-PROVIDE JOINT FILLER

ONLY IF SPECIFIED

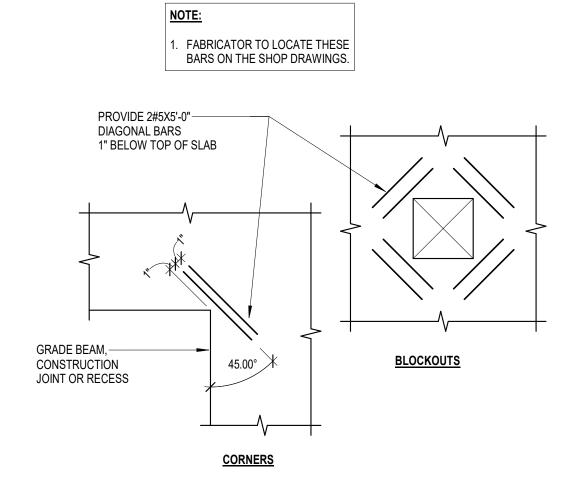
-VAPOR BARRIER

7 TYPICAL CURB DETAILS
NO SCALE

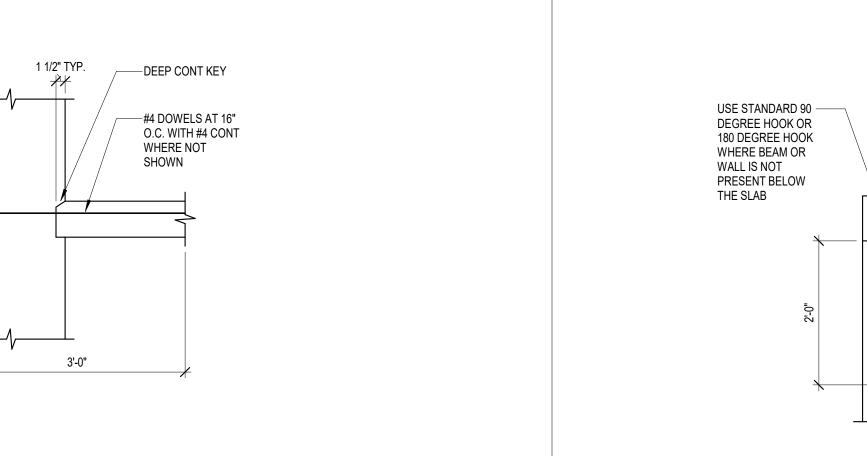




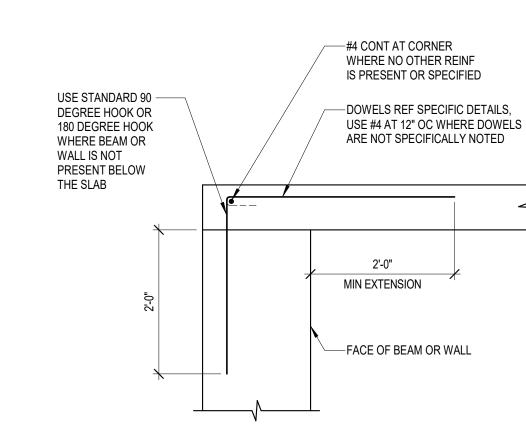
8 TYPICAL SLAB OPENING REINFORCEMENT NO SCALE



9 TYPICAL RE-ENTRANT CORNER BARS DETAIL NO SCALE



1 2 TYPICAL WALL TO SLAB CONSTRUCTION JOINT NO SCALE



13 TYPICAL SLAB DOWEL



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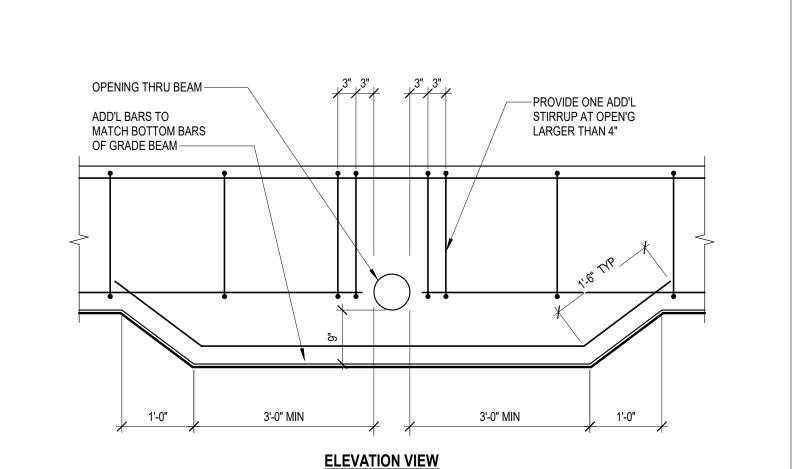
FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS

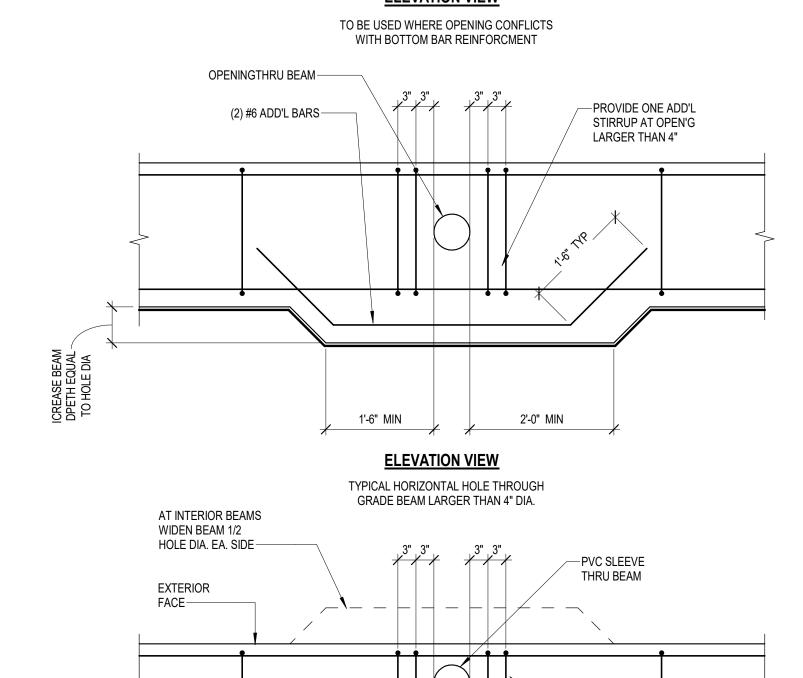
TOMBALL ISD PROJECT NUMBER 220137 DRAWING HISTORY Date Description **ISSUE FOR PROPOSAL GENERAL SLAB-ON-GRADE NOTES AND TYP DETAILS**

CHECKED BY: DRAWN BY: Plot Stamp: 2/27/2023 8:16:17 AM

1. GRADE BEAM DIMENSIONS AND/OR LOCATIONS SHALL NOT BE ALTERED WITHOUT APPROVAL OF THE ENGINEER OF RECORD. SIDES OF GRADE BEAMS SHALL BE FORMED. EARTH FORMING OF GRADE BEAMS IS NOT ALLOWED UNLESS GRADE BEAMS MAY BE EARTH FORMED SO LONG AS THE SIDES ARE PLUMB AND SOUND AND ANY PURTION OF THE BEAMS/SLAB THAT EXTENDS ABOVE GRADE/ EXPOSED IS BOARD FORMED. THE WALLS MUST NOT SLOUGH OFF MORE THAN 3/4" OUT OF PLANE OF THE PLUMB LINE. WHERE THIS OCCURS A BOARD FORM MAY BE LAID IN THE EARTH TO SMOOTH THE SIDE LOCALLY AT THE IMPERFECTION TO MAINTAIN WALL FLATNESS TOLLERANCE. 2. GRADE BEAMS SHALL BE POURED MONOLITHICALLY AROUND CORNERS AND AT INTERSECTIONS. SEE TYPICAL GRADE BEAM CONSTRUCTION JOINT DETAIL FOR ACCEPTABLE CONSTRUCTION JOINT LOCATIONS. 3. GENERAL CONTRACTOR SHALL COORDINATE LOCATION, SIZE, AND ELEVATION AND INCLUDE IN HIS CONTRACT PRICE ALL REQUIRED HORIZONTAL PENETRATIONS THROUGH CONCRETE BEAMS WHETHER SHOWN ON STRUCTURAL DRAWINGS OR NOT. WHERE BEAM PENETRATIONS ARE REQUIRED BUT ARE NOT SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS, CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING DIMENSIONS AND LOCATIONS OF ALL REQUIRED PENETRATIONS FOR REVIEW AND APPROVAL.

GRADE BEAM:





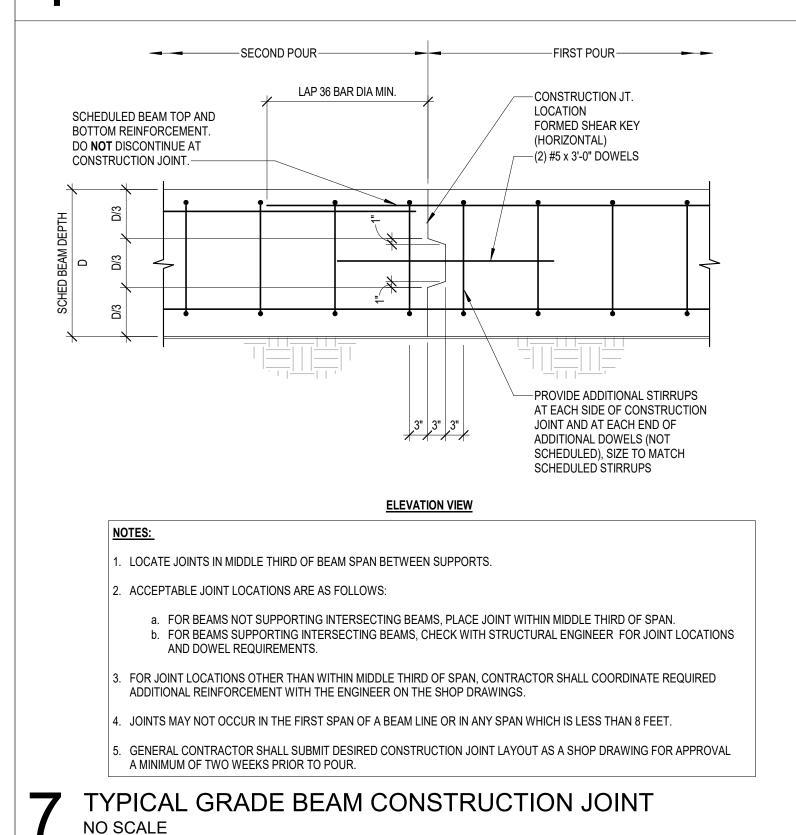
TYPICAL VERTICAL HOLE THROUGH

GRADE BEAM LARGER THAN 4" DIA.

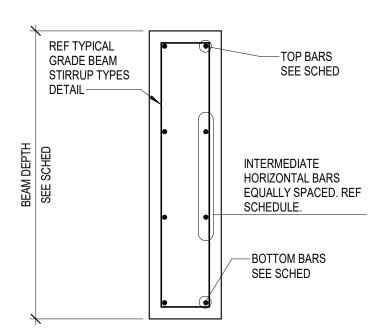
STIRRUP AT OPEN'G

LARGER THAN 4"

4 TYPICAL GRADE BEAM PENETRATION DETAILS NO SCALE

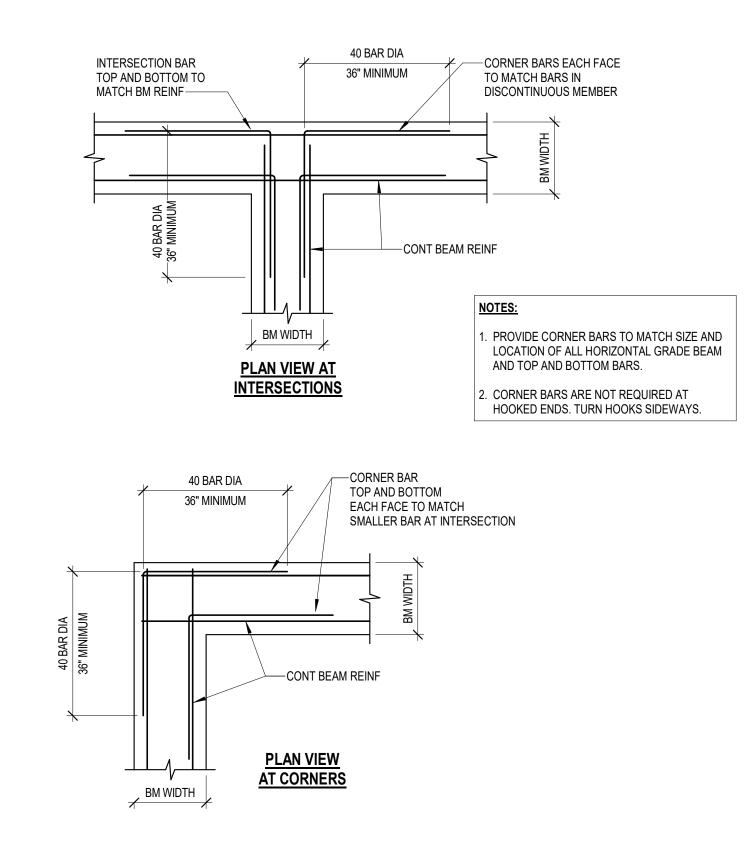


GRADE BEAM SCHEDULE REMARKS WIDTH DEPTH BOTTOM MIDDLE SIZE SPACING 1@2", R@10"; 1@2", R @ 6" @ CANTI 1@2", R@10"; 1@2", R @ 6" @ CANTI 1@2", R@10"; 1@2", R @ 6" @ CANTI 1@2", R@10"; 1@2", R @ 6" @ CANTI

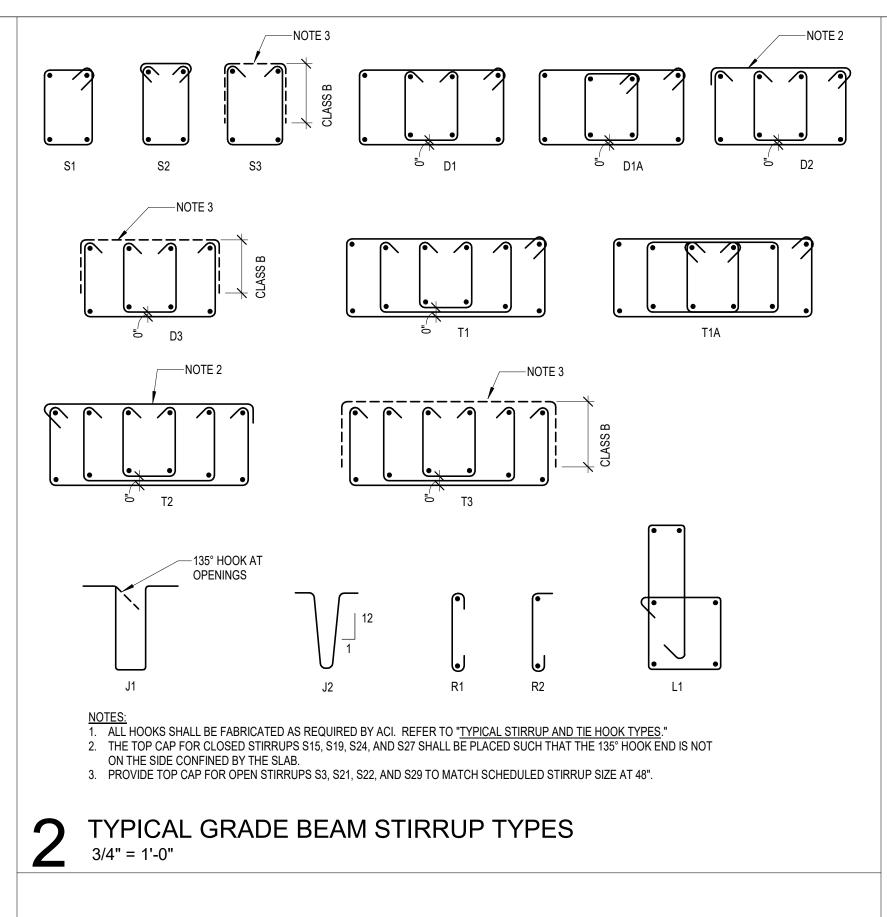


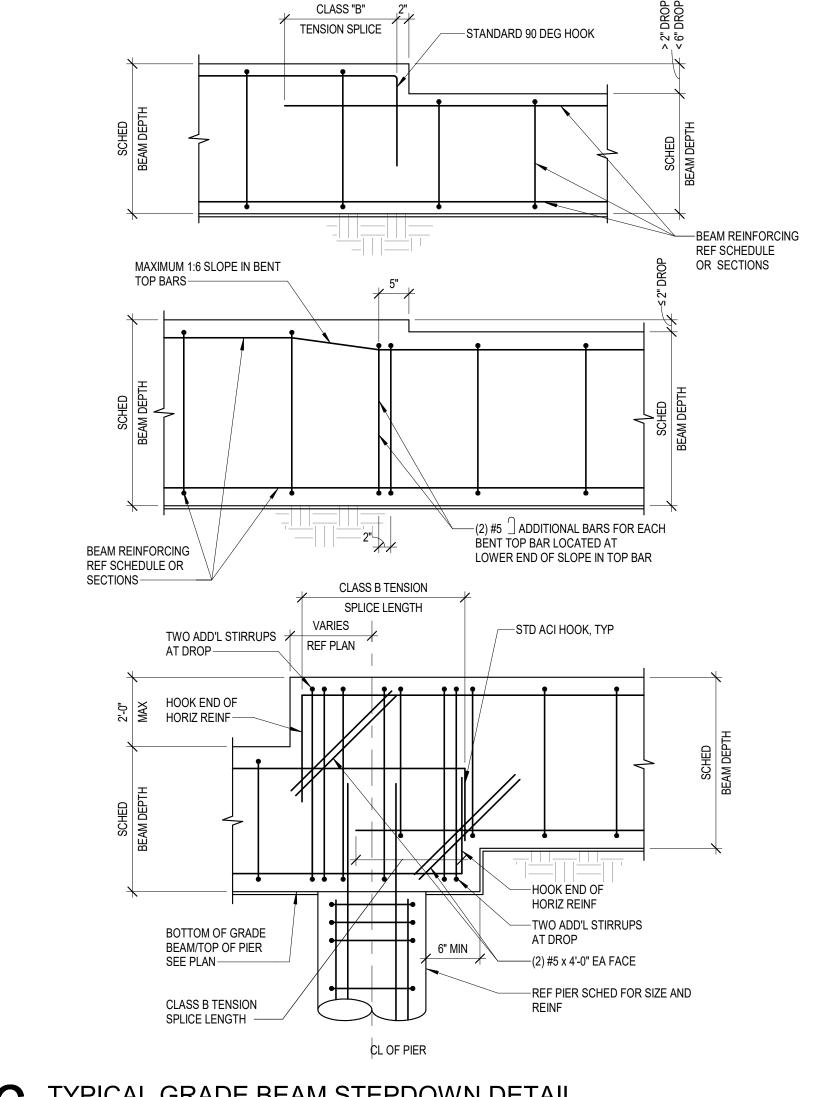
INTERMEDIATE BAR SCHEDULE				
BEAM DEPTH	NUMBER OF BARS EA FACE	SIZE OF BAR		
> 36" - 48"	5	#3		
49" - 54"	5	#4		
55" - 60"	5	#5		
61" - 66"	6	#5		
67" - 78"	7	#5		
79" AND ABOVE	AT 9" OC	#5		

GRADE BEAM SCHEDULE NO SCALE

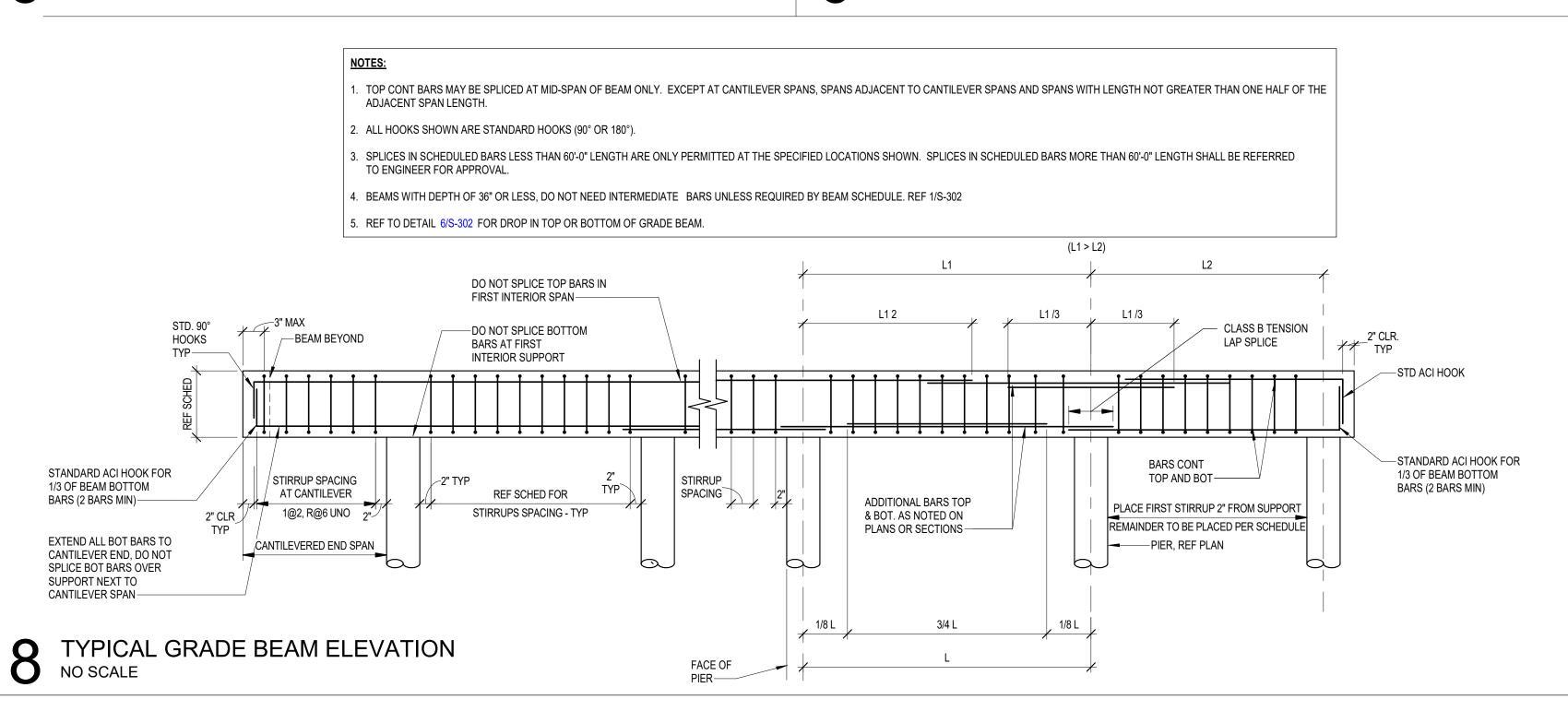


5 TYPICAL CORNER BAR DETAILS NO SCALE

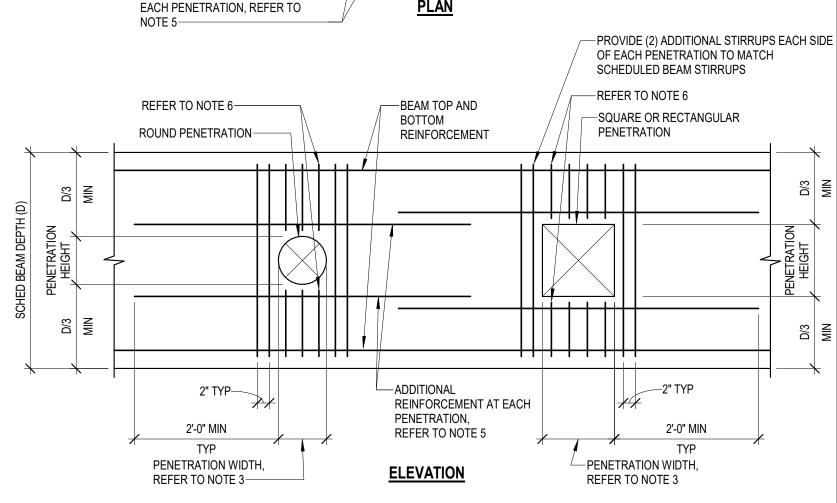




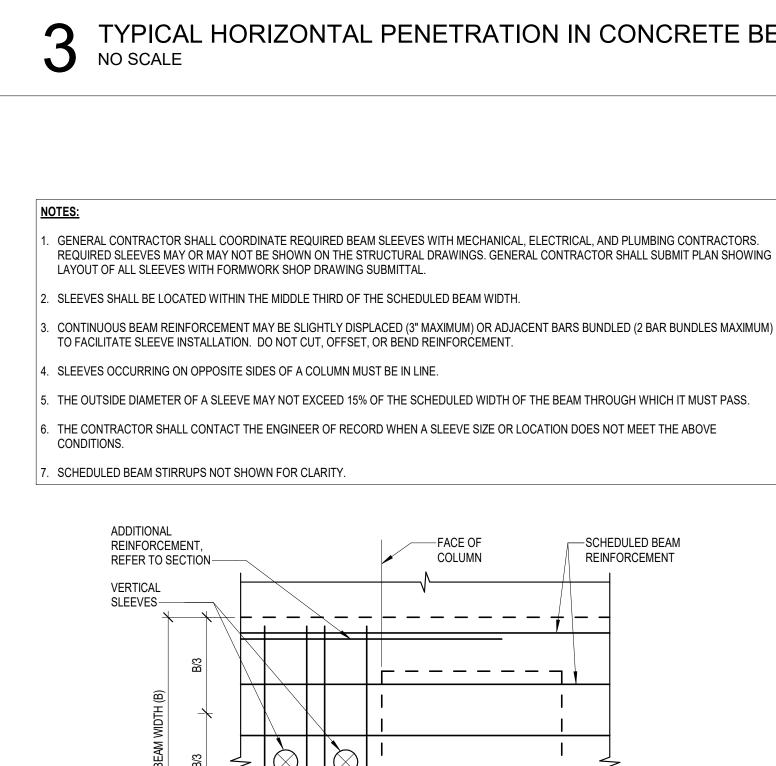
6 TYPICAL GRADE BEAM STEPDOWN DETAIL NO SCALE

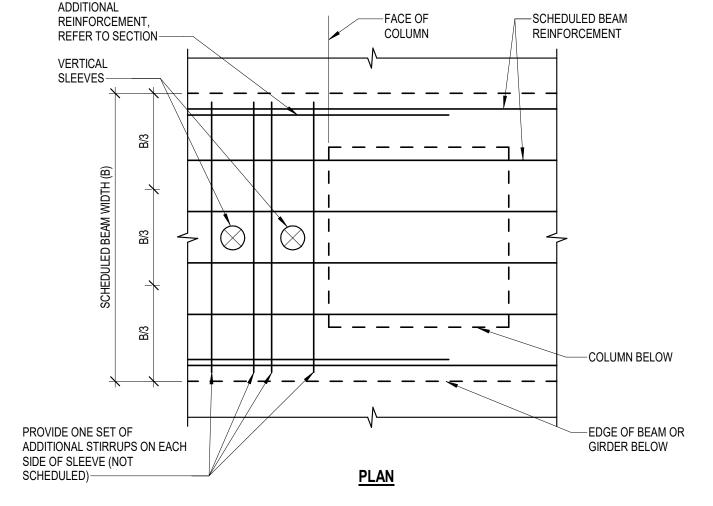


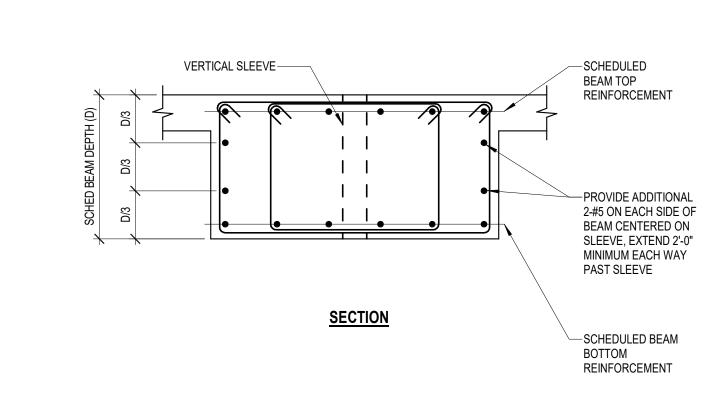
NOTES: 1. CLEAR SPACING BETWEEN PENETRATIONS SHALL BE 24" MINIMUM UNLESS NOTED OTHERWISE BY THE STRUCTURAL ENGINEER. 2. PENETRATIONS SHALL BE LOCATED ACCORDING TO THE FOLLOWING CRITERIA: a. FOR BEAMS NOT SUPPORTING INTERSECTING BEAMS LOCATE PENETRATIONS WITHIN TWO FEET EITHER SIDE OF BEAM MIDSPAN. b. FOR BEAMS SUPPORTING INTERSECTING BEAMS CHECK WITH STRUCTURAL ENGINEER. 3. PENETRATION WIDTH MUST NOT EXCEED PENETRATION HEIGHT, UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS. 4. FOR LOCATIONS AND/OR SIZES OF PENETRATIONS NOT CONFORMING TO THE ABOVE CRITERIA AND NOT OTHERWISE DETAILED ON THE STRUCTURAL DRAWINGS, CONTRACTOR SHALL COORDINATE REQUIRED ADDITIONAL REINFORCEMENT WITH THE STRUCTURAL ENGINEER. 5. PROVIDE THE FOLLOWING REINFORCEMENT AT EACH SLEEVE, UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS: 1-#5 TOP AND BOTTOM AT BEAMS WITH WIDTHS LESS THAN 9". 2-#5 TOP AND BOTTOM AT BEAMS WITH 2-LEG STIRRUPS. 4-#5 TOP AND BOTTOM AT BEAMS WITH 4-LEG STIRRUPS. "N"-#5 TOP AND BOTTOM AT BEAMS WITH "N"-LEG STIRRUPS 6. PROVIDE ADDITIONAL STIRRUPS ABOVE AND BELOW PENETRATIONS AT SPACING NOT TO EXCEED ONE THIRD OF THE SCHEDULED STIRRUP SPACING, UNLESS DETAILED OTHERWISE ON THE STRUCTURAL DRAWINGS. 7. SCHEDULED BEAM STIRRUPS NOT SHOWN FOR CLARITY. ADDITIONAL REINFORCEMENT AT EACH PENETRATION, REFER TO



3 TYPICAL HORIZONTAL PENETRATION IN CONCRETE BEAM NO SCALE







TYPICAL VERTICAL PENETRATION IN CONCRETE BEAM NO SCALE

Kubala Ph: (800)248-3674 www.kubalaengineers.com TX. REG. NO. F-23612

BUILDING NUMBER GENERAL GRADE BEAM NOTES AND TYP DETAILS

JOHN R. KUBALA

F-23612

TOMBALL ISD

Description

ISSUE FOR PROPOSAL

DRAWING HISTORY

PROJECT NUMBER

220137

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Houston, TX 77046

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713-961-4571 F

TX Firm: BR 1608

CIVIL DIG ENGINEERS T 713-940-3238

LANDSCAPE EDGELAND

FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS

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1. FOOTING DESIGN IS BASED UPON THE FOLLOWING CRITERIA. REFER TO TYPICAL FOOTING DETAIL FOR FOOTING SCHEDULE AND REINFORCING. DISTRIBUTION OF FOOTING TYPES AS INDICATED ON PLANS. A. NET ALLOWABLE SOIL BEARING PRESSURE. B. MINIMUM FOOTING BEARING DEPTH....2 FT BELOW FINAL EXTERIOR GRADE C. MINIMUM WALL FOOTING WIDTH... 12 INCHES D. MINIMUM COLUMN FOOTING WIDTH.... . 18 INCHES E. COEFFICIENT OF BASE FRICTION AT FOOTING BASE... F. ALLOWABLE PASSIVE EARTH PRESSURE FOR FOOTINGS BEARING AGAINST NATIVE SANDS OR SAND BACKFILL........ 100 PSF/FT G. ALLOWABLE PASSIVE EARTH PRESSURE FOR FOOTINGS BEARING AGAINST NATIVE CLAYS OR PROPERLY PLACED AND COMPACTED CLAY BACKFILL.... H. BEARING STRATUM.... .. NATIVE SOILS 2. FOOTINGS NOT SPECIFICALLY LOCATED ON THE PLAN SHALL BE LOCATED ON CENTERLINE OF THE COLUMN ABOVE, WHERE NO COLUMN OCCURS, LOCATE FOOTING ON CENTERLINE OF WALL OR BEAM. 3. PROVIDE DOWELS FROM FOOTINGS INTO CONCRETE ABOVE PER THE TYPICAL FOOTING DETAIL. 4. ELEVATION OF TOP OF FOOTING IS NOTED ON DRAWINGS. 6. ALL FOOTINGS SHALL BE INSPECTED BY A REPRESENTATIVE OF THE PROJECT'S GER IN ORDER TO ENSURE THAT THE BEARING STRATUM IS PROPER AND IN ACCORDANCE WITH THE RECOMMENDATIONS FIVEN IN THE GEOTECHNICAL REPORT.

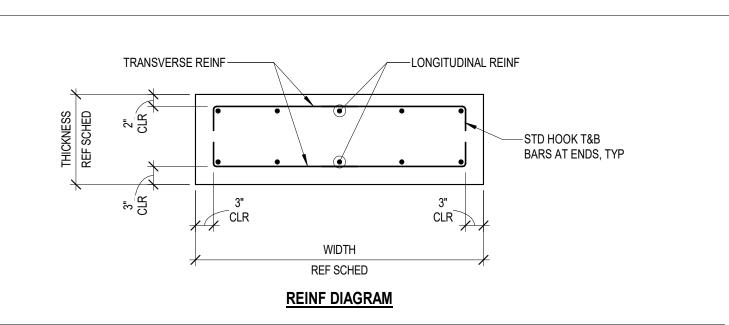
FOOTINGS:

5. REFERENCE PLANS AND FOOTING SCHEDULE FOR FOOTING SIZE, REINFORCING, AND DEPTH OF BEARING STRATUM.

7. USE TEMPLATES TO SET DOWELS AND ANCHOR BOLTS IN FOOTINGS. PROVIDE DETAILS OF THE TEMPLATES IN THE FOOTING SHOP DRAWINGS. REMOVE THE TEMPLATE COMPLETELY FROM THE TOP OF THE FOOTING PRIOR TO SUPERSTRUCTURE CONSTRUCTION.

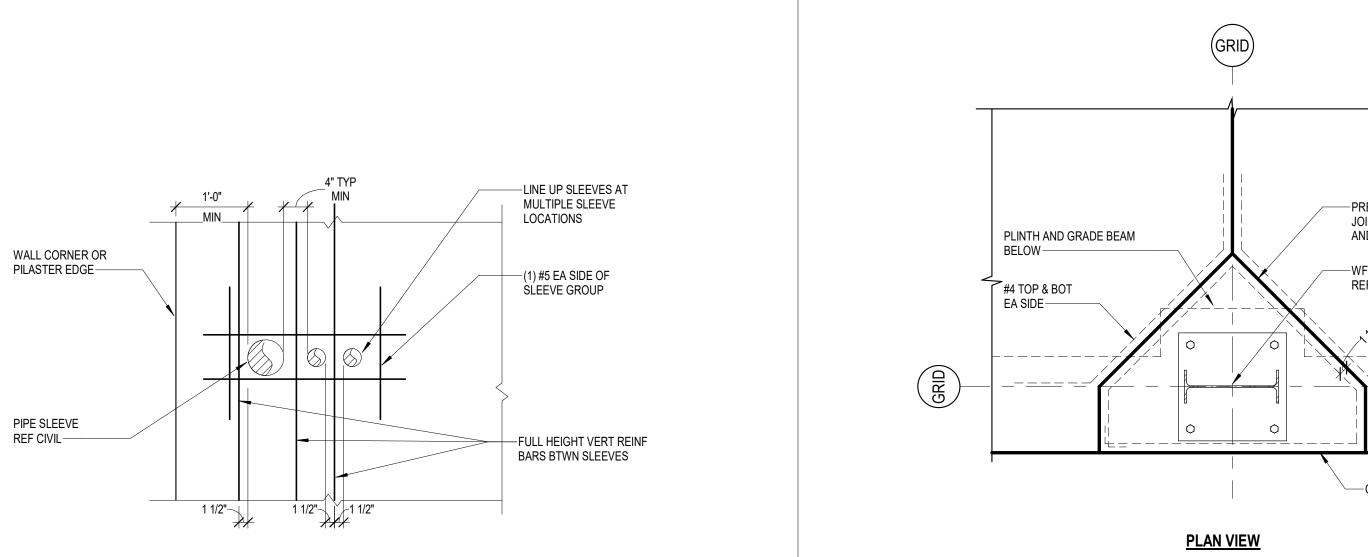
8. UNLESS REQUIRED BY THE PROJECT'S GER TO BE FORM-SIDED, THE FOOTING EXCAVATIONS SHALL BE MADE TO NEAT LINES AND SHALL BE FREE OF LOOSE OR WET MATERIALS. CONCRETE CAN BE PLACED DIRECTLY AGAINST THE SOIL WITHOUT FORMING.

9. PLACE CONCRETE IN FOOTING EXCAVATION WITHIN 8 HOURS OF FINAL EXCAVATION OR AS SPECIFIED IN THE GEOTECHNICAL REPORT.

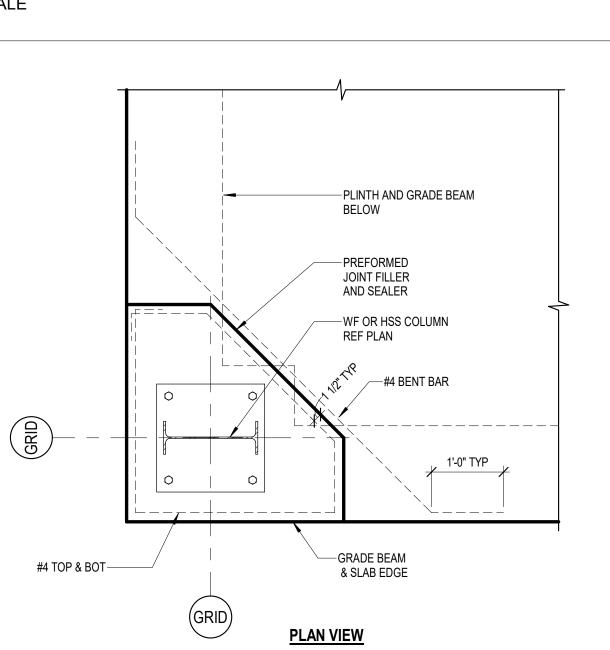


	SPREAD FOOTING SCHEDULE							
MARK	WIDTH (FT-IN)	LENGTH (FT-IN)	THICKNESS (FT-IN)	LONGITUDINAL TOP REINF	LONGITUDINAL BOT REINF	TRANSVERSE TOP REINF	TRANSVERSE BOT REINF	REMARKS
F4	4' - 0"	4' - 0"	1' - 0"	(4) #5	(4) #5	(4) #5	(4) #5	
F5	5' - 0"	5' - 0"	1' - 0"	(5) #5	(5) #5	(5) #5	(5) #5	
F6	6' - 0"	6' - 0"	1' - 0"	(6) #5	(6) #5	(6) #5	(6) #5	
F7	7' - 0"	7' - 0"	1' - 0"	(6) #5	(6) #5	(6) #5	(6) #5	
F8	8' - 0"	8' - 0"	1' - 0"	(7) #5	(7) #5	(7) #5	(7) #5	
F9	9' - 0"	9' - 0"	1' - 0"	(9) #6	(9) #6	(9) #6	(9) #6	

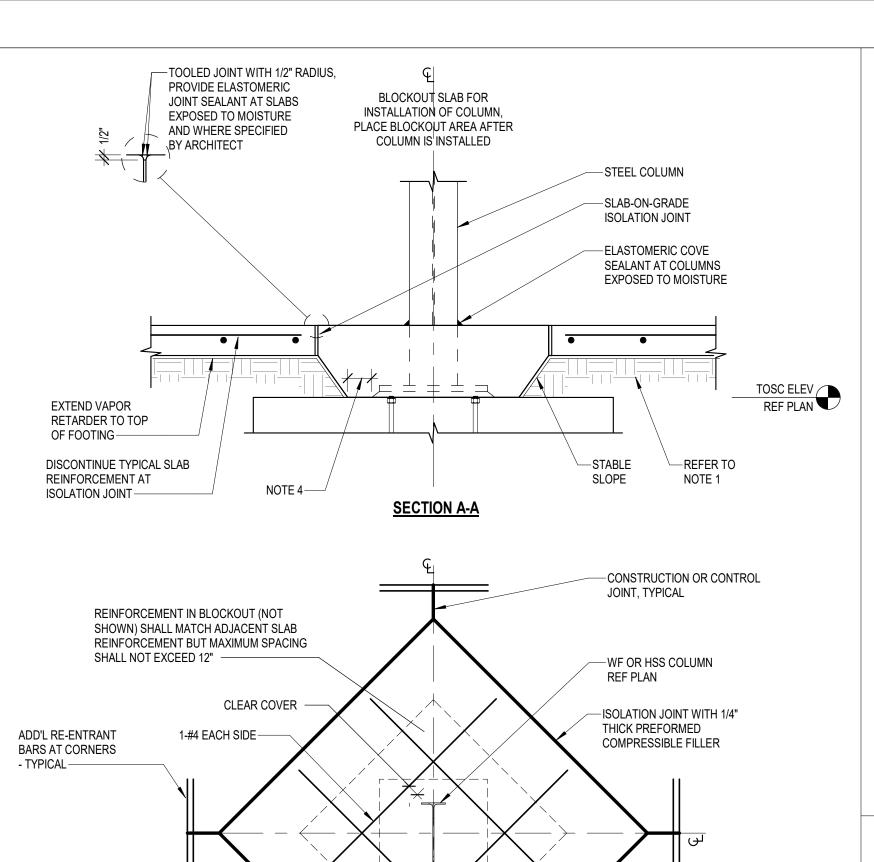
TYPICAL FOOTING REINF DIAGRAM AND SCHEDULE NO SCALE

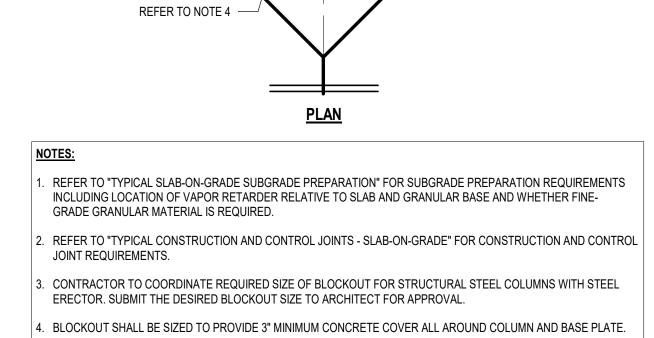


6 TYPICAL WALL PENETRATION DETAIL NO SCALE



5 TYPICAL SLAB-ON-GRADE CORNER BLOCKOUT DETAIL NO SCALE



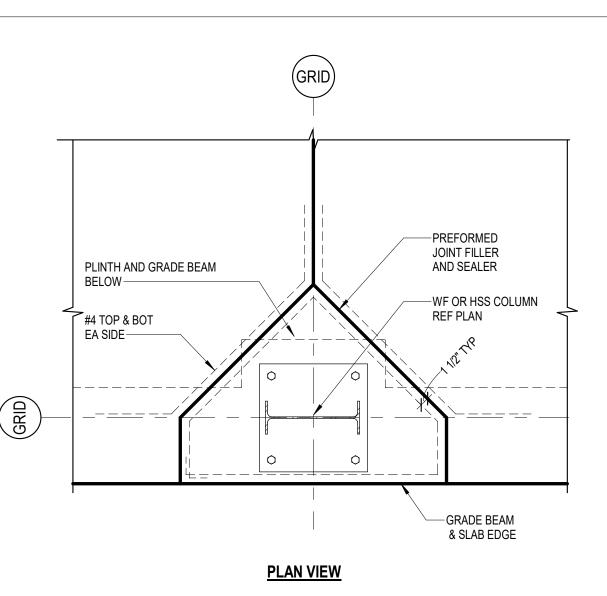


—BASE PLATE BELOW

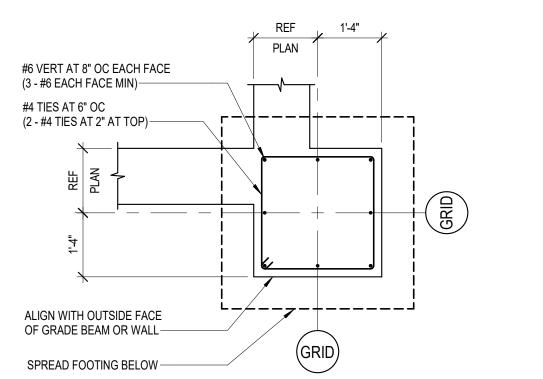
5. THE BLOCKOUT SAHLL BE KEYWAYED WITH RE-ENTRANT BARS.

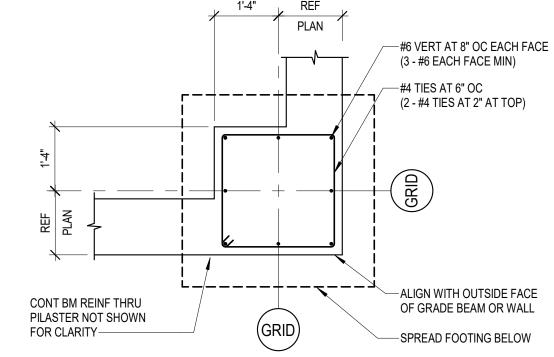
BOTTOM OF BLOCKOUT

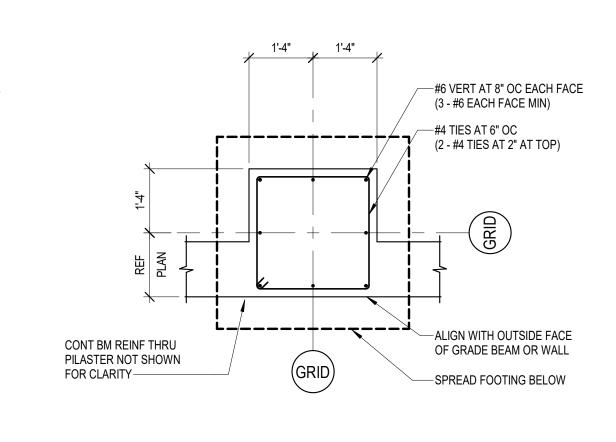
 TYPICAL SLAB-ON-GRADE INTERIOR BLOCKOUT DETAIL NO SCALE



4 TYPICAL SLAB-ON-GRADE PERIMETER BLOCKOUT DETAIL NO SCALE







INSIDE CORNER PILASTER

OUTSIDE CORNER PILASTER

INTERIOR PILASTER

3 TYPICAL PILASTER DETAILS AT SPREAD FOOTING NO SCALE



11 Greenway Plaza, 22nd Floor

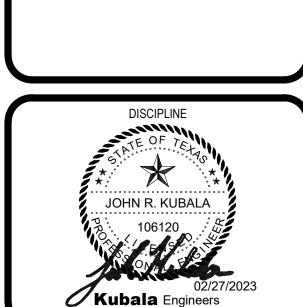
Houston, TX 77046

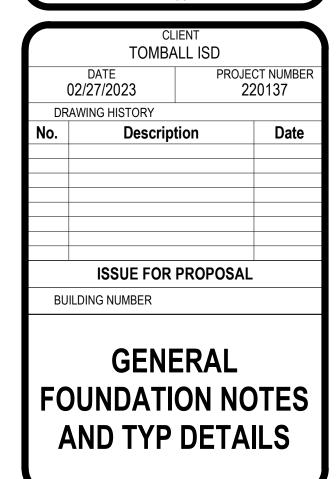
713-965-0608 P

713-961-4571 F

TX Firm: BR 1608

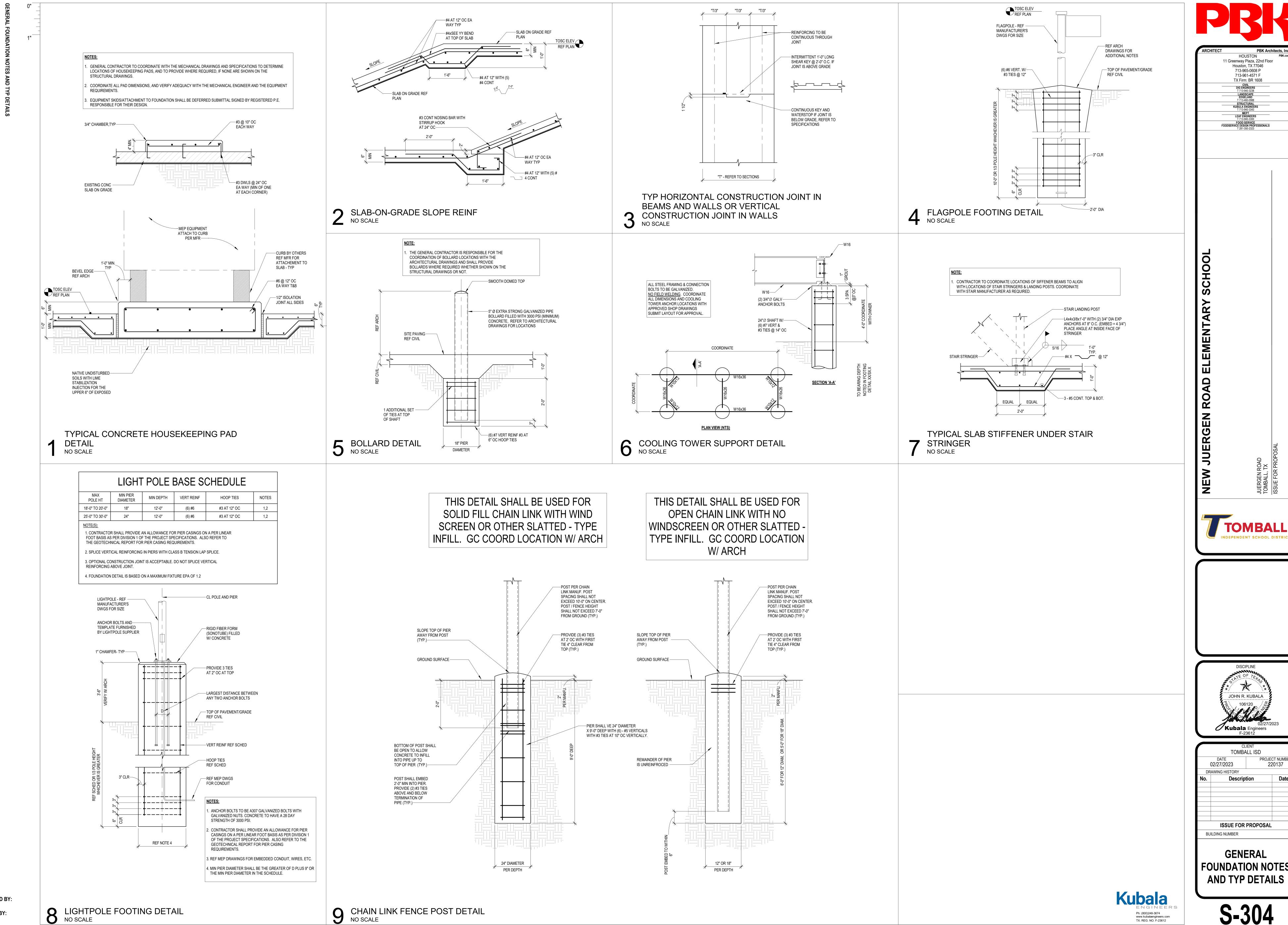
FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS





Kubala Ph: (800)248-3674 www.kubalaengineers.com TX. REG. NO. F-23612

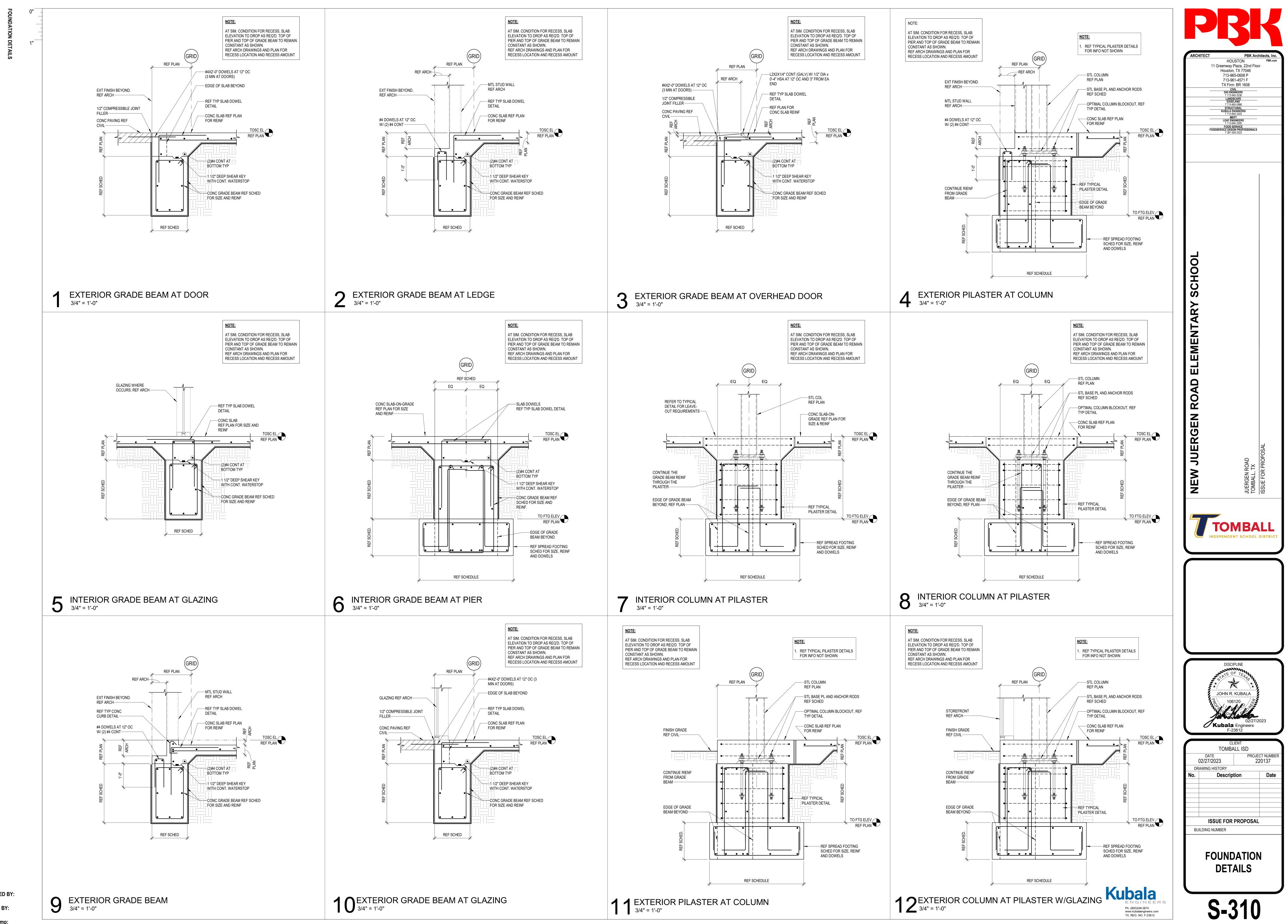
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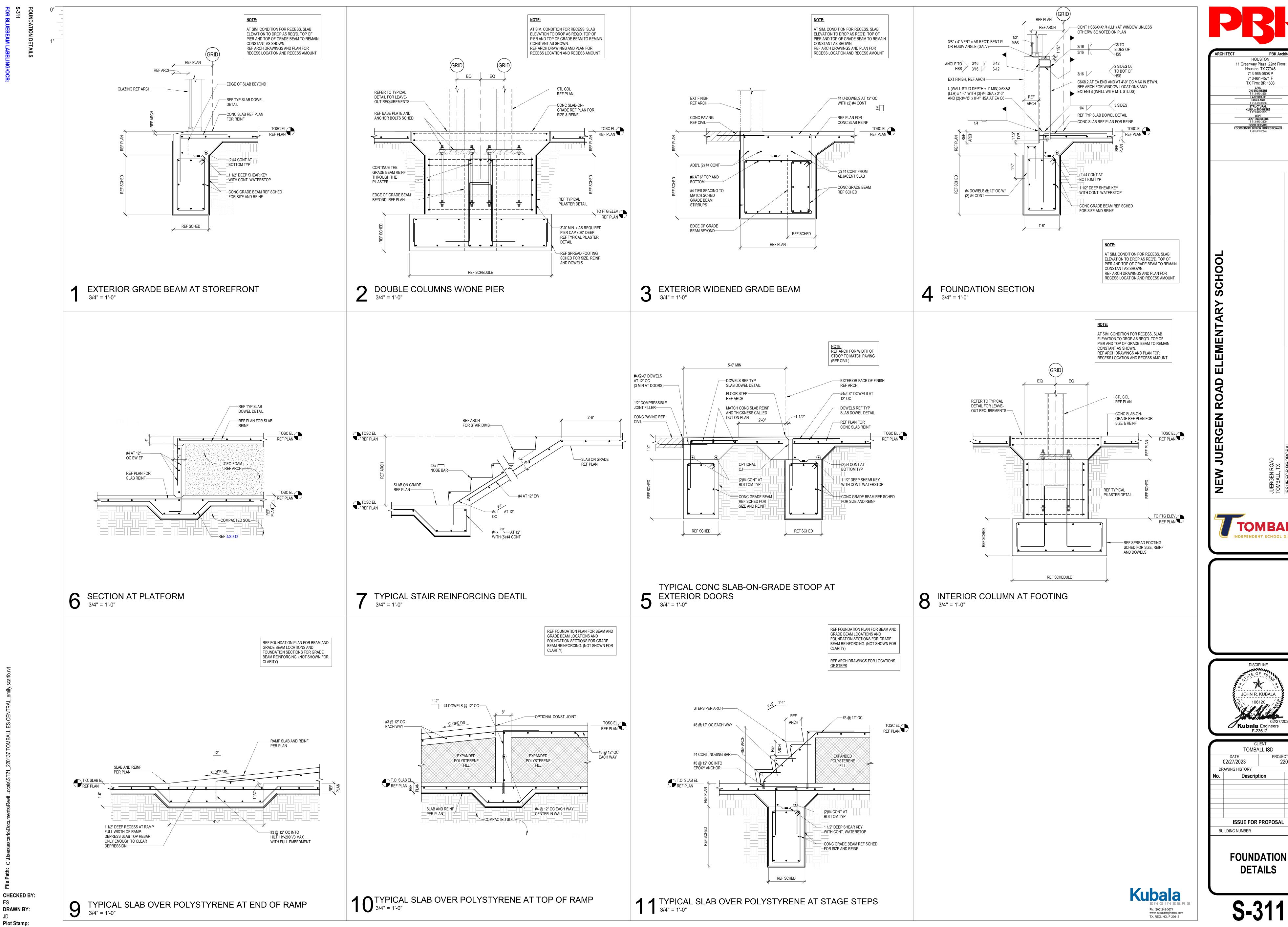
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2/27/2023 8:16:25 AM

PROJECT NUMBER Date **FOUNDATION NOTES**



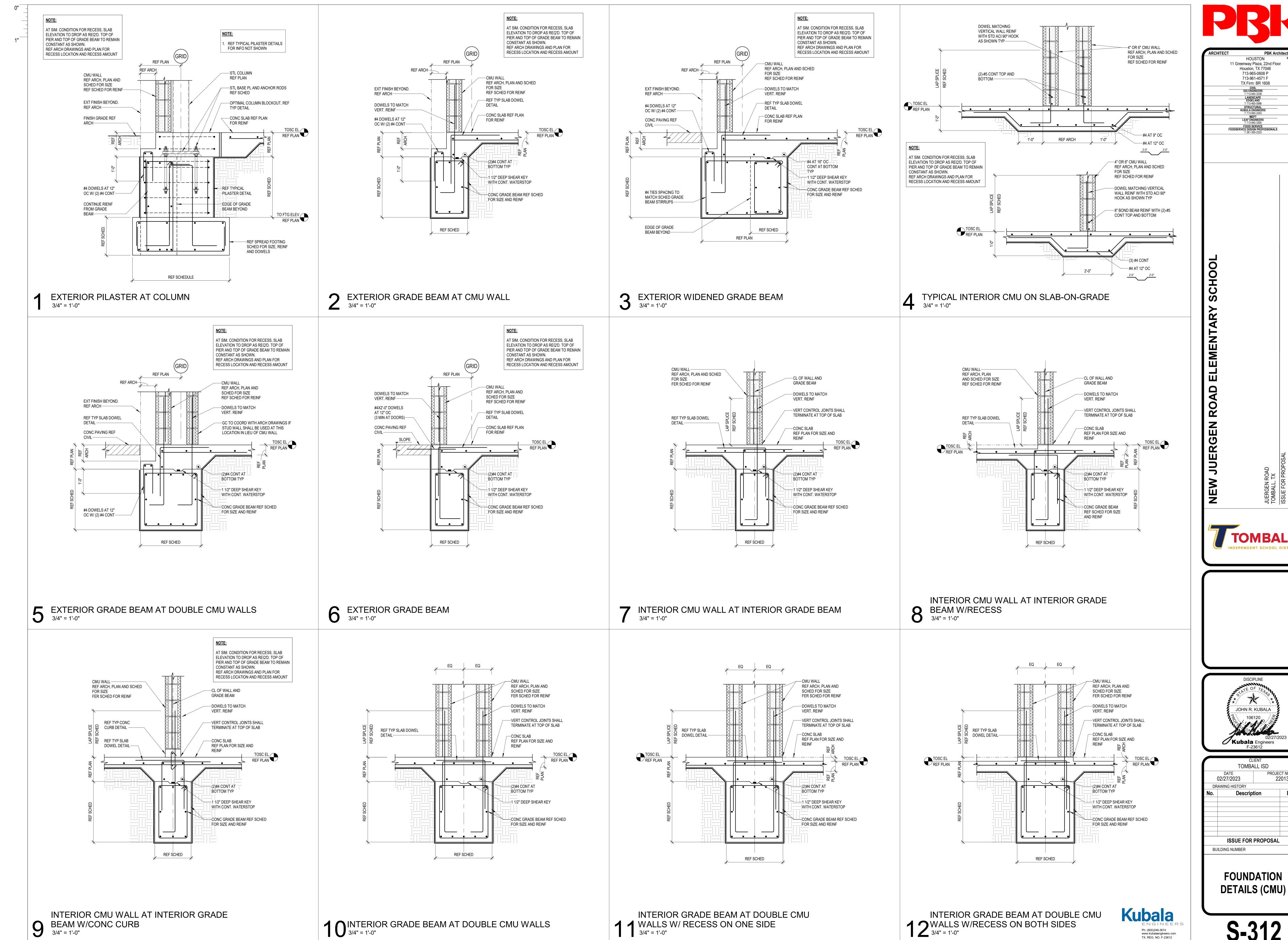
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2/27/2023 8:16:29 AM



ES

2/27/2023 8:16:32 AM

PROJECT NUMBER 220137 Date **ISSUE FOR PROPOSAL FOUNDATION DETAILS**



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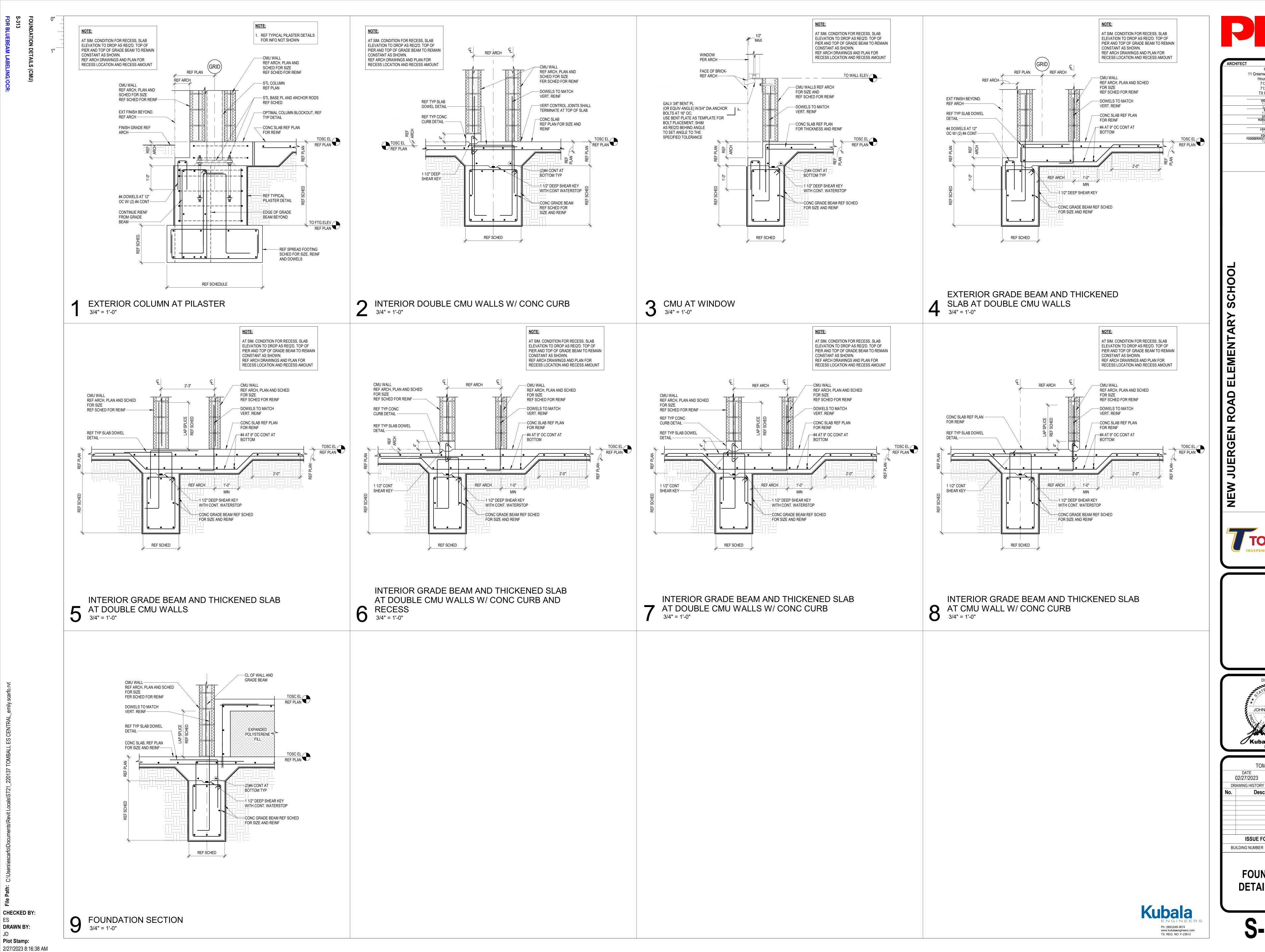
DRAWN BY:

Plot Stamp:

2/27/2023 8:16:35 AM

PROJECT NUMBER 220137

Date



JOHN R. KUBALA

Kubala Engineers

F-23612

TOMBALL ISD

Description

ISSUE FOR PROPOSAL

FOUNDATION

PROJECT NUMBER

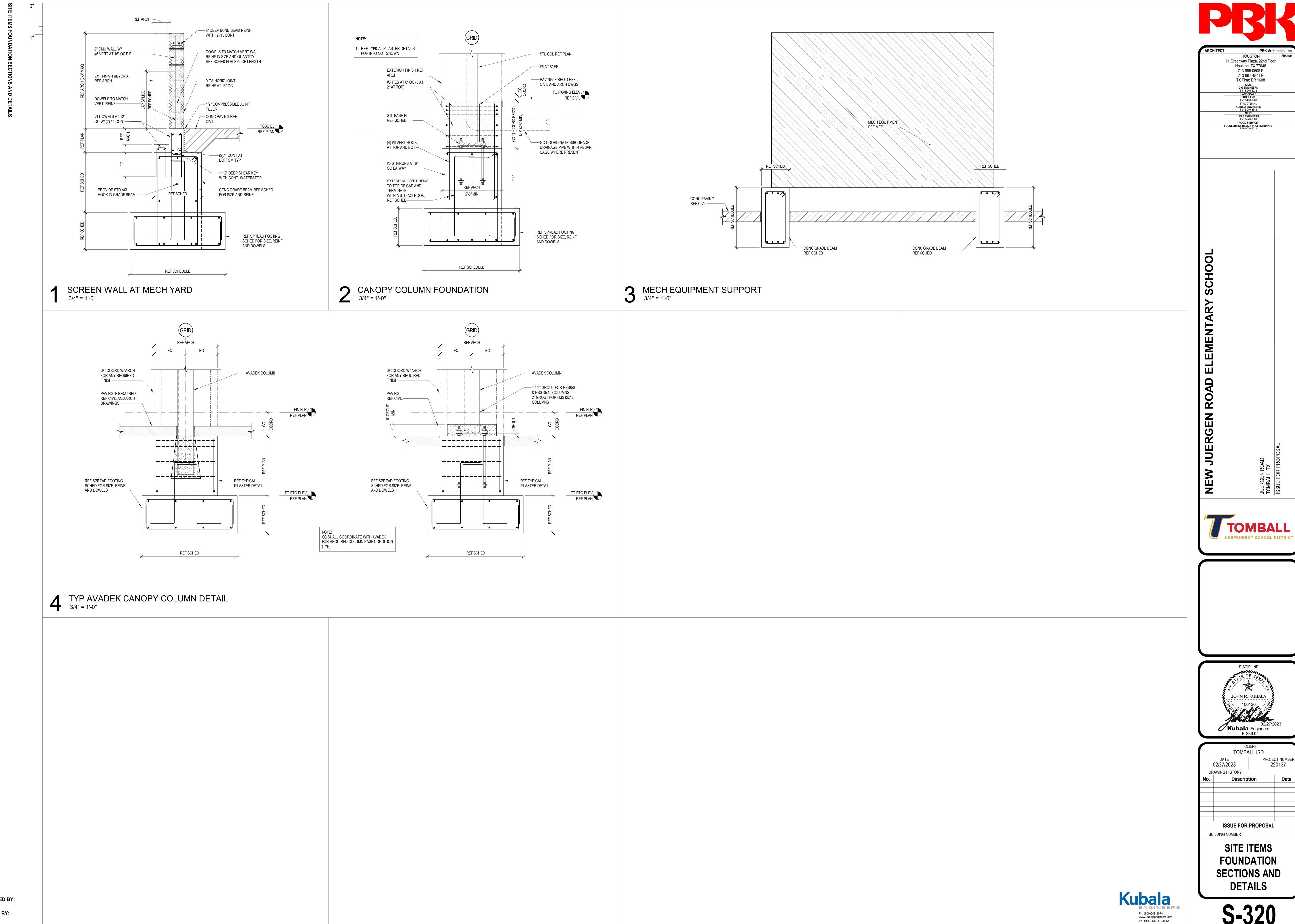
11 Greenway Plaza, 22nd Floor

713-965-0608 P

713-961-4571 F

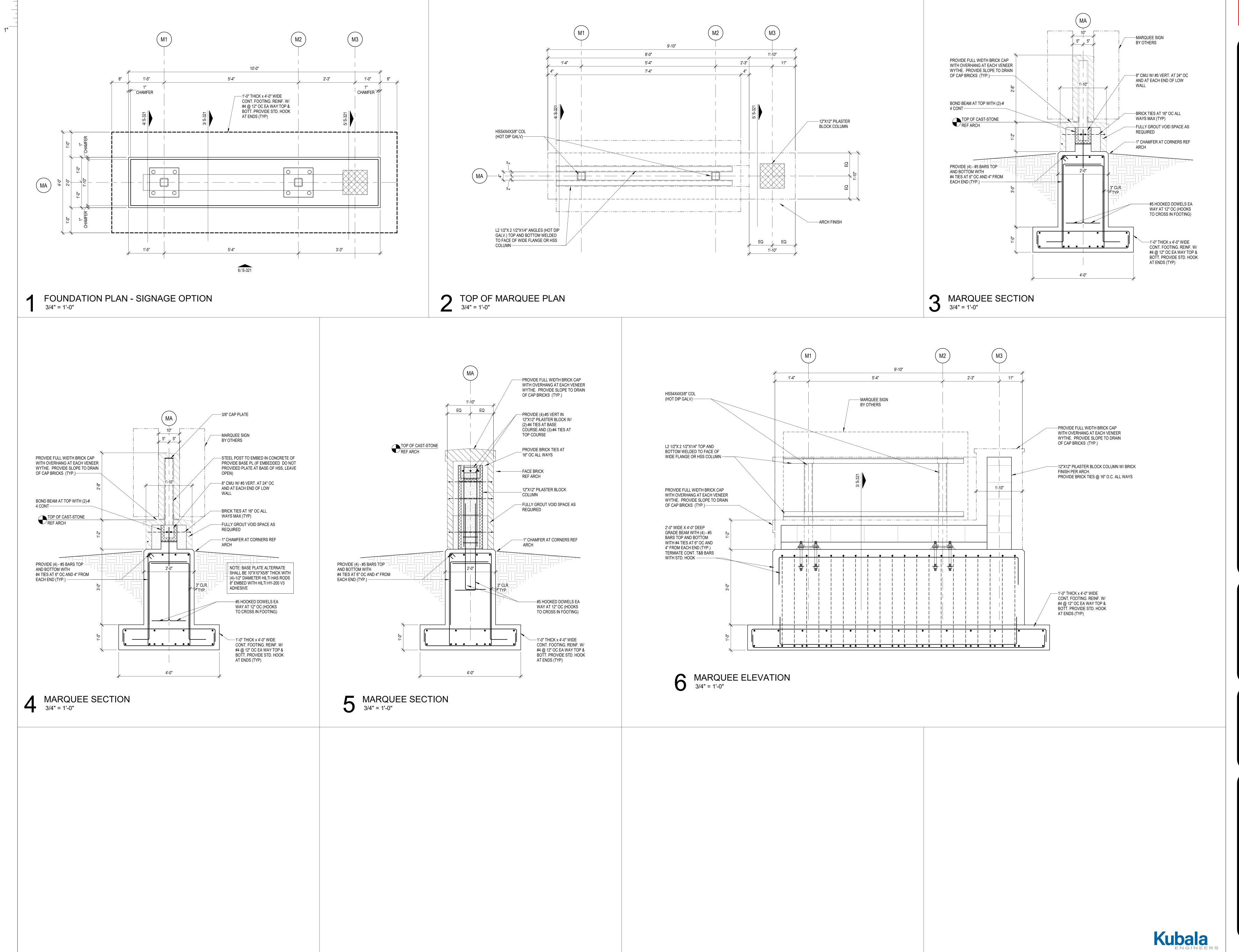
TX Firm: BR 1608

Houston, TX 77046



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JD **Plot Stamp:** 2/27/2023 8:16:40 AM



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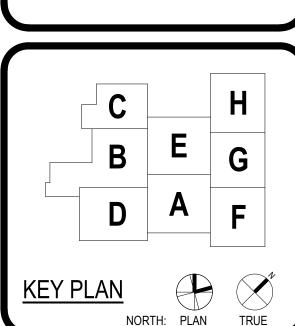
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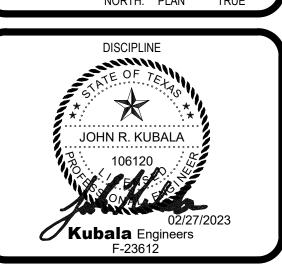
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PBK

ROAD ELEMENTARY SCHOOL

JUERGEN ROAD TOMBALL, TX ISSUE FOR PROPOSA





CLIENT TOMBALL ISD						
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	DATE 02/27/2023		CT NUMBER 20137			
	RAWING HISTORY		-0107			
No.	Descrip	fion	Date			
110.	Везопр		Date			
	ISSUE FOR	PROPOSAL				
BU	IILDING NUMBER					
T	TYPICAL MARQUEE SIGN PLANS & DETAILS					

- . MASONRY TESTING SHALL CONSIST OF A QUALIFIED TESTING LABORATORY PROVIDING THE FOLLOWING SERVICES:
- A. OBSERVE THE INSTALLATION OF MASONRY UNITS.
- B. VERIFY THE QUANTITY, SIZE AND THE SPACING OF THE REQUIRED REINFORCING THAT IS SHOWN ON THE DRAWINGS.
- C. INSPECT THE GROUT SPACE PRIOR TO THE CLOSING OF CLEANOUTS AND ALL GROUTING OPERATIONS. VERIFY THAT THE SPECIFIED CELLS ARE FULLY GROUTED AS NOTED.
- D. MONITOR THE PROPORTIONING, MIXING AND CONSISTENCY OF MORTAR AND GROUT. PROVIDE 28 DAY COMPRESSIVE STRENGTH TESTS ON EACH GROUT MIX IN ACCORDANCE WITH ASTM C1019. PROVIDE COMPRESSION TESTS ON MASONRY PRISMS FOR EACH TYPE OF WALL CONSTRUCTION, IN ACCORDANCE WITH ASTM C1314. CONTRACTOR SHALL PREPARE ONE SET FOR TESTING AT 28 DAYS. TESTS ARE TO BE CONDUCTED FOR EACH 2000 SQUARE FEET OF WALL INSTALLED, BUT NOT LESS THAN TWO TESTS.

MASONRY NOTES:

MATERIALS:

MASONRY:

- 1. ALL CONCRETE MASONRY UNITS (CMU) SHALL SHALL CONFORM TO ASTM C90, TYPE 1, GRADE N, AND THE QUALITY CONTROL STANDARDS OF THE NATIONAL CONCRETE MASONRY ASSOCIATION.
- 2. ALL CONCRETE MASONRY UNITS SHALL BE LIGHTWEIGHT (LESS THAN 105 PCF, OVEN DRY UNIT WEIGHT).
- 3. ALL MASONRY UNITS SHALL HAVE A MAXIMUM LINEAR SHRINKAGE OF .06 OF 1% FROM THE SATURATED TO THE OVEN DRY CONDITION, WHEN TESTED WITH THE METHODS SET FORTH IN THE QUALITY CONTROL STANDARDS OF THE NATIONAL CONCRETE MASONRY ASSOCIATION.
- 4. MASONRY UNITS SHALL HAVE CURED FOR NOT LESS THAN 28 DAYS WHEN PLACED IN THE STRUCTURE.

COMPRESSIVE STRENGTHS:

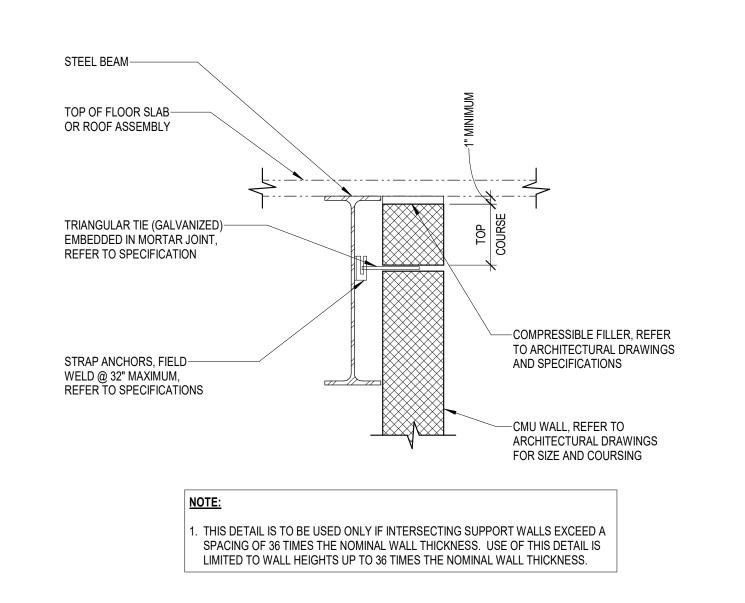
- 1. THE MINIMUM COMPRESSIVE STRENGTH OF MASONRY (f'm) SHALL BE 2000 PSI AS DETERMINED BY THE UNIT STRENGTH METHOD OR BY THE PRISM TEST
- 2. ALL MASONRY UNITS SHALL HAVE A MINIMUM NET COMPRESSIVE STRENGTH OF 2500 PSI AND A MINIMUM NET TENSILE STRENGTH OF 125 PSI. WHEN TESTED IN ACCORDANCE WITH THE METHODS SET FORTH IN THE QUALITY CONTROL STANDARDS OF THE NATIONAL CONCRETE MASONRY ASSOCIATION.

1. UNLESS NOTED OTHERWISE, MORTAR SHALL CONFORM TO ASTM C270, TYPE 'S'. MORTAR SHALL BE FRESHLY PREPARED AND UNIFORMLY MIXED IN THE RATIO OF 1 PART PORTLAND CEMENT, 1/4 PART MINIMUM TO 1/2 PART MAXIMUM LIME PUTTY OR HYDRATED LIME, DAMP LOOSE SAND NOT LESS THAN 2-1/4 AND NOT MORE THAN 3 TIMES THE SUM OF THE VOLUMES OF THE CEMENT AND LIME USED.

- 1. GROUT FOR POURING SHALL BE OF FLUID CONSISTENCY AND MIXED IN THE RATIO BY VOLUMES, 1 PART PORTLAND CEMENT, 2 1/4 PARTS MINIMUM TO 3 PARTS MAXIMUM DAMP LOOSE SAND, 1 PART MINIMUM TO 2 PARTS MAXIMUM PEA GRAVEL, AND 0 TO 1/10 PART MAXIMUM HYDRATED LIME. GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI, WHEN TESTED IN ACCORDANCE WITH ASTM C476.
- 2. GROUT FOR PUMPING SHALL BE OF FLUID CONSISTENCY AND SHALL HAVE NO LESS THAN 7 SACKS OF CEMENT IN EACH CUBIC YARD OF GROUT. SUBMIT THE MIX FOR APPROVAL.
- 3. ALL CELLS WITH REINFORCING BARS SHALL BE GROUTED SOLID.
- 4. ALL CELLS THAT WILL HAVE DRILLED EXPANSION ANCHORS, EMBEDDED HEADED STUDS OR OTHER EMBEDDED ANCHORS MUST BE GROUTED SOLID.

REINFORCEMENT:

- 1. PROVIDE HORIZONTAL JOINT REINFORCING (TRUSS OR LADDER TYPE, 9 GAGE) AT 16" OC VERTICALLY AT ALL CMU WALLS. PROVIDE PRE-FAB WIRE TIES AT ALL CORNERS AND INTERSECTIONS AT 16" O.C. REINFORCEMENT SHALL CONFORM TO ASTM A82 WITH A MINIMUM YIELD STRENGTH OF 60,000 PSI, AND SHALL BE HOT DIPPED GALVANIZED.
- 2. OPENINGS IN MASONRY WALLS SHALL HAVE EITHER MASONRY OR STEEL LINTELS AS SHOWN ON THE DRAWINGS. ALL HORIZONTAL REINFORCING IN BOND BEAMS AND LINTEL BLOCKSSHALL BE CONTINUOUS, AND GROUTED SOLID. WHEN NO LINTEL IS DETAILED, A MINIMUM OF (2) #4 BARS IN A LINTEL BLOCK SHALL BE INSTALLED. THE BARS SHALL EXTEND A MINIMUM OF EIGHT INCHES BEYOND THE EDGE OF THE OPENING, AND EACH JAMB SHALL BE GROUTED SOLID FOR A DISTANCE OF EIGHT INCHES WITH (2) #5 VERTICAL MINIMUM. STEEL LINTELS SHALL BEAR 8" MINIMUM AT EACH END. PROVIDE VERTICAL CONTROL JOINTS AT THE ENDS OF ANY STEEL LINTEL, UNLESS 15# FELT OR FLASHING IS PROVIDED AT THE TOP AND BOTTOM OF THE LINTEL ANGLE WHERE THE ANGLE BEARS ON BRICK.
- 3. LINTEL BLOCKS SHALL BE "U" SHAPED UNITS WITH SOLID BOTTOMS AND ARE TO BE USED OVER WINDOW AND DOOR OPENINGS. BOND BEAM BLOCKS SHALL BE OPEN BOTTOM UNITS AND ARE TO BE USED AT THE TOPS OF WALLS AND AT THE MID-HEIGHT, UNLESS THE WALL HEIGHT EXCEEDS 16 FEET, IN WHICH BOND BEAMS SHALL BE PROVIDED 8'-0" ON CENTER VERTICALLY MAXIMUM, UNLESS SHOWN OTHERWISE ON THE DRAWINGS. PROVIDE (2) #4 BARS IN A SOLID GROUTED BOND BEAM UNLESS NOTED OTHERWISE. LINTEL BLOCKS SHALL NOT BE USED IN PLACE OF BOND BEAM BLOCKS.
- 4. ALL MASONRY TIES TO BACKUP STRUCTURE SHALL BE HOT DIP GALVANIZED. UNLESS OTHERWISE NOTED ON THE DRAWINGS, PROVIDE HECKMANN NO. 315 HORIZONTALLY. MASONRY TIES TO WALL STUDS SHALL BE HECKMANN NO. 316 TRIANGULAR TIE WITH HECKMANN NO. 315-C SCREW ON ANCHOR STRAP SPACED 16" ON CENTER HORIZONTALLY VERTICALLY. AT WALL CORNERS, INTERSECTIONS AND OPENINGS, PROVIDE TWO VERTICAL ROWS OF ANCHORS SPACED 16" APART AND 16" ON CENTER VERTICALLY. TRIANGULAR TIES SHALL EXTEND 3/4" FROM FACE OF MASONRY. ANCHOR STRAPS SHALL BE ATTACHED TO METAL STUDS WITH TWO (2) #10-16x1 1/2" CADMIUM PLATED SHEET METAL SCREWS.
- 5. AT FREE VERTICAL EDGES OF WALLS, AND AT THE FIRST CELL EACH SIDE OF CONTROL JOINTS, PROVIDE (1) VERTICAL IN GROUT FILLED END CORES. THE VERTICAL REINFORCING SHALL MATCH TYPICAL VERTICAL WALL REINFORCING UNLESS NOTED OTHERWISE, AND SHALL EXTEND TO THE TOP OF THE WALL.
- 6. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, PROVIDE A MINIMUM OF #4 VERTICAL BARS AND DOWELS IN FULLY GROUTED CELLS AT 48" O.C.
- 7. ALL BAR REINFORCING SHALL BE LAPPED AS FOLLOWS:
- · #3 LAP SPLICE LENGTH = 19 INCHES
- · #4 LAP SPLICE LENGTH = 34 INCHES · #5 LAP SPLICE LENGTH = 45 INCHES
- · #6 LAP SPLICE LENGTH = 54 INCHES · #7 LAP SPLICE LENGTH = 63 INCHES · #8 LAP SPLICE LENGTH = 72 INCHES
- · #9 LAP SPLICE LENGTH = 82 INCHES · INCREASE LAP SPLICE LENGTHS BY 50% FOR EPOXY COATED REINFORCING
- **MISCELLANEOUS:**
- 1. ALL MASONRY DESIGN IS BASED ON CHAPTER 21 OF INTERNATIONAL BUILDING CODE, LATEST EDITION AND ACI 530, LATEST EDITION.
- 2. SEE TYPICAL DETAILS FOR INTERIOR WALL BRACING, AND REINFORCING REQUIREMENTS.
- 3. UNLESS NOTED OTHERWISE PER PLANS, SPECS OR DETAILS, MASONRY WALLS SHALL HAVE VERTICAL CONTROL JOINTS PER NCMA GUIDELINES TEK 10-2C
- . AT APPROXIMATELY SIXTEEN FEET ON CENTER · CORNERS-AT A MAXIMUM DISTANCE NOT TO EXCEED ONE-HALF THE REQUIRED MAXIMUM DISTANCE
- · BETWEEN MAIN AND INTERSECTING WALLS · CHANGES IN WALL HEIGHTS
- · ADJACENT TO LINTELS AND THROUGH OPENINGS IF NOT CROSSING VERTICAL REINFORCEMENT · AT PILASTERS AND CHANGES IN WALL THICKNESS \cdot ALL JOINT LOCATIONS SHALL BE COORDINATED WITH THE ARCHITECT.
- 4. UNLESS NOTED OTHERWISE PER PLANS, SPECS OR DETAILS, BRICK VENEER CONTROL JOINTS SHALL BE PER BIA GUIDELINES-TECHNICAL NOTE 18A.
- · WITHOUT OPENINGS, SPACE NO MORE THAN 25 FT WITH MULTIPLE OPENINGS, SPACE NO MORE THAN 20 FT
- · AT OR NEAR CORNERS · AT OFFSETS AND SETBACKS · AT WALL INTERSECTIONS
- · AT CHANGES IN WALL HEIGHTS · AT WALL BACKING SYSTEM CHANGES (CMU TO DRYWALL)
- AT SUPPORT CHANGES (CONCRETE TO STEEL) · AT WALL FUNCTION OR CLIMATIC EXPOSURE CHANGES (INTERIOR TO EXTERIOR)
- GROUT LIFT LIMITS
- GROUT POURS SHALL NOT EXCEED 5 FEET PER LIFT WHEN GROUTING THE CELLS OF REINFORCED CMU, UNLESS CLEANOUTS ARE PROVIDED IN THE BOTTOM COURSE OF EACH 5 FOOT SECTION.
- · GROUT POURS SHALL NOT EXCEED 24 FEET WHEN GROUTING THE CELLS OF HOLLOW CMU. WHEN GROUTING THE SPACE BETWEEN MULTI-WYTHE WALLS, THE TOTAL POUR SHALL NOT EXCEED 24 FEET FOR 3" SPACES, 12 FEET FOR 2 1/2" SPACES, AND 5 FEET FOR 2" SPACES.
- · MECHANICALLY VIBRATE ALL LIFTS IN EXCESS OF 1 FOOT. · ALL GROUT MUST BE PLACED WITHIN 1 1/2 HOURS FROM INTRODUCING WATER INTO THE MIXTURE.
- · GROUT LIFTS SHALL NOT BE STOPPED WITHIN 1 1/2" OF BED JOINT. · ALL CMU WALLS LOCATED ADJACENT TO EARTH FILL MUST BE FULLY GROUTED DIRECTLY ADJACENT TO, AND AT EAST 8" ABOVE, ALL SOIL IN CONTACT WITH THE WALL.



BRACE FRAMING (3 5/8" STUDS)

SPACING

4'-0" OC

VERTICAL FRAMING (3 5/8" STUDS)

SPACING

1'-4" OC

1'-4" OC

TYPE A (FLOOR)

TYPE B (FLOOR / ROOF)

TYPE C (FLOOR / ROOF)

-REF ARCH FOR TOP OF BLOCK

CONT L3x3x1/4---

LENGTH

14'-0"

16'-9"

22'-6"

@ 6'-0" OC WITH

EA ANGLE

(2) - 1/4"Ø EXP BOLTS

- PLATE 1/4x4x4 W/

(1) - 1/2"Ø x 4" EXP

BOLT IN GROUTED

BOND BEAM

@ 4'-0" OC

- PLATE 1/4x4x4 W/

(1) - 1/2"Ø x 4" EXP

BOLT IN GROUTED

BOND BEAM

MISCELLANEOUS

BRACE @ MID-PT

FOR LENGTHS OVER

14'-0"

MISCELLANEOUS

ONE LAYER

SHEATHING (MIN)

ONE LAYER

SHEATHING (MIN)

STUD PROPERTIES

 $Ix = 0.541 IN^4$

rx = 1.429 IN

A = 0.2136 IN²

 $Sx = 0.273 IN^3$

STUD PROPERTIES

 $Ix = 0.239 IN^4$

rx = 1.415 IN

 $A = 0.123 \text{ IN}^2$

Sx = 0.113 IN³

 $Ix = 0.414 IN^4$

rx = 1.407 IN

 $A = 0.210 \text{ IN}^2$

 $Sx = 0.213 IN^3$

*OR PROVIDE 1 1/2x1 1/2x16 GA HORIZONTAL CHANNEL

FASTENED TO STUDS WITH 1 1/2x1 1/2x14 GA CLIP

CONT BOND BEAM-

SEE ARCH FOR-

TOP OF BLOCK

CONT BOND BEAM-

CONT BOND BEAM-

W/ (2) #4 CONT

5 TYPICAL CMU WALL BRACE CONNECTIONS NO SCALE

W/ (2) #4 CONT

W/ (2) #4 CONT

TYPICAL INTERIOR NON-BEARING CMU WALL SIDE CONNECTION

STUD TYPE

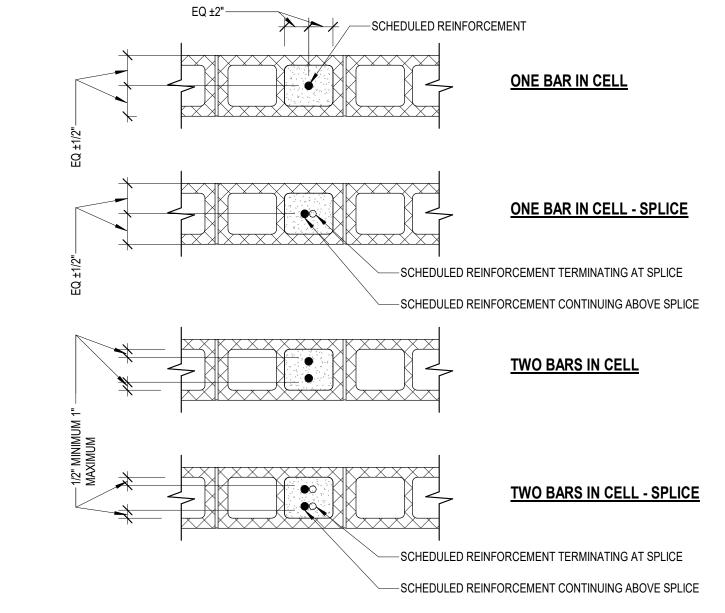
SJ 20 (40 KSI)

STUD TYPE

ST 25 (33 KSI)

ST 20 (33 KSI)

AT 4'-0" OC VERTICALLY

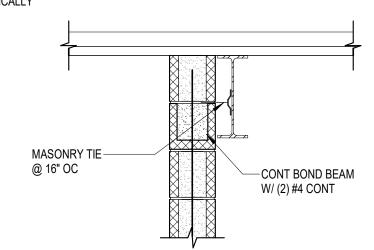


•	EQ ±2"——SCH	HEDULED REINFORCEM	ONE BAR IN CELL
		SCHEDULED REINFO	ONE BAR IN CELL - SPLICE RCEMENT TERMINATING AT SPLICE
i		—SCHEDULED REINFO	RCEMENT CONTINUING ABOVE SPLICE
: :			TWO BARS IN CELL
	MAXIMUM MAXIMIM MAXIMIM MAXIMIM MAXIMIM MAXIMIM MAXIMIM MAXIMIM MAXIMIM MAXIMI		TWO BARS IN CELL - SPLICE
		—SCHEDULED REINFO	RCEMENT TERMINATING AT SPLICE
		—SCHEDULED REINFO	RCEMENT CONTINUING ABOVE SPLICE
YPIC	AL CMU VERTICAL BAR PL	_ACEMEN	Т

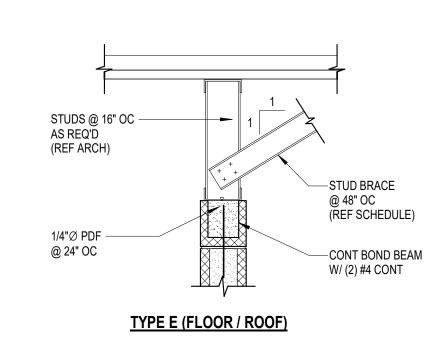
BRACE FRAMING (6" STUDS)								
STUD TYPE STUD PROPERTIES SPACING MAX LENGTH MISCELLANEOUS								
SJ 20 (40 KSI)	lx = 1.787 IN^4		20' 0"	BRACE @ MID-PT FOR LENGTHS OVER 20'-0"				
	rx = 2.253 IN	41.0".00						
	A = 0.2148 IN^2	4'-0" OC	20'-0"					
	Sx = 0.539 IN^3							

VERTICAL FRAMING (6" STUDS)							
STUD TYPE	STUD PROPERTIES	SPACING	MAX LENGTH	MISCELLANEOUS			
	lx = 0.773 IN ⁴			,			
ST 25 (22 KSI)	rx = 2.209 IN	1'-4" OC	20'-0"	ONE LAYER			
ST 25 (33 KSI)	A = 0.167 IN^2			SHEATHING (MIN)			
	Sx = 0.184 IN^3						
	lx = 1.385 IN ⁴			*			
ST 30 (32 KSI)	rx = 2.199 IN	1' 4" 00	221.0"	ONE LAYER			
ST 20 (33 KSI)	A = 0.288 IN^2	- 1'-4" OC	32'-9"	SHEATHING (MIN)			
	Sx = 0.437 IN^3						

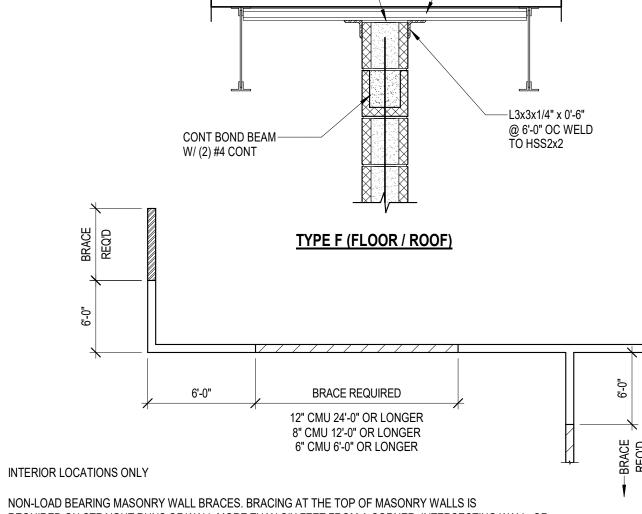
★OR PROVIDE 1 1/2x1 1/2x16 GA HORIZONTAL CHANNEL FASTENED TO STUDS WITH 1 1/2x1 1/2x14 GA CLIP AT 4'-0" OC VERTICALLY



TYPE D (FLOOR / ROOF)



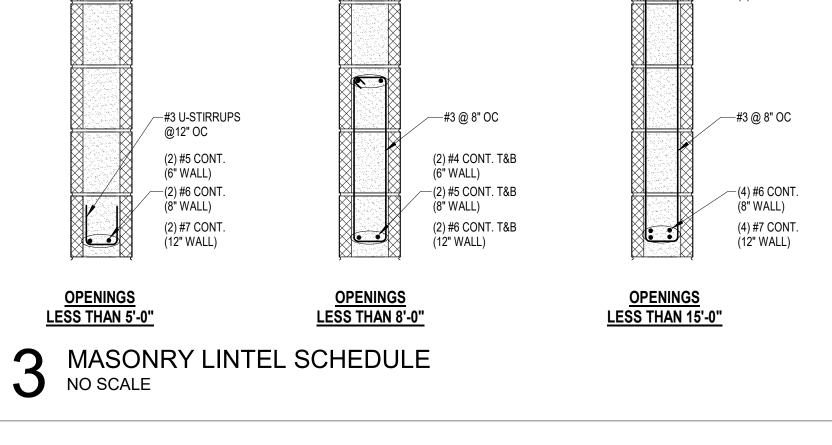
NOTCH CMU AROUND HSS--HSS2x2x1/4" @ 6'-0" OC ---L3x3x1/4" x 0'-6" @ 6'-0" OC WELD CONT BOND BEAM-W/ (2) #4 CONT TYPE F (FLOOR / ROOF)



NON-LOAD BEARING MASONRY WALL BRACES. BRACING AT THE TOP OF MASONRY WALLS IS REQUIRED ON STRAIGHT RUNS OF WALL MORE THAN SIX FEET FROM A CORNER, INTERSECTING WALL, OR AS NOTED ABOVE. WHEN THE MASONRY WALL TERMINATES AT THE BOTTOM OF THE DECK, A TYPE 'A' ATTACHMENT AT

THE FLOOR DECK OR A TYPE 'B', 'C', 'D' OR 'F' ATTACHMENT AT EITHER THE FLOOR OR ROOF MAY BE USED. WHEN WALLS TERMINATE ABOVE THE CEILING A TYPE 'B', 'C' OR 'E' ATTACHMENT SHOULD BE USED.

TYPICAL CMU WALL BRACING LOCATION PLAN



1. SEE ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATIONS OF OPENINGS. PROVIDE BLOCK LINTELS FOR ALL OPENINGS AT INTERIOR AND EXTERIOR WALLS

2. PROVIDE 1" OF BEARING @ EACH JAMB FOR EACH FOOT OF CLEARSPAN BUT NOT LESS THAN 8". REINFORCING SHALL EXTEND A MINIMUM OF 6" ONTO THE

3. FOR REINFORCED CMU WALLS AT OPENINGS, PROVIDE EXTRA REINFORCED GROUTED FULL HEIGHT\ CONSECUTIVE CELLS EACH SIDE OF THE OPENING

EQUAL TO ONE HALF OF THE TOTAL NUMBER OF CELLS INTERRUPTED BY THE OPENING. REINFORCE EACH CELL WITH THE SAME SIZE AND NUMBER OF BARS

AS SPECIFIED FOR THE INTERRUPTED CELLS. PROVIDE A MINIMUM OF (2) REINFORCED GROUTED CELLS EACH SIDE OF OPENING. REFER TO TYPICAL CMU

1. REINFORCEMENT MUST BE PLACED USING REINFORCING BAR POSITIONERS THAT LOCATE THE BAR AS

2. SPLICED REINFORCEMENT MUST BE A CONTACT LAP SPLICE WITH SPLICED BARS ALIGNED PARALLEL TO

3. THE ENGINEER MUST BE NOTIFIED PRIOR TO PLACEMENT OF REINFORCEMENT THAT IS REQUIRED TO BE

PLACED OUTSIDE OF THE TOLERANCES OF THIS DETAIL SUCH AS TO AVOID INTERFERENCE WITH OTHER

SPECIFIED AND PREVENT MOVEMENT OF THE BAR DURING CONSTRUCTION.

REINFORCEMENT, CONDUITS, OR EMBEDDED ITEMS.

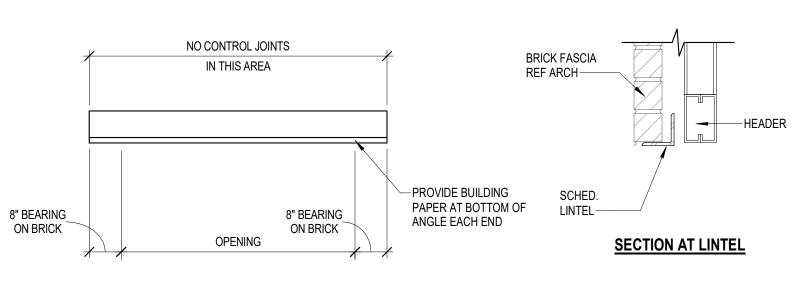
THE WALL AS SHOWN.

FOR WHICH A STEEL LINTEL IS NOT SCHEDULED.

WALL OPENING DIAGRAM AND SCHEDULE FOR ADDITIONAL INFORMATION.

AND LESS, CONTRACTOR MAY USE CAST CRETE LINTEL (8U8).

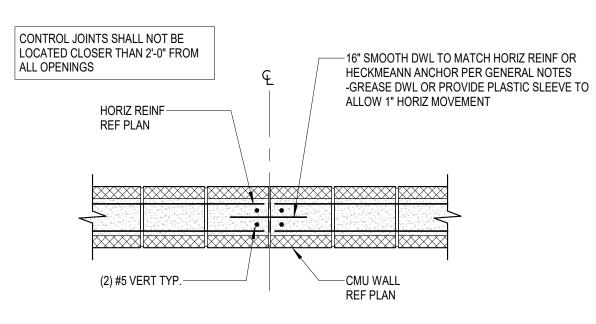
4. AS AN ALTERNATIVE TO USING A FILLED CMU BLOCK LINTEL (PER THE SCHEDULE ABOVE) FOR OPENINGS 5'-0"



CLEAR OPENING	MINIMUM ANGLE SIZE
0 TO LESS THAN 6'-0"	L 3 1/2 x 3 1/2 x 5/16 (GALV)
6'-0" TO LESS THAN 7'-0"	L 5 x 3 1/2 x 5/16 (LLV) (GALV)
7'-0" TO LESS THAN 8'-0"	L 6 x 3 1/2 x 5/16 (LLV) (GALV)
	<u> </u>

1. REF ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATIONS OF OPENINGS. 2. PROVIDE 1" OF BEARING @ EACH JAMB FOR EACH FOOT OF CLEARSPAN BUT NOT LESS THAN 8". 3. WHERE MIN. BEARING CANNOT BE ACHIEVED, PROVIDE ADEQUATE CONNECTION TO STRUCTURAL MEMBERS OR PROVIDE VERTICAL SUPPORTS AS REQ'D. SUCH DETAILS SHALL BE APPROVED BY THE ENGINEER OF RECORD.

TYPICAL STEEL LOOSE LINTEL SCHEDULE



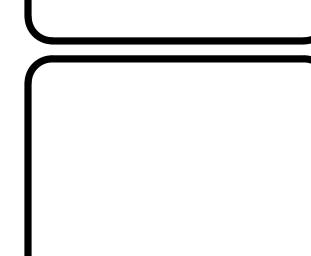
TYPICAL CONTROL JOINT DETAIL NO SCALE

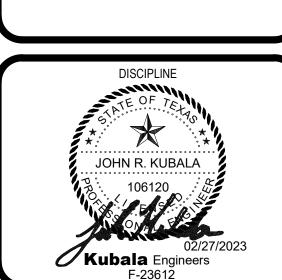
Kubala Ph: (800)248-3674 TX. REG. NO. F-23612



(2) #7 CONT.







TOMBALL ISD PROJECT NUMBER DRAWING HISTORY Description **ISSUE FOR PROPOSAL BUILDING NUMBER GENERAL CMU NOTES AND TYP**

DETAILS

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EXTERIOR MASONRY WALL REINF. ELEVATION

(2) #4 CORNER BAR

@ EA BOND BEAM

(2) #5 VERT IN

TYP BOND

-MASONRY WALL

(2) #5 VERT AT INTERSECTING WALLS

@ 16" OC

-MASONRY WALL

NO SCALE

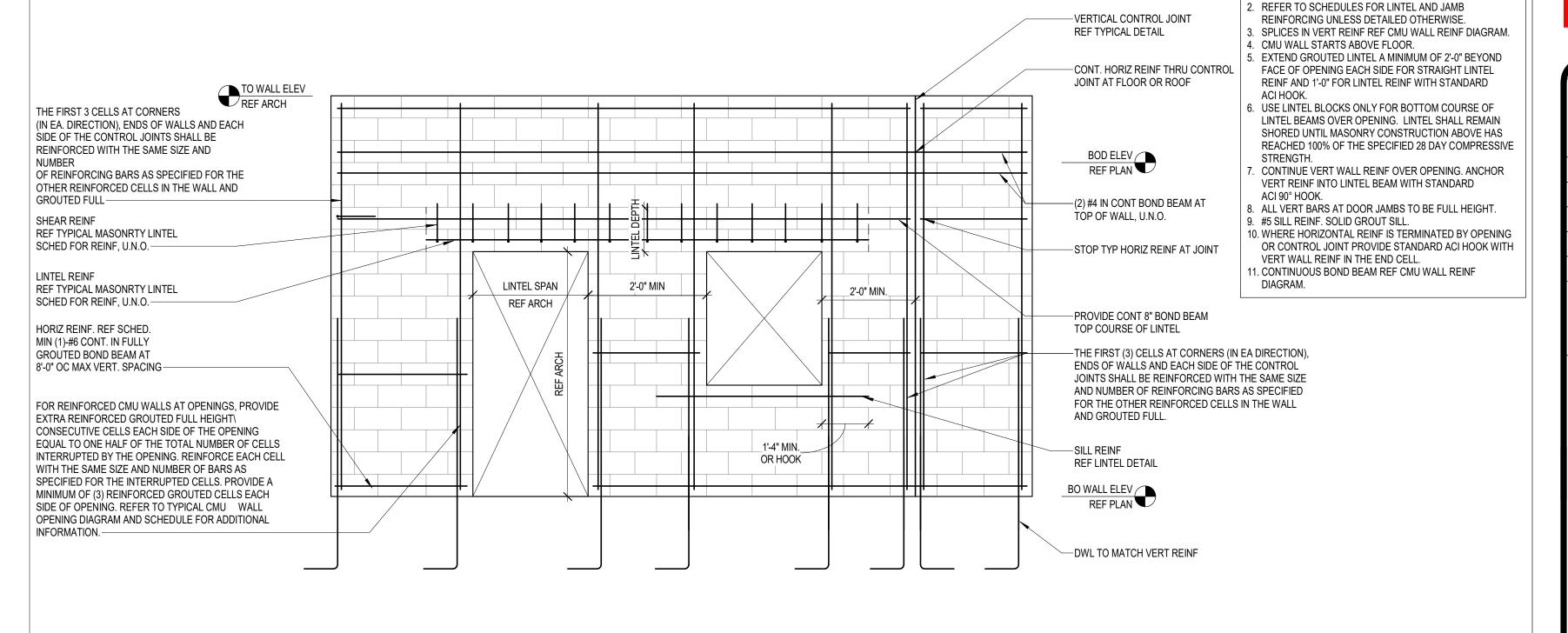
PLAN VIEW

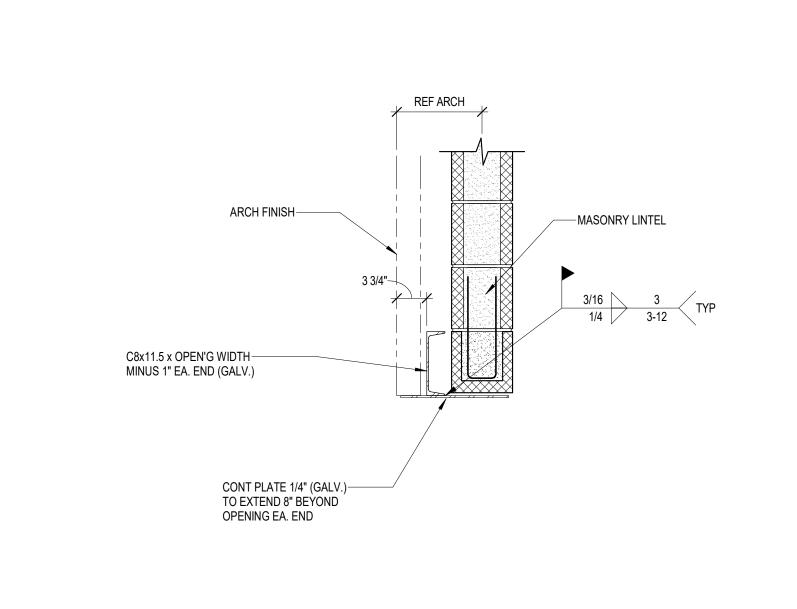
	CMU (SIZE)	MEAN ROOF HEIGHT (SIMPLE SPAN, NON-LOAD BEARING)	VERT REINF (IN FULLY GROUTED CELLS)	DOWELS (4'-0" LONG MIN OR AS NEEDED FOR REQ'D LAP/EMBED)						
	8"	16'-0"	#6 @ 24" OC	#6 @ 24" OC						
NALL WALL	8"	>16'-0" 28'-0"	#6 @ 8" OC EF	#6 @ 8" OC EF						
EXTERIOR WALL	12"	16'-0"	#6 @ 24" OC	#6 @ 24" OC						
	12"	>16'-0" 28'-0"	#6 @ 16" OC EF	#6 @ 16" OC EF						
ALL	6"	15'-0"	#5 @ 48" OC	#5 @ 48" OC						
INTERIOR WALL	8"	16'-0"	#6 @ 48" OC	#6 @ 48" OC						
	8"	>16'-0" 28'-0"	#6 @ 40" OC	#6 @ 40" OC						

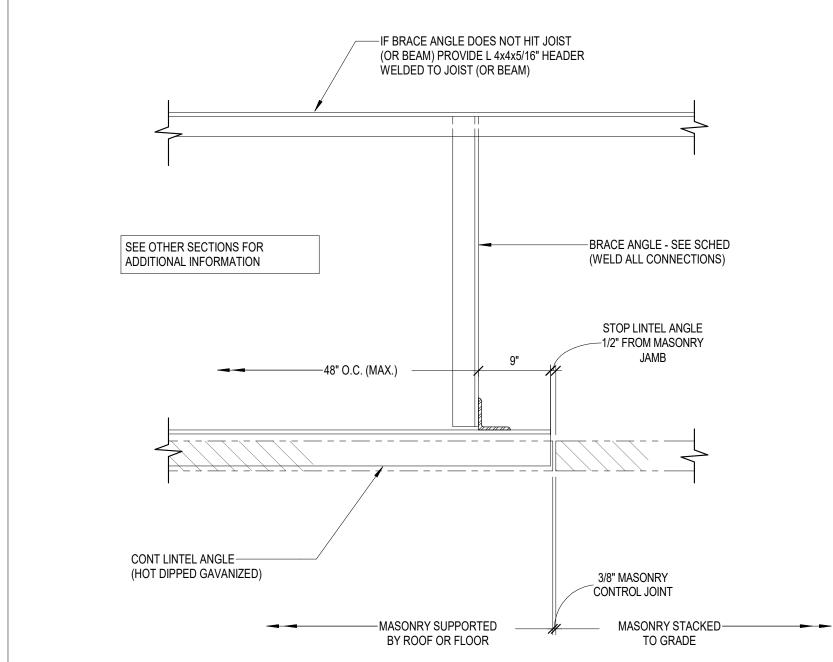
1. FOR ANY WALLS THAT DON'T MEET THE REQUIREMENTS OF THE SCHEDULE, GC TO CONTACT ENGINEER OF RECORD FOR PROPER REINFORCEMENT REQUIREMENTS.

- . THE FIRST (3) CELLS AT CORNERS (IN EA DIRECTION), ENDS OF WALLS AND EACH SIDE OF THE CONTROL JOINTS SHALL BE REINFORCED WITH THE SAME SIZE AND NUMBER OF REINFORCING BARS AS SPECIFIED FOR THE OTHER REINFORCED CELLS IN THE WALL AND GROUTED FULL.
- 3. AT OPENINGS, PROVIDE EXTRA REINFORCED GROUTED FULL HEIGHT CONSECUTIVE CELLS EACH SIDE OF THE OPENING EQUAL TO ONE HALF THE TOTAL NUMBER OF THE CELLS INTERRUPTED BY THE OPENING. REINFORCE EACH CELL WITH THE SAME SIZE AND NUMBER OF BARS AS SPECIFIED FOR THE INTERRUPTED CELLS.PROVIDE A MINIMUM OF (2) REINFORCED GROUTED CELLS EACH SIDE OF OPENING WITH (1) #5, (1) #6 OR (2) #6, 8" or 12" UNREINFORCED CMU WALL IN EACH GROUTED CELL RESPECTFULLY.
- 4. REFER TO 'TYPICAL CMU WALL OPENING DIAGRAM AND SCHEDULE FOR ADDITIONAL INFORMATION.
- 5. HOLD VERTICAL REINFORCING IN POSITION AT TOP AND BOTTOM AND AT 8'-0" OC MAXIMUM.
- 6. REFER TO GENERAL NOTES, SPECIFICATIONS AND SECTIONS/DETAILS FOR INFORMATION NOT SHOWN. . VERTICAL BARS MAY BE SPLICED IN 8'-0" (+ or -) LENGTHS. SPLICES LOCATED IN ADJACENT CELLS SHALL BE STAGGERED SUCH THAT NOT MORE THAN 50
- PERCENT OF THE BARS ARE SPLICED AT THE SAME LOCATION. 8. PROVIDE VERTICAL CONTROL JOINTS AT 5'-0" TO 12'-6" OC FROM CORNERS AND AT 25'-0" MAX IN BETWEEN.
- 9. IF AN INTERIOR NON-STRUCTURAL CMU WALL IS TALLER THAN THE OPTIONS PROVIDED IN THIS CHART THE GC SHALL INFORM THE EOR TO REVIEW AND PROVIDE ANY ADJUSTMENTS TO CMU WALL THICKNESS OR REINFORCING THAT MAY BENEEDED. FOR BIDDING PURPOSES, FOR ANY WALLS WHICH ARE INTERIORNON-STRUCTURAL AND ARE TALLER THAN PROVIDED BY THIS CHART THE GC SHALL ASSUME #6 BARS AT 24"OC.

2 TYPICAL NON-STRUCTURAL MASONRY WALL REINF. SCHEDULE 3 TYPICAL MASONRY WALL ELEVATION NO SCALE







PLAN VIEW

BRACE ANGLE SCHEDULE **HEADER ANGLE SIZE BRACE ANGLE SIZE** MAX LENGTH L 3x3x1/4" L 4x4x5/16" 9'-6" L 4x4x1/4" L 5x5x5/16" 13'-3" L 5x5x5/16" L 6x6x3/8" 16'-6" L 6X6x5/16" L 6x6x3/8" 20'-0" CONSULT ENGINEER CONSULT ENGINEER OVER 20'-0"

. WHERE MASONRY IS SUPPORTED BY STEEL TUBES WITHOUT HANGERS

AND BRACES, THE NOTES PERTAINING TO LINTEL ANGLES SHALL STILL

NOTES:

1. REFER TO ARCH AND MECH DRAWINGS FOR

SIZE AND LOCATION OF OPENINGS.

SIZE OF ALL BRACE ANGLES IN COMPRESSION SHALL BE DETERMINED BY STEEL FABRICATOR BASED ON THEIR UNBRACED LENGTHS AS SCHEDULED

MASONRY WALL BRACING/REINF. DETAIL

TYPICAL EPOXY ANCHOR DETAIL

NO SCALE

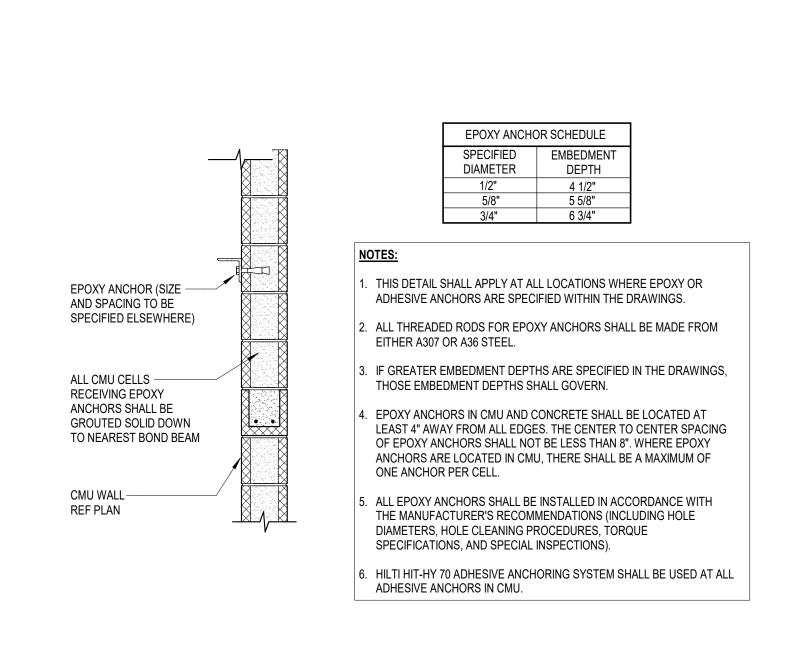
HSS COLUMN

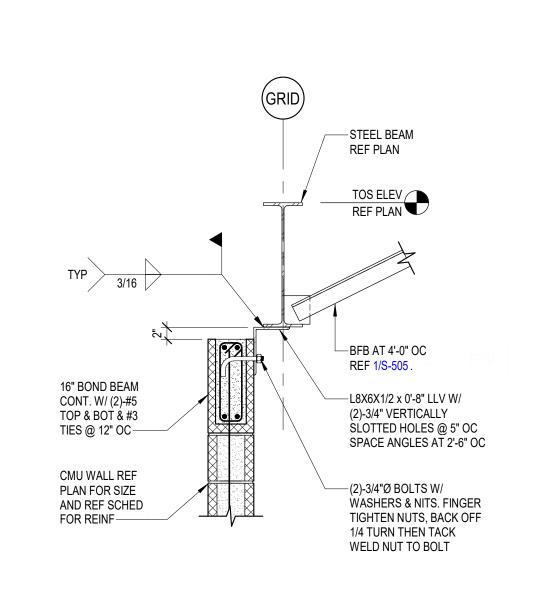
REF PLAN

5 TYPICAL HEADER DETAIL AT OVERHEAD DOORS NO SCALE

TYPICAL WALL BRACING AT STEEL BEAM 3/4" = 1'-0"

6 HANGER BRACE SCHEDULE NO SCALE





VERT REINF HORIZ REINF JAMB / JOINT REINF SW CMU MEAN ROOF HEIGHT TAG (SIZE) (SIMPLE SPAN) (IN FULLY GROUTED CELLS) (IN FULLY GROUTED CELLS) (IN FULLY GROUTED CELLS) (2) #5 PER CELL 16'-0" #6 @ 24" OC EF #5 @ 48" OC IN FIRST 2 CELLS SW1 (2) #6 PER CELL >16'-0" 28'-0" #6 @ 16" OC EF #5 @ 32" OC IN FIRST 3 CELLS (2) #6 PER CELL 16'-0" #6 @ 40" OC EF #5 @ 32" OC IN FIRST 3 CELLS SW2 12" (2) #6 PER CELL #5 @ 32" OC EF >16'-0" 28'-0" #6 @ 16" OC EF IN FIRST 3 CELLS (2) #6 PER CELL 16'-0" #6 @ 32" OC #5 @ 32" OC IN FIRST 3 CELLS (2) #6 PER CELL >16'-0" 28'-0" #6 @ 16" OC EF #5 @ 32" OC IN FIRST 3 CELLS

- 1. UNLESS NOTED OTHERWISE, REFER TO THE SCHEDULE ABOVE FOR VERTICAL WALL REINFORCING REQUIREMENTS AT ALL STRUCTURAL CMU WALLS.
- 2. THE STRUCTURAL MASONRY SHOWN ON THE PLANS IS PART OF THE LATERAL LOAD RESISTING SYSTEM OF THE BUILDING. THE STRUCTURAL DETAILS, INCLUDING CLIP ANGLES, DOWELS AND ADDITIONAL SECONDARY FRAMING MEMBERS, ETC., SHOWN ARE CRITICAL TO THE LATERAL PERFORMANCE OF THE BUILDING. THE TEMPORARY STEEL FRAME BRACING PROVIDED DURING CONSTRUCTION SHALL NOT BE REMOVED UNTIL ALL STRUCTURAL LATERAL BRACING SYSTEMS (INCLUDING STRUCTURAL MASONRY WALLS) HAVE BEENINSTALLED AND CONNECTED TO THE STEEL FRAMING.
- 3. THE FIRST (3) CELLS AT CORNERS (IN EA DIRECTION), ENDS OF WALLS AND EACH SIDE OF THE CONTROL JOINTS SHALL BE REINFORCED WITH THE SAME SIZE AND NUMBER OF REINFORCING
- BARS AS SPECIFIED FOR THE OTHER REINFORCED CELLS IN THE WALL AND GROUTED FULL.
- 4. AT OPENINGS, PROVIDE EXTRA REINFORCED GROUTED FULL HEIGHT CONSECUTIVE CELLS EACH SIDE OF THE OPENING EQUAL TO ONE HALF THE TOTAL NUMBER OF THE CELLS INTERRUPTED BY THE OPENING. REINFORCE EACH CELL WITH THE SAME SIZE AND NUMBER OF BARS AS SPECIFIED FOR THE INTERRUPTED CELLS.PROVIDE A MINIMUM OF (2) REINFORCED GROUTED CELLS
- 5. HOLD VERTICAL REINFORCING IN POSITION AT TOP AND BOTTOM AND AT 8'-0" OC MAXIMUM.
- 6. REFER TO GENERAL NOTES, SPECIFICATIONS AND SECTIONS/DETAILS FOR INFORMATION NOT SHOWN.

EACH SIDE OF OPENING. REFER TO 'TYPICAL CMU WALL OPENING DIAGRAM AND SCHEDULE FOR ADDITIONAL INFORMATION.

7. VERTICAL BARS MAY BE SPLICED IN 8'-0" (+ or -) LENGTHS. SPLICES LOCATED IN ADJACENT CELLS SHALL BE STAGGERED SUCH THAT NOT MORE THAN 50 PERCENT OF THE BARS ARE SPLICED AT THE SAME LOCATION.

9 TYPICAL STRUCTURAL MASONRY SHEAR WALL REINF. SCHEDULE NO SCALE



JOHN R. KUBALA F-23612

JUERGEN

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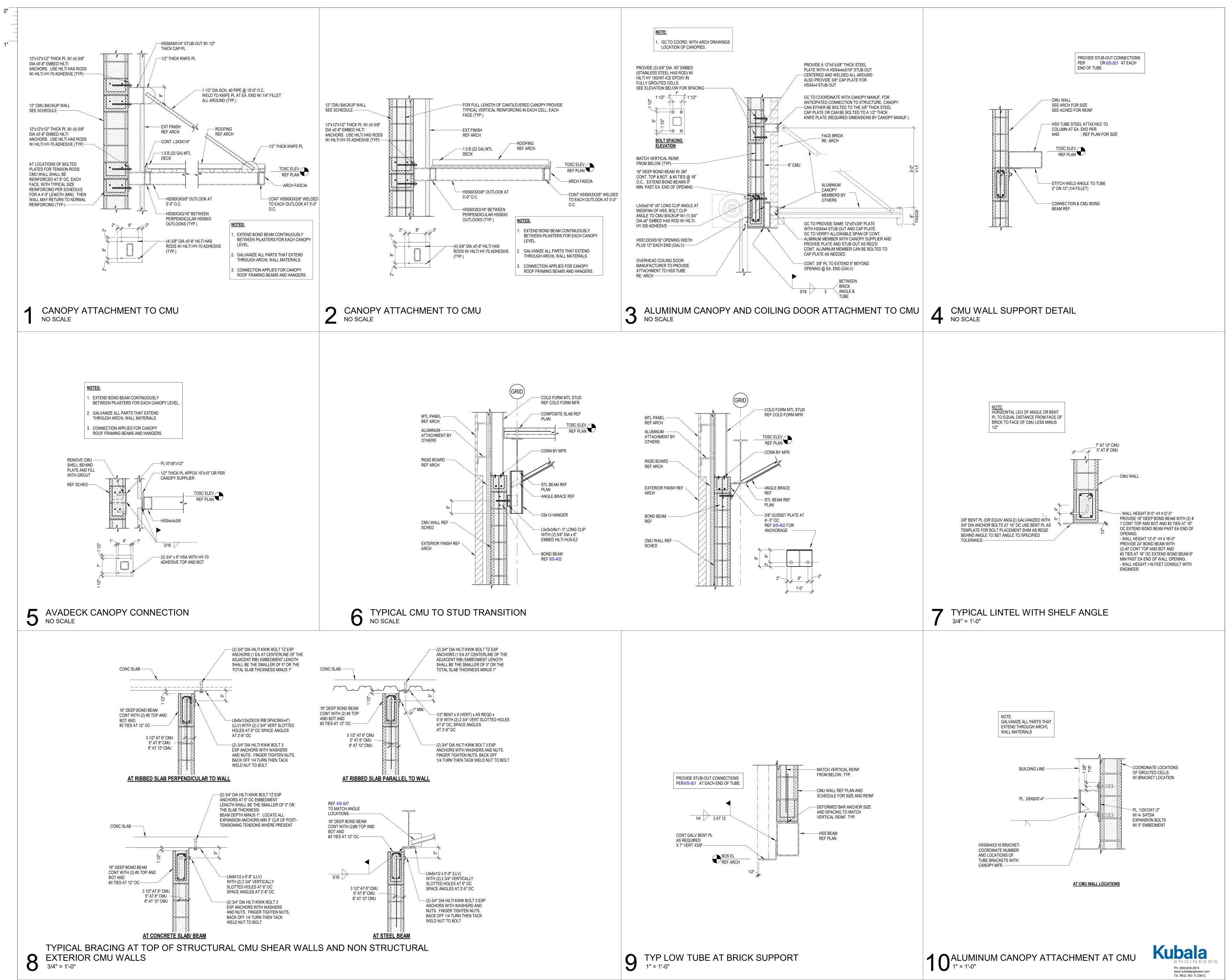
LANDSCAPE EDGELAND

MEPT
LEAF ENGINEERS
T 713-940-3300

FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS

TOMBALL ISD PROJECT NUMBER 220137 DRAWING HISTORY Date Description **ISSUE FOR PROPOSAL BUILDING NUMBER GENERAL CMU NOTES AND TYP DETAILS**

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STRUCTURAL

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JOHN R. KUBALA

106120

02/27/2023

CLIENT
TOMBALL ISD

DATE
02/27/2023
DRAWING HISTORY

No.

Description

ISSUE FOR PROPOSAL

BUILDING NUMBER

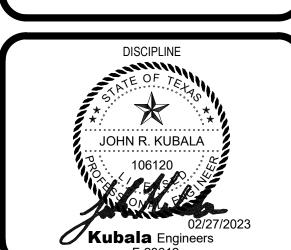
MISC CMU DETAILS

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AD ELEMENTARY SCHOOL

JUERGEN ROAD TOMBALL, TX ISSUE FOR PROPOSAL





	CLIENT TOMBALL ISD						
	DATE 02/27/2023		CT NUMBER 20137				
DR	AWING HISTORY						
No.	Descrip	tion	Date				
	ISSUE FOR	PROPOSAL					
BU	ILDING NUMBER						
M	MISC CMU DETAILS						

MATERIAL:

STRUCTURAL STEEL:

1. STRUCTURAL STEEL IS TO CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS, AND IS TO BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF

THE AISC SPECIFICATIONS: ... ASTM A992 OR ASTM A572 - GRADE 50 A. STEEL WIDE FLANGE AND WT SECTIONS.... B. MISCELLANEOUS STEEL SECTIONS (ANGLES, CHANNELS AND BARS)....ASTM A36

... ASTM A500, GRADE B OR C, (46 KSI MIN) C. HOLLOW STEEL SECTIONS.. D. STEEL PIPE SECTIONS... .. ASTM A53, GRADE B E. BOLTS AND NUTS (HEAVY-HEX)..ASTM A325

F. SHEAR-STUD CONNECTORS... ...ASTM A108 G. ANCHOR RODS..ASTM F1554, GRADE 36, GRADE 55 OR GRADE 105 H. PLATES.... ...ASTM A36 OR A572 GRADE 50 ...ASTM F436 K. WASHERS..

2. ALL STEEL SHALL BE DOMESTICALLY (INCLUDING CANADA) MILLED AND FABRICATED. FOREIGN STEEL SHALL NOT BE UTILIZED WITHOUT PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER. THE APPROVAL PROCESS SHALL TAKE PLACE DURING BIDDING TIME. ANY REQUEST TO UTILIZE FOREIGN STEEL MADE AFTER BIDDING SHALL BE REJECTED.

3. STRUCTURAL STEEL, MISCELLANEOUS METAL, AND EMBEDS EXPOSED TO THE EXTERIOR ARE TO BE HOT DIP GALVANIZED AFTER FABRICATION, EXCEPT AS NOTED ON THE DRAWINGS. TUBE SHAPE MEMBERS EXPOSED TO THE EXTERIOR SHALL HAVE CAP PLATES SEAL WELDED, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

4. STRUCTURAL STEEL IS TO BE PREPARED AND PRIMED ACCORDING TO THE PROJECT SPECIFICATIONS. STRUCTURAL STEEL LOCATED IN CRAWL SPACES OR OTHERWISE INACCESSIBLE AREAS IS TO RECEIVE

5. CONTINUITY PLATES (FULL DEPTH COLUMN STIFFENERS ALIGNED WITH BEAM FLANGES, OR FULL DEPTH BEAM STIFFENERS ALIGNED WITH COLUMN FLANGES) SHALL MATCH THE STEEL GRADE OF THE BASE

6. IN ADDITION TO THE STEEL INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL INCLUDE THREE (3) PERCENT OF TOTAL TONNAGE OF FABRICATED STEEL (LABOR FOR ERECTION SHALL BE INCLUDED) DURING THE PROCESS OF WORK AS MAY BE DIRECTED BY THE ARCHITECT/ENGINEER OF RECORD. IF STEEL IS NOT USED DURING THE COURSE OF THE PROJECT, OWNER IS TO RECEIVE A CREDIT FOR THE PORTION NOT

CONNECTIONS:

1. ALL STRUCTURAL STEEL DETAILS AND CONNECTIONS SHALL CONFORM TO STANDARDS OF THE AISC. DOUBLE CONNECTIONS THROUGH COLUMN WEBS. BEAM TO BEAM CONNECTIONS AND BEAMS THAT FRAME OVER THE TOP OF COLUMNS REQUIRE A BEAM ERECTION SEAT OR A STAGGERED CONNECTION WITH AT LEAST ONE INSTALLED BOLT REMAINING IN PLACE TO SUPPORT THE FIRST BEAM WHILE THE SECOND BEAM IS BEING ERECTED.

2. CONNECTIONS THAT ARE NOT DETAILED ON THE DRAWINGS SHALL BE SELECTED FROM THE TABLES IN PART 10 OF THE LATEST EDITION OF THE MANUAL OF STEEL CONSTRUCTION OF THE AISC. TABLE 10-1 MAY BE USED FOR ALL-BOLTED DOUBLE ANGLE CONNECTIONS. TABLE 10-2 MAY BE USED FOR WELDED/BOLTED DOUBLE ANGLE CONNECTIONS. TABLE 10-3 MAY BE USED FOR ALL-WELDED DOUBLE ANGLE CONNECTIONS. BEAM REACTIONS SHALL BE ONE-HALF THE TOTAL ALLOWABLE UNIFORM LOAD GIVEN IN TABLE 3-6 THROUGH 3-9 IN PART 3 OF THE MANUALOF STEEL CONSTRUCTION OF AISC. CONNECTIONS FOR COMPOSITE BEAMS SHALL HAVE THE STANDARD AISC CAPACITY INCREASED BY 35 PERCENT.

3. PROVIDE ALL NECESSARY HOLES IN STRUCTURAL STEEL MEMBERS FOR ATTACHMENT OF ALL NON-STRUCTURAL ITEMS (IE: HOLES FOR WINDOW HEAD ANCHORS). SEE ARCHITECTURAL DRAWINGS FOR ANY

4. SPLICING OF STRUCTURAL STEEL MEMBERS MUST BE APPROVED BY THE STRUCTURAL ENGINEER, IF NOT ALREADY SHOWN ON THE DRAWINGS.

5. SHOP BOLTED CONNECTIONS ARE PERMISSIBLE IF SUFFICIENT BOLT CLEARANCE IS AVAILABLE FOR TIGHTENING OF HIGH STRENGTH BOLTS. CLEARANCES SHALL BE IN ACCORDANCE WITH TABLE 7-16 AND 7-17 OF THE LATEST EDITION OF THE MANUAL OF STEEL CONSTRUCTION OF THE AISC. ALL STEEL MEMBERSAND ASSEMBLIES SHALL BE SHOP FABRICATED TO THE GREATEST EXTENT POSSIBLE. TRUSSES SHALL BE FULLY SHOP ASSEMBLED. FIELD SPLICES FOR SHIPPING PURPOSES SHALL ONLY BE AS APPROVED BY THE ENGINEER OF RECORD. THE STEEL FABRICATOR AND THE STEEL ERECTOR SHALL COORDINATE THE SHOP FABRICATION, SHIPPING AND ERECTION OF ALL STRUCTURAL MEMBERS AND ASSEMBLIES.

STEEL CONNECTIONS SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS SPECIFIED ON BOLTS SHALL BE DIRECT TENSION INDICATING BOLTS CONFORMING TO ASTM F1852 WITH HARDENED WASHERS UNDER THE NUT AND SACRIFICIAL SPLINES. HEX NUTS MUST CONFORM TO ASTM A563 AND WASHERS MUST CONFORM TO ASTM F436. 7. ALL MOMENT CONNECTIONS SHALL BE FULL WELDED CONNECTIONS DESIGNED TO DEVELOP THE FULL CROSS-SECTION OF THE MEMBER. STIFFENER PLATES, WHERE SHOWN, ARE MANDATORY AND MAY NOT BE

6. ALL CONNECTION BOLTS FOR STRUCTURAL STEEL MEMBERS MUST CONFORM TO ASTM A325-N HIGH-STRENGTH BOLTS UNLESS NOTED OTHERWISE. MINIMUM SIZE SHALL BE 3/4 INCH DIAMETER. STRUCTURAL

OMITTED. MOMENT CONNECTIONS ARE INDICATED ON THE PLANS BY A TRIANGULAR BULB ON THE END OF THE BEAM, OR BY THE LETTERS "MC". CANTILEVER BEAMS MOMENT CONNECTED TO THE FRAME SHALL BE THE SAME SIZE AS THE BACK-UP SPAN IF NO SIZE IS GIVEN.

8. WHERE HORIZONTAL FORCES ARE INDICATED ON PLAN AS "H=_K", THE LICENSED PROFESSIONAL ENGINEER WORKING FOR THE FABRICATOR SHALL SIZE THE CONNECTION TO TRANSFER THE HORIZONTAL FORCE IN ADDITION TO THE REQUIRED VERTICAL REACTION. SLOTTED HOLES ARE NOT PERMITTED AT CONNECTIONS WITH HORIZONTAL FORCES.

9. EMBED PLATES TO BE INSTALLED IN THE FOUNDATION AND/OR SLAB SHALL BE SUBMITTED FOR REVIEW WITH THE ANCHOR BOLTS

10. BOLTS SHALL BE TIGHTENED BY THE AISC "SNUG TIGHT" METHOD UNLESS NOTED OTHERWISE

11. CANTILEVER BEAMS MOMENT CONNECTED TO THE FRAME SHALL BE THE SAME SIZE AS THE BACK-UP SPAN IF NO SIZE IS GIVEN.

12. SHELF ANGLES SHOWN AS CONTINUOUS IN THE SECTIONS SHALL BE INSTALLED IN 20'-0" MAXIMUM LENGTHS, LEAVING A 1/4" GAP BETWEEN ENDS AND AT CORNERS. LOCATE GAPS TO MATCH MASONRY CONTROL JOINTS. AT BUILDING EXPANSION JOINT, LEAVE A GAP TO MATCH EXPANSION JOINT WIDTH.

13. CONNECT MISCELLANEOUS STEEL MEMBERS USING FILLET WELDS SUFFICIENT TO DEVELOP THE TENSILE STRENGTH OF THE SMALLER MEMBER AT THE JOINT UNLESS SHOWN OTHERWISE.

14. STEEL MEMBERS SHOWN TO BE CURVED SHALL BE ROLLED IN A MANNER. THAT WILL NOT CAUSE DISTORTION OR BUCKLING. SHOULD ALTERATIONS TO THE MEMBER SIZE, SUCH AS A THICKER FLANGE OR WEB, BE REQUIRED TO ENSURE THIS OUTCOME, THE ADDITIONAL STEEL SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE CONTRACT.

1. ALL WELDING MUST CONFORM TO THE AMERICAN WELDING SOCIETY ANSI/AWS D1.1 STANDARDS, AND SHALL CONFORM TO THE STANDARDS OF THE LATEST EDITION OF THE MANUAL OF STEEL CONSTRUCTION. ALL WELDERS MUST BE CERTIFIED IN ACCORDANCE WITH AWS D1.1. WELDING OF REINFORCING BARS SHALL COMPLY TO THE AMERICAN WELDING SOCIETY AWS D1.4. SHORT CIRCUIT TRANSFER FOR THE GAS METAL ARC WELDING PROCESS IS NOT PERMITTED.

2. ELECTRODES FOR ALL FIELD AND SHOP WELDING SHALL BE CLASS E70XX. ELECTRODES FOR MOMENT CONNECTIONS SHALL BE CLASS E7018 WITH A CHARPY TOUGHNESS OF AT LEAST 20 FT-LBS AT -20 DEGREES

3. ALL MISCELLANEOUS WELDS SHALL BE MINIMUM SIZE FILLET ALL AROUND AND MUST BE IN ACCORDANCE WITH AISC. WELDING OF CONTINUOUS MEMBERS SHALL BE A MINIMUM OF 2 INCHES OF 3/16 INCH FILLET STITCH WELDS AT 12 INCHES O.C., STAGGERED EACH SIDE, UNLESS SHOWN OTHERWISE ON THE DRAWINGS. COLUMN BASE PLATES, STIFFENER PLATES AND CAP PLATES SHALL BE WELDED ALL AROUND. 4. HEADED STUDS SHALL BE WELDED TO EMBED PLATES BY A METHOD IN WHICH THE CONNECTION CAN DEVELOP THE FULL TENSION AND SHEAR CAPACITY OF THE STUD.

BASE PLATE NOTES:

1. ALL ANCHOR RODS SHALL BE F1554 GRADE 55 UNLESS NOTED OTHERWISE.

2. SIZE WELDS PER AISC MINIMUM FILLET REQUIREMENTS, 5/16" MINIMUM.

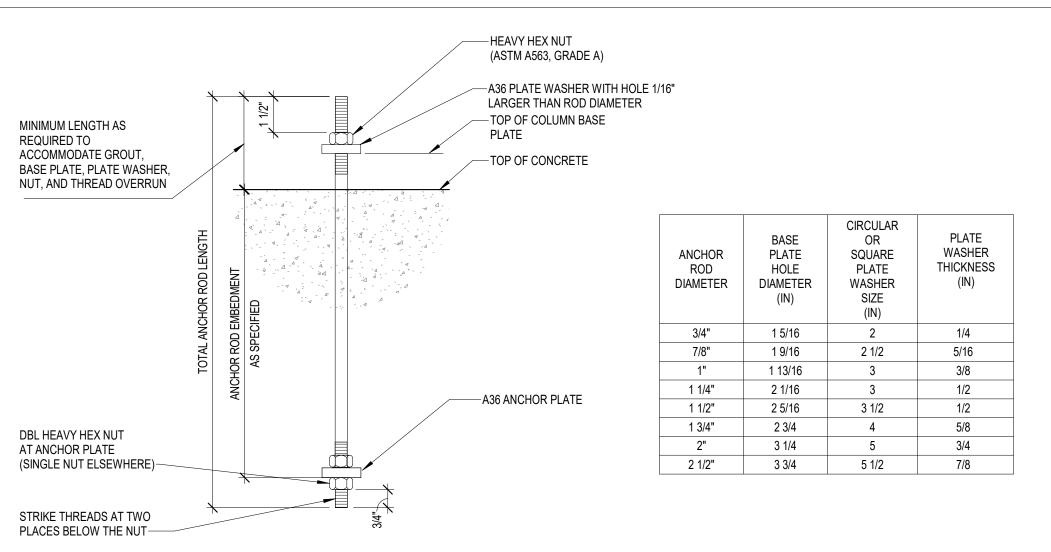
3. UNLESS NOTED OTHERWISE, ALL ANCHOR ROD NUTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC AFTER THE CONCRETE IS AT LEAST 14 DAYS OLD.

4. USE OVERSIZED HOLES FOR ANCHOR RODS ACCORDING TO AMERICAN INSTITUTE OF STEEL CONSTRUCTION. PLATE WASHERS WITH STANDARD HOLES SHALL BE INSTALLED OVER OVERSIZED HOLES.

5. CONTRACTOR SHALL PROVIDE TEMPLATE FOR ANCHOR ROD INSTALLATION.

6. NON-SHRINK GROUT FOR BASE PLATES AND BEARING PLATES:

ALL GROUT USED UNDER STEEL COLUMN BASE PLATES OR BEARING PLATES SHALL BE A NON-METALLIC, SHRINKAGE RESISTANT COMPOUND CONFORMING TO ASTM C1090 AND THE CORPS OF ENGINEERS SPECIFICATION CRD-C-621. THE GROUT SHALL HAVE A MINIMUM STRENGTH OF 6,000 PSI WHEN BEARING ON 3,000 PSI CONCRETE OR LESS, A STRENGTH OF 8,000 PSI WHEN BEARING ON CONCRETE BETWEEN 3,000 AND 4,000 PSI, AND, UNLESS NOTED OTHERWISE ON THE DRAWINGS, A STRENGTH OF 8,000 PSI WHEN BEARING ON CONCRETE GREATER THAN 4,000 PSI. 100 PERCENT OF VOID UNDER ALL BASE PLATES IS TO BE GROUTED. ALL BASE PLATES WITH A DIMENSION GREATER THAN 24" SHALL HAVE TWO 1" DIAMETER GROUT HOLES. IF THE SPACE UNDER A COLUMN BASE PLATE IS LESS THAN 1/4", A PRESSURE INJECTION SYSTEM



ANCHOR ROD DETAIL NO SCALE

GROUT THICKNESS SCHEDULE				
ANCHOR BOLT SIZE (DIA.)	MINIMUM GROUT THICKNESS			
LESS THAN 1 1/4"Ø	2"			
GREATER THAN 1 1/4"Ø	3"			

. REFER TO SPECIFICATIONS AND GENERAL NOTES FOR GROUT 2. GROUT MAY BE BEVELED OR FORMED BUT SHALL EXTEND A MIN OF 1 1/2" BEYOND FACE OF BASE PLATE.

-BASE PLATE TO BE 50 KSI STL REF PLAN REF PLAN (3/8" MIN THICKNESS) REF PLAN TYPE 2 WIDE FLANGE BASE PLATE TYPE 3 WIDE FLANGE MOMENT BASE PLATE TYPE 4 MOMENT BASE PLATE -BRACE GUSSET PLATE AND WELD AS REQD BY DESIGN REF 1/S-610 -BRACE GUSSET BRACE GUSSET PLATE AND PLATE AND WELD AS REQD WELD AS REQD BY DESIGN REF BY DESIGN COLUMN REF 1/S-610 REF PLAN-FOR W12 BRACE -DASHED HOLES INDICATE ADDITIONAL ANCHOR BOLT -BASE PLATE TO BE LOCATIONS FOR 50 KSI STL W12 VERT BRACE REF PLAN —DASHED HOLES INDICATE

BASE PLATE TO BE

TYPE 7 HSS BASE PLATE

50 KSI STL -

		BASE		BASE P	LATE DIMENSI	ONS			ANC	HOR RODS		
MARK	COLUMN SIZE	PLATE TYPE	N LENGTH (IN)	B WIDTH (IN)	T THICKNESS (IN)	X (IN)	Y (IN)	NUMBER	DIA (IN)	EMBED LENGTH (IN)	ANCHOR ROD GRADE	NOTES
-	HSS4X4 STAIR COLUMN	1	10	10	1	3 1/2	3 1/2	4	3/4	18	36	-
-	HSS5X5	1	11	11	1	4	4	4	3/4	18	36	-
-	HSS6X6	1	12	12	1	4 1/2	4 1/2	4	3/4	18	36	-
-	HSS8X8	1	16	16	1 1/4	6	6	4	1	18	36	-
-	HSS10X10	1	19	19	1 1/2	7	7	4	1 1/4	18	36	-
•	HSS12X12	1	21	21	1 1/2	8	8	4	1 1/2	18	36	-
-	HSS14X14	1	24	24	1 1/2	9 1/2	9 1/2	4	1 1/2	18	36	-
	HSS8X8 BRACE	5 OR 6	28	20	1 3/4	15	7 1/2	7	1 1/2	18	105	7/16 MIN COLUMN WELD TO BASE
-	HSS10X10 BRACE	5 OR 6	30	22	2	16	8	7	1 1/2	18	105	3/8" MIN COLUMN WELD TO BASE PLATE
-	HSS12X12 BRACE	5 OR 6	32	24	2	18	9	7	1 1/2	18	105	3/8" MIN COLUMN WELD TO BASE PLATE. MIN 4'-0" x 4'-6" CONCRETE PEDESTAL - REF S-600
-	HSS8X8 BRACE 2-DIRECTIONS	8										
-	HSS10X10 BRACE 2-DIRECTIONS	8										
	HSS10X10 FIXED BP	4	21	21	1 3/4	8	8	8	1 1/2	24	105	PROVIDE CJP COLUMN WELD TO BASE PLATE
-	HSS12X12 FIXED BP	4	23	23	1 3/4	9	9	8	1 3/4	24	105	PROVIDE CJP COLUMN WELD TO BASE PLATE. MIN 3'-0" x 3'-0" CONCRETE PEDESTAL

ADDITIONAL ANCHOR BOLT

LOCATIONS FOR

WF VERT BRACE

BE 50 KSI STL

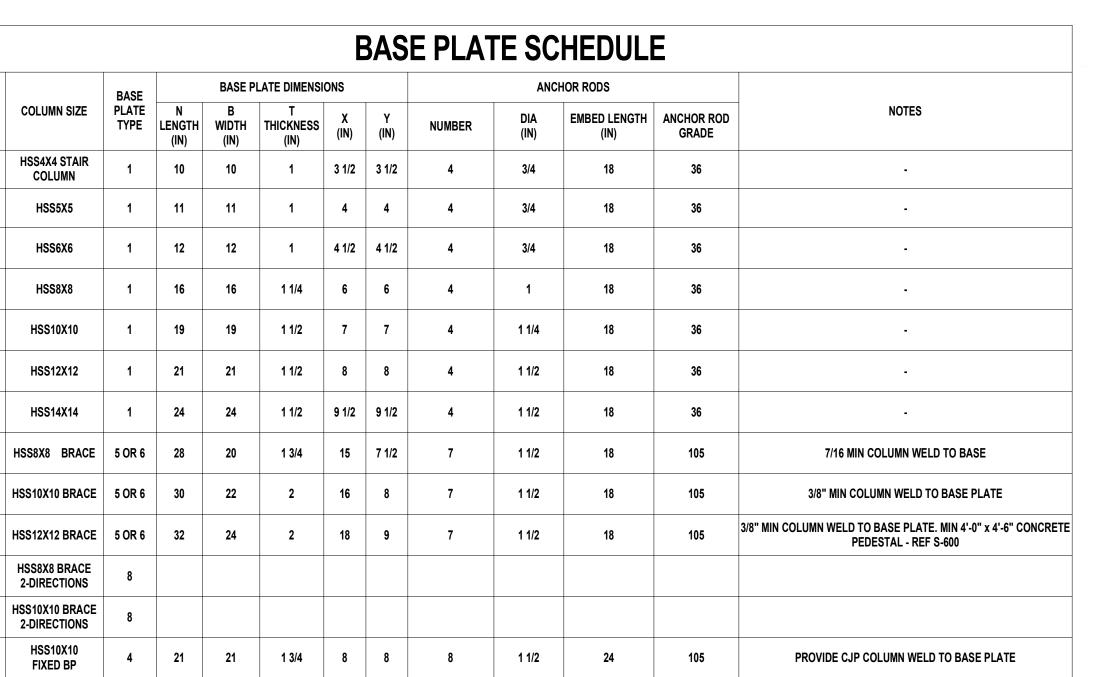
TYPE 5 BRACE BASE PLATE

1. USE OVERSIZED HOLES FOR ANCHOR RODS ACCORDING TO AMERICAN INSTITUTE OF STEEL CONSTRUCTION.

2. PLATE WASHERS WITH STANDARD HOLES SHALL BE INSTALLED OVER OVERSIZED HOLES.

3. CONTRACTOR SHALL PROVIDE TEMPLATE FOR ANCHOR ROD INSTALLATION.

4. MINIMUM GROUT THICKNESS PER GROUT THICKNESS SCHEDULE. 5. SIZE WELDS PER AISC MINIMUM FILLET REQUIREMENTS, 5/16" MINIMUM.



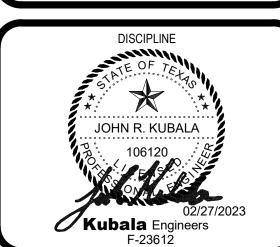
—COLUMN REF PLAN

BE 50 KSI STL

TYPE 6 BRACE BASE PLATE

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TYPE 8 VERTICAL BRACE BASE PLATE



PROJECT NUMBER DRAWING HISTORY Description **ISSUE FOR PROPOSAL GENERAL STEEL NOTES AND TYP DETAILS**

Kubala

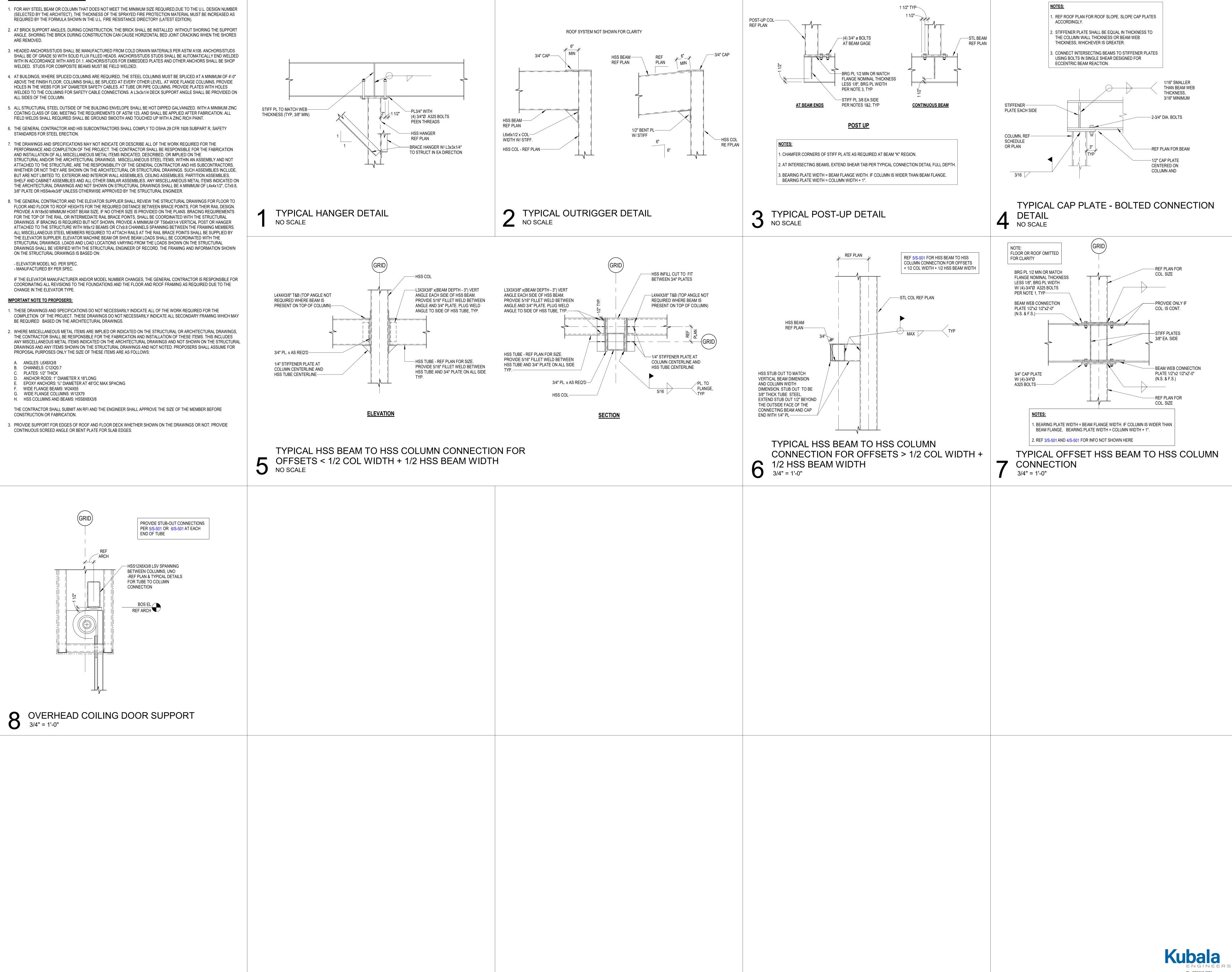
Q GROUT SCHEDULE NO SCALE

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GENERAL INFO.: ALL SIDES OF THE COLUMN. STANDARDS FOR STEEL ERECTION. - ELEVATOR MODEL NO. PER SPEC - MANUFACTURED BY PER SPEC. CHANGE IN THE ELEVATOR TYPE. **IMPORTANT NOTE TO PROPOSERS:** A. ANGLES: L6X6X3/8 CHANNELS: C12X20.7 PLATES: 1/2" THICK WIDE FLANGE BEAMS: W24X55 WIDE FLANGE COLUMNS: W12X79 CONSTRUCTION OR FABRICATION.

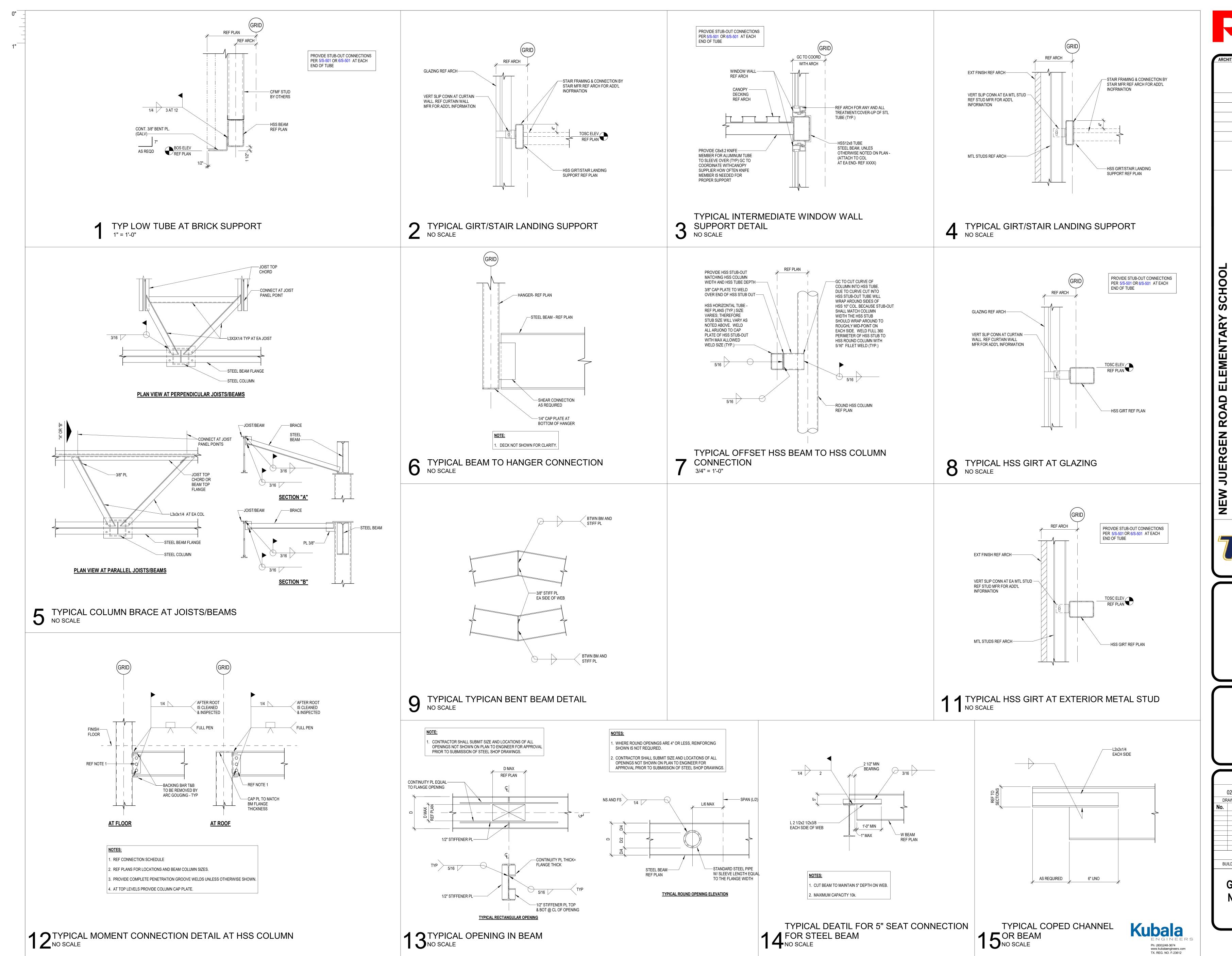




11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm: BR 1608

FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS

TOMBALL ISD PROJECT NUMBER 220137 Date Description **ISSUE FOR PROPOSAL GENERAL STEEL NOTES AND TYP DETAILS**

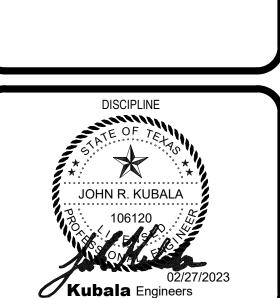


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11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm: BR 1608 MEPT
LEAF ENGINEERS
T713-940-3300
FOOD SERVICE
FOODSERVICE DESIGN PROFESSIONALS
T 281-350-2323



F-23612 TOMBALL ISD PROJECT NUMBER 220137 02/27/2023 DRAWING HISTORY Date Description **ISSUE FOR PROPOSAL BUILDING NUMBER GENERAL STEEL NOTES AND TYP DETAILS**

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ES

DOUBLE ANGLES

L4x3 1/2x5/16

SECT. "A"

FOR 3/4" BOLTS

THIS CONNECTION SHALL BE USED ONLY WHEN CONNECTING BEAMS TO COLUMNS OR WHEN CONNECTING BEAMS TO GIRDERS WHERE GIRDER HAS BEAM CONNECTION ON ONE SIDE ONLY IF USED AT LOCATIONS WHERE A BEAM CONNECTION IS OPPOSED BY A BEAM CONNECTION ON THE OTHER SIDE OF THE SUPPORTING MEMBER, AN OSHA-APPROVED METHOD MUST BE USED FOR TEMPORARY ERECTION SUPPORT OF BOTH MEMBERS.

DOUBLE-ANGLE CONNECTION SCHEDULE

CONNECTION SCHEDULE							
BEAM SIZE	NO. OF BOLTS PER VERT. ROW	ANGLE LENGTH (IN)	MAX CAPACITY (KIPS) (ASD)				
W8	2	5 1/2	9				
W10	2	5 1/2	14				
W12	3	8 1/2	23				
W14	3	8 1/2	28				
W16	4	11 1/2	40				
W18	4	11 1/2	48				
W21	5	14 1/2	64				
W24	6	17 1/2	83				
W27	6	17 1/2	113				
W30	7	20 1/2	119				
W33	8	23 1/2	142				
W36	9	26 1/2	160				
W40	10	29 1/2	193				
W44	10	29 1/2	195				

4. ALL INFORMATION SHOWN IN THE SCHEDULE ABOVE IS TO BE USED AS A MINIMUM REQUIREMENT FOR ALL CONNECTIONS.

5. ALTERNATE CONNECTION DETAILS ARE ACCEPTABLE PROVIDED SIGNED AND SEALED SHOP DRAWINGS AND CALCULATIONS ARE SUBMITTED, AND ALL CONNECTION DESIGNS ARE PERFORMED UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.

1. ALLOWABLE CAPACITIES ARE IN KIPS (SERVICE LEVEL - UNFACTORED).

3. HOLES SHALL BE STANDARD (STD) OR SHORT-SLOPPED (SSLT).

2. CAPACITIES BASED ON GRADE 50 BEAMS, A325-N BOLTS, AND A36 ANGLES.

BEAM TO HSS COLUMN AT SINGLE PLATE

BEAM TO BEAM AT SINGLE PLATE

-4" CONNECTION

AND LENGTH

PL. FOR THICKNESS

REF SCHED (t x L)

	CON		PLATE N SCHE		
BEAM SIZE	SHEAR PLATE (t x L)	WELD SIZE (tw(A325-N BOLT DIAMETER	NO. OF BOLTS PER VERT. ROW	MAX CAPAC (KIPS) (ASI
W8	3/8" x 5 1/2	3/16"	3/4"	2	9
W10	3/8" x 5 1/2	1/4"	7/8"	2	14
W12	3/8" x 8 1/2	1/4"	7/8"	3	23
W14	3/8" x 8 1/2	1/4"	7/8"	3	28
W16	3/8" x 11 1/2	1/4"	7/8"	4	40
W18	1/2" x 11 1/2	1/4"	7/8"	4	48
W21	1/2" x 14 1/2	1/4"	1"	5	64
W24	1/2" x 17 1/2	1/4"	1"	6	83

W27

W30

W33

W36

CONNECTIONS.

1. ALLOWABLE CAPACITIES ARE IN KIPS (SERVICE LEVEL - UNFACTORED).

5/8" x 20 1/2

5/8" x 20 1/2

5/8" x 23 1/2

5/8" x 26 1/2

2. CAPACITIES BASED ON GRADE 50 BEAMS, A325N BOLTS, AND A36 PLATES.

3. HOLES SHALL BE STANDARD (STD) OR SHORT-SLOPPED (SSLT). 4. ALL INFORMATION SHOWN IN THE SCHEDULE ABOVE IS TO BE USED AS A MINIMUM REQUIREMENT FOR ALL

1/4"

1/4"

5/16"

5/16"

113

119

142

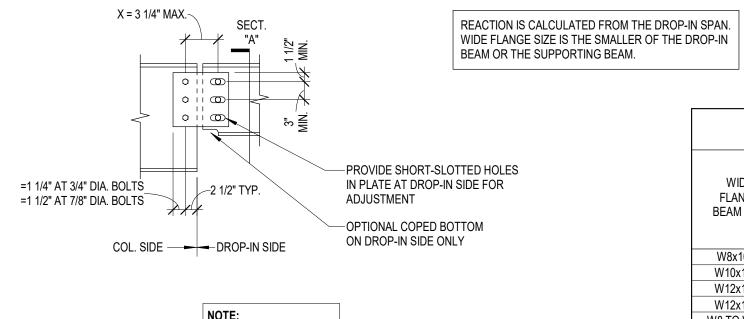
160

5. ALTERNATE CONNECTION DETAILS ARE ACCEPTABLE PROVIDED SIGNED AND SEALED SHOP DRAWINGS AND CALCULATIONS ARE SUBMITTED, AND ALL CONNECTION DESIGNS ARE PERFORMED UNDER THE DIRECT

SUPERVISION OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.

1"

TYPICAL DOUBLE ANGLE CONNECTION NO SCALE



1. SLOTS NOT ALLOWED WHERE H=_ IS USED

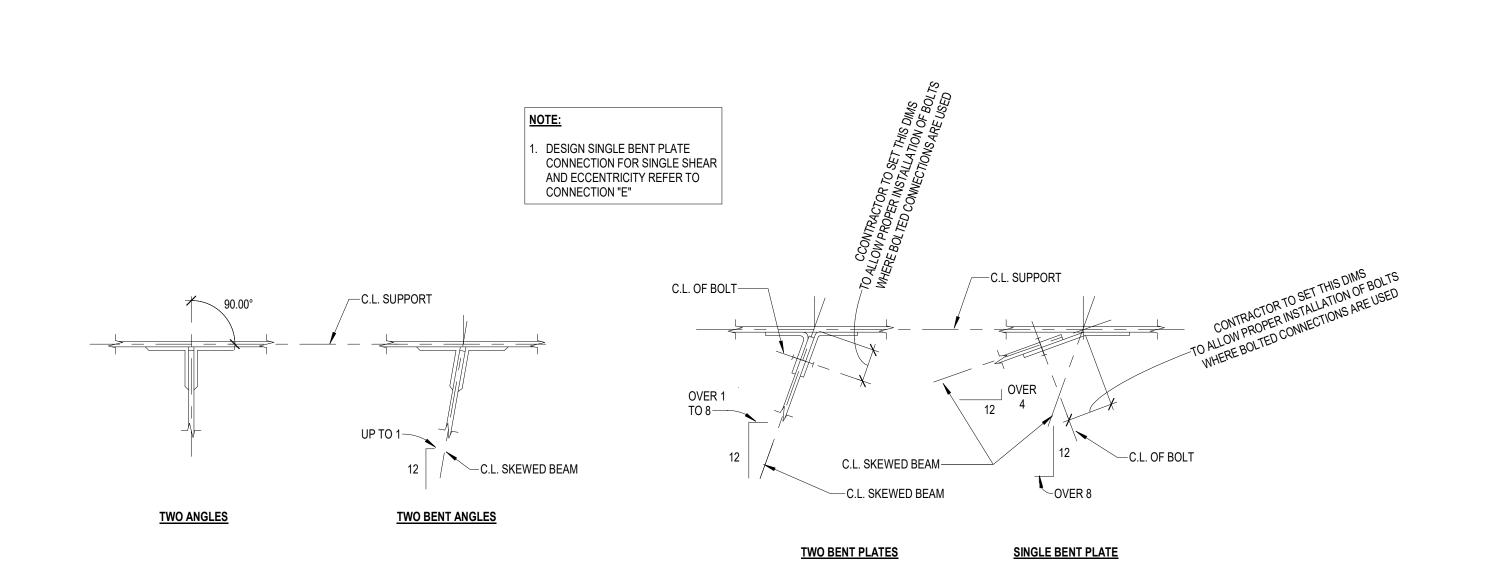
	CONNECTION LOAD CAPACITY							
WIDE FLANGE	#BOLTS PER	MINIMUM BEAM WEB	MAX REACTION (KIPS) (ASD)					
BEAM SIZE	VERT ROW	THICKNESS (IN)	3/4" DIA. BOLT X= 3 1/4" BOLTS	7/8" DIA. BOLT X= 3 3/4" BOLTS				
W8x10	2	.170	15	14				
W10x12	2	.190	18	24				
W12x14	3	.200	30	29				
W12x16	3	.220	33	32				
W8 TO W12	2	.230	18	20				
W12 TO W18	3	.235	36	34				
W16 TO W24	4	.250	53	51				
W18 TO W30	5	.300	70	67				
W21 TO W44	6	.350	97	92				
W24 TO W44	7	.395	126	119				
W30 TO W44	8	.470	150	187				
W33 TO W44	9	.550	173	234				
W36 TO W44	10	.600	195	261				
W40 TO W44	11	.630	217	287				
W44	12	.710	238	313				

2 TYPICAL SHEAR TAB BOLTED CONNECTION SCHEDULE NO SCALE

4" CONNECTION

PLATE REF SCHED

FOR LENGTH AND THICKNESS-



TYPICAL SKEWED SIMPLE FRAMING CONNECTION - BEAM TO BEAM

SINGLE PLATE SHEAR

BACKING BAR-

CONNECTION TO DEVELOP BEAM REACTION, REFER TO

3/8" THICK SHEAR

BOLTS-

3 TYPICAL SHEAR SPLICE CONNECTION NO SCALE

PLATES BOTH SIDES-

. BOLTS IN WEB CONNECTION MAY BE SNUG-TIGHTENED OR PRETENSIONED A325 OR A490 BOLTS WITH HORIZONTAL SHORT-SLOTTED HOLES IN PLATE. IF BOLTS ARE TO BE PRETENSIONED, SNUG-TIGHTEN BOLTS PRIOR TO WELDING FLANGES AND PRETENSION AFTER WELDING FLANGES.

2. REFER TO SPECIFICATIONS FOR CONNECTION DESIGN CRITERIA.

Pu = BEAM FLANGE FORCE (KIPS).

B. PROVIDE PREDESIGNED SHEAR CONNECTIONS AS SHOWN IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION LRFD MANUAL WHERE APPLICABLE. 4. MINIMUM FILLET WELD SIZE FOR SINGLE PLATE SHEAR CONNECTIONS SHALL BE 5/8 TIMES THE

PLATE THICKNESS. 5. IF MOMENT IS SHOWN ON DRAWINGS, PARTIAL PENETRATION WELD TO DEVELOP MOMENT CAN BE USED IN LIEU OF COMPLETE JOINT PENETRATION WELD. FOR THIS CASE, WELD SHALL BE REQUIRED TO DEVELOP THE BEAM FLANGE FORCE COMPUTED AS FOLLOWS: Pu = (Mu)/(0.95D), Mu = DESIGN MOMENT (KIP-FEET). D = BEAM DEPTH (INCHES).

STIFFENER PLATES AS REQUIRED, EXTEND TO OPPOSITE FLANGE IF OPPOSING MOMENT CONNECTION IS PRESENT--SINGLE PLATE SHEAR CONNECTION TO WELD TO TRANSFER FLANGE FORCE TO WEB, TYP **DEVELOP BEAM** REACTION, REFER TO NOTE 1

NOTES:

1. BOLTS IN WEB CONNECTION MAY BE SNUG-TIGHTENED OR PRETENSIONED A325 OR A490 BOLTS WITH HORIZONTAL SHORT-SLOTTED HOLES IN PLATE. IF BOLTS ARE TO BE PRETENSIONED, SNUG-TIGHTEN BOLTS PRIOR TO WELDING FLANGES AND PRETENSION AFTER WELDING FLANGES.

2. REFER TO SPECIFICATIONS FOR CONNECTION DESIGN CRITERIA.

. PROVIDE PREDESIGNED SHEAR CONNECTIONS AS SHOWN IN AMERICAN INSTITUTE OF STEEL

CONSTRUCTION MANUAL WHERE APPLICABLE. 4. MINIMUM FILLET WELD SIZE FOR SINGLE PLATE SHEAR CONNECTIONS SHALL BE 5/8 TIMES THE PLATE

5. WHEN BEAM FRAMES ON ONLY ONE SIDE OF COLUMN OR WHEN BEAM MOMENTS ARE SIGNIFICANTLY

UNBALANCED (IM + M I>>0), STRENGTHEN COLUMN WEB AS REQUIRED.

6. ALL CJP WELDS: CVN = 20FT-LBS AT 40°F.

THICKNESS.

5 TYPICAL BEAM-TO-BEAM MOMENT CONNECTION DETAIL NO SCALE

6 TYPICAL MOMENT CONNECTION AT COLUMN FLANGE NO SCALE

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F-23612

TOMBALL ISD PROJECT NUMBER 220137 DRAWING HISTORY Date Description **ISSUE FOR PROPOSAL BUILDING NUMBER GENERAL STEEL CONNECTION NOTES** AND TYP DETAILS

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P DETAILS

1. FLOOR DECK SHALL BE CONTINUOUS OVER FOUR OR MORE SUPPORTS. AT LOCATIONS WHERE SINGLE OR DOUBLE SPAN CONDITIONS OCCUR, THE CONTRACTOR SHALL EITHER SHORE THE DECK, OR ADJUST THE GAGE THICKNESS OF THE DECK IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. DECK SHALL BE DESIGNED TO PROVIDE EQUIVALENT OR GREATER LOAD CAPACITY AS THE SPECIFIED DECK SUPPORT OVER FOUR SUPPORTS.

ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. DECK SHALL BE DESIGNED TO PROVIDE EQUIVALENT OR GREATER LOAD CAPACITY AS THE SPECIFIED DECK SUPPORT OVER FOUR SUPPORTS.

2. DESIGN OF COMPOSITE STEEL BEAMS AND DETAILS FOR CONSTRUCTION ARE BASED ON THE FOLLOWING DECK SYSTEM:

	METAL DECK COLLEDIUS									METAL DECK CONNECTION SCHEDULE			
METAL DECK SCHEDULE										FASTEN DECK TO SUPPORT MEMBERS			
DECK DESIGNATION ON PLAN	DECK DESIGNATION	DECK GAUGE	SDI DECK Type	DECK DEPTH (IN)	ld+ (IN4)	Id- (IN4)	Se+ (IN3)	Se- (IN3)	Fy (KSI)	ATTACHMENT PATTERN (W/N)	SUPPORT FASTENERS	SIDELAP FASTENERS	
TYPE 1	3.0 VLI	20	COMPOSITE	3.0	0.919	0.921	0.512	0.539	50	36/4	3/4" PUDDLE WELD	1 1/2" TOP SEAM WELD AT 12" OC	
TYPE 2	2.0 VLI	20	COMPOSITE	2.0	0.409	0.407	0.326	0.337	50	36/4	3/4" PUDDLE WELD	1 1/2" TOP SEAM WELD AT 12" OC	

- Ip: POSITIVE MOMENT OF INERTIA
 In: NEGATIVE MOMENT OF INERTIA
 Sp: POSITIVE SECTION MODULUS
- Sp: POSITIVE SECTION MODULUS
 Sn: NEGATIVE SECTION MODULUS
 FY:YIELD STRENGTH
- W/N: SHEET WIDTH / NUMBER OF CONNECTIONS EACH SHEET

SLABS FORM DECK (AT FLOORS):

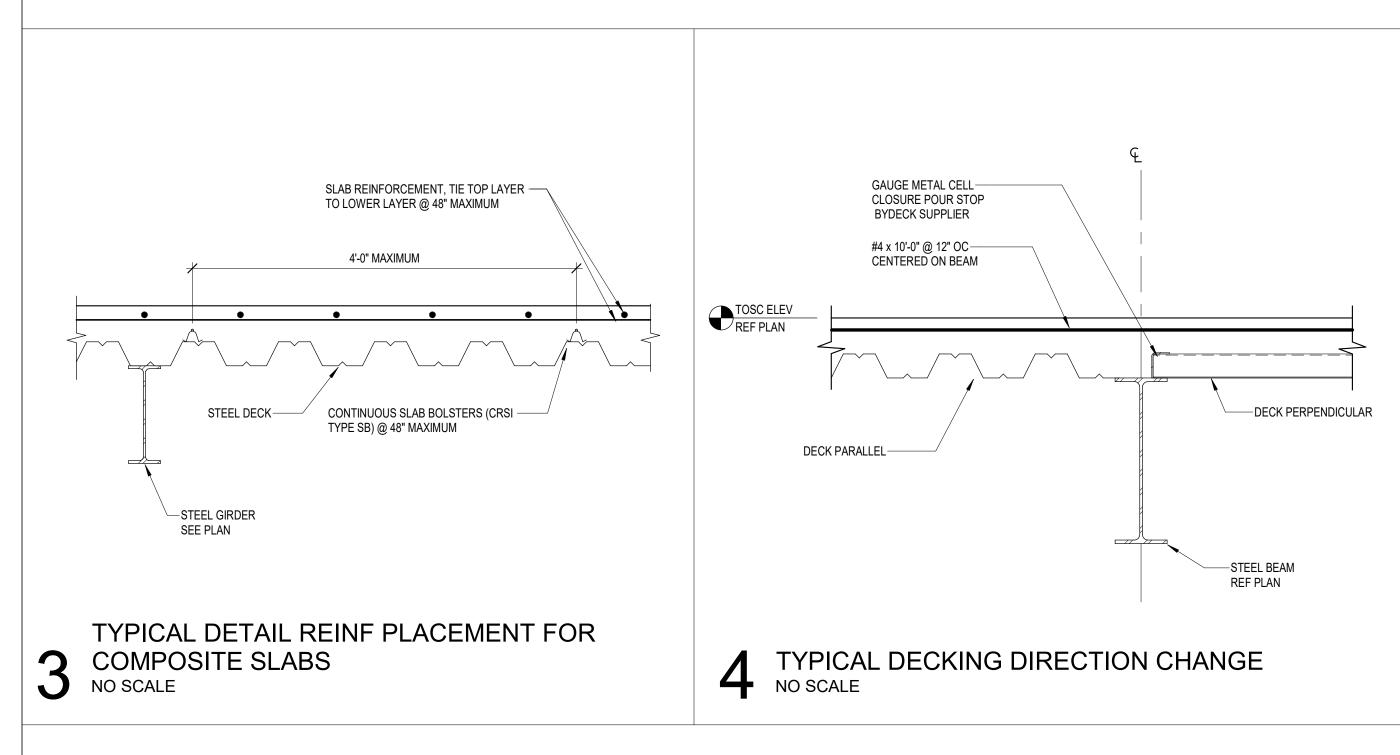
- 3. COMPOSITE STEEL BEAMS DO NOT REQUIRE SHORING TO SUPPORT THE WET WEIGHT OF CONCRETE. BEAMS WILL BE HIGHLY STRESSED AS CONCRETE IS PLACED AND MUST BE POSITIVELY BRACED BY THE METAL DECK CONNECTIONS.

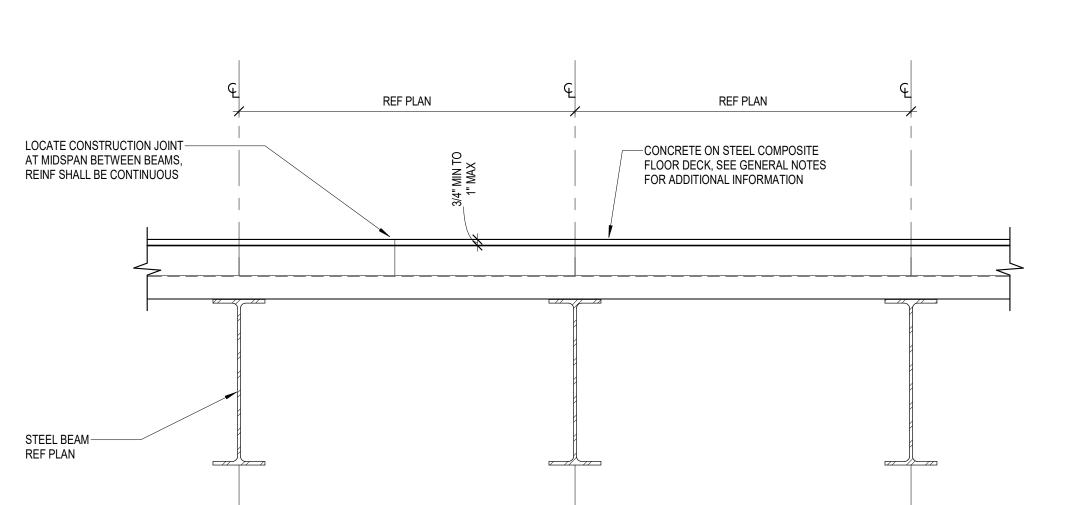
 DO NOT EXCEED CONCRETE THICKNESSES SHOWN.
- 4. WARNING: IN NON-SHORED CONSTRUCTION, EXCESSIVE CONCRETE WEIGHT DURING CASTING CAN CAUSE SUPPORTING BEAMS TO COLLAPSE. DO NOT, UNDER ANY CIRCUMSTANCES, EXCEED THE DESIGN SLAB THICKNESS BY MORE THAN 3/4 INCH. CAREFULLY CHECK BEAM CAMBERS AND RETURN ANY FOUND TO BE OUT OF TOLERANCE TO THE SHOP FOR CORRECTION.
- 5. PRIOR TO ERECTING THE FIRST COMPOSITE BEAMS, THE CONTRACTOR SHALL CALL A SPECIAL PRE-CONSTRUCTION MEETING WITH APPLICABLE SUBCONTRACTORS, TESTING LABORATORY, ARCHITECT AND STRUCTURAL ENGINEER TO REVIEW ALL REQUIREMENTS AND ESTABLISH A QUALITY CONTROL PROCEDURE.
- 6. THE FINISHED COMPOSITE FLOOR SHALL NOT BE LOADED WITH CONSTRUCTION MATERIALS BEFORE THE CONCRETE HAS ATTAINED 75 PERCENT OF ITS SPECIFIED STRENGTH.
- 7. ALL SHEAR STUDS SHALL BE FIELD APPLIED, UNLESS OTHERWISE NOTED. SIZE SHALL BE SELECTED FROM THE FOLLOWING TABLE DEPENDING ON DECK AND SLAB DIMENSIONS:

DECK THICKNESS TOTAL SLAB THICKNESS SHEAR STUDS

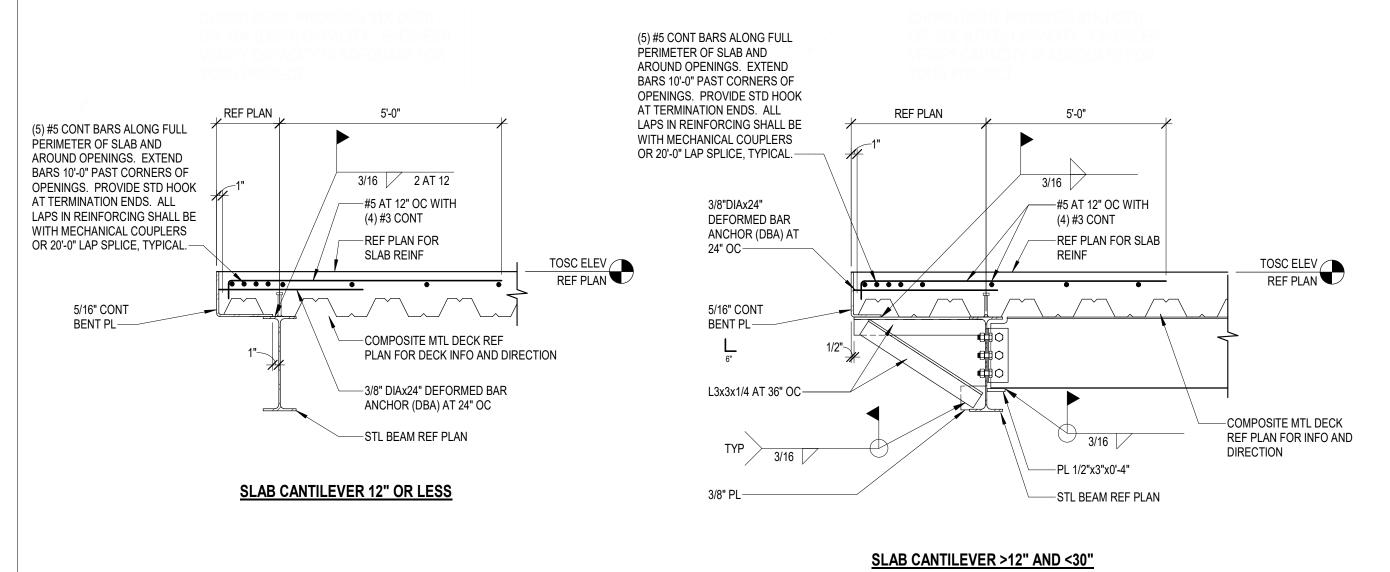
3"	5.5"	3/4" DIA. X
3"	6.5"	3/4" DIA. X
3"	7.5"	3/4" DIA. X
2"	5.5"	3/4" DIA. X
2"	6.5"	3/4" DIA. X

- 8. PLACE THE INDICATED NUMBER OF SHEAR STUDS ALONG THE LENGTH OF THE BEAM OR BEAM SEGMENT AS SHOWN IN THE SHEAR STUD PLACEMENT DIAGRAMS. STUDS SHALL BE EQUALLY SPACED IN A SINGLE ROW WHERE POSSIBLE, ALLOWING A SINGLE STUD IN THE DECK FLUTES, WHERE APPLICABLE. WHERE ADDITIONAL STUDS ARE REQUIRED TO OBTAIN THE SPECIFIED NUMBER OF STUDS IN A LENGTH OF BEAM, PLACE STUDS IN TANDEM PAIRS PER THE SHEAR STUD PLACEMENT DIAGRAM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING PROPER STUD LAYOUT FOR EACH BEAM PRIOR TO INSTALLATION OF STUDS IN THE FIELD. REFER TO TYPICAL DETAILS FOR PLACEMENT OF SHEAR STUDS ON BEAMS.
- 9. WHERE MULTIPLE NUMBERS OF STUDS ARE SHOWN FOR A BEAM, PLACE EACH QUANTITY OF STUDS IN THE CORRESPONDING BEAM SEGMENT WHERE THE NUMBER IS SHOWN.
- 10. PROVIDE CAMBER IN MEMBERS WHERE INDICATED. SPECIFIED CAMBER APPLIES AT JOBSITE, JUST PRIOR TO ERECTION, LYING DOWN FLAT SO THAT MEMBER WEIGHT HAS NO EFFECT. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT OR COMPENSATE FOR CAMBER LOSS DURING SHIPMENT. MEASURED CAMBER IN MEMBERS UP TO 50'-0" LONG SHALL BE WITHIN A TOLERANCE OF -0" TO +1/2" FROM AMOUNT SPECIFIED. FOR MEMBERS GREATER THAN 50'-0" LONG, BOTH POSITIVE AND NEGATIVE TOLERANCE MAY INCREASE 1/8" FOR EVERY 10'-0" OF LENGTH IN EXCESS OF 50'-0". MEMBERS WITH A FIELD MEASURED CAMBER OUTSIDE OF SPECIFIED TOLERANCE SHALL BE RETURNED TO SHOP.
- 11. SUPPORT CAMBERED MEMBERS DURING SHIPMENT AND HANDLING IN A MANNER WHICH WILL NOT RESULT IN LOSS OF CAMBER.
- 12. THE CONTRACTOR SHALL MEASURE AND RECORD CAMBER OF ALL BEAMS UPON ARRIVAL AND BEFORE ERECTION FOR COMPLIANCE WITH THE SPECIFIED CAMBER. MEASURE LYING FLAT WITH WEB HORIZONTAL. MEMBERS OUTSIDE THE CAMBER TOLERANCE SHALL BE RETURNED TO THE SHOP FOR CORRECTION. CAMBERS MEASURED BY THE CONTRACTOR ARE TO BE VERIFIED BY THE OWNER'S TESTING LABORATORY.
- 13. PLACE AN EXTRA LAYER OF WIRE MESH 6'-0" WIDE IN THE TOP OF THE SLAB ABOVE ALL INTERIOR GIRDERS WHICH RUN PARALLEL TO THE DECK SPAN.
- 14. PLACE SUPPORTS FOR WIRE MESH ON METAL DECK, SO THAT THE MESH IS MAINTAINED IN POSITION 3/4" BELOW THE TOP OF SLAB.
- 15. METAL DECK SHALL, IN GENERAL, BE FASTENED TO STEEL FRAMEWORK BY WELDING SHEAR STUDS THROUGH THE DECK. IF FIELD WELDED SHEAR STUDS THROUGH METAL DECK ARE NOT CALLED FOR IN SCHEDULE OR ON DRAWINGS, DECK SHALL BE WELDED TO STEEL FRAMEWORK BY PUDDLE WELDS NOT LESS THAN 3/4" DIAMETER, SPACED NOT MORE THAN 1'-0". WHERE SHEAR STUD SPACING EXCEEDS SPECIFIED MAXIMUM DECK WELD SPACING, USE ADDITIONAL PUDDLE WELDS AT 1'-0" BETWEEN STUDS. WHERE 2 UNITS ABUT, EITHER END-TO-END OR SIDE-TO-SIDE, EACH SHALL BE SO FASTENED TO STEEL FRAMING.
- 16. WELD GIRDER FILLERS TO STEEL BEAM WITH 2" LONG FILLET WELDS AT A MAXIMUM SPACING OF 12 INCHES. CONNECT SIDES OF ADJACENT UNITS WITH 1 1/2" LONG WELDS AT 3'-0" OC MAX.
- 17. DEFLECTION OF DECK AND/OR STEEL WILL TAKE PLACE WHEN CONCRETE IS POURED. THE SPECIFIED CONCRETE SLAB THICKNESS SHALL BE MAINTAINED AT COLUMN LOCATIONS. SLAB THICKNESS AWAY FROM THE COLUMNS WILL VARY DUE TO BEAM AND DECK DEFLECTIONS. MINIMUM THICKNESS OF CONCRETE REQUIRED MUST BE PROVIDED, AND TOP SURFACES OF SLABS MUST BE CONSTRUCTED WITHIN SPECIFIED TOLERANCES. WHERE THERE IS RESIDUAL CAMBER IN STEEL BEAMS, FINISHED CONCRETE SURFACE SHALL FOLLOW CAMBER OF BEAMS, BUT FINISHED SURFACE SHALL NOT VARY BY MORE THAN 1/4" FROM ONE BEAM TO ANOTHER ADJACENT BEAM, NOR 1/2" TOTAL FOR LENGTH OF FLOOR. CAMBERED BEAMS ARE INTENDED TO DEFLECT TO APPROXIMATELY A STRAIGHT LINE UNDER FULL WEIGHT OF CONCRETE SLAB, IF ALL TOP OF STEEL ELEVATIONS AND CAMBERS ARE AS SPECIFIED IN THE DRAWINGS. THE CONTRACTOR SHALL BE FAMILIAR WITH THE CONDITIONS OF THE PROJECT AND FURNISH THE MATERIALS REQUIRED TO CREATE THE SPECIFIED FLOOR ELEVATION. NO ADJUSTMENT WILL BE MADE TO CONTRACT PRICE FOR ADDITIONAL CONCRETE REQUIRED BECAUSE OF DEFLECTION OF DECK OR STEEL OR DUE TO DIFFERENTIAL CAMBER.
- 18. NO CONDUITS ALLOWED IN SLABS WITHOUT PRIOR APPROVAL FROM ENGINEER OF RECORD.
- 19. DO NOT HANG CONCENTRATED LOAD EXCEEDING 100LB FROM COMPOSITE METAL DECKING. ALL MEP APPURTENANCES EXCEEDING 100LB SHALL BE SUPPORTED BY STEEL BEAMS OR JOISTS.
- 20. ALL METAL FLOOR DECKING SHALL BE GALVANIZED WITH [G90] COATING CONFORMING TO ASTM A924.

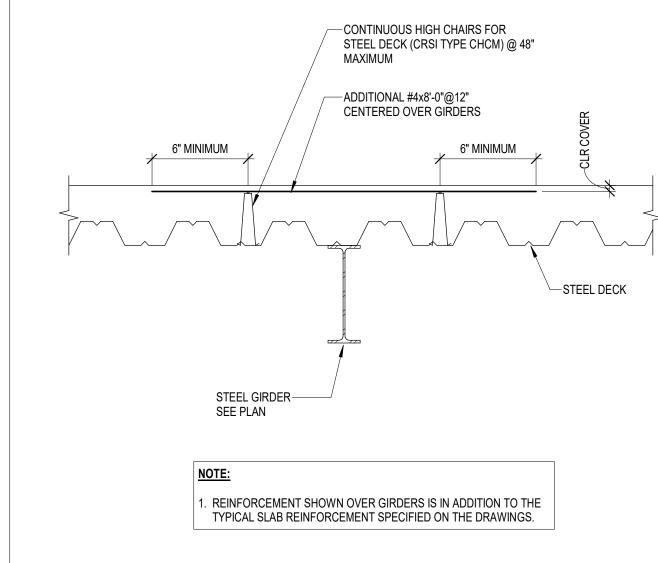




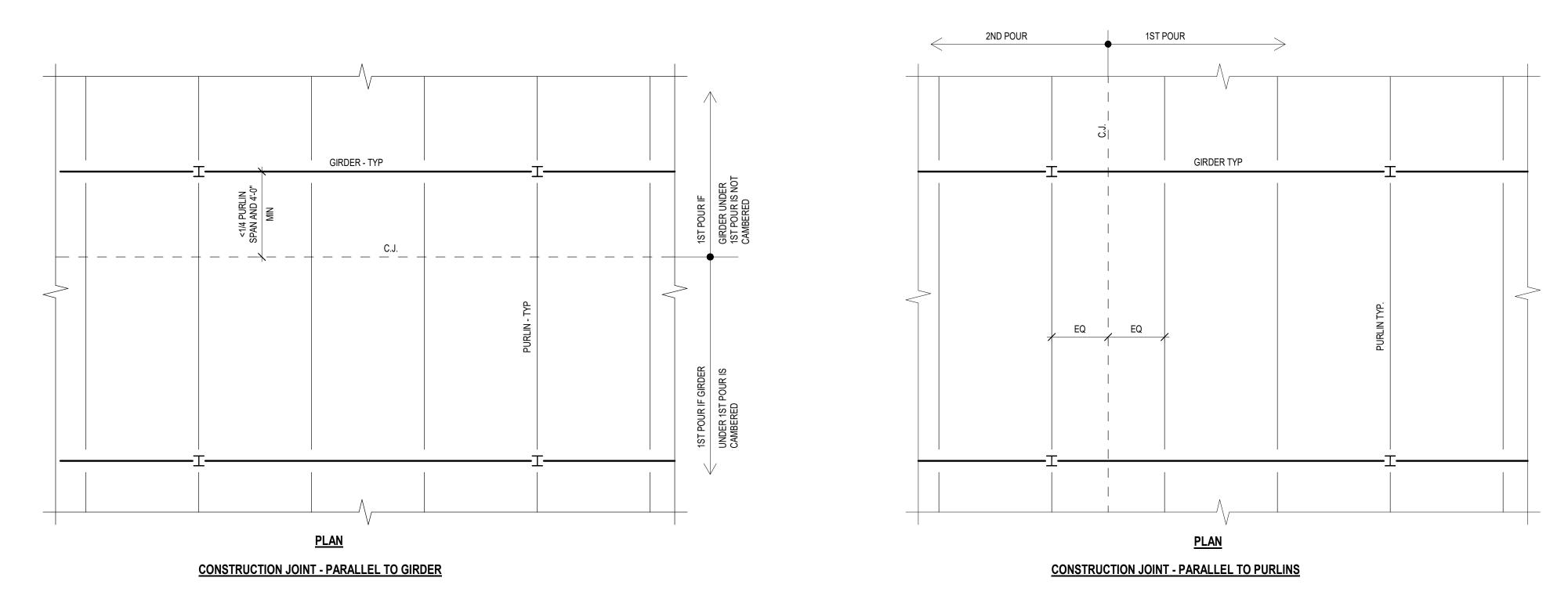
6 TYPICAL COMPOSITE SLAB REINFORCEMENT NO SCALE



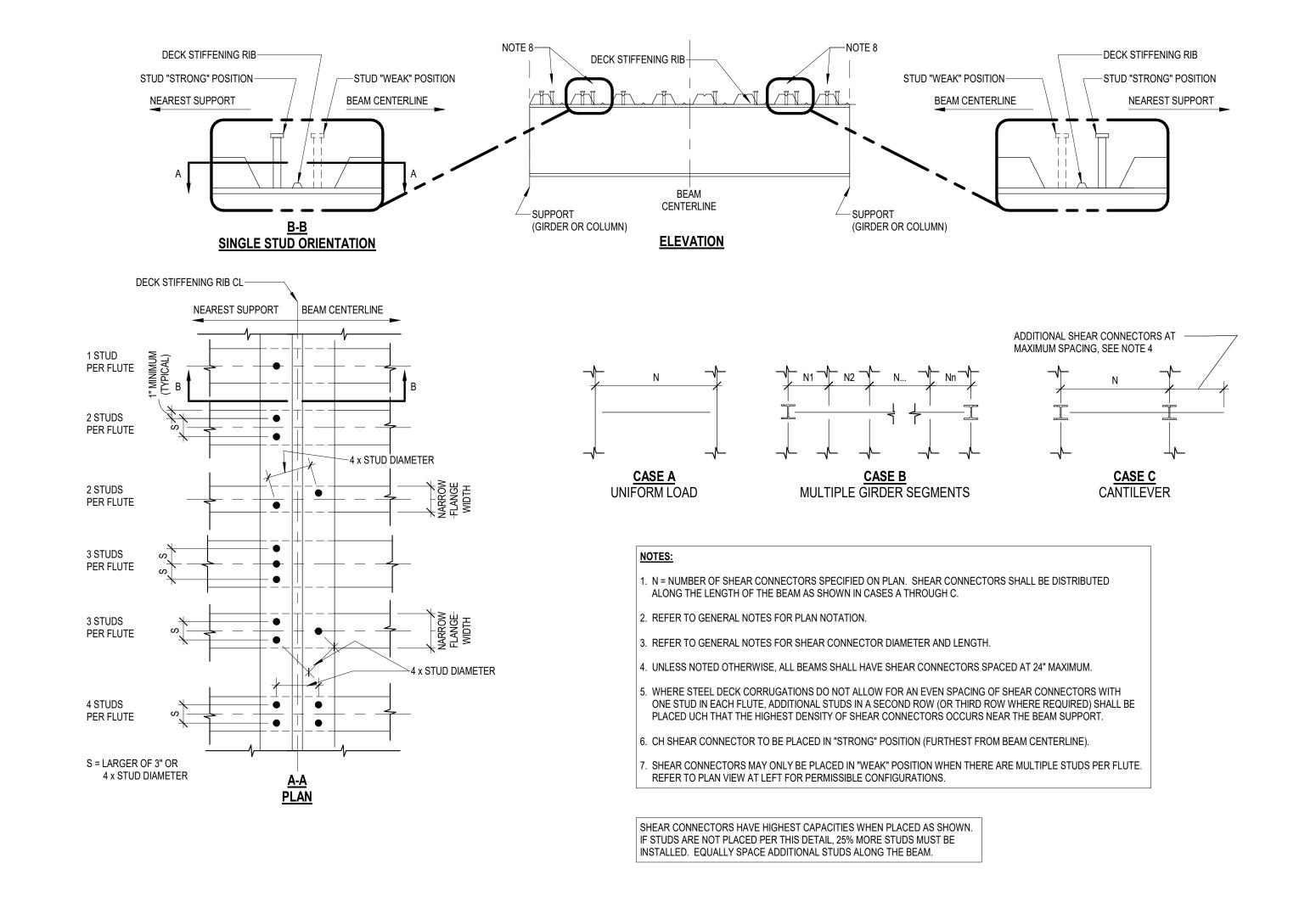
TYPICAL COMPOSITE SLAB EDGE DETAIL



TYPICAL DETAIL FOR ADD'L REINF IN COMPOSITE SLAB AT INTERIOR GIRDERS NO SCALE



5 TYPICAL DETAIL FOR COMPOSITE SLAB CONSTRUCTION JOINTS NO SCALE



7 TYPICAL SHEAR CONNECTOR PLACEMENT DIAGRAM - IN STUDS "STRONG" POSITION NO SCALE





JUERGEN ROAD ELEMENTARY SCHOOL

TOMBALL INDEPENDENT SCHOOL DISTRIC

JOHN R. KUBALA

CLIENT
TOMBALL ISD

DATE
02/27/2023
DRAWING HISTORY

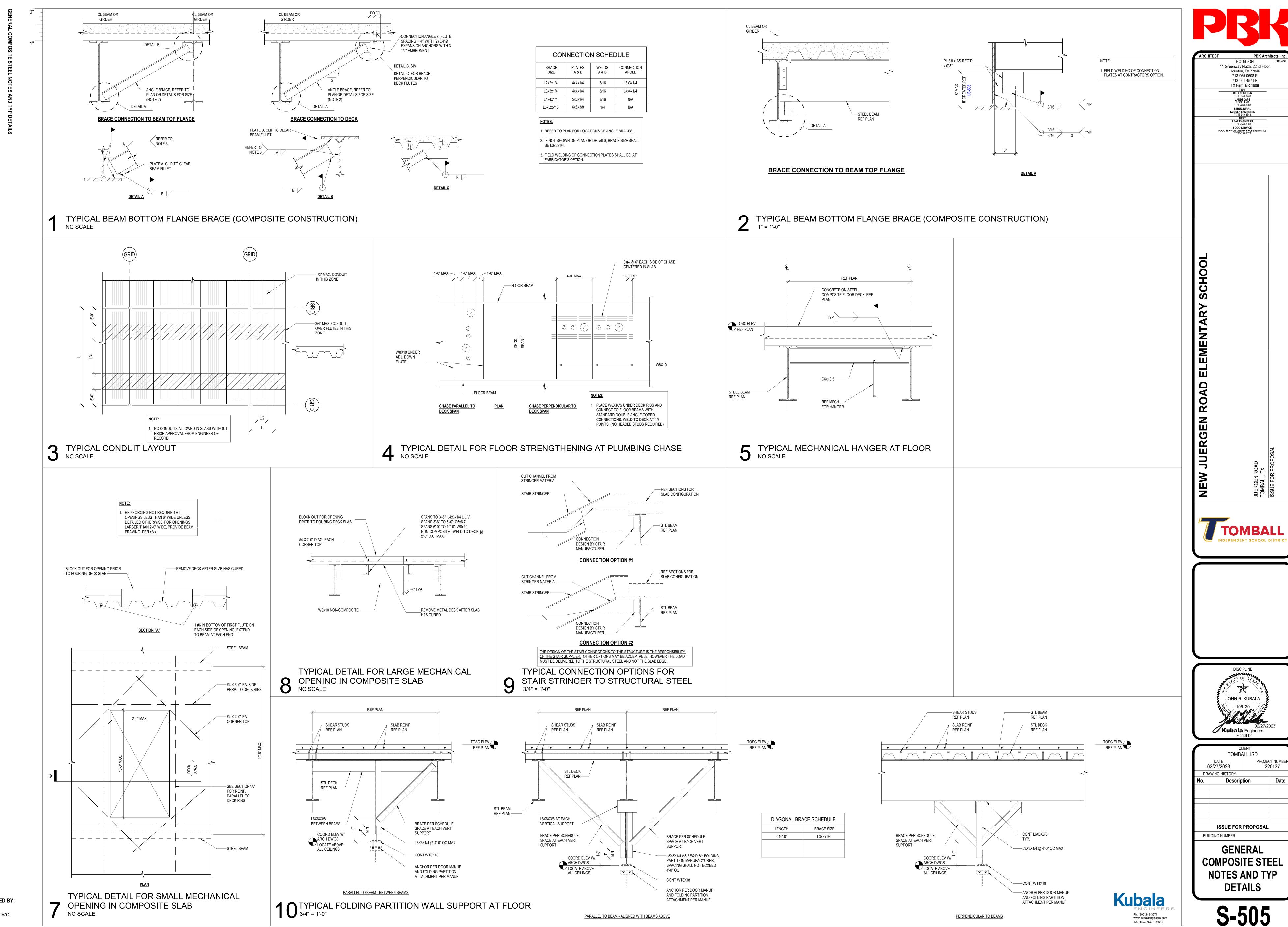
IO. Description
Date

ISSUE FOR PROPOSAL
BUILDING NUMBER

COMPOSITE STEEL
NOTES AND TYP

S-504

DETAILS



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STEEL JOIST FRAMING:

- OPEN WEB STEEL JOISTS SHALL BE DESIGNED, MANUFACTURED AND ERECTED PER THE LATEST STEEL JOIST INSTITUTE (SJI) SPECIFICATIONS. JOISTS SHALL BE CAMBERED FOR DEAD LOAD. PROVIDE THE STANDARD SJI AMOUNT OF CAMBER UNLESS NOTED OTHERWISE ON THE DRAWINGS. THE JOIST SUPPLIER SHALL ADJUST CAMBERS AT JOISTS ADJACENT TO EACH OTHER THAT HAVE VARYING LENGTHS AND AT JOISTS ADJACENT TO STEEL BEAMS WITH SET ELEVATIONS SO THAT THE ELEVATIONS FOR ADJACENT MEMBERS, PRIOR TO ERECTION OF DECK, DO NOT VARY BY MORE THAN 1".
- 2. STAGGER JOISTS ENDS AS REQUIRED (AT NARROW BEAMS) IN ORDER TO ACHIEVE 2 1/2 INCH MINIMUM BEARING. HORIZONTAL AND DIAGONAL BRIDGING SHALL BE PROVIDED PER SJI SPECIFICATIONS, AND SHALL BE WELDED TO STEEL BEAMS AND DECK SUPPORT ANGLES AT ENDS.
- 3. AT JOIST SPANS WHERE REQUIRED BY SJI, BOLTED DIAGONAL BRIDGING NEAREST THE CENTER OF THE SPAN SHALL BE INSTALLED AT EACH JOIST PRIOR TO THE SLACKENING OF HOIST LINES. FOR JOISTS THAT SPAN 40 FEET AND GREATER, THE JOIST SHALL HAVE ALL JOISTS BOLTED TO THE SUPPORT AT EACH END.
- 4. FOR THE THREE JOISTS NEAREST EACH COLUMN, THE BOTTOM CHORDS SHALL BE EXTENDED. BOTTOM CHORD EXTENSION CONNECTIONS SHALL NOT BE MADE UNTIL AFTER THE FULL DEAD LOAD IS APPLIED. A 6 INCH x 6 INCH STABILIZER PLATE SHALL BE PROVIDED IN ORDER TO RECEIVE THE JOIST BOTTOM CHORDS AT ALL COLUMN LOCATIONS. THE PLATE SHALL EXTEND A MINIMUM OF 3" BELOW THE BOTTOM OF THE BOTTOM CHORDS. PROVIDE A 13/16" DIAMETER HOLE IN THE STABILIZER PLATE FOR
- 5. JOISTS THAT REQUIRE REPAIRS OR MODIFICATIONS DUE TO FABRICATION ERRORS OR TO DAMAGES CAUSED DURING THE SHIPPING PROCESS, SHALL BE REPLACED WITH
- 6. ALL STEEL JOISTS AND JOIST GIRDERS SHALL BE DESIGNED UNDER THE DIRECT SUPERVISION OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.

2 1/2" DEEP

7 1/2" DEEP

5" DEEP

- 7. PROVIDE STANDARD DEPTH OF BEARING FOR ALL JOISTS AS SHOWN BELOW UNLESS NOTED OTHERWISE ON THE DRAWING OR DICTATED BY JOIST SLOPE:
- 7.1. ALL K SERIES:
- 7.2. LH SERIES WITH JOIST SECTION NUMBER LESS THAN 18: 7.3. ALL DLH SERIES JOIST AND LH SERIES JOIST WITH SECTION NUMBER GREATER THAN 18: 7.4. WHERE JOISTS WITH DIFFERENT SEAT DEPTHS BUT THE SAME TOP OF JOIST ELEVATION BEAR

EXCEED 3/8" FOR TOTAL LOAD. "L" IS THE CANTILEVER LENGTH OF THE TOP CHORD EXTENSION.

- ON THE SAME SUPPORTING ELEMENT. PROVIDE THE DEEPER JOIST SEAT FOR ALL JOIST BEARING ON THAT ELEMENT UNLESS SPECIFICALLY DETAILED OTHERWISE IN THE CONTRACT DOCUMENTS.
- 8. HANGERS SUPPORTING MECHANICAL EQUIPMENT, SPRINKLER LINES, ETC., FROM THE CHORD OF STEEL JOISTS, SHALL BE LOCATED AT THE PANEL POINTS OF THE JOISTS OR THE JOIST CHORD SHALL BE REINFORCED TO SUPPORT THE ADDITIONAL LOAD, EXCEPT AS FOLLOWS. HANGERS SUPPORTING LESS THAN 50 POUNDS FROM THE BOTTOM CHORD OR 150 POUNDS FROM THE TOP CHORD DO NOT HAVE TO BE PLACED AT PANEL POINTS. DO NOT SUSPEND ANYTHING FROM JOIST BRIDGING.
- 9. JOISTS SHALL BE DESIGNED TO RESIST THE NET UPLIFTS TABULATED IN THE "DESIGN LOADS" GENERAL NOTES. PROVIDE EXTRA BRIDGING, WHERE REQUIRED, TO BRACE THE BOTTOM CHORD IN COMPRESSION.
- 10. SEE ROOF PLANS FOR JOIST TOP CHORDS TO BE DESIGNED AS DRAG STRUTS FOR HORIZONTAL FORCES (NOTED H = _____ KIPS) IN COMBINATION WITH GRAVITY LOADS. THIS FORCE MAY BE EITHER COMPRESSION OR TENSION. STRESSES MAY NOT BE INCREASED FOR WIND.
- COORDINATE DECK LAYOUT SO END LAPS ALWAYS OCCUR OVER JOISTS. JOISTS ON COLUMN LINES MUST STILL BRACE COLUMNS WITH EXTENDED BOTTOM CHORDS. 12. JOIST MANUFACTURER SHALL DESIGN JOIST TOP CHORD EXTENSIONS FOR A UNIFORM TOTAL LOAD OF 300 PLF, OF WHICH 180 IS LIVE LOAD. LIMIT DEFLECTION OF JOIST TOP CHORD EXTENSIONS TO L/120 FOR TOTAL LOAD AND L/180 FOR LIVE LOAD, BUT IN NO CASE SHALL THE DIFFERENTIAL DEFLECTION BETWEEN ADJACENT JOISTS

11. IF BEAM FLANGES ARE NOT WIDE ENOUGH TO ACCOMMODATE BEARING SEATS FROM BOTH SIDES, JOISTS MAY BE OFFSET AND SEATS OVERLAPPED. CONTRACTOR TO

- 13. STEEL JOISTS, BRIDGING, AND THEIR CONNECTIONS SHALL BE DESIGNED FOR A NET UPLIFT EQUAL TO THE UPWARD COMPONENT AND CLADDING WIND PRESSURES SHOWN ON THE STRUCTURAL DRAWINGS MINUS 3 PSF OF DEAD LOAD.
- 14. PROVIDE ALL NECESSARY ERECTION BOLTS, STABILIZER PLATES, BOTTOM CHORD CONNECTIONS, ERECTION BRIDGING, ETC., IN COMPLIANCE WITH OSHA REGULATIONS GOVERNING SAFETY IN THE WORKPLACE. CONNECTION DETAILS SHOWN ARE ADEQUATE FOR FINAL IN PLACE CONDITIONS AND DO NOT NECESSARILY PROVIDE FOR CONSTRUCTION SAFETY.
- 15. ALL STEEL SHALL BE DOMESTICALLY (INCLUDING CANADA) MILLED AND FABRICATED. FOREIGN STEEL SHALL NOT BE UTILIZED WITH OUT PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER. THE APPROVAL PROCESS SHALL TAKE PLACE DURING BIDDING TIME. ANY REQUEST TO UTILIZE FOREIGN STEEL MADE AFTER BIDDING SHALL BE
- 16. OPEN WEB STEEL JOIST SUPPLIER IS TO SUBMIT SHOP DRAWINGS PREPARED UNDER THE SUPERVISION OF A LICENSED ENGINEER IN THE STATE IN WHICH THE PROJECT IS BEING PERFORMED TO THE ARCHITECT/ENGINEER FOR REVIEW FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. SEE THE SPECIFICATIONS FOR OTHER SUBMITTAL REQUIREMENTS.
- 17. FOR OPEN WEB JOISTS, SOME U.L. RATINGS REQUIRE SPECIAL SIZES. THE JOIST MANUFACTURER SHALL VERIFY AND RE-DESIGN ANY/ALL JOISTS AS REQUIRED, TO MEET THE U.L. FIRE RESISTANCE DIRECTORY.
- 18. ROOF MOUNTED MECHANICAL UNIT LOCATIONS AND DESIGN WEIGHTS ARE SHOWN ON THE ROOF FRAMING PLANS. JOIST MANUFACTURER SHALL DESIGN JOISTS TO SUPPORT THIS ADDITIONAL LOAD. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ACTUAL SIZES, WEIGHTS, OR LOCATIONS DIFFER FROM THOSE SHOWN ON THE ROOF FRAMING PLANS. PROVIDE ADDITIONAL STEEL FRAMING, AS DETAILED, FOR SUPPORT OF RTU CURBS AND PROVIDE DECK SUPPORT ANGLES AT ALL ROOF OPENINGS

METAL ROOF DECKING:

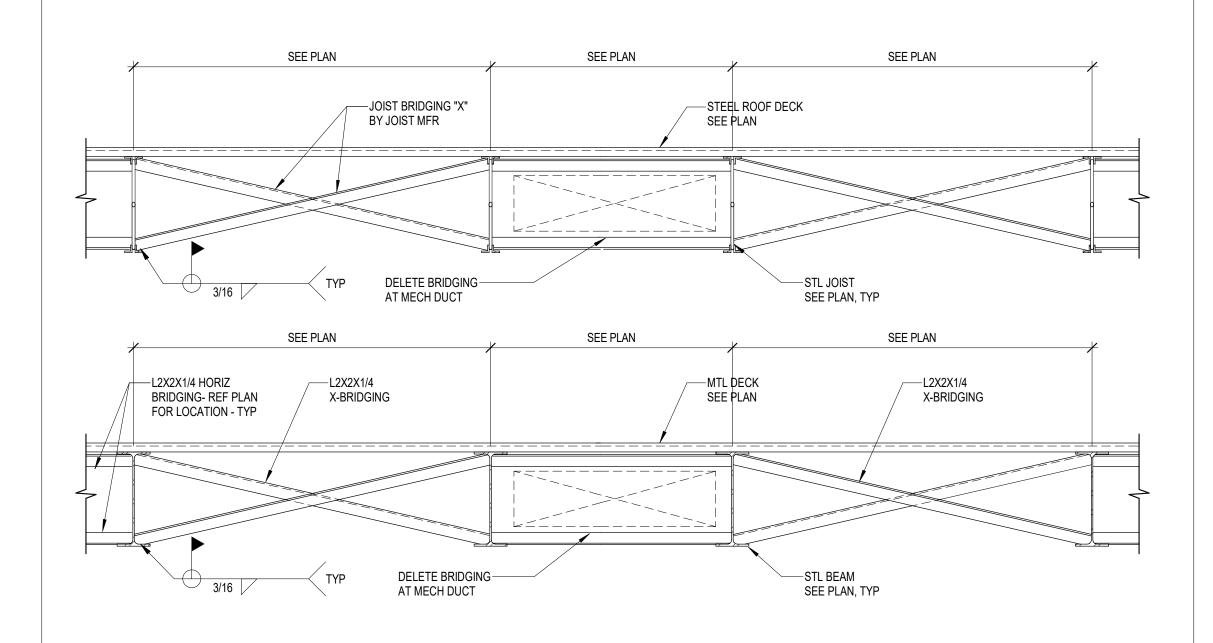
. METAL ROOF DECK OF SIZE NOTED ON PLANS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

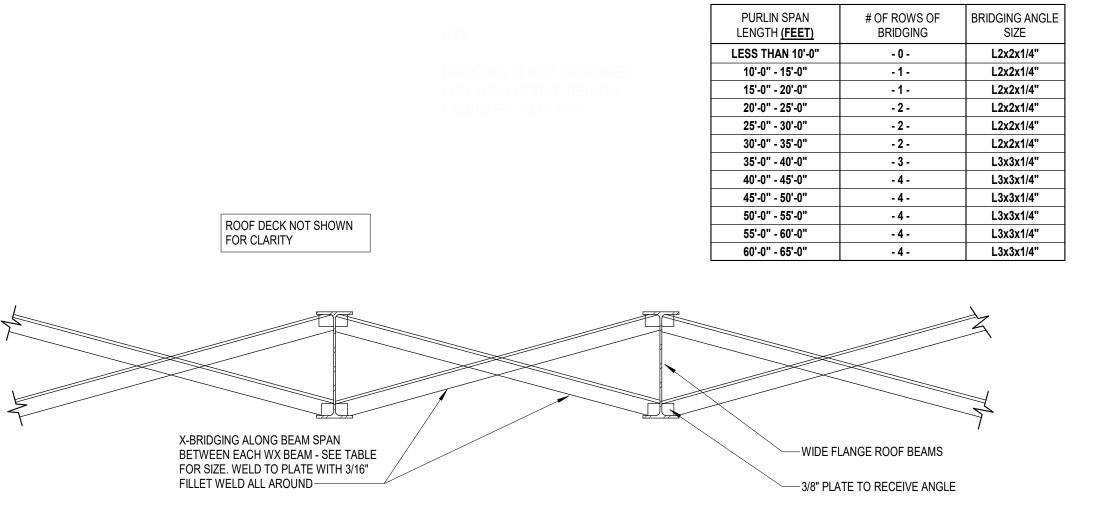
		R.A	ETAL DE	CK SCI	JEDIJI	_					METAL DECK CONNECTION SCHEE	DULE
METAL DECK SCHEDULE									FASTEN DECK TO SUPPORT MEMBERS			
DECK DESIGNATION ON PLAN	DECK DESIGNATION	DECK GAUGE	SDI DECK TYPE	DECK DEPTH (IN)	lp (IN4)	In (IN4)	Sp (IN3)	Sn (IN3)	Fy (KSI)	ATTACHMENT PATTERN (W/N)	SUPPORT FASTENERS	FASTENERS
REF DECK PLAN LEGEND	1.0 CSV	22	CONFORM	1.0	0.073	0.073	0.130	0.134	60	33/4	5/8" PUDDLE WELD	10#10 TEK SCREWS
REF DECK PLAN LEGEND	1.5 WR	22	WIDE RIB	1.5	0.155	0.183	0.186	0.192	33	36/7	5/8" PUDDLE WELD	7#10 TEK SCREWS
lp: POSITIVE MON	MENT OF INERTIA											

- In: NEGATIVE MOMENT OF INERTIA Sp: POSITIVE SECTION MODULUS
- Sn: NEGATIVE SECTION MODULUS FY:YIELD STRENGTH
- W/N: SHEET WIDTH / NUMBER OF CONNECTIONS EACH SHEET
- 2. SEE ROOF FRAMING PLAN FOR ROOF DECK SIZES.
- . THE METAL ROOF DECK ON THIS PROJECT IS REQUIRED TO PERFORM AS A STRUCTURAL DIAPHRAGM, ALL WELDS AND SCREWS ARE CRITICAL TO THE SUCCESSFUL PERFORMANCE OF THE DIAPHRAGM.
- 4. STEEL ROOF DECK (WITH RIGID INSULATION BOARD):
- 4.1. ROOF DECK SHALL BE 1 1/2" DEEP, 22 GAGE, WIDE RIB, TYPE B DECK CONFORMING TO ASTM A611 OR A653-99 WITH Fy=33 KSI. DECK SHALL BE GALVANIZED, CONFORMING TO ASTM A924, WITH A MINIMUM ZINC COATING CLASS OF G90 PER ASTM A653-99. DECK SHALL HAVE A MINIMUM MOMENT OF INERTIA OF 0.155 INCH TO THE FOURTH PER FOOT OF WIDTH. FASTEN SIDELAPS WITH #10 TEK SCREWS; ONE AT MIDSPAN OR 3'-0" ON CENTER MAX. WELD DECK THROUGH 5/8" DIAMETER PUDDLE WELDS TO EACH STRUCTURAL SUPPORTING MEMBER AT 1'-0" ON CENTER AT END LAPS AND AT INTERMEDIATE SUPPORTS. AT SPANDREL BEAMS AND DECK SUPPORT ANGLES, AND FOR A 10'-0" SQUARE AREA AT ROOF CORNERS, THE DECK SHALL BE WELDED TO ALL SUPPORTS AT 6" ON CENTER.
- 4. STEEL ROOF DECK (WITH LIGHTWEIGHT INSULATION FILL):
- 4.1. LIGHTWEIGHT INSULATION CONCRETE FILL USED OVER ROOF DECKING SHALL HAVE A MIX RATIO OF ONE SACK PORTLAND CEMENT TO SIX CUBIC FEET OF LIGHTWEIGHT CONCRETE AGGREGATE. PERLITE OR VERMICULITE AGGREGATE MUST CONFORM TO ASTM C332. PERLITE SHALL HAVE A MAXIMUM WET DENSITY OF 42 POUNDS PER CUBIC FOOT (PCF), AND VERMICULITE SHALL HAVE A MAXIMUM WET DENSITY OF 60 PCF AT THE POINT OF DICHARGE. BOTH SHALL HAVE A MAX DRY DENSITY OF 32 PCF, AND MUST HAVE A COMPRESSIVE STRENGTH (fc) OF 200 PSI IN 28 DAYS.
- 4.2. ROOF DECK SHALL BE CORRUGATED DECK CONFORMING TO ASTM A611 OR A653-99 WITH Fy=60 KSI. DECK SHALL BE GALVANIZED, CONFORMING TO ASTM A924, WITH A MINIMUM ZINC COATING CLASS OF G90 PER ASTM A653-99. DECK SHALL BE 22 GAGE METAL FORMS, 1" DEEP WITH VENTING SLOTS IN VALLEY OF EACH CORRUGATION. DECK SHALL HAVE A MINIMUM SECTION MODULUS OF 0.130 INCHES CUBED PER FOOT OF WIDTH. FASTEN SIDELAPS WITH #10 TEK SCREWS. WELD DECK TO EACH STRUCTURAL SUPPORTING MEMBER AT EVERY OTHER CORRUGATION AT END LAPS AND AT INTERMEDIATE SUPPORTS. AT SPANDREL BEAMS AND DECK SUPPORT ANGLES, AND FOR A 20'-0" SQUARE AREA AT ROOF CORNERS, THE DECK SHALL BE WELDED TO ALL SUPPORTS AT EVERY CORRUGATION OR 6" ON CENTER MAXIMUM.
- 4.3. THE THICKNESS OF THE LIGHTWEIGHT CONCRETE FILL SHALL BE AS SPECIFIED BY THE ARCHITECT. HOWEVER, THE THICKNESS SHALL NOT EXCEED 2.5 INCHES. ROOF SLOPES THAT ARE NOT REFLECTED IN THE SLOPE OF THE STRUCTURAL FRAMING, SUCH AS AT SMALL AREAS, CRICKET AND THE EDGES OF THE ROOF, SHALL BE IMPLEMENTED BY VARYING THE INSULATION THICKNESS IN LIEU OF VARYING THE THICKNESS OF THE LIGHTWEIGHT CONCRETE FILL. DO NOT EXCEED THE MAXIMUM SPECIFIED THICKNESS OF LIGHTWEIGHT CONCRETE FILL.
- 5. THE STEEL DECK SHALL ALWAYS BE INSTALLED WITH THE DIRECTION OF FLUTES PERPENDICULAR TO THE FRAMING MEMBERS. THE DECK SHALL BE CUT TO INSURE A MINIMUM
- . IN ADDITION TO THE DECK CONNECTIONS INDICATED IN THE CONNECTION SCHEDULE, THE DECK SHALL BE CONNECTED AT EACH FLUTE AT EACH SUPPORT WITHIN THE FIRST 10. FEET FROM THE BUILDING PERIMETER.
- . ROOF DECK SHALL BE CONTINUOUS OVER FOUR OR MORE SUPPORTS. AT LOCATIONS WHERE SINGLE OR DOUBLE SPAN CONDITIONS OCCUR, THE CONTRACTOR SHALL EITHER SHORE THE DECK, OR ADJUST THE GAGE THICKNESS OF THE DECK IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. DECK SHALL BE
- DESIGNED TO PROVIDE EQUIVALENT OR GREATER LOAD CAPACITY AS THE SPECIFIED DECK SUPPORT OVER FOUR SUPPORTS. . COORDINATE METAL DECK LENGTHS WITH THE FINAL JOIST AND BEAM LAYOUT. THE FINAL JOIST AND BEAM LAYOUT CAN BE DIFFERENT THAN THAT SHOWN IN THE CONTRACT

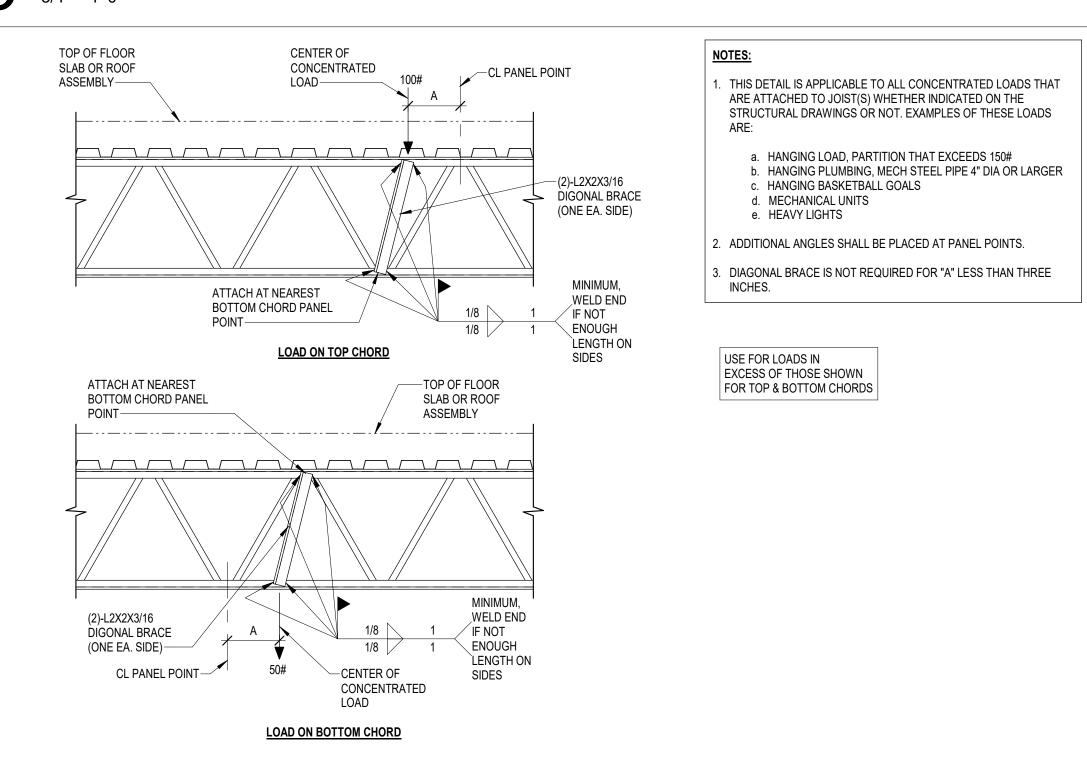
DRAWINGS DEPENDING ON WHETHER THE JOIST BEARING SEATS ARE BUTTED OR LAPPED. THE JOIST LOCATIONS SHOWN IN THE CONTRACT DRAWINGS DO NOT ACCOUNT FOR

- THE SMALL DIFFERENCE IN JOIST LOCATION DUE TO THE VARIOUS JOIST BEARING CONDITIONS THAT COULD EXIST IN THE FIELD. 9. SUSPENDED CEILING, LIGHT FIXTURES, DUCTS OR OTHER UTILITIES SHALL NOT BE SUPPORTED BY THE STEEL DECK.
- 10. ACOUSTICAL "DOVETAIL" METAL ROOF DECK SHALL BE MANUFACTURED BY EPIC METALS CORPORATION (EPICORE) OR CSI METAL DECK GROUP (VERSA DECK). REFER TO THE ROOF FRAMING PLAN FOR DECK TYPE AND LOCATION.

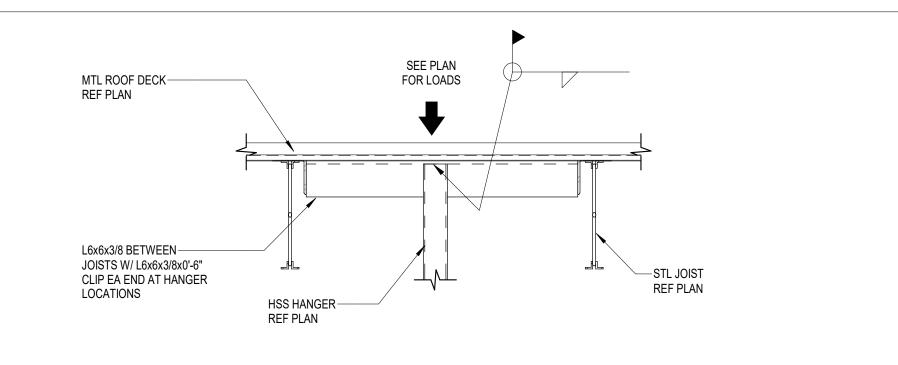




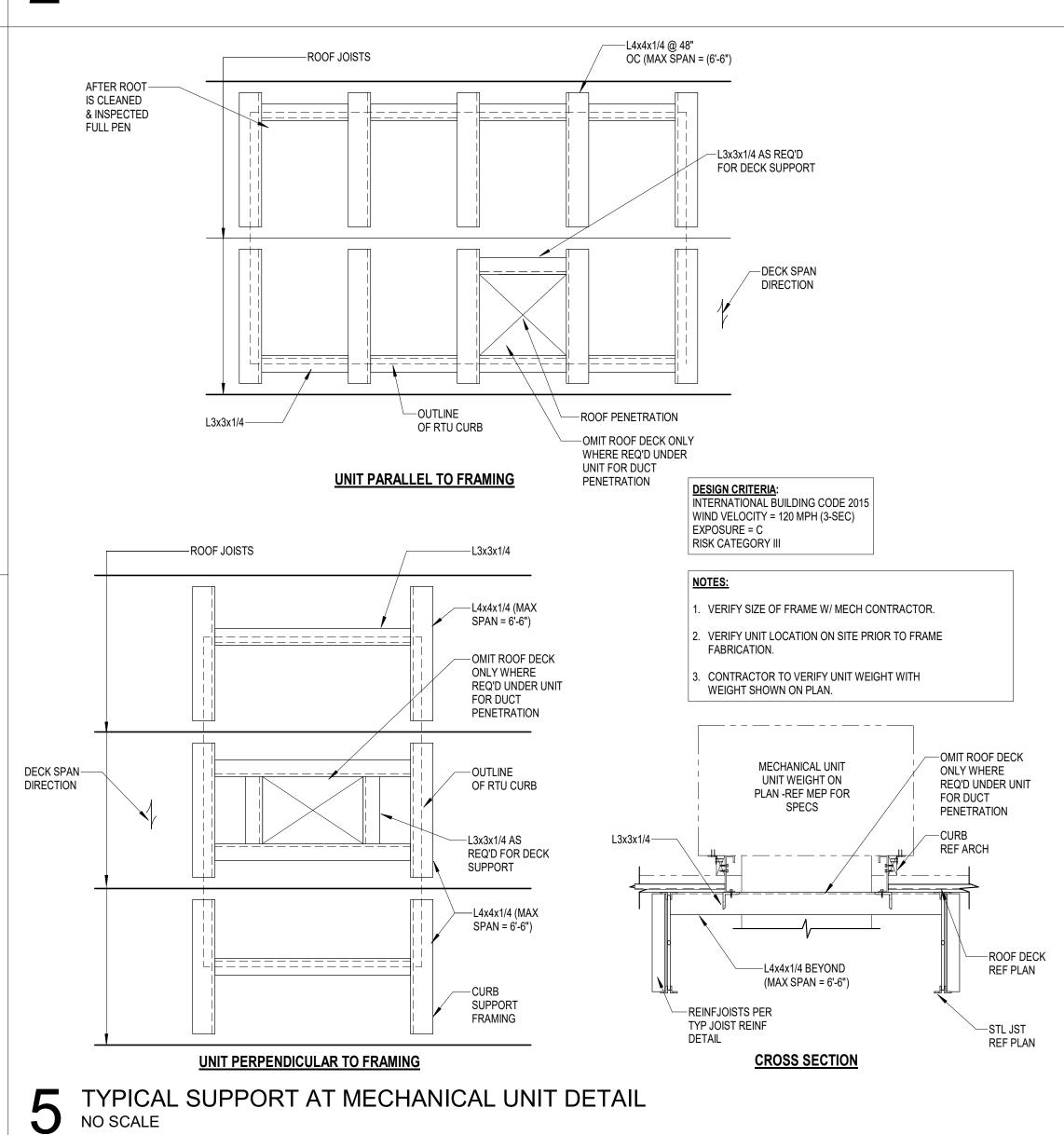
3 TYPICAL UPLIFT BRIDGING DETAIL 3/4" = 1'-0"



4 TYPICAL HANGING LOADS DETAIL NO SCALE



6 DETAIL AT ROOF HANGER SUPPORT NO SCALE



TECTUM ROOF DECK

---'_-----

PROVIDE CONT. P1000

CHANNELS AS REQUIRED

ELEMENTS. CONT. MEMBERS

SHOULD BE LOCATED AT

ADDN'L REINFORCEMENT

— INDICATES A TYPICAL ELECTRICAL

ELEMENT TO BE SUPPORTED BY THE UNISTRUT BEAM (TYP.)

OR NEAR JOIST PANEL POINTS RE: 12/S0.2 FOR

PROVIDE P2868 OR OTHER APPROPRIATE CONNECTOR

EVERY OTHER JOIST (TYP.)

T UNISTRUT DETAIL FOR ELECTRICAL SUPPORT

NO SCALE

(GC COORD. REQ'D WIDTH AND HEIGHT & LOAD CAP.) AT

TO SUPPORT MISC. ELEC.

-ROOFING

RE: ARCH

SEE PLAN & RE: ARCH

—ATTACH TECTUM ROOF DECK

TO STL JOISTS PER MANUF.

-STL JOISTS

@ 5'-0" OC

-UNISTRUT CHANNEL IS

JOIST BOTTOM CHORD

TO BEAR ON TOP OF

. EACH LIGHT MUST BE

SUPPORTED BY TWO

UNI-STRUT MEMBERS (MIN)

Kubala

Ph: (800)248-3674 TX. REG. NO. F-23612

NOTE:

THIS DETAIL APPLIES FOR OPENINGS GREATER

THAN 1'-1" IN ANY DIRECTION. FOR OPENINGS

GREATER THAN 6" AND LESS THAN 1'-1" IN ANY

PLAN DIMENSION 3 TIMES THE OPENING SIZE.

OPENING - REF ARCH

TWO SIDES OF

OPENING

. PROVIDE L3x3x1/4" FRAME FOR

ARCHITECTURAL DRAWINGS

NOTED OTHERWISE IN

ROOF DRAIN SUPPORT (MIN) UNLESS

—DO NOT CUT DECK

UNTIL OPENING NEEDED

-L4x4x5/16 HEADER W

END, EA SIDE OF

L4x4x5/16x0'-6" CLIP EA

WOOD BLOCKING OR STEEL

STL JST-

REF PAN

ANGLES AS DETAILED ON

ARCHITECTURAL

TYPICL ROOF OPENING DETAIL

DIRECTION, USE A 16 GAGE DOUBLER PLATE WITH A

SCREW PLATE TO DECK WITH #12 SCREWS @ 6" OC.



11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm: BR 1608 FOOD SERVICE FOODSERVICE DESIGN PROFESSIONALS

JOHN R. KUBALA

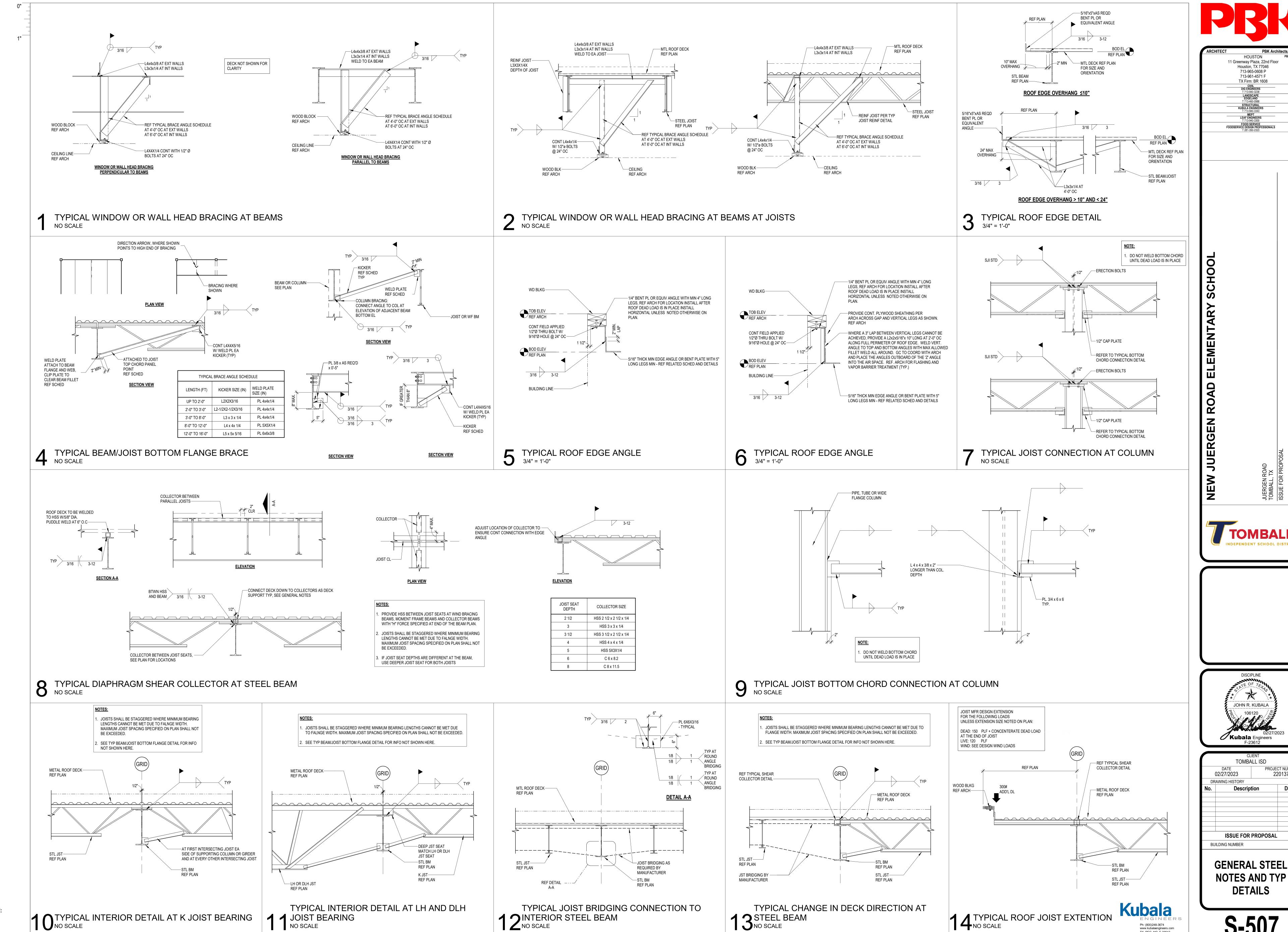
F-23612

TOMBALL ISD PROJECT NUMBER 220137 DRAWING HISTORY Description Date **ISSUE FOR PROPOSAL BUILDING NUMBER GENERAL STEEL NOTES AND TYP DETAILS**

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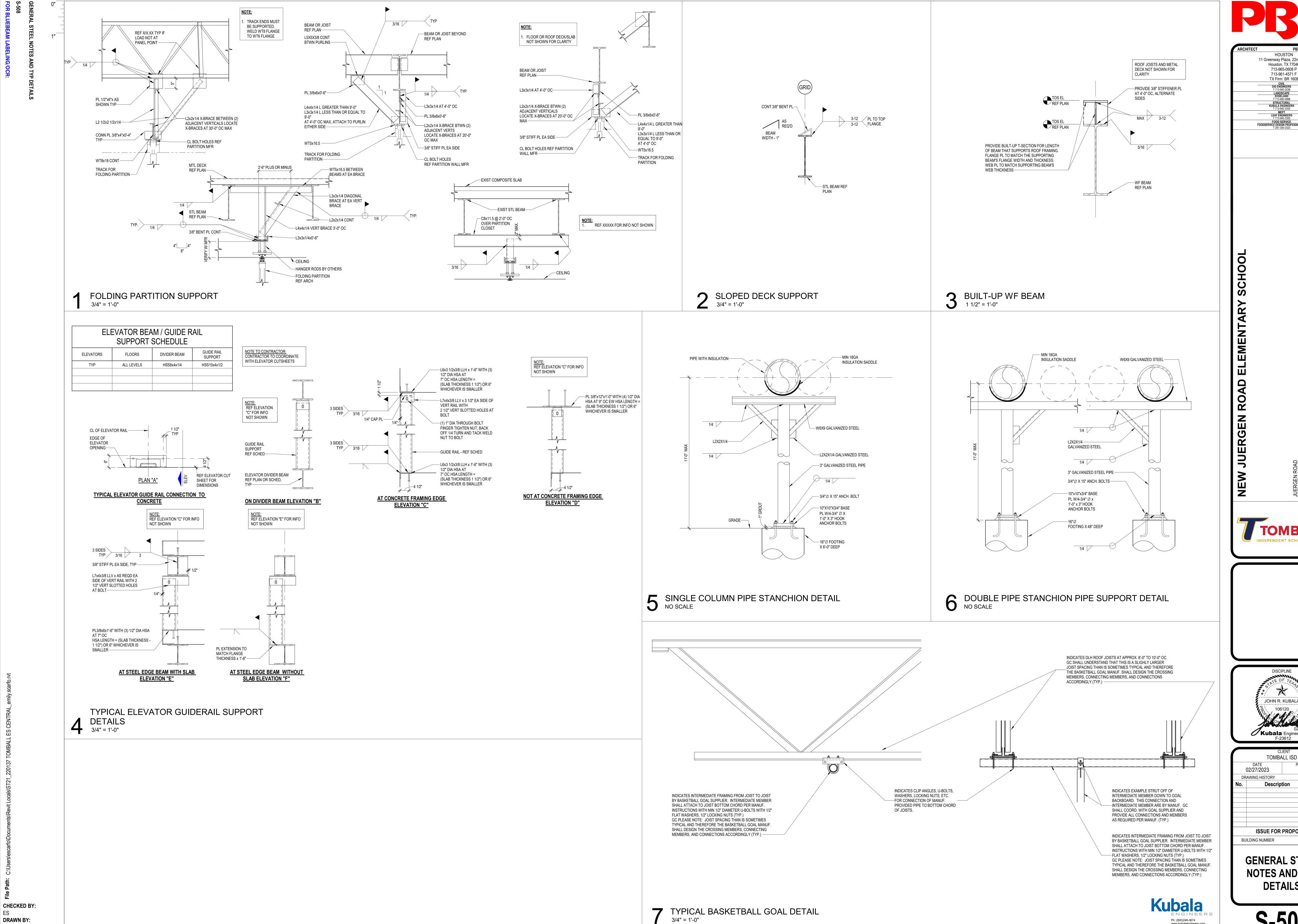


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PROJECT NUMBER

220137

Date



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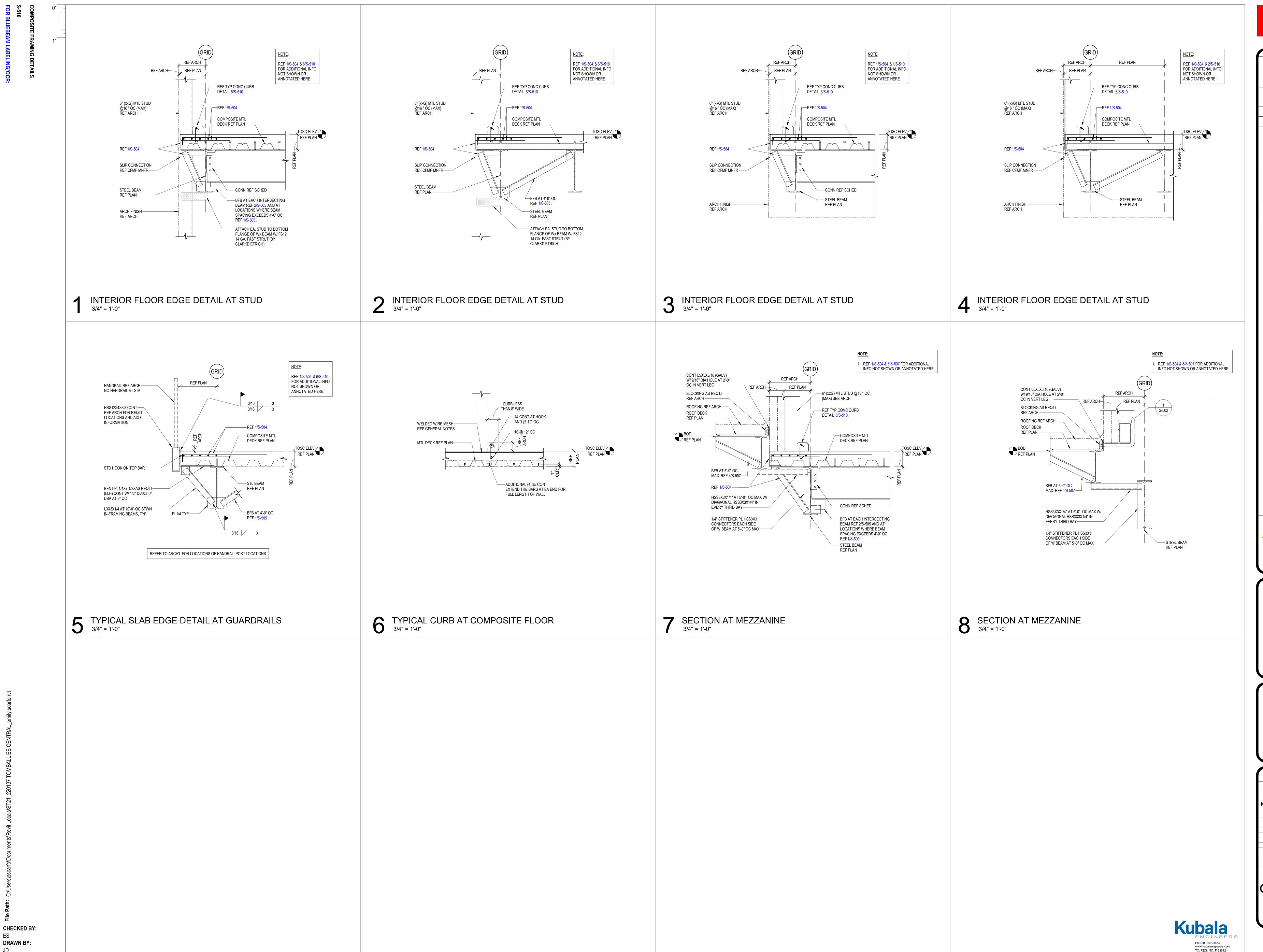
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11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P TX Firm: BR 1608 MEPT
LEAF ENGINEERS
T713-940-3300
FOOD SERVICE
FOODSERVICE
FOODSERVICE

JOHN R. KUBALA Kubala Engineers

TOMBALL ISD PROJECT NUMBER 220137 Date **ISSUE FOR PROPOSAL GENERAL STEEL NOTES AND TYP DETAILS**

TX. REG. NO. F-23612



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RBK

ERGEN ROAD ELEMENTARY SCHOOL

TOMBALL INDEPENDENT SCHOOL DISTRIC

JOHN R. KUBALA

JOHN R. KUBALA

02/27/2023

Kubala Engineers
F-23612

TOMBALL ISD

DATE PROJECT NUMBER 220137

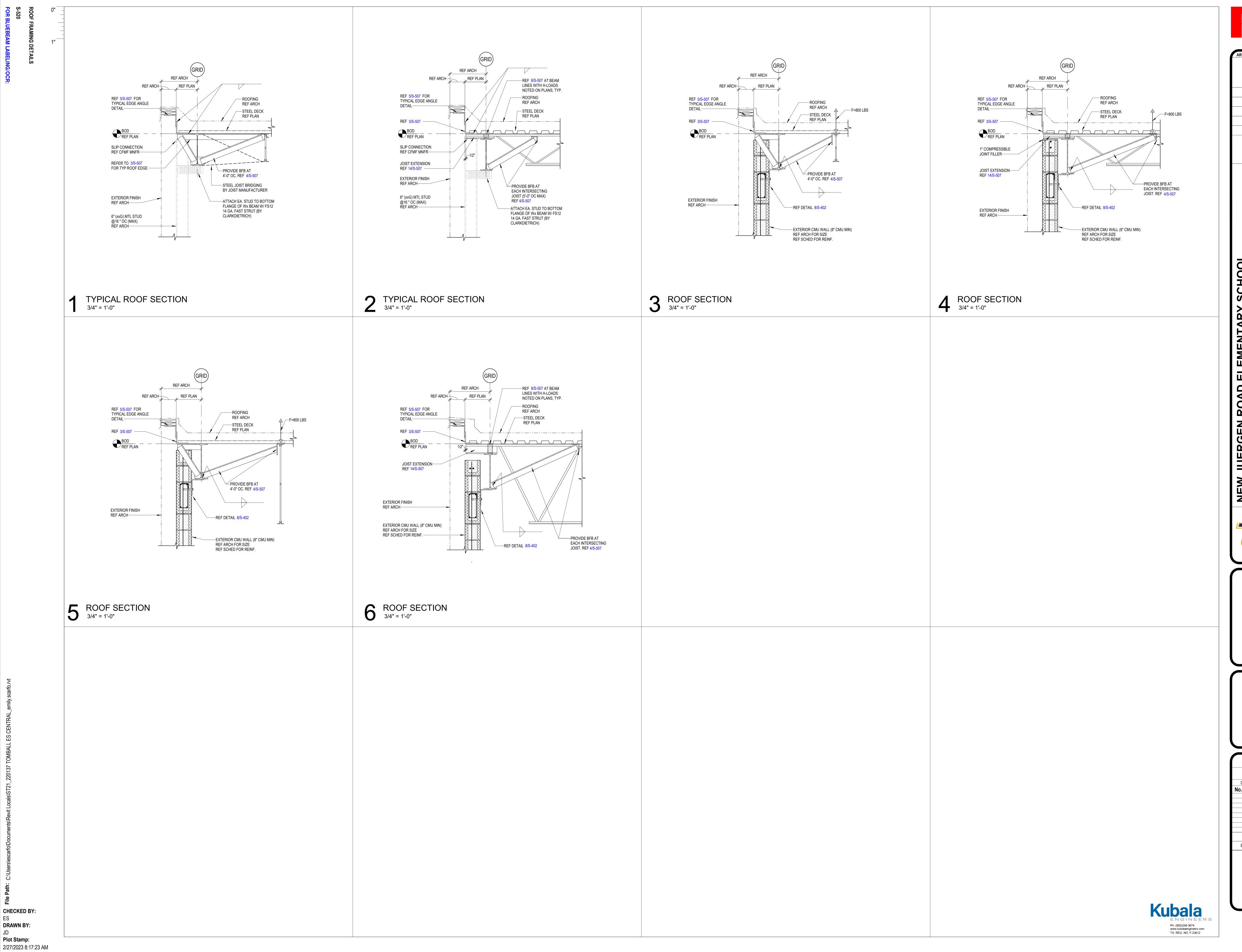
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No. Description Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

COMPOSITE FRAMING DETAILS



PBK

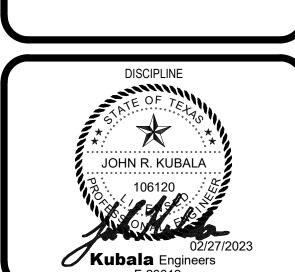
GEN ROAD ELEMENTARY SCHOOL

TOMBALL

SOURCE

TOMBALL

DEPENDENT SCHOOL DISTRICT



TOMBALL ISD

DATE PROJECT NUMBER 220137

DRAWING HISTORY

No. Description Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

ROOF FRAMING

DETAILS

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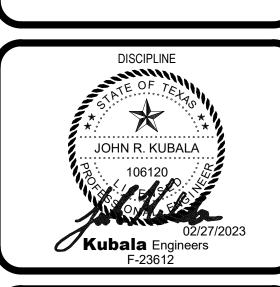
11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm: BR 1608

—DIAPHRAGM COLLECTOR REF NOTES FOR SIZE

----MTL ROOF DECK **REF PLAN**

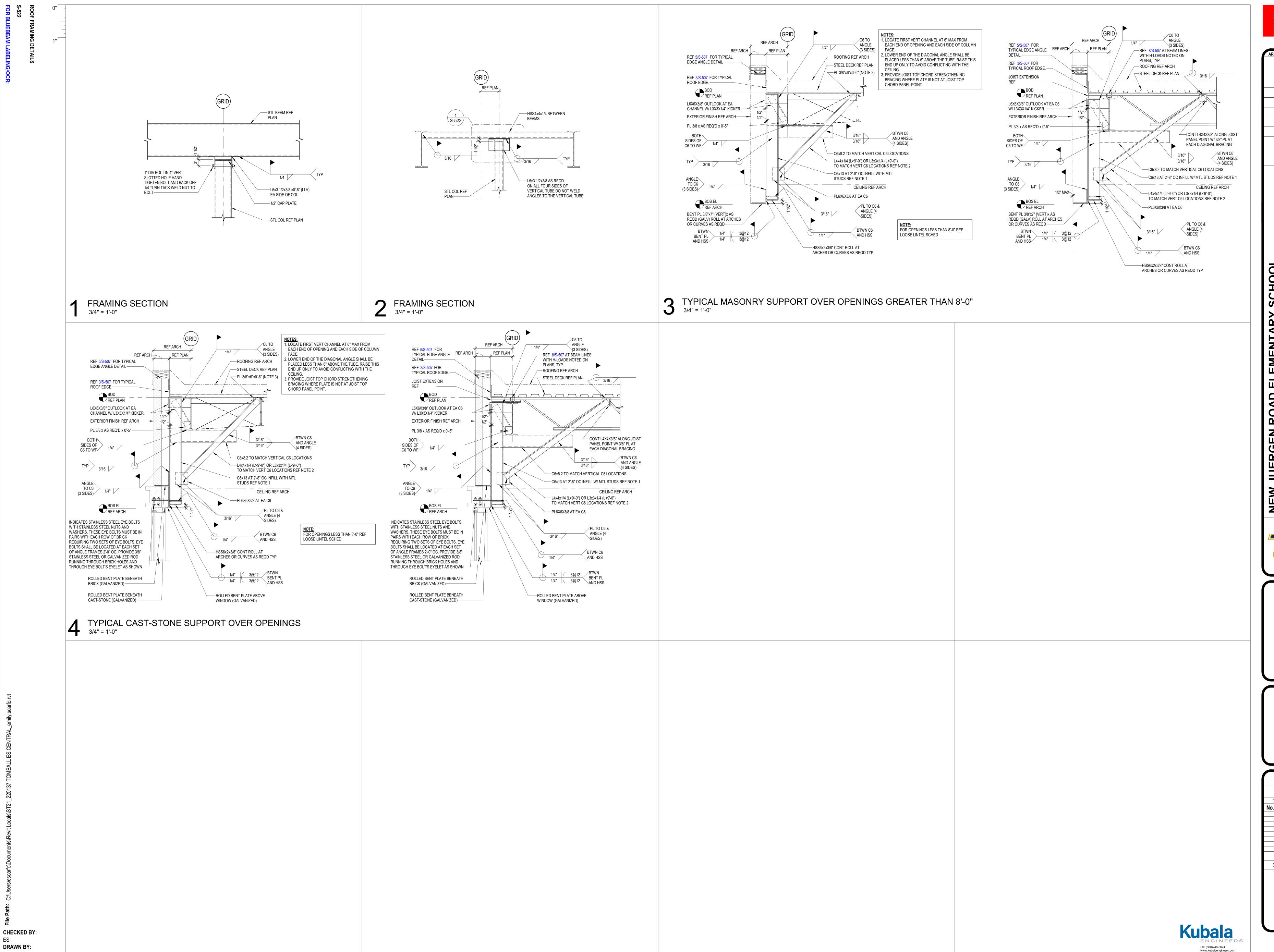
NOTCH WT FLANGE AT

JOISTS



TOMBALL ISD PROJECT NUMBER 220137 DRAWING HISTORY Date Description **ISSUE FOR PROPOSAL ROOF FRAMING DETAILS**

Kubala



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PBK

RGEN ROAD ELEMENTARY SCHOOL

TOMBALL INDEPENDENT SCHOOL DISTRIC

JOHN R. KUBALA

JOHN R. KUBALA

02/27/2023

Kubala Engineers
F-23612

CLIENT
TOMBALL ISD

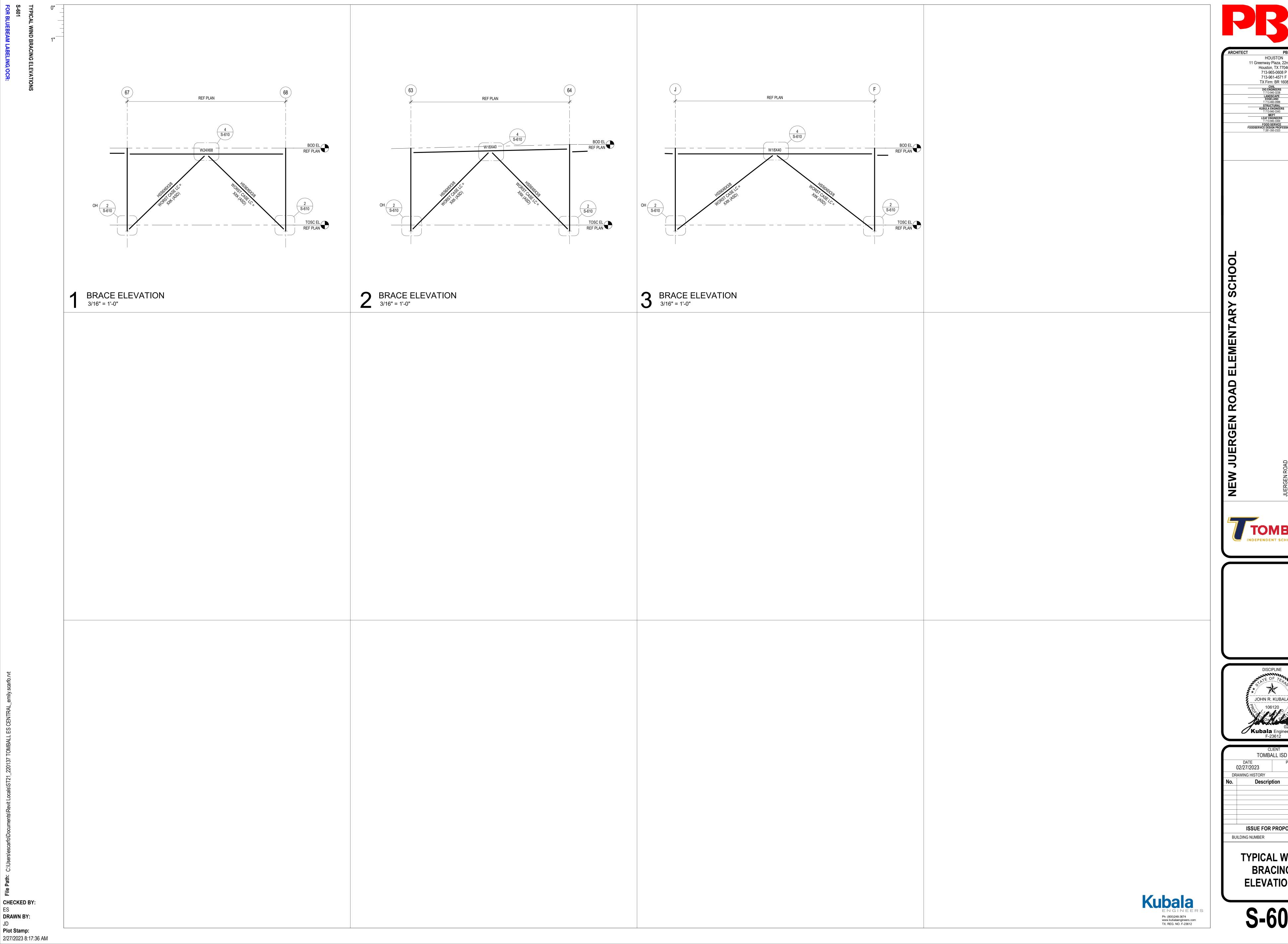
DATE
02/27/2023
DRAWING HISTORY

No. Description
Date

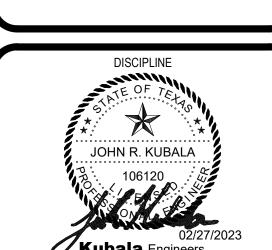
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BUILDING NUMBER

ROOF FRAMING
DETAILS

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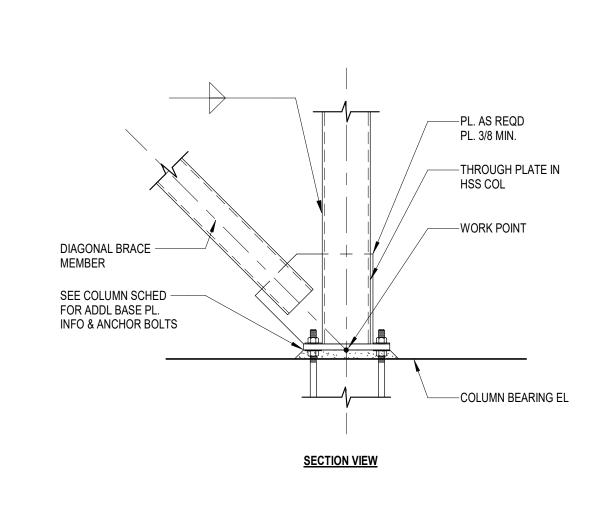
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P 713-961-4571 F TX Firm: BR 1608



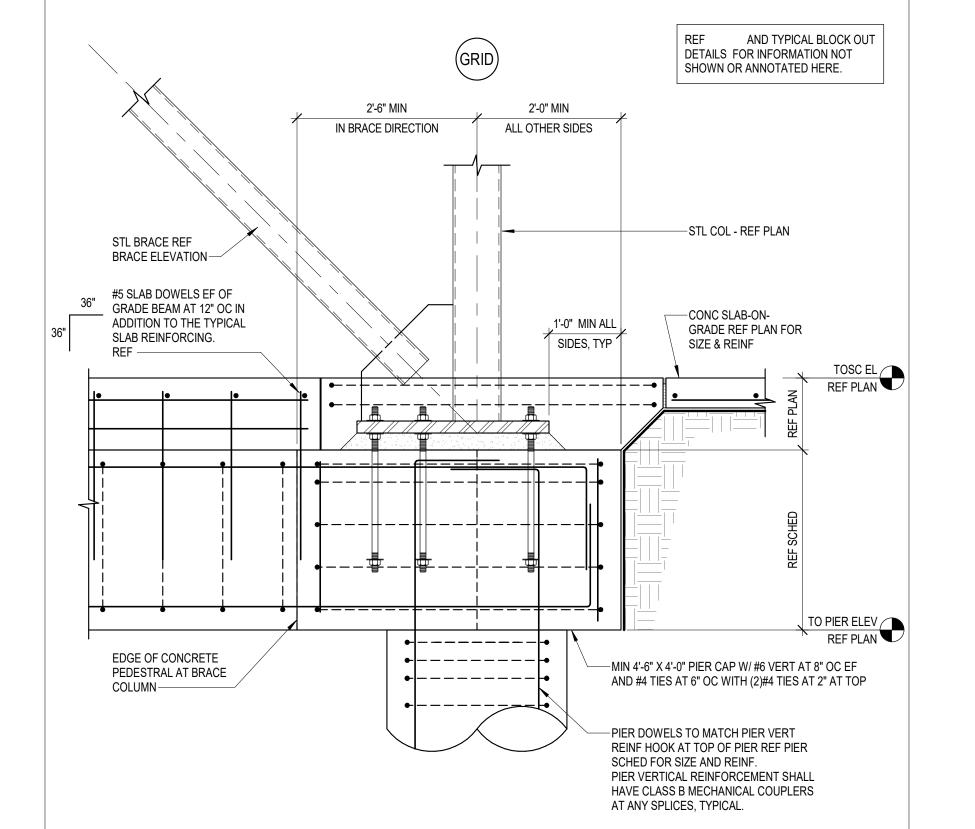
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BRAG	CING	
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VERTICAL BRACE NOTES:

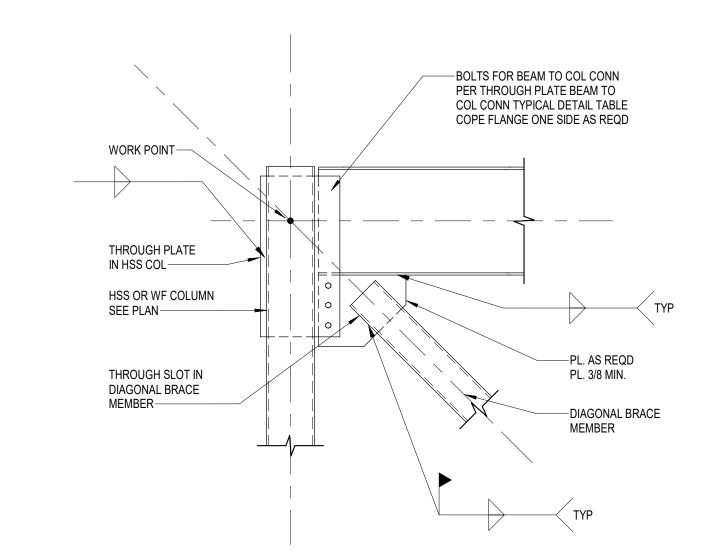
- 1. VERTICAL BRACE CONNECTIONS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS WORKING FOR THE FABRICATOR. SUBMIT CALCULATIONS IN ACCORDANCE WITH THE CONTRACT
- 2. MEMBER CONNECTIONS TO BE DESIGNED FOR FORCES (KIPS) SHOWN, FORCES INDICATED ARE FACTORED ACCORDING TO LOAD RESISTANCE FACTOR DESIGN METHOD (LRFD). WHERE FORCES ARE NOT GIVEN, DESIGN FOR THE TENSILE CAPACITY OF THE DIAGONAL MEMBERS.
- 3. CONNECTIONS SHALL BE DESIGNED AND DETAILED TO TRANSFER FORCES BETWEEN MEMBERS WITHOUT ECCENTRICITY.
- 4. CONNECTIONS SHALL BE DESIGNED AND DETAILED FOR BOTH TENSION AND COMPRESSION PER FORCES PROVIDED. 5. CONTRACTOR TO DESIGN AND DETAIL MEMBER CONNECTIONS ACCORDING TO LOAD RESISTANCE FACTOR DESIGN METHOD (LRFD) PUBLISHED BY AMERICAN INSTITUTE OF STEEL CONSTRUCTION. (AISC)
- 6. FILLET WILD CONNECTIONS SHALL COMPLY WITH REQUIREMENTS NOTED IN AWS D1.1



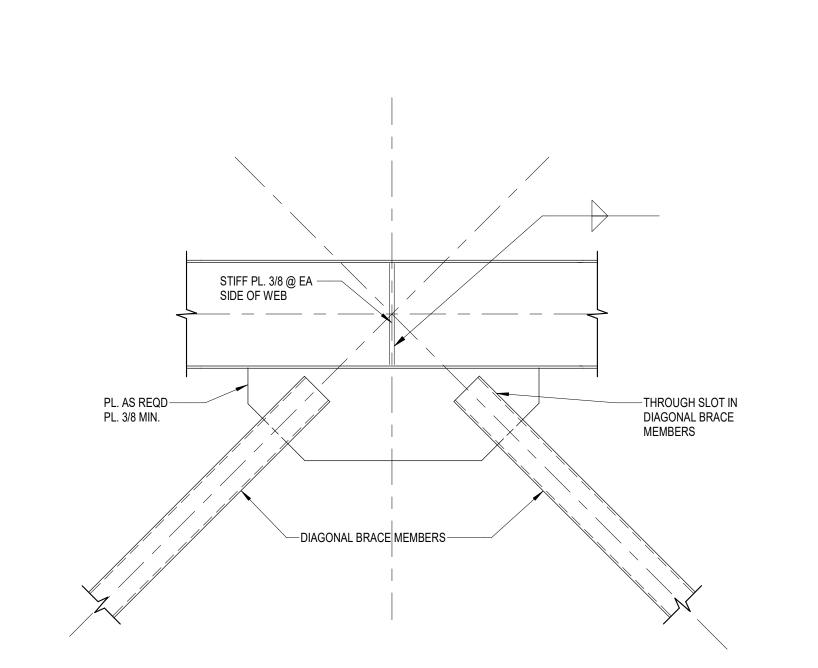
TYPICAL DETAIL OF VERTICAL BRACE CONNECTION NO SCALE



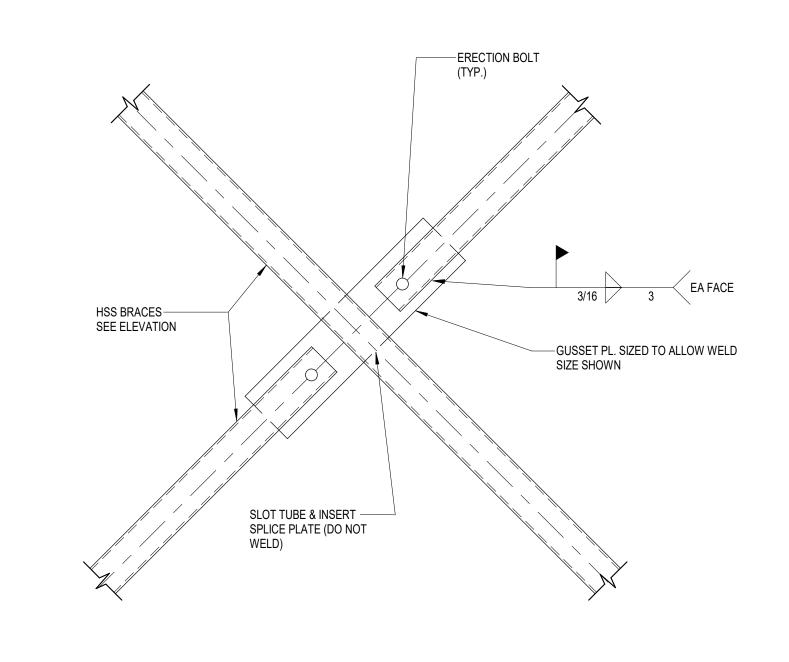
2 TYPICAL DETAIL OF VERTICAL BRACE CONNECTION NO SCALE



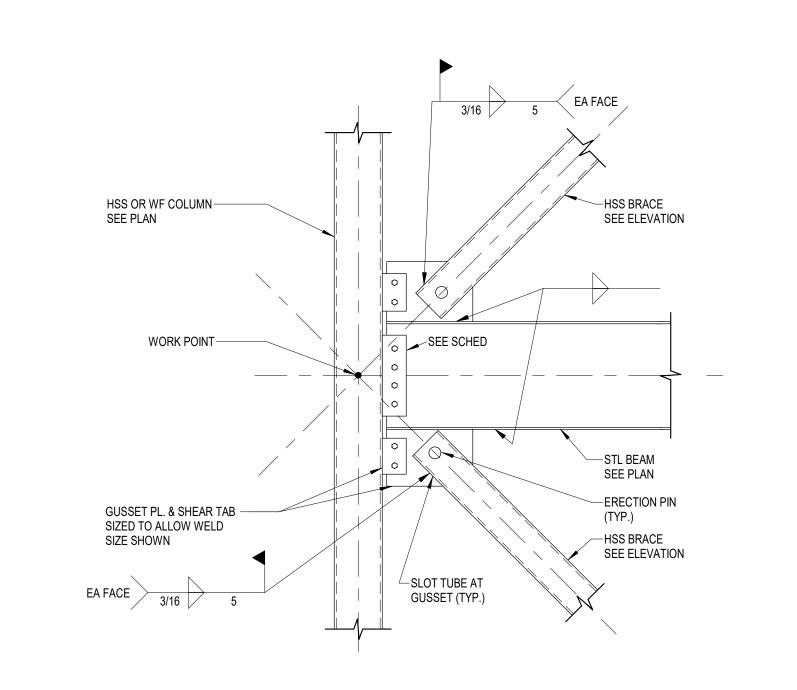
3 TYPICAL DETAIL OF VERTICAL BRACE CONNECTION NO SCALE



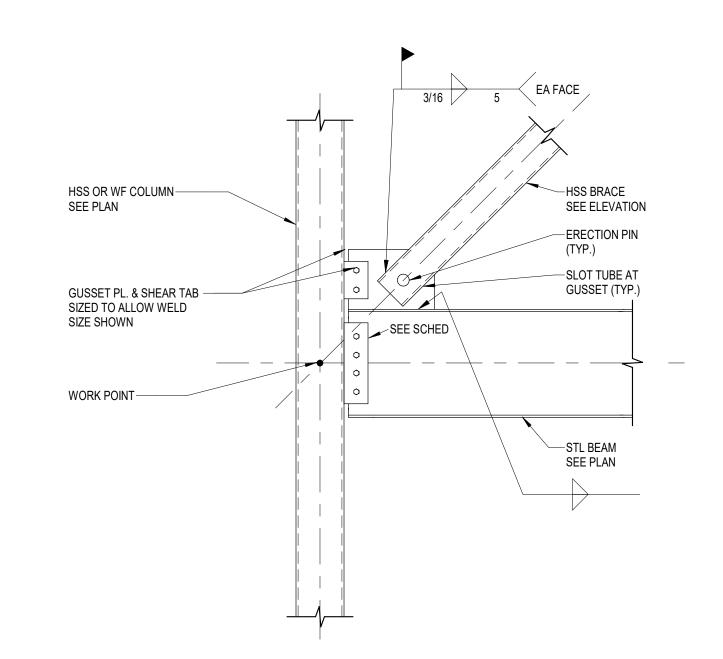
4 TYPICAL DETAIL OF VERTICAL BRACE CONNECTION NO SCALE



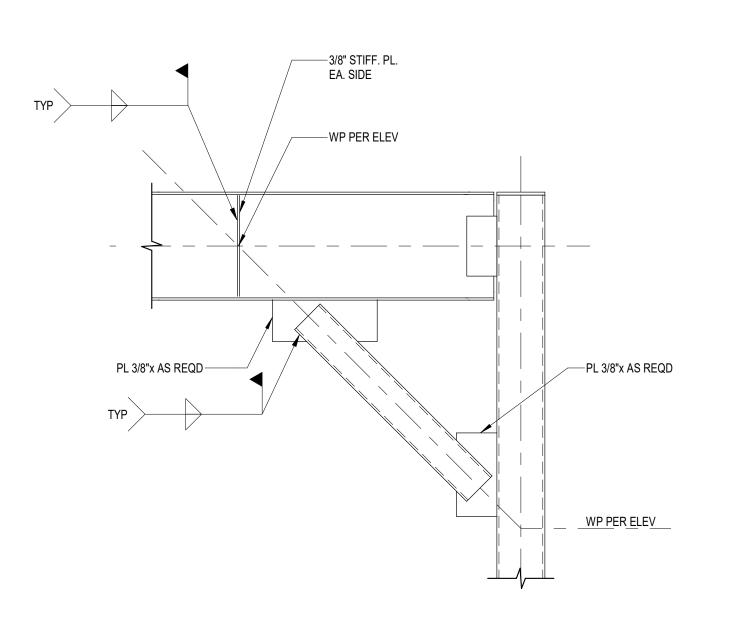
5 TYPICAL DETAIL OF TUBE X-BRACE NO SCALE



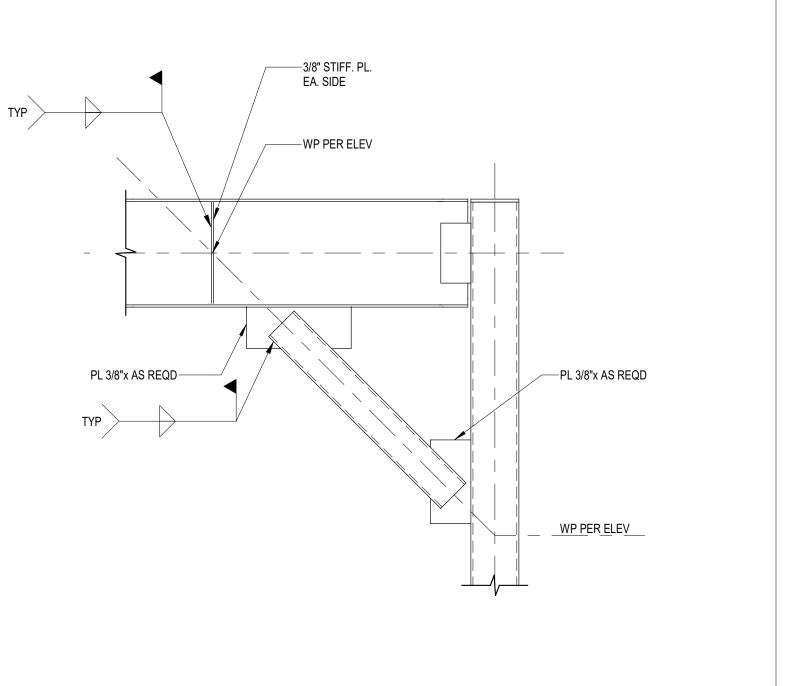
6 TYPICAL DETAIL OF TUBE K-BRACE AT WIDE FLANGE BEAM NO SCALE



7 TYPICAL DETAIL OF TUBE K-BRACE AT WIDE FLANGE BEAM NO SCALE



8 TYPICAL DETAIL OF VERTICAL BRACE CONNECTION NO SCALE





TOMBALL ISD PROJECT NUMBER 220137 Date Description **ISSUE FOR PROPOSAL** TYPICAL WIND **BRACING DETAILS**

11 Greenway Plaza, 22nd Floor

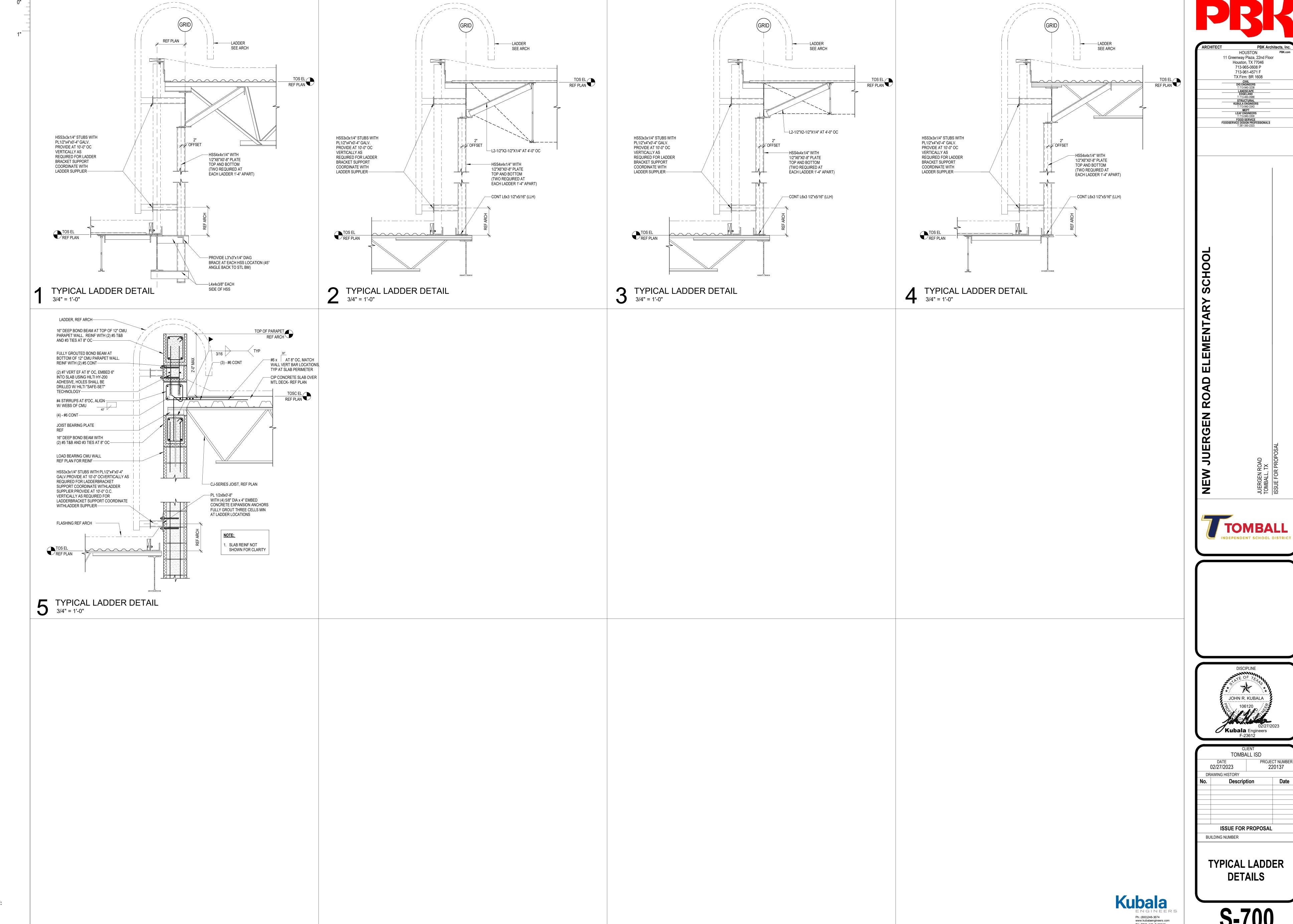
Houston, TX 77046

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TX Firm: BR 1608

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