City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

Code violations that are found during inspections are required to be corrected. Permit issuance does not grant approval of a code violation.

Structural plan review is limited to a general survey for code compliance. No review is implied nor was undertaken to verify structural adequacy.

RSN: 1881854 | PERMIT#: 25-2513934-CM

DESIGN LOADS & DESIGN DATA

1.			BUILDING CODE	2021 INTERNATIONAL BUILDING CODE (IBC)/ ASCE/ SEI 7-16 WITH LOCAL COUNTY AMENDMENTS		
2.			GRAVITY LOADS AND DESIGN DATA			
	A.		DEAD LOADS			
		1.	ROOF			
			STEEL FRAMING, METAL DECK, ETC.	SELF-WEIGHT		
			COLLATERAL	AS NOTED ON LOADING DIAGRAMS		
		2.	FLOOR			
			STEEL FRAMING, COMPOSITE SLAB, ETC.	SELF-WEIGHT		
			COLLATERAL	AS NOTED ON LOADING DIAGRAMS		
		3.	ROOF TOP MECHANICAL PLATFORM			
			STEEL FRAMING, GRATING, ETC.	SELF-WEIGHT		
			COLLATERAL	AS NOTED ON LOADING DIAGRAMS		
	B.		LIVE LOADS	UNIFORM	CONCENTRATED	
		1.	ROOF	AS NOTED ON LOADING DIAGRAMS	300 LBS	
		2.	FLOOR	AS NOTED ON LOADING DIAGRAMS	2,500 LBS	
		3.	ROOF TOP MECHANICAL PLATFORM	AS NOTED ON LOADING DIAGRAMS	300 LBS	
		4.	STAIRS & EXIT WAYS	100 PSF (UNREDUCIBLE)	300 LBS	
	C.		SNOW LOADS			
		1.	GROUND SNOW LOAD, P g	40 PSF		
		2.	FLAT SNOW LOAD, Pf	54 PSF		
		3.	SNOW EXPOSURE FACTOR, Ce	1.0		
		4.	SNOW OCCUPANCY CATEGORY	IV		
		5.	SNOW LOAD IMPORTANCE FACTOR, I	1.35		
		6.	THERMAL FACTOR, Ct	1.0		
		7.	SNOW DRIFTS	AS NOTED ON LOADING DIAGRAMS		
	D.	1.	1-HR RAIN INTENSITY, i	3.42 IN/H		
3.			LATERAL LOADS & DESIGN DATA			
	A.		WIND DESIGN DATA			
		1.	ULTIMATE DESIGN WIND SPEED, V ult	125 MPH (3-SECOND GUST) VOLUNTARY CLIENT - REQUESTED UPGRADE		
		2.	NOMINAL DESIGN WIND SPEED, V asd	96.8 MPH (3-SECOND GUST)		
		3.	WIND RISK CATEGORY	IV		
		4.	WIND IMPORTANCE FACTOR, I	1.0		
		5.	WIND EXPOSURE CATEGORY	C		
		6.	INTERNAL PRESSURE COEFFICIENT, GC pi	±0.18		
		7.	MEAN ROOF HEIGHT, h (DATA HALL BUILDING)	45'-4"		
		8.	WIDTH OF END ZONE, (a) (DATA HALL BUILDING)	17'-1"		
		9.	MEAN ROOF HEIGHT, h (OFFICE BUILDING)	39'-4 1/4"		
		10.	WIDTH OF END ZONE, (a) (OFFICE BUILDING)	15'-9"		
	B.		COMPONENTS AND CLADDING (DATA HALL BUILDING)			
		1.	WALLS		SURFACE PRESSURE (PSF)	
			AREA	10 SF	100 SF	500 SF
			NEGATIVE ZONE 4	-42.5	-36.7	-32.7
			NEGATIVE ZONE 5	-52.3	-40.8	-32.7
			POSITIVE ZONE 4 & 5	39.2	33.5	29.4
		2.	PARAPET		SURFACE PRESSURE (PSF)	
			AREA	10 SF	100 SF	500 SF
			CASE A: ZONE 2	120.5	94.5	76.4
			CASE A: ZONE 3	120.5	94.5	76.4
			CASE B: ZONE 2	-71.2	-59.2	-50.8
			CASE B: ZONE 3	-81.3	-63.4	-50.8
		3.	ROOF		SURFACE PRESSURE (PSF)	
			AREA	10 SF	50 SF	100 SF
			NEGATIVE ZONE 1	-68.3	-57.8	-53.3
			NEGATIVE ZONE 1'	-39.2	-39.2	-39.2
			NEGATIVE ZONE 2 & 3	-90.1	-76.7	-70.9
			POSITIVE ZONE 1 & 1'	17.4	16.0	16.0
			POSITIVE ZONE 2 & 3	39.2	35.2	33.5
			OVERHANG ZONE 1 & 1'	-61.8	-59.2	-58.1
			OVERHANG ZONE 2 & 3	-83.6	-65.6	-57.9
	C.		COMPONENTS AND CLADDING (OFFICE BUILDING)			
		1.	WALLS		SURFACE PRESSURE (PSF)	
			AREA	10 SF	100 SF	500 SF
			NEGATIVE ZONE 4	-41.4	-35.8	-31.8
			NEGATIVE ZONE 5	-50.9	-39.7	-31.8
			POSITIVE ZONE 4 & 5	38.2	32.6	28.6
		2.	PARAPET		SURFACE PRESSURE (PSF)	
			AREA	10 SF	100 SF	500 SF
			CASE A: ZONE 2	114.7	90.0	72.8
			CASE A: ZONE 3	147.0	103.3	72.8
			CASE B: ZONE 2	-67.8	-56.4	-48.4
			CASE B: ZONE 3	-77.4	-60.3	-48.4
		3.	ROOF		SURFACE PRESSURE (PSF)	
			AREA	10 SF	50 SF	100 SF
			NEGATIVE ZONE 1	-66.5	-56.3	-51.9
			NEGATIVE ZONE 1'	-38.2	-38.2	-38.2
			NEGATIVE ZONE 2	-87.7	-74.6	-69.0
			NEGATIVE ZONE 3	-119.5	-93.4	-82.1
			POSITIVE ALL ZONES	17.0	16.0	16.0
			OVERHANG ZONE 1 & 1'	-60.1	-57.7	-56.6
			OVERHANG ZONE 2	-81.3	-63.9	-56.4
			OVERHANG ZONE 3	-113.2	-82.6	-69.5
	D.		ROOFTOP MECHANICAL PLATFORM (ASCE 7-16, SEC 29.4.1)			
		1.	BUILDING LENGTH, L	1071'-1 3/4"		
		2.	BUILDING WIDTH, B	171'-4"		
		3.	PRODUCT OF EXTERNAL PRESSURE COEFFICIENT AND GUST-EFFECT FACTOR TO BE USED IN DETERMINATION OF WIND LOADS FOR ROOFTOP STRUCTURES, (GCr)	1.5		
		4.	BASE PRESSURE, q h	36.3 PSF		
		5.	WIND NORMAL TO BUILDING LENGTH	485.2 KIPS		
		6.	WIND NORMAL TO BUILDING WIDTH	98.2 KIPS		
		7.	VERTICAL WIND PRESSURE	1368.8 KIPS		
	E.		SEISMIC DESIGN DATA (DATA HALL BUILDING & OFFICE BUILDING)			
		1.	SEISMIC OCCUPANCY CATEGORY	IV		
		2.	SEISMIC IMPORTANCE FACTOR, I	1.50		
		3.	SHORT PERIOD MAPPED SPECTRAL RESPONSE ACCELERATION, S s	0.186g		
		4.	1-SEC PERIOD MAPPED SPECTRAL RESPONSE ACCELERATION, S 1	0.054g		
		5.	SITE CLASS	D		
		6.	SHORT PERIOD SPECTRAL RESPONSE COEFFICIENT, S DS	0.199g		
		7.	1-SEC PERIOD SPECTRAL RESPONSE COEFFICIENT, S D1	0.087g		
		8.	SEISMIC DESIGN CATEGORY	C		
		9.	RESPONSE MODIFICATION FACTOR, R	3.00		
		10.	SYSTEM OVERSTRENGTH FACTOR, Ω	3.00		
		11.	DEFLECTION AMPLIFICATION FACTOR, Cd	3.00		
		12.	SEISMIC RESPONSE COEFFICIENT, Cs	0.054		
		13.	DESIGN BASE SHEAR, V	0.054W		
		14.	BASIC SEISMIC FORCE-RESISTING SYSTEM	STRUCTURAL STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE		
		15.	ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE PROCEDURE		
	F.		SEISMIC DESIGN DATA (ROOFTOP MECHANICAL PLATFORM)	NONBUILDING STRUCTURES SIMILAR TO BUILDINGS, SECTION 15.3.1, ASCE 7-16		
		1.	HEIGHT IN STRUCTURE OF POINT OF ATTACHMENT OF COMPONENT WITH RESPECT TO THE BASE, z	55'-0"		
		2.	SEISMIC DESIGN CATEGORY	C		
		3.	MECHANICAL AND ELECTRICAL COMPONENT	ROOF-MOUNTED STACKS, COOLING AND ELECTRICAL TOWERS LATERALLY BRACED BELOW THEIR CENTER OF MASS, ASCE 7-16, TABLE 13.6-1		
		4.	COMPONENT AMPLIFICATION FACTOR, a p	2.50		
		5.	COMPONENT RESPONSE MODIFICATION FACTOR, R p	3.00		
		6.	OVER-STRENGTH FACTOR, Ω 0	2.00		
		7.	SEISMIC DESIGN FORCE, F p	0.30W (ASCE 7-16, SEC 13.3.1)		
4.			DEFLECTION LIMITS			
	A.		ROOF MEMBERS			
		1.	LIVE LOAD MAXIMUM ALLOWABLE DEFLECTION	L/360, REF ROOF DEFLECTION DIAGRAMS FOR ADDITIONAL INFORMATION		
		2.	TOTAL LOAD MAXIMUM ALLOWABLE DEFLECTION	L/240, REF ROOF DEFLECTION DIAGRAMS FOR ADDITIONAL INFORMATION		
	B.		FLOOR MEMBERS			
		1.	LIVE LOAD MAXIMUM ALLOWABLE DEFLECTION	L/360, REF FLOOR DEFLECTION DIAGRAMS FOR ADDITIONAL INFORMATION		
		2.	TOTAL LOAD MAXIMUM ALLOWABLE DEFLECTION	L/240, REF FLOOR DEFLECTION DIAGRAMS FOR ADDITIONAL INFORMATION		
	C.		BUILDING FRAME			
		1.	MAXIMUM ALLOWABLE STORY DRIFT	H/400 (BASED ON 50-YR WIND)		
5.			FIRE RESISTANCE RATING INFORMATION			
	A.		STRUCTURAL FRAME			
		1.	FRAME RATING	UNRESTRAINED		

4 DESIGN LOADS AND DESIGN DATA
12" = 1'-0"

QTS Freedom Standard - Version Matrix
Project: QTS DEN1-DC2

V3.0-rev2

Design Deliverable:
QTS Design Standards will be utilized as the Basis Of Design for the Data Center Building.
Design Consultant team to notate Version of QTS Design Standards.

Design Discipline	QTS Design Standard		
	Design Narrative	DD Drawing Set	Reference File
Civil	V3.0	N/A	
General	V3.0	V3.0	
Structural	V3.0	V3.0	
Architectural	V3.0	V3.0	
Fire Alarm	V3.0	V3.0	
Fire Protection	V3.0	V3.0	
Plumbing	V3.0	V3.0	
Process (I&C)	See Below	V3.0	
Mechanical	V3.0	V3.0	
Electrical	V3.0	V3.0	
Technology (Telecom)	V3.0	V3.0	
Audio Visual	N/A	V3.0	
Security	V3.0	V3.0	
Interior Standards	V3.0	See Architectural	3.0-rev1
Signage			INTrev4 EXTrev3
SDIs	N/A	N/A	SDI-018(v3.0) thru 44
OFCI Catalog	V4.0		
SOO Catalog	V2.0		

Design Discipline	Q-Systems Design Standard BODs Version
Data Telecom BOD	Freedom Standard - Data Telecom - 04.14.2024
Physical Security BOD	Freedom Standard - Security Systems - 05.10.2024
DCIM - BMS BOD	Freedom Standard - BMS Content Consolidation - 04.16.2024
DCIM - EPMS BOD	Freedom Standard - EPMS Content Consolidation - 04.16.2024

ABBREVIATION LEGEND

ABBR	DEFINITION
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADD'L	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ARCH	ARCHITECTURAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BFF	BELOW FINISHED FLOOR
BL	BLOCK LINTEL
BM	BEAM
BO	BOTTOM OF
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
BTWN	BETWEEN
CGS	CENTROID OF TENDONS
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CJP	COMPLETE JOINT PENETRATION
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONN	CONNECTION
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
DIA	DIAMETER
DBA	DOWEL BAR ANCHOR
DL	DEAD LOADS
DT	DOUBLE TEE
EA	EACH
EDC	ELECTRICAL DISTRIBUTION CENTER
EF	EACH FACE
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EQ	EQUAL
EQUIV	EQUIVALENT
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FABR	FABRICATOR
FDN	FOUNDATION
FF	FINISHED FLOOR
FM	FACTORY MUTUAL
FRP	FIBER REINFORCED PLASTIC
FS	FAR SIDE
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GER	GEOTECHNICAL ENGINEER OF RECORD
GR	GRADE
GYP BD	GYPSUM BOARD
H	HEIGHT
HI	HIGH
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
IBC	INTERNATIONAL BUILDING CODE
INFO	INFORMATION
INT	INTERIOR
ISO	ISOLATION
IT	INVERTED TEE
JBE	JOIST BEARING ELEVATION
JST	JOIST
JT	JOINT
KIP	1000 POUNDS
KSI	KIPS PER SQUARE INCH
L	LENGTH
Ld	TENSION DEVELOPMENT LENGTH AS SHOWN IN REINFORCING LAP SCHEDULE
LB	POUNDS
LL	LIVE LOAD

ABBR	DEFINITION
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LO	LOW
LOC	LOCATION
LONG	LONGITUDINAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
LWC	LIGHT WEIGHT CONCRETE
MAX	MAXIMUM
MC	MOMENT CONNECTION
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTL	METAL
NIC	NOT IN CONTRACT
NO	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE (150 PCF)
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OPPOSITE HAND
PAF	POWDER ACTUATED FASTENER
PCC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PCI	PRECAST AND PRESTRESSED CONCRETE INSTITUTE
PE	PROFESSIONAL ENGINEER
PEMB	PRE-ENGINEERED METAL BUILDING
PENTR	PENETRATION
PL	PLATE
PLAM	PLASTIC LAMINATE
PLF	POUNDS PER LINEAR FOOT
PP	PARTIAL PENETRATION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POST-TENSIONING
PTI	POST-TENSIONING INSTITUTE
QTY	QUANTITY
RAF	RAISED ACCESS FLOOR
REF	REFER TO
REINF	REINFORCING
REQD	REQUIRED
REV	REVERSE
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
SCHED	SCHEDULE
SE	STRUCTURAL ENGINEER
SHT	SHEET
SIM	SIMILAR
SJI	STEEL JOIST INSTITUTE
SOG	SLAB ON GRADE
SPECS	SPECIFICATIONS
STAG	STAGGERED
STIFF	STIFFENER
STL	STEEL
STRUC	STRUCTURAL
T&B	TOP AND BOTTOM
TB	TOP OF BEAM
TC	TRANSFER COLUMN
THK	THICKNESS
TO	TOP OF
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOGB	TOP OF GRADE BEAM
TOM	TOP OF MASONRY
TOP	TOP OF PAVING
TOS	TOP OF STEEL
TOSC	TOP OF STRUCTURAL CONCRETE
TOW	TOP OF WALL
TRANS	TRANSVERSE
T&S	TEMPERATURE AND SHRINKAGE
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W	WIDTH
WP	WORK POINT
WWF	WELDED WIRE FABRIC

3 ABBREVIATION LEGEND
12" = 1'-0"

DELEGATED DESIGN

D1 ENGINEERING DESIGN FOR DELEGATED DESIGN SUBMITTALS PERFORMED BY CONTRACTORS:
A. THE CONTRACTOR OR RESPONSIBLE SUBCONTRACTOR SHALL HAVE A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT JURISDICTION PERFORM ENGINEERING DESIGN OF THE DELEGATED DESIGN SUBMITTALS AS NOTED BELOW.
B. EACH DELEGATED DESIGN SUBMITTAL SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT JURISDICTION.
C. EACH DELEGATED DESIGN SUBMITTAL SHALL BE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

DD2 THE CONTRACTOR SHALL PROVIDE DELEGATED DESIGN SUBMITTAL FOR:
A. ANCHORAGE AND BRACING OF INTERIOR MP EQUIPMENT - SEISMIC DESIGN CATEGORY C AND GREATER AND ALL EXTERIOR MEP EQUIPMENT REGARDLESS OF SEISMIC DESIGN CATEGORY INCLUDING BUT NOT LIMITED TO:
1. CHILLERS
2. GENERATORS
3. AHU/CRAH
4.SWITCHGEAR
5. TRANSFORMERS
6.BUSWAYS
7. HVAC DUCTWORK
B. DISTRIBUTED SYSTEM (PIPING AND CONDUIT) ANCHORAGE AND BRACING
C. UNISTRUT FRAMING
D. PRE-FABRICATED METAL STAIRS, MID-LANDINGS, AND PLATFORMS.
E. ARCHITECTURAL METALS, ACCESS LADER, AND FALL ARREST SYSTEM.
F. PRE-FABRICATED HANDRAILS AND ANCHORAGE.
G. ELEVATOR GUIDERAIL SUPPORT FRAMING AND ANCHORAGE.
H. LOVERED SCREENWALL AND ANCHORAGE.
J. INTERIOR AND EXTERIOR COLD-FORMED METAL FRAMING.
K. ARCHITECTURAL SUSPENDED CEILING SYSTEM.
L. CURTAIN WALL SYSTEM.
M. STRUCTURED CEILING GRID SYSTEM.
N. FIRE SPRINKLERS SUPPORT SYSTEM AND ANCHORAGE.
P. INSULATED PRECAST CONCRETE NON LOAD- BEARING PANELS AND CONNECTIONS.
Q. PRE-FABRICATED GUARD BOOTH

DD3 INTERIOR MEP EQUIPMENT REQUIRES POSITIVE ATTACHMENT PER APLLICABLE BUILDING CODE OR AS REQUIRED BY MANUFACTURER (MOST STRINGENT SHALL GOVERN).

DD4 REFER TO MEP SPECIFICATION FOR ADDITIONAL INFORMATION.

DD5 WHEN SUBMITTING, INDICATE LOCATION, DIRECTION, AND MAGNITUDE OF LOADS WHICH ARE APPLIED TO PRIMARY STRUCTURE. CONNECTIONS TO PRIMARY STRUCTURE SHALL NOT IMPOSE TORSION TO THE SUPPORTING BEAM/JOISTS.

DD6 ALL POST-INSTALLED ANCHORS TO PRIMARY STRUCTURAL FRAMING SHALL HAVE ICC-ESR APPROVALS SUBMITTED TO THESTRUCTURAL ENGINEER OF RECORD FOR REVIEW AND APPROVAL.

6 DELEGATED DESIGN
12" = 1'-0"
A

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
TOS EL 115'-0"	LEVEL ELEVATION
EL 115'-0"	SPOT ELEVATION
	VERTICAL BRACE
	LOAD BEARING CMU WALL AND/OR SHEARWALL
	LOAD BEARING CONC WALL AND/OR SHEARWALL
	MATCHLINE
4 S3.10 DETAIL / SECTION DESIGNATION	DETAIL / SECTION REFERENCE CUT
4 S3.10	PARTIAL PLAN OR PLAN DETAIL REFERENCE
1 S-201	VERTICAL BRACE, SHEARWALL OR TRUSS ELEVATION REFERENCE
	SLOPE IN STRUCTURE, DROP IN STRUCTURE, RIDGES AND VALLEYS
RTU-1 UNIT DESIGNATION PER MEP DRAWINGS REF SCHED FOR FULL OPERATING WEIGHT	MEP EQUIPMENT
*FACTORED TOTAL LOAD; JOIST DEPTH; DDCJ XXX / YYY / ZZZ; *FACTORED POST COMPOSITE LIVE LOAD; *FACTORED POST COMPOSITE DEAD LOAD NOTES: 1. (*) DENOTES ALL JOIST GIRDER POINT LOADS ARE SERVICE LEVEL. 2. WHERE APPLICABLE, REFER TO DESIGN LOAD & DESIGN DATA TABLE FOR ULTIMATE ROOF WIND LOAD PRESSURES FOR COMPOSITE JOIST DESIGN.	COMPOSITE JOIST (CJ) KEY
STEEL COLUMN; STEEL BEAM; DENOTES MOMENT CONNECTION (REF TYPICAL STEEL DETAILS FOR MOMENT CONN REQUIREMENTS)	MOMENT CONNECTION
HSS6x6x1/4 BP1; SPECIAL BASE PL TYPE; F1 FOOTING TYPE; 97'-0" TOP OF FOOTING ELEVATION W10X33 BP1; SPECIAL BASE PL TYPE; P1 PIER TYPE; 97'-0" TOP OF PIER ELEVATION	COLUMN, BASE PLATE AND FOUNDATION MARK
NUMBER OF HEADED SHEAR CONNECTORS (IF REQD); STL BEAM SIZE; VERT BEAM REACTION IN KIPS (LRFD); BEAM CAMBER (INCHES) (IF REQD); HORIZONTAL COLLECTOR / DRAG FORCE IN KIPS ON BOTH SIDES OF COLUMN (LRFD) (IF REQD); 15K W14x22 (20) C=3/4" 15K; H=15K; [-6"]; TO BEAM IF DIFFERENT FROM REFERENCE EL; COLLECTOR / DRAG CONNECTION (IF REQD)	STEEL BEAM KEY

2 SYMBOLS LEGEND
1/8" = 1'-0"

EQUIPMENT WEIGHT SCHEDULE

DESIGNATION	EQUIPMENT TYPE	FULLY LOADED OPERATING WEIGHT (LB)
AHU	AIR HANDLING UNIT	50,000
GEN	GENERATOR	110,000
XFMR	TRANSFORMER	20,000
UPS	UPS PODS	145,500
VS	VISTA SWITCHES	10,000
SG MAU	SWITCHGEAR	2,100
MAU	MAKEUP AIR UNIT	4,900
RU-RTXX	ROOF TO UNIT	10,000 MAX
CF	CHILLER FILTER	3,100
CHILLER	CHILLER UNIT	55,000
THST	THERMAL STORAGE TANK	60,000 MAX

5 EQUIPMENT WEIGHT SCHEDULE
12" = 1'-0"

SHEET LIST

SHEET NUMBER	SHEET NAME
S0-00	GENERAL NOTES
S0-01	GENERAL NOTES
S0-02	GENERAL NOTES
S0-03	LOADING DIAGRAM
S0-04	LOADING DIAGRAM
S0-05	LOADING DIAGRAM
S0-06	LOADING DIAGRAM
S0-07	SNOW LOAD DIAGRAM
S0-08	SNOW LOAD DIAGRAM
S0-09	OVERALL 3D VIEW
S0-10	DEFLECTION DIAGRAM
S0-11	ROOF WIND UPLIFT DIAGRAM
S0-12	GENERAL NOTES
S1-10	OVERALL FOUNDATION PLAN
S1-10A	FOUNDATION PLAN - SEGMENT A
S1-10B	FOUNDATION PLAN - SEGMENT B
S1-10C	FOUNDATION PLAN - SEGMENT C
S1-10D	FOUNDATION PLAN - SEGMENT D
S1-10E	FOUNDATION PLAN - SEGMENT E
S1-10F	FOUNDATION PLAN - SEGMENT F
S1-10G	FOUNDATION PLAN - SEGMENT G
S1-10H	FOUNDATION PLAN - SEGMENT H
S1-10J	FOUNDATION PLAN - SEGMENT J
S1-10K	FOUNDATION PLAN - SEGMENT K
S1-10L	FOUNDATION PLAN - SEGMENT L
S1-10M	FOUNDATION PLAN - SEGMENT M
S1-10N	FOUNDATION PLAN - SEGMENT N
S1-10P	FOUNDATION PLAN - SEGMENT P
S1-10Q	FOUNDATION PLAN - SEGMENT Q
S1-10R	FOUNDATION PLAN - SEGMENT R
S1-10S	FOUNDATION PLAN - SEGMENT S
S1-10T	FOUNDATION PLAN - SEGMENT T
S1-11	PARTIAL FOUNDATION PLANS
S1-20	OVERALL SECOND FLOOR FRAMING PLAN
S1-20A	SECOND FLOOR FRAMING PLAN - SEGMENT A
S1-20B	SECOND FLOOR FRAMING PLAN - SEGMENT B
S1-20C	SECOND FLOOR FRAMING PLAN - SEGMENT C
S1-20D	SECOND FLOOR FRAMING PLAN - SEGMENT D
S1-20F	SECOND FLOOR FRAMING PLAN - SEGMENT F
S1-20Fb	LOWER SECOND FLOOR FRAMING PLAN - SEGMENT F
S1-20H	SECOND FLOOR FRAMING PLAN - SEGMENT H
S1-20Hb	LOWER SECOND FLOOR FRAMING PLAN - SEGMENT H
S1-20K	SECOND FLOOR FRAMING PLAN - SEGMENT K
S1-20Kb	LOWER SECOND FLOOR FRAMING PLAN - SEGMENT K
S1-20M	SECOND FLOOR FRAMING PLAN - SEGMENT M
S1-20Mb	LOWER SECOND FLOOR FRAMING PLAN - SEGMENT M
S1-20P	SECOND FLOOR FRAMING PLAN - SEGMENT P
S1-20Pb	LOWER SECOND FLOOR FRAMING PLAN - SEGMENT P
S1-20R	SECOND FLOOR FRAMING PLAN - SEGMENT R
S1-20Rb	LOWER SECOND FLOOR FRAMING PLAN - SEGMENT R
S1-20S	SECOND FLOOR FRAMING PLAN - SEGMENT S
S1-20T	SECOND FLOOR FRAMING PLAN - SEGMENT T
S1-21	SECOND FLOOR CHORD REINFORCING DIAGRAM
S1-30	OVERALL ROOF FRAMING PLAN
S1-30A	ROOF FRAMING PLAN - SEGMENT A
S1-30B	ROOF FRAMING PLAN - SEGMENT B
S1-30C	ROOF FRAMING PLAN - SEGMENT C
S1-30D	ROOF FRAMING PLAN - SEGMENT D
S1-30F	ROOF FRAMING PLAN - SEGMENT F
S1-30H	ROOF FRAMING PLAN - SEGMENT H
S1-30K	ROOF FRAMING PLAN - SEGMENT K
S1-30M	ROOF FRAMING PLAN - SEGMENT M
S1-30P	ROOF FRAMING PLAN - SEGMENT P
S1-30R	ROOF FRAMING PLAN - SEGMENT R
S1-30S	ROOF FRAMING PLAN - SEGMENT S
S1-30T	ROOF FRAMING PLAN - SEGMENT T
S1-31	ROOF CHORD REINFORCING DIAGRAM
S1-40	OVERALL PLATFORM FRAMING PLAN
S1-40F	PLATFORM FRAMING - SEGMENT F
S1-40H	PLATFORM FRAMING - SEGMENT H
S1-40K	PLATFORM FRAMING - SEGMENT K
S1-40M	PLATFORM FRAMING - SEGMENT M
S1-40P	PLATFORM FRAMING - SEGMENT P
S1-40R	PLATFORM FRAMING - SEGMENT R
S1-40T	PENTHOUSE ROOF FRAMING PLAN - SEGMENT T
S1-50	OVERALL PLATFORM GIRT FRAMING PLAN
S1-50F	PLATFORM GIRT FRAMING PLAN - SEGMENT F
S1-50H	PLATFORM GIRT FRAMING PLAN - SEGMENT H
S1-50K	PLATFORM GIRT FRAMING PLAN - SEGMENT K
S1-50M	PLATFORM GIRT FRAMING PLAN - SEGMENT M
S1-50P	PLATFORM GIRT FRAMING PLAN - SEGMENT P
S1-50R	PLATFORM GIRT FRAMING PLAN - SEGMENT R
S2-00	FRAME ELEVATIONS
S2-01	FRAME ELEVATIONS
S2-02	FRAME ELEVATIONS
S2-03	FRAME ELEVATIONS
S2-04	FRAME ELEVATIONS
S2-05	FRAME ELEVATIONS
S2-06	FRAME ELEVATIONS
S2-07	FRAME ELEVATIONS
S2-08	FRAME ELEVATIONS
S2-09	FRAME ELEVATIONS
S2-10	FRAME ELEVATIONS
S2-11	FRAME ELEVATIONS
S2-12	FRAME ELEVATIONS
S2-13	FRAME ELEVATIONS
S2-20	EXT STAIR FRAMING ELEVATIONS
S2-30	TYPICAL BRACING DETAILS
S3-00	PIER, GRADE BEAM SCHEDULE AND TYPICAL FOUNDATION DETAILS
S3-01	TYPICAL FOUNDATION DETAILS
S3-10	FOUNDATION DETAILS
S3-11	FOUNDATION DETAILS
S3-12	FOUNDATION DETAILS
S3-20	FOUNDATION DETAILS
S3-21	FOUNDATION DETAILS
S5-00	TYPICAL STEEL COLUMN DETAILS AND BASE PLATE SCHEDULE
S5-01	TYPICAL CONNECTION DETAILS
S5-02	TYPICAL STEEL FRAMING SECTIONS AND DETAILS
S5-03	TYPICAL STEEL FRAMING SECTIONS AND DETAILS
S5-04	TYPICAL STEEL FRAMING SECTIONS AND DETAILS
S5-05	STANDARD SHEAR PLATE CONNECTIONS
S5-06	DOUBLE ANGLE BOLTED-BOLTED CONNECTION
S5-07	DOUBLE ANGLE BOLTED-WELDED CONNECTION
S5-08	DOUBLE ANGLE WELDED-BOLTED CONNECTIONS
S5-09	EXTENDED SHEAR PLATE
S5-10	STEEL FLOOR FRAMING DETAILS
S5-11	STEEL FLOOR FRAMING DETAILS
S5-12	STEEL FLOOR FRAMING DETAILS
S5-13	STEEL FLOOR FRAMING DETAILS
S5-14	STEEL FLOOR FRAMING DETAILS
S5-20	STEEL ROOF FRAMING SECTIONS AND DETAILS
S5-21	STEEL ROOF FRAMING SECTIONS AND DETAILS
S5-22	STEEL ROOF FRAMING SECTIONS AND DETAILS
S5-23	STEEL ROOF FRAMING SECTIONS AND DETAILS
S5-24	STEEL ROOF FRAMING SECTIONS AND DETAILS
S5-30	PLATFORM FRAMING SECTION AND DETAILS
S5-31	PLATFORM FRAMING SECTION AND DETAILS

1 SHEET LIST
12" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLD DESIGN CONSULTING LLC

ISSUES		
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
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REVISIONS		
A	04.24.25	COA - PERMIT COMMENTS

COLORADO LICENSED PROFESSIONAL ENGINEER NICHOLAS W. DAVID 65236

AG&E Structural Engenuity
F-8435

Date of issue:
04.24.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

GENERAL NOTES

JOB 24464.0000
DATE 04.24.2025
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GENERAL:

G1 STRUCTURAL DRAWINGS AND SPECIFICATIONS ARE PROTECTED BY U.S.A. COPYRIGHT LAWS. DO NOT USE THESE STRUCTURAL DRAWINGS FOR ANY PURPOSE OTHER THAN CONSTRUCTION OF STRUCTURE FOR BUILDING DESCRIBED IN ARCHITECTURAL DRAWINGS AT LOCATION INDICATED.

G2 UNLESS NOTED OTHERWISE, GENERAL NOTES AND DETAILS IN DRAWINGS DESIGNATED AS "TYPICAL DETAILS," ARE APPLICABLE TO CONSTRUCTION IN ALL LOCATIONS WHERE CONDITIONS ARE SIMILAR.

G3 NOTES PROVIDED ON STRUCTURAL DRAWINGS DO NOT REPLACE CONTRACT SPECIFICATIONS. IN EVENT OF A CONFLICT BETWEEN THE TWO, THE MORE STRINGENT INTERPRETATION BASED ON SOLE DISCRETION OF STRUCTURAL ENGINEER SHALL APPLY.

G4 CONSTRUCTION SHALL CONFORM TO PROVISIONS OF SPECIFIED BUILDING CODE AND ALL STANDARDS REFERENCED THEREIN IN THEIR ENTIRETY, WITH ALL LOCALLY ADOPTED AMENDMENTS, REFERENCED THEREIN. IN EVENT OF A CONFLICT BETWEEN BUILDING CODE AND STRUCTURAL DRAWINGS AND SPECIFICATIONS, THE MORE STRINGENT INTERPRETATION BASED ON SOLE DISCRETION OF STRUCTURAL ENGINEER SHALL APPLY.

G5 COMPLY WITH ALL APPLICABLE BUILDING CODES, REGULATION AND SAFETY REQUIREMENTS. CONTRACTOR IS SOLELY RESPONSIBLE FOR SAFETY ON JOBSITE DURING CONSTRUCTION.

G6 UNLESS ACCOMPANIED BY A FORMAL CHANGE ORDER, RESPONSES TO QUESTIONS AND RFI'S, COMMENTS MADE DURING REVIEW OF SUBMITTALS, AND DIRECTIVES PROVIDED IN ANY FORM, BY STRUCTURAL ENGINEER TO CONTRACTOR DURING CONSTRUCTION PROCESS ARE INTENDED TO BE CLARIFICATIONS OF CONTRACT DOCUMENTS OR CORRECTIONS TO PERCEIVED INTERPRETATION OF INTENT OF CONTRACT DOCUMENTS BY CONTRACTOR. SUCH CLARIFICATIONS AND CORRECTIONS ARE NOT INTENDED TO REPRESENT A CHANGE IN COST OF PROJECT TO OWNER AND ARE CONSIDERED TO BE INFERABLE FROM CONTENT OF CONTRACT DRAWINGS OR CONSISTENT WITH INDUSTRY STANDARDS OF CONSTRUCTION. IF CONTRACTOR DETERMINES THAT SUCH CLARIFICATIONS AND CORRECTIONS HAVE AN IMPACT ON COST OF PROJECT TO OWNER, SUBMIT A CHANGE ORDER REQUEST WITH DETAILED PRICING INFORMATION TO ARCHITECT BEFORE PURCHASING, DETAILING, FABRICATING OR INSTALLING ANY COMPONENT RELATED TO SUCH CLARIFICATIONS AND CORRECTIONS.

G7 ROOF STRUCTURE AND ITS SUPPORTING ELEMENTS HAVE BEEN DESIGNED WITH THE ASSUMPTION THAT ADEQUATE AND SUFFICIENT DRAINAGE HAS BEEN PROVIDED TO PREVENT PONDING OF WATER.

G8 INFORM ARCHITECT IN WRITING OF ANY DISCREPANCIES OR OMISSIONS NOTED ON DRAWINGS OR IN SPECIFICATIONS. UPON RECEIPT OF SUCH INFORMATION, ARCHITECT WILL SEND WRITTEN CLARIFICATIONS TO ALL CONCERNED.

G9 DESIGN AND PROVIDE ADEQUATE SHORING, BRACING, AND FORMWORK, AS REQUIRED FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION OF BUILDING, WHICH IS SOLE RESPONSIBILITY OF CONTRACTOR.

G10 CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES.

G11 STRUCTURAL DRAWINGS ARE NOT TO BE VIEWED AS STAND ALONE DRAWINGS WITH RESPECT TO PROJECT DIMENSIONS OR ANY OTHER COMPONENT OF CONSTRUCTION THAT CAN AND MAY BE IDENTIFIED IN OTHER PARTS OF CONTRACT DOCUMENTS. REDUNDANT DIMENSIONS AND OTHER INFORMATION INDICATED ELSEWHERE IN CONTRACT DOCUMENTS MAY OR MAY NOT BE PROVIDED IN STRUCTURAL DRAWINGS. THE ENTIRE SET OF CONTRACT DOCUMENTS IS REQUIRED TO PROPERLY CONSTRUCT THE STRUCTURE AS WELL AS OTHER COMPONENTS OF BUILDING. ASSEMBLE AND COORDINATE REQUIREMENTS OF ALL COMPONENTS OF CONTRACT DOCUMENTS IN ORDER TO PROPERLY IMPLEMENT REQUIREMENTS OF CONTRACT. IF THERE IS SPECIFIC DIMENSIONAL OR OTHER INFORMATION THAT CONTRACTOR FEELS CAN NOT BE DETERMINED FROM CONTRACT DOCUMENTS AS A WHOLE, THEN CONTRACTOR SHALL BRING IT TO ATTENTION OF ARCHITECT.

G12 STRUCTURAL DRAWINGS ARE NOT TO BE VIEWED AS DETAILED SHOP OR ERECTION DRAWINGS. DETERMINE VARIOUS ANCILLARY DIMENSIONS REQUIRED FOR PROPER FIT-UP OF VARIOUS COMPONENTS OF STRUCTURE FROM INFORMATION PROVIDED IN CONTRACT DOCUMENTS. IT IS CONTRACTOR'S RESPONSIBILITY TO ESTABLISH WHERE SUCH ANCILLARY DIMENSIONS ARE NECESSARY AND TO CALCULATE AND VERIFY THESE DIMENSIONS AS REQUIRED TO ACHIEVE PROPER FIT-UP OF MATERIALS AND TO ACHIEVE COMPLIANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS AND CONSTRUCTION TOLERANCES.

G13 ANCHORS REQUIRED FOR ANCHORING MEP EQUIPMENT AND/OR PIPING ARE NOT INDICATED ON STRUCTURAL DRAWINGS. DETERMINE AND COORDINATE REQUIREMENTS FROM OTHER DISCIPLINES AND PROVIDE APPROPRIATE ALLOWANCES INTO BID. REFERENCE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF PIPES, VENTS, CHASES, DUCTS AND OTHER OPENINGS AND DETAILS NOT INDICATED ON STRUCTURAL DRAWINGS. CHECK AND VERIFY DIMENSIONS WITH ARCHITECTURAL DRAWINGS.

G14 DRAWINGS AND SPECIFICATIONS REPRESENT FINISHED STRUCTURE. UNLESS SO STATED OR NOTED, THEY DO NOT INDICATE COMPONENTS THAT ARE NECESSARY FOR SUPPORTING AND STABILIZING WORK DURING CONSTRUCTION OR MEANS AND METHODS OF CONSTRUCTION, ALL OF WHICH ARE RESPONSIBILITY OF CONTRACTOR. TEMPORARY BRACING, PROPERLY DESIGNED UNDER SUPERVISION OF A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN STATE IN WHICH PROJECT IS LOCATED, SHALL BE PROVIDED AS REQUIRED TO HOLD ALL COMPONENTS OF STRUCTURE IN PLACE UNTIL FINISHED STRUCTURE IS COMPLETE.

G15 INSPECTIONS, SPECIAL OR OTHERWISE, THAT ARE REQUIRED BY BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR CONTRACT DOCUMENTS, SHALL BE PROVIDED BY AN INDEPENDENT INSPECTION COMPANY.

G16 VARIOUS OPENINGS, DEPRESSIONS, RECESSES, SLOPES, BLOCKOUTS, CURBS, AND EMBEDMENTS NOT INDICATED IN STRUCTURAL DOCUMENTS MAY BE REQUIRED IN COMPLETED STRUCTURE BY OTHER DISCIPLINE CONTRACT DOCUMENTS. INCORPORATE AND COORDINATE SUCH ITEMS AND BRING CONSTRUCTION OR INSTALLATION ISSUE TO ATTENTION OF ARCHITECT. COORDINATE ATTACHMENT AND EMBEDMENTS REQUIRED BY MANUFACTURERS AND INSTALLERS OF VARIOUS EQUIPMENT AND FINISHES. BRING CONSTRUCTION OR INSTALLATION ISSUES TO ATTENTION OF ARCHITECT PRIOR TO FABRICATION OF MATERIALS OR INSTALLATION. INCLUDE AN ALLOWANCE IN BID PRICE SUFFICIENT TO ADEQUATELY COVER STRUCTURAL REQUIREMENTS FOR SUCH ITEMS WITHOUT NEED FOR A FUTURE CHANGE TO BID PRICE.

G17 ELEVATIONS PROVIDED IN STRUCTURAL DRAWINGS ARE RELATIVE ELEVATIONS AND ARE NOT INTENDED TO ESTABLISH ACTUAL SEA LEVEL ELEVATION OF STRUCTURE. REFER TO ARCHITECTURAL AND CIVIL DRAWINGS FOR ACTUAL SEA LEVEL ELEVATIONS OF VARIOUS ELEMENTS OF BUILDING.

G18 LOCATIONS AND LOADINGS FOR MECHANICAL EQUIPMENT ARE BASED ON UNITS INDICATED ON MECHANICAL DRAWINGS AND IN EQUIPMENT SCHEDULE. REPORT CHANGES IN LOCATION, TYPE, SIZE, WEIGHT, OR NUMBER OF PIECES OF EQUIPMENT TO ARCHITECT FOR VERIFICATION OF ADEQUACY OF SUPPORTING MEMBERS PRIOR TO PLACEMENT OF SUCH EQUIPMENT.

G19 SUBMIT, IN WRITING WITH REQUIRED BACKUP DATA, PROPOSED SUBSTITUTIONS OF MATERIALS, PRODUCTS OR DETAILS DEPICTED IN CONTRACT DOCUMENTS. SHOP DRAWINGS THAT ARE SUBMITTED FOR REVIEW DO NOT CONSTITUTE "NOTICE IN WRITING." PROPOSED SUBSTITUTIONS OR DEVIATIONS WILL NOT BE REVIEWED OR RESPONDED TO WITHOUT REQUIRED BACKUP DATA. CONTRACTOR SHALL REMAIN LIABLE FOR ANY SUBSTITUTION OR DEVIATION UNLESS ACKNOWLEDGMENT AND ACCEPTANCE IS PROVIDED BY ARCHITECT IN WRITING.

G20 COORDINATE GRADES WITH CIVIL ENGINEER'S GRADING PLAN AND LANDSCAPE ARCHITECT'S PLAN. NOTIFY ARCHITECT OF ANY DISCREPANCIES.

G21 DO NOT SCALE DRAWINGS IN STRUCTURAL DOCUMENTS FOR ANY PURPOSE, INCLUDING DETERMINATION OF QUANTITIES AND FIT UP OF MATERIALS.

G22 OBTAIN ALL CONTRACT DOCUMENTS AND LATEST ADDENDA AND SUBMIT SUCH DOCUMENTS TO SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FABRICATION OF STRUCTURAL MEMBERS, AND CONSTRUCTION.

G23 UNLESS SPECIFICALLY INDICATED ON STRUCTURAL DRAWINGS, LOCATION OF EXISTING SUBGRADE UTILITIES OR OTHER OBSTRUCTIONS IS UNKNOWN. NOTIFY ARCHITECT OF CONFLICT OF DISCOVERED ITEMS WITH CONSTRUCTION OF NEW FOUNDATION ELEMENTS.

G24 UNLESS NOTED OTHERWISE, NO PROVISION HAS BEEN MADE IN STRUCTURAL DESIGN FOR FUTURE VERTICAL EXPANSION.

SHOP DRAWINGS:

SDR1 REVIEW ALL SUBMITTALS FOR COMPLIANCE WITH CONTRACT DOCUMENTS AND CERTIFY REVIEW BY A STAMP NOTING THAT SUBMITTAL HAS BEEN "APPROVED" AND WHICH BEARS SIGNATURE OF AN AUTHORIZED REPRESENTATIVE OF CONTRACTOR AND DATE. SUBMITTALS WHICH DO NOT REFLECT CONTRACTOR'S APPROVAL, SIGNATURE AND DATE; OR DO NOT APPEAR TO HAVE BEEN REVIEWED BY CONTRACTOR, WILL BE RETURNED WITHOUT REVIEW.

SDR2 REVIEW OF SUBMITTALS BY STRUCTURAL ENGINEER IS ONLY FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT AND INFORMATION GIVEN IN STRUCTURAL CONTRACT DOCUMENTS. CORRECTIONS OR COMMENTS MADE ON SUBMITTALS DURING THIS REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS. APPROVAL OF A SPECIFIC ITEM DOES NOT IMPLY OR INCLUDE APPROVAL OF AN ASSEMBLY OF WHICH ITEM IS A COMPONENT. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED AT JOBSITE; INFORMATION THAT PERTAINS SOLELY TO FABRICATION PROCESSES OR TO MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION; COORDINATION OF WORK WITH THAT OF OTHER TRADES AND PERFORMING WORK IN A SAFE AND SATISFACTORY MANNER.

SDR3 DO NOT USE REPRODUCTIONS OR ELECTRONIC FILES OF CONTRACT DOCUMENTS FOR PREPARATION OF SHOP DRAWINGS.

SDR4 OMISSION FROM SHOP DRAWINGS OF ANY REQUIREMENTS OF CONTRACT DOCUMENTS SHALL NOT RELIEVE CONTRACTOR OF RESPONSIBILITY OF COMPLYING WITH OMITTED REQUIREMENTS, EVEN IF SHOP DRAWINGS HAVE BEEN REVIEWED AND RETURNED.

SDR5 ARCHITECT/ENGINEER SHALL NOT BE RESPONSIBLE FOR DELAYS CAUSED BY REJECTION OF INADEQUATE OR INCORRECT SHOP DRAWINGS.

SDR6 SHOP DRAWINGS THAT ARE NOT SPECIFICALLY REQUIRED BY CONTRACT DOCUMENTS WILL NOT BE REVIEWED OR RETURNED.

SDR7 SIGNED AND SEALED CALCULATIONS FOR A PARTICULAR SYSTEM SUBMITTED ARE REVIEWED FOR LOAD CRITERIA AND GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS. CALCULATION REVIEW AND COMMENTS DO NOT INFER A DETAILED CHECK OF CALCULATIONS, NOR DOES REVIEW RELIEVE SUBMITTING STRUCTURAL ENGINEER OR CONTRACTOR OF RESPONSIBILITY.

GEOTECHNICAL REPORT:

GR1 FOUNDATION DESIGN AND SUBSURFACE INFORMATION IS BASED ON GEOTECHNICAL INVESTIGATION REPORT AS FOLLOWS:

GEOTECHNICAL CONSULTANT:	TERRACON CONSULTANTS, INC.
GEOTECHNICAL REPORT NUMBER:	25245150
GEOTECHNICAL REPORT NAME:	QTS DATA CENTER - DC2 AND DC3 GEOTECHNICAL REPORT (A)
GEOTECHNICAL REPORT LOCATION:	1120 NORTH GUN CLUB ROAD, AURORA, COLORADO
GEOTECHNICAL REPORT DATE:	OCTOBER 4, 2024

GR2 GEOTECHNICAL REPORT IS AVAILABLE TO CONTRACTOR AS A REFERENCE DOCUMENT UPON REQUEST TO OWNER.

GR3 ARCHITECT AND ENGINEER ARE NOT RESPONSIBLE OR LIABLE FOR ACCURACY OR APPLICABILITY OF INFORMATION PRESENTED IN GEOTECHNICAL REPORT.

SUBGRADE PREPARATION:

SP1 EXAMINE SITE THOROUGHLY AND CONTENTS OF GEOTECHNICAL REPORT AND ITS RECOMMENDATIONS. PERFORM ALL SUBGRADE PREPARATION, FILL, FILL PLACEMENT, AND FOUNDATION CONSTRUCTION IN STRICT COMPLIANCE WITH CONTRACT DOCUMENTS AND GEOTECHNICAL REPORT, AND DO NOT PROCEED WITH FOUNDATION CONSTRUCTION UNTIL SUBGRADE HAS BEEN OBSERVED, TESTED, AND APPROVED BY PROJECT'S GEOTECHNICAL-ENGINEER-OF-RECORD.

CONCRETE SLAB-ON-GRADE:

SOG1 INSTALL VAPOR RETARDER WHERE INDICATED ON DRAWINGS IN ACCORDANCE WITH SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS.

SOG2 REMOVE ANY STANDING WATER ON SURFACE OF VAPOR RETARDER PRIOR TO CONCRETE PLACEMENT.

SOG3 REFERENCE PLANS FOR SLAB REINFORCING. PROVIDE CLASS B TENSION LAP SPLICE FOR SLAB REINFORCING. PROVIDE ADDITIONAL #4X5'-0" AT RE-ENTRANT CORNERS, INCLUDING RE-ENTRANT CORNERS AROUND PERIMETER OF BUILDINGS, FLOOR RECESSES, AND OPENINGS.

SOG4 PROVIDE CONTROL JOINTS ALONG COLUMN LINES AND AT 15'-0" ON CENTER, EACH WAY, MAXIMUM, UNLESS NOTED OTHERWISE. PROVIDE ADDITIONAL CONTROL JOINTS AT RE-ENTRANT CORNERS.

SOG5 DO NOT PLACE HEAVY EQUIPMENT OR CONSTRUCTION STORAGE LOADS ON SLAB UNLESS CALCULATIONS, PREPARED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN STATE IN WHICH PROJECT IS LOCATED, HAVE BEEN SUBMITTED VERIFYING ADEQUACY OF SLAB.

DRILLED CONCRETE PIERS:

P1 STRAIGHT SHAFT (SS) DRILLED PIER DESIGNS ARE BASED UPON INFORMATION LISTED BELOW.

ALLOWABLE END BEARING PRESSURE:	25,000 PSF
ALLOWABLE COMPRESSION SKIN FRICTION RESISTANCE:	2,000 PSF
UPLIFT FROM SOIL	85 x PIER DIA
ALLOWABLE UPLIFT SKIN FRICTION RESISTANCE:	2,000 PSF
MINIMUM PIER CLEAR SPACING FOR FULL CAPACITY:	3 SHAFT DIA. OF THE LARGER PIER
BEARING STRATUM:	CLAYSTONE BEDROCK, OR AS APPROVED BY GER REPRESENTATIVE
BEARING STRATUM ELEVATION (FOR ESTIMATING PURPOSE ONLY):	20 FT

P2 CONSTRUCT PIERS AND PLACE CONCRETE IN PIERS IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AND AS PER THE CURRENT VERSION OF ACI 336. FILL PIER EXCAVATIONS WITH CONCRETE AS SOON AS PRACTICAL BEFORE END OF DAY, BUT NO LONGER THAN 8 HOURS AFTER START OF DRILLING IN PENETRATION OR BEARING ZONE. REFER TO GEOTECHNICAL REPORT FOR CASING REQUIREMENTS.

P3 PLACE PIERS NOT SPECIFICALLY LOCATED ON DRAWINGS ON CENTERLINE OF COLUMN ABOVE. WHERE NO COLUMN OCCURS, LOCATE PIER ON CENTERLINE OF WALL OR BEAM.

P4 HOLD REINFORCING CAGE SECURELY AWAY FROM EARTH AT SIDE AND BOTTOM BY SETS OF 3 SPACERS AT A MAXIMUM SPACING OF 8 FEET ALONG LENGTH OF CAGE AND 12-INCHES FROM BOTTOM.

P5 VERIFY DEPTHS OF PIERS BEFORE PIER STEEL IS CUT. PIER STEEL MAY BE DELIVERED TO JOBSITE IN STANDARD LENGTHS AND CUT AS REQUIRED.

P6 BELLING AT TOP OF PIERS IS PROHIBITED. FORM TOP OF PIER IF REQUIRED TO MAINTAIN SPECIFIED DIAMETER. REMOVE ANY CONCRETE EXTENDING BEYOND SPECIFIED DIAMETER.

P7 PROVIDE CASING, IF UTILIZED ON THIS PROJECT, WITH AN INSIDE DIAMETER EQUAL TO PIER DIAMETER INDICATED IN PIER SCHEDULE.

P8 WHERE CLEAR DISTANCE BETWEEN TWO PIERS IS LESS THAN PIER DIAMETER OF LARGER PIER, WAIT AT LEAST 48 HOURS AFTER CASTING FIRST PIER BEFORE DRILLING SECOND PIER.

P9 USE TEMPORARY TEMPLATES TO SET DOWELS AND ANCHOR BOLTS IN PIERS. PLACE DOWEL AND ANCHOR BOLTS PRIOR TO PIER CONCRETE ACHIEVING ITS INITIAL SET.

P10 FOR ESTIMATING PURPOSES ONLY, 20' IS DISTANCE FROM EXISTING GRADE TO REQUIRED BEARING STRATUM INDICATED IN TYPICAL PIER DETAIL.

P11 LOCATION TOLERANCE AT CUT-OFF SHALL BE NO GREATER THAN 1/24 OF SPECIFIED SHAFT DIAMETER OR 3 IN., WHICHEVER IS GREATER. OUT-OF-PLUMBNESS OF PIERS SHALL NOT EXCEED 1.5%.

P12 NOTIFY ARCHITECT/ENGINEER 48 HOURS PRIOR TO DRILLED PIER PLACEMENT.

MASS CONCRETE:

MC1 CONSTRUCT ELEMENTS OF CONCRETE THAT HAVE A LEAST DIMENSION OF GREATER THAN 59.9 INCHES, OR ARE SPECIFICALLY NOTED ON DRAWINGS PER ACI 207.1. MASS CONCRETE REQUIREMENTS DO NOT APPLY TO PORTIONS OF DRILLED PIERS BELOW GRADE. PROVIDE MASS CONCRETE COMPLYING WITH FOLLOWING REQUIREMENTS:
- A. MAXIMUM INTERNAL TEMPERATURE OF PLACED CONCRETE SHALL NOT EXCEED 160 DEGREES F.
- B. MAXIMUM TEMPERATURE DIFFERENCE BETWEEN CENTER AND SURFACE MASS OF CONCRETE PLACEMENTS SHALL NOT EXCEED 35 DEGREES. LOCATIONS OF SENSORS FOR MEASUREMENT OF MAXIMUM AND MINIMUM TEMPERATURES IN PLACEMENT SHALL BE STATED IN THERMAL CONTROL PLAN. PROVIDE A WRITTEN THERMAL CONTROL PLAN THAT ADDRESSES NEED FOR ITEMS SUCH AS INSULATING BLANKETS, COOLED MATERIALS AND DEVICES FOR INTERNAL CONCRETE CORE TEMPERATURE MEASUREMENT.
- C. USE OF 56 DAY BREAKS IN LIEU OF 28 DAY BREAKS FOR DETERMINATION OF STRENGTHS IS PERMITTED.

CONCRETE MIX:

CM1 PROVIDE CONCRETE MEETING FOLLOWING:

CONCRETE MIX DESIGN SCHEDULE

USE	28-DAY STRENGTH (PSI)	MAX. WATER CEMENT RATIO	MAX. CURED DENSITY (PCF)	MAX. AGGREGATE SIZE (IN)	CEMENT TYPE (REF CM13)	MAX. ALLOWABLE % FLY ASH (REF CM5)	% AIR ENTRAINMENT	EXPOSURE CATEGORY
DRILLED PIERS	4,000	0.55	150	1	I / II	40	-	F0,S0
PEDESTALS, PILASTERS	4,500	0.45	150	1	I / II	20	6	F1,S0
GRADE BEAMS	4,500	0.45	150	1	I / II	20	6	F1,S0
PRECAST WALLS	4,500	0.45	150	1	I / II	30	6	F1,S0
NORMAL WEIGHT SLAB ON COMPOSITE METAL DECK (REF NOTE CM8)	4,000	0.45	150	1	I / II	20	-	F0,S0
SLAB FOR EQUIP PADS AND EXTERIOR SLAB-ON-GRADE	4,500	0.45	150	1	I / II	20	6	F1,S0
SLAB-ON-GRADE INTERIOR	4,000	0.50	150	1	I / II	20	-	F1,S0
MASS CONCRETE (ALSO REFER TO MASS CONCRETE NOTES)	4,500 AT 56 DAYS	0.40	150	1	II	40	-	F0,S0

CM2 CHANGING APPROVED MIX DESIGN REQUIRES A NEW MIX DESIGN SUBMITTAL. USE ADMIXTURES PLACED IN CONCRETE MIX IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND INCLUDE IN SUBMITTED CONCRETE MIX DESIGN FOR APPROVAL.

CM3 DO NOT PLACE CONCRETE WHEN AMBIENT AIR TEMPERATURE IS OUTSIDE LIMITS PROVIDED ON APPROVED MIX DESIGNS. USE OF CHLORIDES IN ANY ADMIXTURE IS NOT PERMITTED.

CM4 PROVIDE PORTLAND CEMENT CONFORMING TO ASTM C150, OF TYPES NOTED IN SCHEDULE. PROVIDE NORMAL WEIGHT AGGREGATE CONFORMING TO ASTM C33. PROVIDE LIGHT WEIGHT AGGREGATE CONFORMING TO ASTM C330.

CM5 DO NOT USE FLY ASH AS A CONSTITUENT IN ARCHITECTURALLY EXPOSED CONCRETE. FLY ASH IS ALLOWED IN ALL OTHER NON-ARCHITECTURALLY EXPOSED CONCRETE, UP TO MAXIMUM PERCENTAGE LISTED ABOVE. ADD WEIGHT OF FLY ASH TO WEIGHT OF CEMENT IN CALCULATION OF WATER CEMENT RATIO. CONFIRM IN MIX DESIGNSUBMITTAL THAT USE OF FLY ASH WILL NOT INTERFERE WITH PERFORMANCE OF OTHER PRODUCTS AND MATERIALS THAT WILL BE IN CONTACT WITH CONCRETE.

CM6 AIR ENTRAINMENT IS REQUIRED ONLY IN NORMAL WEIGHT CONCRETE PERMANENTLY EXPOSED TO WEATHER CONDITIONS. THE TOLERANCE FOR AIR CONTENT AS DELIVERED IS +/- 1.5%. DO NOT AIR-ENTRAIN INTERIOR FLOOR SLABS THAT RECEIVE HARD TROWEL FINISH.

CM7 MIX FOR TOPPING SLABS THAT ARE LESS THAN TWO INCHES THICK SHALL CONTAIN SIKA FIBERMESH - 150 FIBERS OR EQUIVALENT WITH A DOSAGE OF 1.5 POUNDS PER CUBIC YARD.

CM8 PROVIDE CONCRETE IN ELEVATED SLABS AND BEAMS WITH A SHRINKAGE LIMIT OF 0.02% AT 28 DAYS MEASURED IN ACCORDANCE WITH ASTM C157. SUBMIT LABORATORY TEST RESULTS TO ARCHITECT PRIOR TO CONSTRUCTION.

CM9 NON-CHLORIDE ACCELERATING ADMIXTURE MAY BE USED IN CONCRETE SLABS PLACED AT AMBIENT TEMPERATURES BELOW 50 DEGREES FAHRENHEIT AT CONTRACTOR'S OPTION.

CM11 SUBMIT MIX DESIGN SUBMITTALS TO PROJECT'S TESTING LABORATORY PRIOR TO SUBMITTING TO ARCHITECT. A SUBMITTAL WITHOUT TESTING LABORATORY'S APPROVAL WILL BE REJECTED.

CM12 PROPORTION CONCRETE MIXES WITH SLUMPS SUITABLE TO PROPERLY PLACE, CONSOLIDATE, AND FINISH CONCRETE IN ACCORDANCE WITH ACI 318 AND CONTRACT DOCUMENTS.

CM13 IF TYPE 1L CEMENT IS BEING SUBSTITUTED FOR TYPE I / II CEMENT IN THE CONCRETE MIX DESIGN FOR THE PROJECT, THE CONTRACTOR'S CONCRETE MIX SUPPLIER SHALL PROVIDE GUIDANCE FOR USE OF 1L CEMENT FOR ALL FLOOR SLABS ON THE PROJECT, INCLUDING DIRECTIONS FOR PLACEMENT, FINISHING, CURING AND POSSIBLE USE OF SURFACE DENSIFIER APPROPRIATE TO THE CHEMICAL COMPOSITION OF THE SPECIFIC TYPE 1L CEMENT TO BE UTILIZED. SUGGESTED COMPONENTS OF THE JUSTIFICATION FOR USE OF TYPE 1L WOULD INCLUDE:
1. A MOCKUP 20 FEET BY 20 FEET, WHICH IS NOT PART OF THE COMPLETED PROJECT WORK SHALL BE CAST, FINISHED, CURED, AND AS NEEDED DENSIFIED, FOR REVIEW BY THE DESIGN TEAM AND OWNER.
2. ALL FLOOR SLABS SHALL BE WET-CURED FOR A FULL 28-DAYS OR LESS IF DEMONSTRATED THAT A SHORTER WET-CURE PERIOD CAN ACHIEVE THE REQUIRED CONCRETE STRENGTH AND SLAB FINISH.
3. AS AN ALTERNATIVE TO WET-CURING, ADDITIONAL WATER MAY BE ADDED TO MIXTURE WITHIN CODE LIMITS AND DEMONSTRATED TO BE COMPATIBLE WITH CURING METHODS PROPOSED TO PREVENT FLOOR SLAB SURFACE DEFECTS.
4. APPLIED DENSIFIERS SHALL BE CONSIDERED FOR APPLICATION TO FLOOR SLABS PROVIDED DENSIFIER IS COMPATIBLE WITH TYPE 1L CEMENT AND WITHOUT THE RISK OF INTERFERING WITH FLOORING ADHESIVES AND VOIDING FLOOR FINISH WARRANTIES.

COLD-FORMED METAL FRAMING:

CF1 PROVIDE COLD-FORMED METAL FRAMING DESIGNED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN STATE IN WHICH PROJECT IS LOCATED, PER SPECIFICATIONS AND PER LOADS INDICATED IN STRUCTURAL CONTRACT DOCUMENTS AND MEETING FOLLOWING REQUIREMENTS AS A MINIMUM.
- A. MEET MINIMUM REQUIREMENTS OF AISI STANDARDS, LATEST EDITION.
- B. DESIGN IN ACCORDANCE WITH AISI SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, LATEST EDITION.
- C. PROVIDE STRUCTURAL MEMBERS FORMED FROM CORROSION-RESISTANT STEEL, CORRESPONDING TO THE REQUIREMENTS OF ASTM A653.
- D. PROVIDE STRUCTURAL MEMBERS WITH ZINC-COATED MEETING ASTM A924.
- E. ANCHOR TOP AND BOTTOM RUNNER TRACKS OF EXTERIOR AND LOAD-BEARING INTERIOR WALLS TO STRUCTURE OVERHEAD AND FLOOR STRUCTURE BELOW BY WELDING, NAILING, OR BOLTING AS APPLICABLE.

EMBEDDED HEADED-STUD CONNECTORS & DEFORMED BAR ANCHORS (DBA):

SC1 PROVIDE HEADED-STUD CONNECTORS (SC) CONFORMING TO ASTM A108, AISI C-1015 THROUGH C-1020, HEADED STUD TYPE, COLD FINISHED CARBON STEEL; AWS D1.1, TYPE B (MINIMUM TENSILE STRENGTH 65,000 PSI). AUTOMATICALLY END WELD STUDS IN SHOP OR IN FIELD.

SC2 PROVIDE DEFORMED BAR ANCHORS (DBA) CONFORMING TO ASTM A1064-18 AND AWS D1.1, TYPE C (MINIMUM TENSILE STRENGTH 80,000PSI). AUTOMATICALLY END WELD DBA IN SHOP OR FIELD.

CONCRETE REINFORCING:

CR1 PROVIDE REINFORCING STEEL CONFORMING TO ASTM A615 USING NEW OR RECYCLED DOMESTIC BILLET STEEL OF A DOMESTIC MANUFACTURE. PROVIDE GRADES AS FOLLOWS:
- A. #3 THROUGH #18...GRADE 60

CR2 PROVIDE REINFORCING STEEL SPECIFIED TO BE WELDED CONFORMING TO ASTM A706, WITH GRADES AS INDICATED ON DRAWINGS OR AS PERMITTED. WELD IN ACCORDANCE WITH AWS D1.4. WELDING OF REINFORCING STEEL FOR USE IN STRUCTURAL CONCRETE OR STRUCTURAL MASONRY IS PERMITTED ONLY WHERE SPECIFICALLY DESIGNATED ON DRAWINGS.

CR3 PROVIDE ELECTRICALLY-WELDED WIRE REINFORCEMENT (WWR) OF COLD-DRAWN WIRE (70,000 PSI YIELD) CONFORMING TO ASTM A185, OF SIZE INDICATED ON DRAWINGS.

CR4 WELD HEADED STUDS AND DEFORMED BAR ANCHORS (DBA) BY FULL-FUSION PROCESS, AS FURNISHED BY TRW NELSON STUD WELDING DIVISION OR EQUIVALENT.

CR5 DETAIL CONCRETE REINFORCING AND ACCESSORIES IN ACCORDANCE WITH ACI 315.

CR6 PROVIDE CLEAR CONCRETE COVER MEASURED TO OUTERMOST BAR, STIRRUP OR TIE AS FOLLOWS:

EXPOSURE CONDITION	BAR SIZE OR USE	MINIMUM COVER
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH (WITH OR WITHOUT VAPOR RETARDER):	ALL	3"
EXPOSED TO EARTH OR WEATHER	#5 BAR AND SMALLER	1 1/2"
	#6 BAR AND LARGER	2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND: (TYPICAL INTERIOR CONDITIONS, CRAWL SPACES, AND UNDERSIDE OF PARKING FLOORS ARE IN THIS CATEGORY)	SLABS AND WALLS	1"
	WIDE MODULE JOISTS AND BEAMS	1 1/2"
	COLUMNS	1 5/8"

CR7 SPECIFIC COVER REQUIREMENTS ARE AS FOLLOWS:
(REF TABLE ABOVE IF SPECIFIC CASE IS NOT LISTED)

EXPOSURE CONDITION	BAR SIZE OR USE	MINIMUM COVER
GRADE BEAMS, TOP, BOTTOM AND SIDES WHEN THREE SIDES FORMED-OTHERWISE REF ABOVE	ALL	2"
SLAB BOTTOMS OVER VOID FORMS	ALL	2"
SLAB-ON-GRADE	ALL	2"
PIERS	ALL	3"

CR8 FOR BARS IN UNSCHEDULED CONCRETE MEMBERS WITHOUT A SPECIFIED BAR TYPE, SHAPE OR LENGTH, DETAIL BARS CONTINUOUSLY WITH HOOKS AT DISCONTINUOUS ENDS. SPLICE TOP BARS AT MIDSPAN BETWEEN SUPPORTS AND BOTTOM BARS DIRECTLY OVER SUPPORTS USING CLASS A SPLICES.

CR9 PROVIDE DOWELS TO MATCH WALL VERTICAL REINFORCEMENT.

CR10 SPLICE WELDED WIRE MESH AS FOLLOWS:
- A. INSTALL WELDED WIRE FABRIC IN LONGEST PRACTICABLE LENGTHS ON BAR SUPPORTS SPACED TO MINIMIZE SAGGING. LAP EDGES AND ENDS OF ADJOINING SHEETS. MEASURE LENGTH OF LAP BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET AND PROVIDE LAP NOT LESS THAN ONE SPACING OF THE CROSS WIRES PLUS 2 INCHES. LACE OVERLAPS WITH WIRE.

CAST-IN-PLACE CONCRETE:

CIP1 PROVIDE CONCRETE CONSTRUCTION IN ACCORDANCE WITH MORE STRINGENT REQUIREMENT OF EITHER LOCAL BUILDING CODE OR ACI STANDARD "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318) (2019).

CIP2 CONSTRUCTION JOINTS:
- A. PERMITTED ONLY WHERE INDICATED ON DRAWINGS.
- B. WHERE NOT SPECIFICALLY INDICATED ON DRAWINGS, LOCATE JOINTS AS FOLLOWS:
  1. 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 END THIRD OF SPANS OF POST-TENSIONED CONTINUOUS SLABS, BEAMS OR GIRDERS WHERE TENDON PROFILE IS AT OR NEAR CENTROID OF CONCRETE CROSS SECTION.
  2. LOCATE HORIZONTAL JOINTS IN WALLS AND COLUMNS AT UNDERSIDE OF SUPPORTED ELEMENTS AT TOP OF WALL OR COLUMN AND AT TOP OF FOOTINGS OR FLOOR SLABS AT BOTTOM OF WALL OR COLUMN. ROUGHEN SURFACE OF HORIZONTAL OR NEARLY HORIZONTAL CONSTRUCTION JOINTS SO THAT AGGREGATE IS EXPOSED UNIFORMLY, LEAVING NO LAITANCE, LOOSENED PARTICLES OR DAMAGED CONCRETE.
- C. REFER TO PLANS FOR JOINTS IN GRADE SUPPORTED SLABS.
- D. JOINTS ARE NOT ALLOWED BETWEEN PILASTERS AND WALL.
- E. SUBMIT CONSTRUCTION JOINT LAYOUT PLANS FOR APPROVAL BY ARCHITECT PRIOR TO CONSTRUCTION.

CIP3 CONDUITS, PIPES AND SLEEVES
- A. VARIOUS CONDUITS, PIPES AND SLEEVES WHICH ARE NOT INDICATED ON STRUCTURAL DRAWINGS MAY BE REQUIRED BY EQUIPMENT SUPPLIERS OR ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. COORDINATE AND INSTALL THESE ITEMS INTO CONCRETE WORK OBSERVING FOLLOWING GUIDELINES.
- B. COMPLY WITH ACI 318 AND THESE NOTES FOR ALL CONDUITS, PIPES AND SLEEVES EMBEDDED IN CONCRETE. THESE NOTES SHALL GOVERN WHERE THEY ARE IN CONFLICT WITH ACI. ALUMINUM EMBEDDED ITEMS ARE NOT PERMITTED.
- C. HORIZONTAL CONDUITS AND PIPES EMBEDDED IN SLABS:
  1. NO HORIZONTAL CONDUIT OR PIPE IS PERMITTED TO BE EMBEDDED IN SLAB WITHOUT PRIOR WRITTEN APPROVAL FROM ARCHITECT.
- D. HORIZONTAL SLEEVES, CONDUITS OR PIPES EMBEDDED IN BEAMS OR JOISTS.
  1. PLACE HORIZONTAL CONDUITS, PIPES AND SLEEVES AT RIGHT ANGLES TO SIDES OF MEMBER DO NOT PLACE LONGITUDINALLY WITHIN MEMBER.
- E. VERTICAL CONDUITS, PIPES AND SLEEVES EMBEDDED IN CONCRETE BEAMS OR JOISTS.
  1. NO VERTICAL CONDUITS, PIPES AND SLEEVES ARE PERMITTED TO BE EMBEDDED IN CONCRETE BEAMS WITHOUT PRIOR WRITTEN APPROVAL FROM ARCHITECT OR UNLESS SPECIFICALLY DETAILED OTHERWISE.
- F. CONDUITS, PIPES AND SLEEVES, UNLESS SPECIFICALLY DETAILED IN STRUCTURAL DRAWINGS, ARE NOT ALLOWED IN PILASTERS OR COLUMNS WITHOUT PRIOR WRITTEN APPROVAL FROM ARCHITECT.

CIP4 WET CURE ALL CONCRETE THAT WILL BE COLORED OR STAINED.

CIP5 REMOVAL OF FORMWORK:
- A. EXCEPT AS HEREIN SPECIFIED, REMOVE FORMWORK AND RESHORE IN ACCORDANCE WITH ACI 301 AND RECOMMENDATIONS OF ACI 347 TO ENSURE COMPLETE SAFETY OF FORMWORK AND STRUCTURE.
- B. FORMWORK FOR COLUMNS, WALLS, SIDES OF BEAMS AND OTHER PARTS NOT SUPPORTING WEIGHT OF CONCRETE MAY BE REMOVED AFTER CONCRETE HAS HARDENED SUFFICIENTLY TO RESIST DAMAGE FROM FORMWORK REMOVAL OPERATIONS.
- C. RETAIN FORMS AND SHORING FOR ALL HORIZONTAL WORK UNTIL CONCRETE HAS ACHIEVED AT LEAST 75% OF ITS DESIGNATED 28-DAY COMPRESSIVE STRENGTH AND WILL SAFELY SUPPORT ITS OWN WEIGHT AND UNTIL ALL COLUMNS ABOVE HAVE BEEN CAST AND HARDENED. RESHORE AS HEREIN SPECIFIED.
- D. RETAIN FORMS AND SHORING FOR POST-TENSIONED GIRDERS, BEAMS, AND SLABS UNTIL MEMBER HAS BEEN FULLY TENSIONED, TENDON ELONGATIONS HAVE BEEN REVIEWED AND APPROVED BY ARCHITECT, AND UNTIL ALL COLUMNS ABOVE HAVE BEEN CAST AND HARDENED. RESHORE AS HEREIN SPECIFIED.

CIP6 PROVIDE A MINIMUM 4 INCH THICK HOUSE KEEPING PAD BELOW MEP EQUIPMENT. REFERENCE MEP OR ARCH PLANS FOR LOCATIONS AND SIZES OF PADS.

CIP7 UNLESS SPECIFICALLY NOTED OTHERWISE, PROVIDE A FLAT AND LEVEL TROWELED FINISH TOP OF CONCRETE SURFACES THAT SUPPORT PRECAST, MASONRY, CURTAIN WALL SYSTEMS, ETC.

CIP8 WATERSTOPS:
- A. PROVIDE WATERSTOPS AT ALL SUBGRADE CONSTRUCTION JOINTS IN CONCRETE ELEMENTS WHERE EARTH SUBGRADE AT JOINT IS ON ONE SIDE OF CONCRETE MEMBER ONLY. PROVIDE WATERSTOPS AT OTHER LOCATIONS AS INDICATED IN DOCUMENTS.

CIP9 LATERALLY BRACE GRADE BEAMS OR WALLS AT DOCKS AND SIMILAR CONDITIONS (BOTH EXTERIOR AND INTERIOR) WHERE BACKFILL IS PLACED UP TO OR NEAR TOP OF BEAM OR WALL ON ONE SIDE AND GRADE ON OTHER SIDE OF BEAM OR WALL IS MORE THAN 2'-0" LOWER FROM LOW SIDE PRIOR TO PLACING FILL ON OTHER SIDE. BRACING SHALL REMAIN UNTIL FLOOR SLAB AT TOP OF BEAM OR WALL HAS BEEN CONSTRUCTED AND HAS ATTAINED ITS SPECIFIED 28 DAY STRENGTH.

SLABS ON NON-COMPOSITE METAL FLOOR DECK:

SD1 PROVIDE NON-COMPOSITE METAL FLOOR DECK MANUFACTURED FROM STEEL CONFORMING TO ASTM, A653-94, GRADE 80, GALVANIZED, WITH A G60 COATING AND SIZE NOTED ON PLANS WITH FOLLOWING MINIMUM PROPERTIES:

METAL FLOOR DECK SCHEDULE

TYPE	GAUGE	PROFILE	DEPTH (IN)	MOMENT OF INERTIA (+) (IN4/FT)	MOMENT OF INERTIA (-) (IN4/FT)	SECTION MODULUS (+) (IN3/FT)	SECTION MODULUS (-) (IN3/FT)	NRC)
1.0 NC	20	NON-COMPOSITE	1.0	0.088	0.088	0.167	0.165	-

SD2 UNSHORED NON-COMPOSITE BEAMS RELY ON WELDED CONNECTIONS OF DECK TO TOP FLANGES FOR LATERAL BRACING.

SD3 REINFORCE SLABS WITH WELDED WIRE MESH, SUPPLIED IN FLAT SHEETS, AT MID-HEIGHT OF SLAB ABOVE DECK, TYPICAL UNLESS NOTED OTHERWISE. PROVIDE ADEQUATELY DESIGNED CHAIRS THAT MAINTAIN REINFORCING POSITION FROM SLAB'S SURFACE AS SPECIFIED. MINIMUM SPACING OF 2'-6" OC MAX OVER BEAMS WHERE WIRED MESH IS SPECIFIED. LAP EDGES AND ENDS OF ADJOINING SHEETS. PROVIDE LENGTH OF LAP MEASURED BETWEEN OUTER MOST CROSS WIRES OF FABRIC SHEET AND NOT LESS THAN ONE SPACING OF CROSS WIRES PLUS 2 INCHES. LACE OVERLAPS WITH WIRE.

SD4 INSTALL DECK WITH ENDS ALIGNED OVER SUPPORTING FRAME WITH A MINIMUM END BEARING LENGTH OF 1 1/2" ON STEEL SUPPORT SURFACE, WITH END JOINTS BUTTED; DO NOT OVERLAP.

SD5 ATTACH DECK TO SUPPORTING STEEL WITH 3/4" PUDDLE WELDS AT 12" OC MAX. USE WELD WASHERS FOR DECKS THINNER THAN 22 GAUGE. CONNECT NON-COMPOSITE METAL FLOOR DECK TO ALL CONCRETE OR MASONRY SUPPORTING ELEMENTS WITH POWDER ACTUATED FASTENERS AT 12" O.C. PROVIDE ZINC COATED FASTENER WITH 0.145 INCH SHANK DIAMETER AND 1 1/4 INCH SHANK LENGTH. X-DNI PIN BY HILTI, OR EQUIVALENT.

SD6 FASTEN SIDE LAPS OF PANELS BETWEEN SUPPORTS, AT 24 INCHES ON CENTER MAXIMUM WITH SELF-DRILLING NO. 10 DIAMETER OR LARGER CARBON-STEEL SCREWS, OR WITH A MINIMUM OF 1 1/2 INCH-LONG WELDS.

SD7 WELD GIRDER FILLERS TO STEEL BEAM WITH 2" LONG FUSION WELDS AT A MAXIMUM SPACING OF 12 INCHES. CONNECT GIRDER FILLERS TO ADJACENT PIECES OF DECK PER SPECIFIED SIDE LAPS.

SD8 NON-COMPOSITE METAL DECK IS DESIGNED TO BE CONTINUOUS OVER THREE OR MORE SPANS UNLESS FEWER THAN THREE SPANS ARE INDICATED ON STRUCTURAL DRAWINGS.

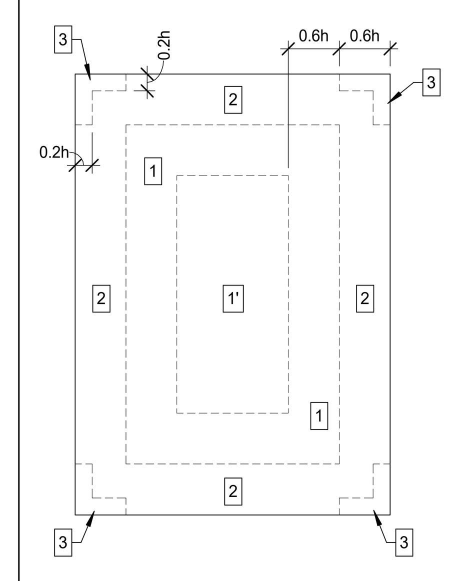
SD9 PREPARE AND REPAIR DAMAGED GALVANIZED COATINGS ON BOTH SURFACES OF DECK WITH GALVANIZED REPAIR PAINT ACCORDING TO ASTM A780 AND MANUFACTURER's WRITTEN INSTRUCTIONS.

SD10 STEEL FLOOR FRAMING DEFLECTION NOTES:
1. STEEL FRAMING HAS BEEN DESIGNED TO BE WITHIN DEFLECTION LIMITS (UP TO SPAN DIVIDED BY 240 FOR DEAD LOADS). ACCOUNT FOR ANY ADDITIONAL CONCRETE THAT RESULTS DUE TO SUCH DEFLECTIONS IN FLOOR CONCRETE QUANTITIES.
2. METAL DECK MAY DEFLECT UP TO 3/4" ACCOUNT FOR ANY ADDITIONAL CONCRETE THAT RESULTS DUE TO SUCH DEFLECTIONS IN FLOOR CONCRETE QUANTITIES.

SD11 DETAILS IN CONTRACT DOCUMENTS CALL FOR BLOCKOUTS OF FLOOR OPENINGS, WITH DECK TO BE CUT AFTER SLAB IS PLACED AND ACHIEVES ITS SPECIFIED STRENGTH. IF OPENINGS IN DECK MUST BE CUT PRIOR TO SLAB BEING PLACED, REINFORCE OPENINGS WITH C6x8.2 CHANNELS BETWEEN BEAMS TO SUPPORT METAL DECK, UNLESS NOTED OTHERWISE.

SD12 DO NOT APPLY CONSTRUCTION LOADS TO SLAB UNTIL CONCRETE HAS REACHED 75% OF SPECIFIED STRENGTH.

SD13 NO CONDUITS ALLOWED IN SLABS



GABLE, SAWTOOTH, AND MULTISPAN
GABLE Θ ≤ 7 DEG & MONOSLOPE ≤ 3 DEG
(H ≤ 60' & ALT DESIGN H < 90')

ROOF WIND PRESSURE ZONES

1 GENERAL NOTES
12" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TED DESIGN CONSULTING LLC

ISSUES

1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

REVISIONS

A	04.24.25	COA - PERMIT COMMENTS

COLORADO LICENSED PROFESSIONAL ENGINEER NICHOLAS W. DAVID 65236

AG&E Structural Engenuity
F-8435

Date of issue:
04.24.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

GENERAL NOTES

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

JOB 24464.0000
DATE 04.24.2025
SHEET
S0-01

POST-INSTALLED CONCRETE ANCHORS:

PA1 USE POST-INSTALLED ANCHORS ONLY WHERE SPECIFIED ON CONSTRUCTION DOCUMENTS. OBTAIN APPROVAL FROM ARCHITECT PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.

PA2 DRILL AND CLEAN HOLES IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

PA3 PROVIDE POST INSTALLED CONCRETE ANCHORS OF SIZE, TYPE, AND QUANTITY AS NOTED ON DETAILS AS MANUFACTURED BY HILTI OR EQUIVALENT.

PA4 USE ONLY ANCHORS FROM ONE MANUFACTURER ON THIS PROJECT.

PA5 PROVIDE HOLES IN CONNECTION PLATES FOR EXPANSION BOLTS NOT MORE THAN 1/16" LARGER THAN BOLT DIAMETER. IF FIELD CONDITIONS OR TOLERANCES REQUIRE LARGER HOLES, PROVIDE PLATE WASHERS WITH BOLTS HOLES 1/16" LARGER THAN BOLT DIAMETER THAT ARE WELDED TO CONNECTION PLATE. SIZE PLATE WASHERS AND WELDS TO TRANSFER SHEAR AND TENSION CAPACITY OF EXPANSION BOLT.

PA6 INSTALL POST INSTALLED BOLTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS.

PA7 PRIOR TO DRILLING FOR ANCHORS, USE A PACHOMETER OR ANOTHER APPROVED METHOD TO LOCATE EXISTING REINFORCING TO ENSURE THERE IS NO CONFLICT. IF A CONFLICT EXISTS, ANCHOR POSITION CAN BE ADJUSTED BY NO MORE THAN 1 INCH. IF A LARGER DEVIATION IS NECESSARY, CONTACT ARCHITECT. FILL ABANDONED OR UNUSED HOLES WITH EPOXY GROUT.

PA8 ONCE FINAL POSITION OF THE ANCHORS IS SET, USE TEMPLATES TO TRANSFER FINAL LOCATION OF BOLT GROUP ON TO CONNECTION PLATE.

PA9 CONSTRUCTION OF POST INSTALLED ANCHORS REQUIRES CONTINUOUS INSPECTION BY TESTING AGENCY TO ENSURE PROPER EMBEDMENT AND INSTALLATION PER MANUFACTURER'S SPECIFICATIONS.

PA10 USE ONLY PERSONNEL CERTIFIED BY ACI/CRSI ADHESIVE ANCHOR INSTALLER PROGRAM TO INSTALL ANCHORAGE SYSTEM IN A HORIZONTAL OR UPWARDLY INCLINED ORIENTATION AND WHERE SUPPORTING SUSTAINED TENSION LOADS.

STRUCTURAL STEEL FRAMING:

SS1 PROVIDE STRUCTURAL STEEL MEETING FOLLOWING MINIMUM YIELD STRENGTHS AND ASTM SPECIFICATIONS:

STRUCTURAL STEEL TYPE	YIELD STRESS, Fy	TENSILE STRESS, Fu	ASTM SPECIFICATION
WIDE FLANGE AND WT SHAPES	50 KSI	65 KSI	A992
	65 KSI	80 KSI	A913, GRADE 65
HOLLOW STRUCTURAL SECTIONS	46 KSI ROUND 50 KSI RECTANGULAR	62 KSI	A500, GRADE C
PIPES	35 KSI	60 KSI	A53 TYPE E, GRADE B
ANGLES	36 KSI	58 KSI	A36
CHANNELS	36 KSI	58 KSI	A36
BARS	36 KSI	58 KSI	A36
PLATES	36 KSI	58 KSI	A36
	50 KSI	65 KSI	A572, GRADE 50
BOLTS (HEAVY-HEX)	92 KSI	120 KSI	A325
NUTS (HEAVY-HEX)	92 KSI	120 KSI	A563, GRADE DH
WASHERS	36 KSI	58 KSI	F436
ANCHOR RODS	36 KSI	58 KSI	F1554, GRADE 36
	55 KSI	75 KSI	F1554, GRADE 55, S1
	105 KSI	125 KSI	F1554, GRADE 105
SHEAR-STUD CONNECTORS	50 KSI	65 KSI	A108
RAISED-PATTERN FLOOR PLATE	-	-	A786, COMMERCIAL GRADE

SS2 DRAWINGS INDICATE VARIOUS NON-PRIMARY STRUCTURAL FRAME ELEMENTS SUCH AS SHELF ANGLES, LINTELS, SUPPORT MEMBERS FOR CURTAIN WALLS OR MASONRY, AND EDGE ANGLES FOR OPENINGS AND PERIMETER CONDITIONS WHICH ARE INTENDED TO SUPPORT OR BE COORDINATED WITH MATERIALS FURNISHED BY OTHER TRADES. WHERE THESE NON-PRIMARY STRUCTURAL FRAME ELEMENTS ARE INDICATED TO BE WELDED IN DRAWINGS, CONTRACTOR SHALL HAVE FINAL RESPONSIBILITY FOR DETERMINING IF WELDS SHOULD BE MADE IN SHOP OR FIELD IN ORDER TO ACHIEVE PROPER FIT-UP OF VARIOUS COMPONENTS OF FRAMING AND FOR MEETING TOLERANCES REQUIRED BY OTHER TRADES.

SS3 CONTRACTOR IS RESPONSIBLE FOR PROPER FIT-UP OF VARIOUS COMPONENTS OF FRAMING AND FOR MEETING TOLERANCES REQUIRED BY OTHER TRADES, WHICH MAY BE MORE STRINGENT THAN A.I.S.C. TOLERANCES FOR STRUCTURAL STEEL.

SS4 USE 3/4" DIAMETER ASTM A 325-N HIGH-STRENGTH BOLTS FOR STEEL BEAM AND COLUMN, UNO. ALL BOLTED CONNECTIONS ARE BEARING TYPE, UNLESS NOTED OTHERWISE.

SS5 PROVIDE WELDING IN ACCORDANCE WITH ANSI/AWS D1.1 STRUCTURAL WELDING CODE USING 70 KSI LOW HYDROGEN ELECTRODES.

SS6 STEEL CONNECTION NOTES
- A. DESIGN OF STRUCTURAL STEEL CONNECTIONS, WHICH ARE NOT FULLY DETAILED OR SCHEDULED WITHIN CONTRACT DOCUMENTS IS RESPONSIBILITY OF CONTRACTOR. PROVIDE CONNECTION DESIGNS USING LRFD DESIGN PRINCIPLES PREPARED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN STATE IN WHICH THE PROJECT IS LOCATED (ENGINEER OF CONTRACTOR) IN ACCORDANCE WITH LATEST ADOPTED EDITION OF AISC 303, “CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES”.
- B. ENGINEER OF CONTRACTOR SHALL REVIEW AND CONFIRM IN WRITING THAT SHOP AND ERECTION DRAWINGS PROPERLY INCORPORATE CONNECTION DESIGNS PREPARED BY ENGINEER OF CONTRACTOR AND PROPERLY INCORPORATE DESIGNS SPECIFICALLY DETAILED OR SCHEDULED WITHIN CONTRACT DOCUMENTS PRIOR TO SUBMITTING CONNECTION CALCULATIONS AND SHOP DRAWINGS FOR REVIEW.
- C. EACH CONNECTION ON SHOP DRAWINGS AND ERECTION DRAWINGS TO IDENTIFY SPECIFIC CONNECTION DESIGN THAT WAS UTILIZED, WHETHER DESIGNED BY ENGINEER OF CONTRACTOR OR WHETHER SPECIFICALLY DETAILED OR SCHEDULED WITHIN CONTRACT DOCUMENTS.
- D. CONNECTION DESIGN FORCES ARE INDICATED WITHIN CONTRACT DOCUMENTS AND ARE IN UNITS OF KIPS AND FEET. UNLESS NOTED OTHERWISE, SPECIFIED CONNECTION DESIGN FORCES ARE ULTIMATE LOADS (LRFD LOADS).
- E. WHERE HORIZONTAL FORCES ARE INDICATED ON PLAN AS "H=_K" (LRFD), SIZE CONNECTION TO TRANSFER HORIZONTAL FORCE IN ADDITION TO REQUIRED VERTICAL REACTION. SLOTTED HOLES ARE NOT PERMITTED AT CONNECTIONS WITH HORIZONTAL FORCES.
- F. UNLESS NOTED OTHERWISE, CONNECT MISCELLANEOUS STEEL MEMBERS WITH FILLET WELDS AS REQUIRED TO DEVELOP FULL TENSION CAPACITY OF SMALLEST MEMBER BEING JOINED.
- G. UNLESS NOTED OTHERWISE, DETAIL MOMENT CONNECTIONS WITH COMPLETE JOINT PENETRATION WELD AND DESIGN TO DEVELOP FULL FLEXURAL CAPACITY OF MEMBER.
- H. PROVIDE WELDED SPACER PLATES AT THREE FEET ON CENTER AT BACK TO BACK CHANNELS OR DOUBLE ANGLES.
- I. PROVIDE MINIMUM 1/4" THICK CLOSURE PLATES AT ENDS OF HOLLOW STRUCTURAL STEEL SECTIONS UNLESS SPECIFICALLY DETAILED WITH A CAP OR BASE PLATE. MATCH INSIDE DIMENSION OF HOLLOW SECTION AND WELD ALL AROUND WITH GROOVE WELD.
- J. TIGHTEN BOLTS IN CONNECTIONS TO A “SNUG TIGHT” CONDITION AS DEFINED BY AISC UNLESS NOTED OTHERWISE. TENSION CONTROL BOLTS MAY BE USED IN LIEU OF CONVENTIONAL HIGH-STRENGTH BOLTS, UNO. TENSION CONTROL BOLTS ARE NOT PERMITTED IN CRAWLSPACE CONNECTIONS.

SS7 PROVIDE DOUBLE NUTS AND DOUBLE WASHERS FOR STEEL COLUMN ANCHOR BOLTS TO ALLOW FOR ADJUSTMENT IN BASE PLATE ELEVATION. GROUT UNDER BEARING AND BASEPLATES IMMEDIATELY AFTER ANY REQUIRED PLUMBING OF COLUMN, BEAM OR FRAME AND PRIOR TO APPLICATION OF LOADS. PROVIDE HIGH STRENGTH, NON-SHRINK, NON-METALLIC GROUT BELOW BASE PLATES WITH A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI.

SS8 PAINT STRUCTURAL STEEL, EXCEPT EMBEDDED ITEMS, WITH ONE SHOP COAT OF RUST INHIBITIVE PAINT UNLESS OTHERWISE NOTED. DO NOT PAINT TOP FLANGE OF COMPOSITE STEEL BEAMS OR SURFACE OF COLUMNS TO WHICH SHEAR STUD CONNECTORS WILL BE WELDED. DO NOT PAINT SURFACES TO RECEIVE APPLIED FIREPROOFING.

SS9 HOT DIP GALVANIZE STRUCTURAL STEEL AND CONNECTIONS EXPOSED TO EARTH OR WEATHER OR LOCATED IN CRAWLSPACE WITH G-90 COATING. HOT DIP GALVANIZE COOLING TOWER GRILLAGE WITH G-135 COATING. TOUCH UP ANY DAMAGE TO GALVANIC MATERIAL DURING WELDING WITH GALVANIZING REPAIR PAINT: HIGH-ZINC-DUST-CONTENT PAINT FOR REGALVANIZING WELDS AND REPAIR PAINTING GALVANIZED STEEL, WITH DRY FILM CONTAINING NOT LESS THAN 93 PERCENT ZINC DUST BY WEIGHT, AND COMPLYING WITH DOD-P-21035A OR SSPC-PAINT 20.

SS10 DESIGN, FURNISH, AND INSTALL TEMPORARY SUPPORTS, BRACES, FALSE WORK, SHORES, CRIBBING OR OTHER SUPPORTS REQUIRED DURING ERECTION TO KEEP STRUCTURAL STEEL SECURE, SUPPORTED, PLUMB, AND IN ALIGNMENT.

SS11 WHERE FILLET WELD SIZE IS NOT INDICATED ON DRAWINGS, PROVIDE MINIMUM WELD PER AISC.

SS12 USE SLIP CRITICAL BOLTS OR WELDED CONNECTIONS AT BEAMS WITH LATERAL BRACING ATTACHED AND WEB CONNECTIONS OF MOMENT-CONNECTED BEAMS.

SS13 PERFORM WELDING BY WELDERS CERTIFIED FOR WELDS TO BE MADE.

SS14 PROVIDE ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS), WHERE INDICATED ON CONTRACT DOCUMENTS, CONFORMING TO AISC 303 SECTION 10.

SS15 INSTALL ANGLES FOR FASCIA BRICK SUPPORT SUCH THAT SWEEP OR CAMBER DOES NOT EXCEED 1/8 INCH DEVIATION FROM STRAIGHT LINE.

SS16 ANY SUPPORTING ELEMENTS SUSPENDED FROM STEEL BEAM FRAMING SHALL BE ATTACHED CONCENTRICALLY TO THE BEAM CENTERLINE.

METAL ROOF DECKING:

MD1 COMPLY WITH CURRENT STEEL DECK INSTITUTE SPECIFICATIONS. METAL ROOF DECKING SIZES ARE INDICATED ON STRUCTURAL DRAWINGS AND WITH FOLLOWING MINIMUM PROPERTIES:

METAL ROOF DECK SCHEDULE

TYPE	GAUGE	PROFILE	DEPTH (IN)	MOMENT OF INERTIA (+) (IN4)	MOMENT OF INERTIA (-) (IN4)	SECTION MODULUS (+) (IN3)	SECTION MODULUS (-) (IN3)	YIELD STRENGTH (KSI)	NRC
1.5WR	18	WIDE RIB	1.5	0.289	0.295	0.318	0.327	50	-

MD2 REFER TO ROOF DIAPHRAGM FASTENER DIAGRAM AND SCHEDULE FOR REQUIRED ATTACHMENT PATTERN.

MD3 METAL ROOF DECK IS DESIGNED TO BE CONTINUOUS OVER THREE OR MORE SPANS UNLESS FEWER THAN THREE SPANS ARE INDICATED ON STRUCTURAL DRAWINGS.

MD4 PROVIDE METAL ROOF DECKING: GALVANIZED WITH G60 COATING CONFORMING TO ASTM A924.

MD5 COORDINATE METAL DECK LENGTHS WITH FINAL JOIST AND BEAM LAYOUT. FINAL JOIST AND BEAM LAYOUT CAN BE DIFFERENT THAN THAT INDICATED IN STRUCTURAL DRAWINGS DEPENDING ON WHETHER JOIST BEARING SEATS ARE BUTTED OR STAGGERED. JOIST LOCATIONS INDICATED IN STRUCTURAL DRAWINGS DO NOT ACCOUNT FOR SMALL DIFFERENCE IN JOIST LOCATION DUE TO VARIOUS JOIST BEARING CONDITIONS THAT COULD EXIST IN THE FIELD.

MD6 DO NOT SUSPEND APPURTENANCES SUCH AS LIGHT FIXTURES, DUCTS AND OTHER UTILITIES FROM METAL ROOF DECK.

COMPOSITE STEEL CONSTRUCTION:

CSC1 PROVIDE COMPOSITE METAL FLOOR DECK WITH TOP SURFACE PHOSPHATIZED AND UNDERSIDE SURFACE SHOP PRIMED WITH MANUFACTURERS' STANDARD GRAY OR WHITE PRIMER AND WITH FOLLOWING MINIMUM PROPERTIES:

METAL FLOOR DECK SCHEDULE

TYPE	GAUGE	PROFILE	DEPTH (IN)	MOMENT OF INERTIA (+) (IN4)	MOMENT OF INERTIA (-) (IN4)	SECTION MODULUS (+) (IN3)	SECTION MODULUS (-) (IN3)	YIELD STRENGTH (KSI)	NRC
3.0CI	18	COMPOSITE INTERLOCKING	3.0	1.252	1.252	0.761	0.794	50	-

CSC2 COMPOSITE STEEL FRAMING IS DESIGNED AS NON-SHORED CONSTRUCTION. DO NOT SHORE BEAMS DURING CONCRETE PLACEMENT OPERATION.

CSC3 COMPOSITE METAL DECK, SLAB AND SLAB REINFORCING
- A. PROVIDE COMPOSITE METAL DECK AND SLAB INDICATED ON STRUCTURAL DRAWINGS.
- B. INSTALL DECK IN THREE SPAN LENGTHS WITHOUT SHORING UNLESS FEWER THAN THREE SPANS ARE INDICATED ON STRUCTURAL DRAWINGS.
- C. UNLESS SPECIFIED OTHERWISE ON STRUCTURAL DRAWINGS, REINFORCE SLAB OVER METAL DECK WITH WELDED WIRE MESH, PROVIDED IN FLAT SHEETS AS FOLLOWS:
  1. 2" TO 3 1/4" SLAB THICKNESS OVER TOP OF DECK - 6X6-W1.4XW1.4
  2. 3 1/2" TO 4 1/2" SLAB THICKNESS OVER TOP OF DECK - 6X6-W2.1XW2.1
  3. GREATER THAN 4 1/2" OVER TOP OF DECK - TWO LAYERS OF 6X6-W2.1XW2.1
  4. PROVIDE A 6'-0" WIDE EXTRA LAYER OF WELDED WIRE MESH IN TOP OF SLAB OVER ALL GIRDERS THAT ARE PARALLEL TO DECK SPAN TYPICAL, UNLESS NOTED OTHERWISE.
  5. LAP EDGES AND ENDS OF ADJOINING SHEETS. PROVIDE LENGTH OF LAP MEASURED BETWEEN OUTER MOST CROSS WIRES OF FABRIC SHEET AND NOT LESS THAN ONE SPACING OF CROSS WIRES PLUS 2 INCHES. LACE OVERLAPS WITH WIRE.
  6. SUPPORT WELDED WIRE MESH ON CHAIRS WITH A 3/4" COVER FROM TOP OF SLAB.
- D. PROVIDE 14 GAUGE COLD FORMED STEEL POUR STOPS WELDED TO STEEL BEAM FLANGE WITH 1" FILLET WELDS AT 12" OC. UNLESS NOTED OTHERWISE.

CSC4 STEEL BEAM CAMBER
- A. DURING SHIPMENT AND HANDLING SUPPORT CAMBERED MEMBERS IN A MANNER THAT WILL MINIMIZE LOSS OF CAMBER.
- B. ERECT MEMBERS WITH CAMBER UP.

CSC5 COMPOSITE STEEL DECK CONNECTIONS
- A. INSTALL DECK WITH ENDS ALIGNED OVER SUPPORTING FRAME WITH A MINIMUM END BEARING LENGTH OF 1.5” WITH END JOINTS BUTTED WITH A MAXIMUM GAP OF 1”. DO NOT OVERLAP.
- B. ATTACH COMPOSITE STEEL DECK TO SUPPORTING STEEL AT 12" OC MAX. ATTACH STEEL DECK TO SUPPORTING STEEL BEAMS BY WELDING SPECIFIED SHEAR CONNECTORS THROUGH DECK BY THE FULL-FUSION PROCESS, AS FURNISHED BY TRW NELSON STUD WELDING DIVISION OR EQUIVALENT. WHERE SPECIFIED SHEAR CONNECTOR SPACING EXCEEDS 12" OC, PROVIDE 3/4" PUDDLE WELDS BETWEEN SHEAR STUD CONNECTORS TO MAINTAIN A MAXIMUM DECK CONNECTION SPACING OF 12" OC. WHERE DECK UNITS ABUT SIDE TO SIDE OR END TO END OVER A STEEL BEAM OR ABUT TO A GIRDER FILLER, PROVIDE 3/4" PUDDLE WELDS AT 12" OC ON EACH DECK UNIT.
- C. WHERE COMPOSITE STEEL DECK IS SUPPORTED BY A STEEL LEDGE ANGLE ATTACHED TO A CONCRETE OR MASONRY WALL, ATTACH DECK TO LEDGE ANGLE WITH 3/4" PUDDLE WELDS AT 12" OC.
- D. WELD GIRDER FILLERS TO STEEL BEAM WITH 2" LONG FILLET WELDS AT A MAXIMUM SPACING OF 12 INCHES.
- E. CONNECT SIDES OF ADJACENT UNITS WITH 1 1/2" LONG WELDS AT 3'-0" OC MAX.

CSC6 CONCRETE PLACEMENT
- A. DO NOT PLACE EXCESSIVE AMOUNTS OF CONCRETE IN ANY ONE LOCATION ON METAL DECK OR ANY ONE BEAM DURING CONCRETE PLACEMENT OPERATION. MONITOR DEFLECTION OF STEEL BEAMS, SLAB THICKNESS AND PLACING OF CONCRETE TO PREVENT EXCESSIVE LOAD ON ANY BEAM.
- B. CONCRETE PLACEMENT IN RESPONSE TO SUPPORTING STEEL DEFLECTIONS.
  1. PLACE FLOOR ELEVATION, UNLESS SPECIFICALLY NOTED OTHERWISE, WITHIN SPECIFIED TOLERANCES. HOWEVER, DECK AND SUPPORTING STEEL WILL DEFLECT AT VARIOUS LOCATIONS DURING CONCRETE PLACEMENT WHICH WILL HAVE IMPACT ON THICKNESS OF SLAB.
  2. STEEL BEAMS WILL NOT DEFLECT AT SUPPORT LOCATIONS SUCH AS COLUMNS, WALLS, PERIMETER GRADE BEAMS, ETC. MAINTAIN SPECIFIED SLAB THICKNESS AND SPECIFIED FINISHED FLOOR ELEVATION AT BEAM SUPPORT LOCATIONS.
  3. DECK WILL DEFLECT BETWEEN SUPPORTS. THEREFORE, SLAB THICKNESS AT MIDSPAN OF DECK WILL BE GREATER THAN SLAB THICKNESS AT DECK SUPPORT LOCATIONS. MAXIMUM ANTICIPATED DECK DEFLECTION IS **3/8"**.
  4. BEAMS WITHOUT A SPECIFIED CAMBER WILL DEFLECT. THEREFORE, SLAB THICKNESS AT THESE BEAMS AND BEAMS THEY SUPPORT, IF ANY, WILL INCREASE OVER SPECIFIED THICKNESS. ANTICIPATED MAXIMUM DEFLECTION OF MEMBERS WITHOUT A SPECIFIED CAMBER IS **3/4"**.
  5. BEAMS WITH SPECIFIED CAMBERS ARE SIZED TO DEFLECT AN AMOUNT EQUAL TO OR SLIGHTLY GREATER THAN SPECIFIED CAMBER. THEREFORE, IF ACTUAL CAMBER IS EQUAL TO SPECIFIED CAMBER, SLAB THICKNESS AT THESE BEAMS AND BEAMS THEY SUPPORT, IF ANY, WILL BE EQUAL TO OR SLIGHTLY THICKER THAN SPECIFIED THICKNESS.
  6. SLAB THICKNESS TOLERANCES:
     - a. AT LOCATIONS WHERE SUPPORTING STEEL AND DECK DO NOT DEFLECT, PLUS SLAB THICKNESS TOLERANCE IS +1/4". AT LOCATIONS WHERE SUPPORTING STEEL AND DECK DO DEFLECT, A PLUS SLAB THICKNESS TOLERANCE IS NOT APPLICABLE SINCE THE SLAB CAN BE THICKER THAN SPECIFIED THICKNESS AT SOME LOCATIONS DUE TO THE DEFLECTION OF THE SUPPORTING STRUCTURE DURING CONCRETE PLACEMENT. HOWEVER, NOTIFY ARCHITECT IMMEDIATELY IF ATTEMPTS TO PROVIDE A SPECIFIED FINAL FLOOR ELEVATION RESULT IN A SLAB THICKNESS GREATER THAN SPECIFIED SLAB THICKNESS BY MORE THAN **1 1/2"**.
     - b. MINUS SLAB THICKNESS TOLERANCE IS -1/4". HOWEVER, NOTIFY ARCHITECT IMMEDIATELY IF ATTEMPTS TO PROVIDE A SPECIFIED FINAL FLOOR ELEVATION RESULTS IN A SLAB THICKNESS THAT IS LESS THAN SPECIFIED THICKNESS, WITH TOLERANCE, DUE TO RESIDUAL CAMBER IN THE BEAMS.
  7. ADJUSTMENTS TO CONTRACT PRICE FOR CONCRETE WILL NOT BE MADE DUE TO EFFECTS OF DECK AND BEAM DEFLECTIONS

CSC7 SHEAR CONNECTORS: ASTM A108, AISI C-1015 THROUGH C-1020, HEADED STUD TYPE, COLD-FINISHED CARBON STEEL; AWS D1.1, TYPE B.
- A. PROVIDE SHEAR CONNECTORS IN ACCORDANCE WITH FOLLOWING:

DECK THICKNESS	TOTAL SLAB THICKNESS	SHEAR CONNECTOR SIZE
1.5" & 2"	4.5"	3/4" DIA X 4"
2", 3", 3.5"	>= 5.5"	3/4" DIA X 5"

- B. SHEAR CONNECTORS INDICATED ARE FINAL INSTALLATION LENGTHS.
- C. APPLY SHEAR CONNECTORS IN FIELD AND PLACE IN DECK FLUTES IN CONTACT WITH TOP FLANGE OF BEAM.
- D. ESTABLISH APPROPRIATE SHEAR CONNECTOR PLACEMENT PRIOR TO INSTALLATION OF SHEAR CONNECTORS.

CSC8 DO NOT LOAD COMPOSITE FLOORS UNTIL CONCRETE REACHES 75 PERCENT OF ITS SPECIFIED STRENGTH.

CSC9 NO CONDUITS ALLOWED IN SLABS.

CSC10 DO NOT HANG CONCENTRATED LOAD EXCEEDING 100LB FROM COMPOSITE METAL DECKING. SUPPORT MEP APPURTENANCES EXCEEDING 100LB BY STEEL BEAMS OR JOISTS.

BAR GRATING:

BG1 DESIGN GRATING PER SPECIFICATIONS AND PER LOADS INDICATED IN CONTRACT DOCUMENTS.

BG2 GALVANIZE GRATING AND COMPLY WITH NAAMM STANDARDS AND TOLERANCES.

BG3 WELD EVERY THIRD BEARING BAR TO SUPPORTING BEAMS WITH 3/16"x1" FILLET WELDS.

BG4 PROVIDE MINIMUM BEARING LENGTHS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS AS REQUIRED TO ACHIEVE ALLOWABLE LOADS LISTED IN MANUFACTURERS LOAD TABLES.

BG5 PROVIDE MAXIMUM DISTANCE BETWEEN END OF GRATING AND VERTICAL LEG OF EDGE ANGLES OF 1/2".

ELEVATOR FRAMING:

EF1 PROVIDE HEAVIER OR REINFORCED GUIDE RAILS WHICH DO NOT REQUIRE INTERMEDIATE STRUCTURAL SUPPORT WHERE FLOOR TO FLOOR DISTANCE IS GREATER THAN ALLOWABLE SPAN FOR ELEVATOR'S STANDARD RAILS. IF REINFORCED RAILS ARE NOT POSSIBLE, PROVIDE ALLOWANCE FOR SUPPLEMENTAL STEEL SPANNING BETWEEN FLOORS AS TYPICAL ELEVATOR RAILING SUPPORT. DESIGN THIS SUPPLEMENTAL STEEL, AS A DELEGATED DESIGN, BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN STATE IN WHICH PROJECT IS LOCATED. IF ELEVATOR RAIL SUPPORT FRAMING APPEARS IN STRUCTURAL DRAWINGS, IT'S INTENT IS DIAGRAMATIC ONLY. REFER TO ELEVATOR DRAWINGS FOR EXACT NUMBER OF ELEVATOR RAILS.

EF2 COORDINATE ELEVATOR PIT DIMENSIONS AND ROUGH FLOOR OPENINGS AND CLEAR HEIGHTS FOR ELEVATORS WITH FINAL FRAMING SHOP DRAWINGS. CLEARLY INDICATE CHANGES TO DIMENSIONS INDICATED ON STRUCTURAL DRAWINGS ON FRAMING SHOP DRAWINGS.

EF3 CONFIRM ELEVATOR REACTIONS INDICATED ON STRUCTURAL DRAWINGS WITH FINAL ELEVATOR SHOP DRAWINGS. CLEARLY INDICATE ON SHOP DRAWINGS ANY CHANGES TO REACTIONS INDICATED ON STRUCTURAL DRAWINGS.

EF4 COORDINATE REQUIRED ELEVATOR EMBEDS WITH ELEVATOR MANUFACTURER PRIOR TO CONSTRUCTION.

PRECAST CONCRETE WALL PANELS:

PCW1 DESIGN PRECAST IN ACCORDANCE WITH PROVISIONS OF ACI AND PRECAST CONCRETE INSTITUTE TO PROVIDE POSITIVE LOAD PATH TO FOUNDATIONS FOR OUT OF PLANE AND IN PLANE LATERAL LOADS NOTED IN CONTRACT DOCUMENTS IN ADDITION TO THEIR SELF WEIGHT AND OTHER GRAVITY LOADING FROM FLOOR OR ROOF. WHERE PANELS DO NOT RECEIVE GRAVITY LOADING FROM FLOORS OR ROOF, PROVIDE FOR AT LEAST 1.50" OF VERTICAL MOVEMENT IN FLOOR AND AT LEAST 1.50" OF VERTICAL DOWNWARD MOVEMENT, 0.50" OF VERTICAL UPWARD MOVEMENT IN ROOF FRAMING CONNECTIONS TO PRECAST PANELS.

PCW2 ONLY WALLS INTENDED TO BE PART OF LATERAL FORCE RESISTING SYSTEM. PROVIDE CONNECTIONS BETWEEN PRECAST WALLS AND FLOOR AND ROOF FRAMING TO TRANSMIT OUT-OF-PLANE WIND AND SEISMIC FORCES BUT ARE CONFIGURED TO PREVENT THE TRANSFER OF IN-PLANE FORCES. CONFIGURE CONNECTIONS FOR IN-PLANE LATERAL MOVEMENT OF 2.50 IN. AT LEVEL 2 AND 4.00 IN. AT THE ROOF IN EITHER DIRECTION. ALLOW FOR 2.00 IN. INTERSTORY DRIFT BETWEEN LEVEL 2 AND THE ROOF. ADDITIONALLY, DESIGN CONNECTIONS FOR FORCES THAT MAY RESULT FROM OUT-OF-PLANE DISPLACEMENTS OF 3.50 IN. AT LEVEL 2 AND 6.50 IN. AT THE ROOF WITH MAXIMUM INTERSTORY DRIFT BETWEEN THE 2ND LEVEL AND THE ROOF OF 3.00 IN.

PCW4 PROVIDE COUPLERS AT FOUNDATION (OR AT JOINTS ALONG HEIGHT OF PANELS) CAPABLE OF RESISTING 150% OF YIELD STRENGTH OF REINFORCEMENT BEING COUPLED.

PCW6 FURNISH AND INSTALL INSERTS, BRACES, STRONG-BACKS, AND OTHER REQUIRED LIFTING ACCESSORIES AND LOCATE IN ACCORDANCE WITH ACCEPTED PRACTICES. DESIGN LOCATIONS AND SIZES OF INSERTS, BRACES, OR STRONG-BACKS TO PREVENT CRACKING DUE TO ERECTION STRESSES. SHOULD PROPER INSERTS OR BRACES NOT BE PROVIDED TO MEET THE ABOVE CRITERIA, PROVIDE SPECIAL REINFORCING, AS MAY BE REQUIRED, TO PREVENT FLEXURAL CRACKS FROM OCCURRING IN PANELS DURING LIFTING AND HANDLING OPERATIONS.

PCW7 TEMPORARILY BRACE PANELS SECURELY IN ERECTED POSITION UNTIL THEY CAN BE PERMANENTLY ANCHORED AND BRACED AT FLOOR AND ROOF. DO NOT REMOVE PANEL BRACES UNTIL ROOF STRUCTURE AND DECK ARE COMPLETELY INSTALLED AND ADJOINING FLOOR SLAB IS PLACED AND CURED FOR A MINIMUM OF 7 DAYS.

PCW10 INSULATED PRECAST PANELS:
- A. REFERENCE ARCHITECTURAL DRAWINGS FOR PANEL FINISHES, THICKNESS, AND REVEAL PATTERNS. PROVIDE MAXIMUM 3/4" DEPTH REVEALS
- B. REFERENCE ARCHITECTURAL DRAWINGS FOR DETAILS OF INSULATION OUTSIDE STRUCTURAL PORTION OF PANELS.

STATEMENT OF SPECIAL INSPECTIONS:

SI1 THIS STATEMENT OF SPECIAL INSPECTIONS IS SUBMITTED IN ACCORDANCE WITH THE SPECIAL INSPECTION AND STRUCTURAL TESTING REQUIREMENTS OF THE BUILDING CODE WITH LOCAL AMENDMENTS. IT INCLUDES A SCHEDULE OF SPECIAL INSPECTIONS SERVICES APPLICABLE TO THIS PROJECT.

SI2 THE OWNER SHALL EMPLOY ONE OR MORE QUALIFIED SPECIAL INSPECTORS, APPROVED BY THE BUILDING OFFICIAL, TO PERFORM SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION IN ACCORDANCE WITH BUILDING CODE. SPECIAL INSPECTORS SHALL PERFORM ALL DUTIES AND RESPONSIBILITIES AS REQUIRED BY THE BUILDING CODE. JOB SITE VISITS BY THE STRUCTURAL ENGINEER DO NOT CONSTITUTE AND ARE NOT A SUBSTITUTE FOR SPECIAL INSPECTIONS. ALL INSPECTORS SHALL BE QUALIFIED BY TRAINING AND EXPERIENCE FOR THE REQUIRED INSPECTIONS AND TEST PROCEDURES.

SI3 THE SPECIAL INSPECTOR SHALL KEEP RECORDS OF ALL SPECIAL INSPECTIONS AND TESTS AND SHALL SUBMIT REPORTS OF INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATED THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO COMPLETION OF THAT PHASE OF THE WORK. INTERIM TESTING AND INSPECTION REPORTS SHALL BE SUBMITTED ON A DAILY BASIS TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING THE REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS, SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL.

SI4 IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THE REQUIRED SPECIAL INSPECTIONS AND TESTS ARE PERFORMED IN ACCORDANCE WITH THE BUILDING CODE AND CONSTRUCTION DOCUMENTS. THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO COMPLY WITH THE CONTRACT DOCUMENTS. JOB SITE SAFETY AND MEANS AND METHODS OF CONSTRUCTION ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

SI5 ARCHITECTURAL, MECHANICAL AND ELECTRICAL COMPONENTS REQUIRING SPECIAL INSPECTIONS AND TESTING PER THE BUILDING CODE ARE NOT LISTED HERE. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR SPECIAL INSPECTION REQUIREMENTS FOR THESE COMPONENTS.

SI6 THE FOLLOWING SPECIAL INSPECTIONS AND TESTS SCHEDULE CONTAINS A LIST OF THE MATERIALS, SYSTEMS, COMPONENTS AND WORK REQUIRED TO HAVE SPECIAL INSPECTIONS AND/OR TESTS BY THE SPECIAL INSPECTOR RESPONSIBLE FOR EACH PORTION OF THE WORK. REFER TO THE GENERAL NOTES AND PROJECT SPECIFICATIONS FOR ADDITIONAL INSPECTION AND TESTING REQUIREMENTS. WHERE CONFLICTS OCCUR, THE MOST STRINGENT REQUIREMENT SHALL CONTROL.

A

SPECIAL INSPECTIONS AND TESTS SCHEDULE PER IBC 2021

CHECK IF APPLICABLE	MATERIALS, SYSTEMS, COMPONENTS AND WORK REQUIRED TO HAVE SPECIAL INSPECTIONS OR TESTS BY THE SPECIAL INSPECTOR RESPONSIBLE FOR EACH PORTION OF THE WORK	SPECIAL INSPECTION SHALL BE PERFORMED IN ACCORDANCE WITH IBC SECTION
■	STRUCTURAL STEEL	1705.2
■	CONCRETE CONSTRUCTION	1705.3
☐	MASONRY CONSTRUCTION	1705.4
☐	WOOD CONSTRUCTION	1705.5
■	SOILS	1705.6
☐	DRIVEN DEEP FOUNDATIONS	1705.7
■	CAST-IN-PLACE DEEP FOUNDATIONS	1705.8
☐	HELICAL PILE FOUNDATIONS	1705.9
☐	STRUCTURAL INTEGRITY OF DEEP FOUNDATION ELEMENTS	1705.10
■	FABRICATED ITEMS	1705.11
☐	SPECIAL INSPECTIONS FOR WIND RESISTANCE	1705.12
☐	SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE	1705.13
☐	TESTING FOR SEISMIC RESISTANCE	1705.14

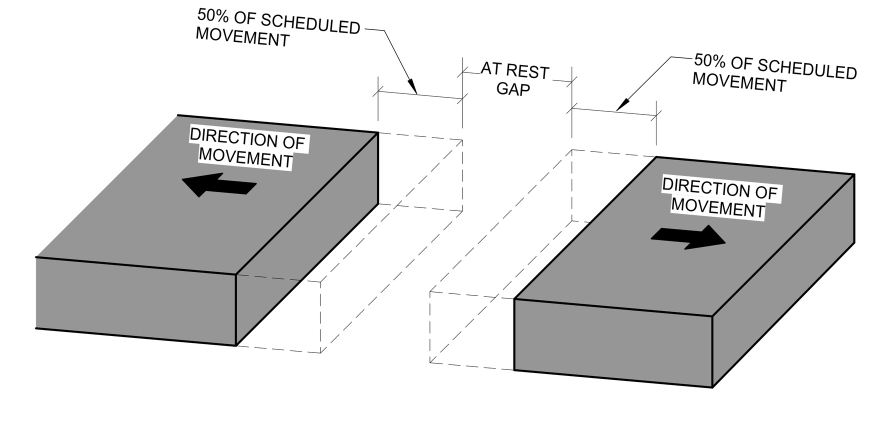
NON-COMPOSITE TOPPING SLABS:

NCT1 WHERE INDICATED IN CONTRACT DOCUMENTS PROVIDE MINIMUM 3 INCH THICK NON-COMPOSITE TOPPING SLAB REINFORCED WITH 4 LBS/CYD STRUX 90/40 STRUCTURAL FIBER OR EQUIVALENT REINFORCING, UNLESS NOTED OTHERWISE.

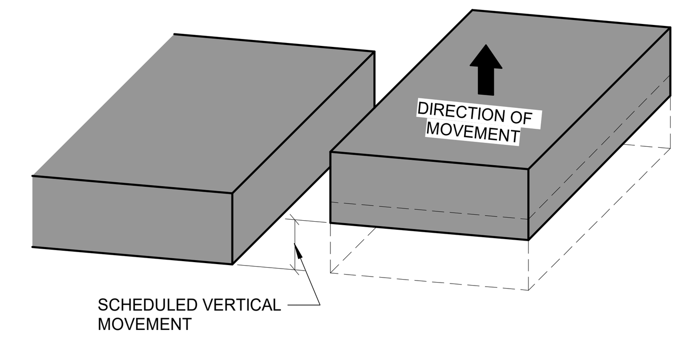
NCT2 PROVIDE BASE CONCRETE SURFACE BELOW TOPPING WITH A SMOOTH TROWELED FINISH. PLACE BOND BREAKER BETWEEN BASE CONCRETE SURFACE AND TOPPING SLAB.

NCT3 PROVIDE JOINT PATTERN INDICATED IN ARCHITECTURAL DRAWINGS BUT DO NOT EXCEED JOINT SPACING OF 5 FEET ON CENTER IN EITHER DIRECTION. PROVIDE 1/2 INCH DEEP JOINTS TOOLED OR SAWED WITHIN 4 HOURS OF CONCRETE PLACEMENT.

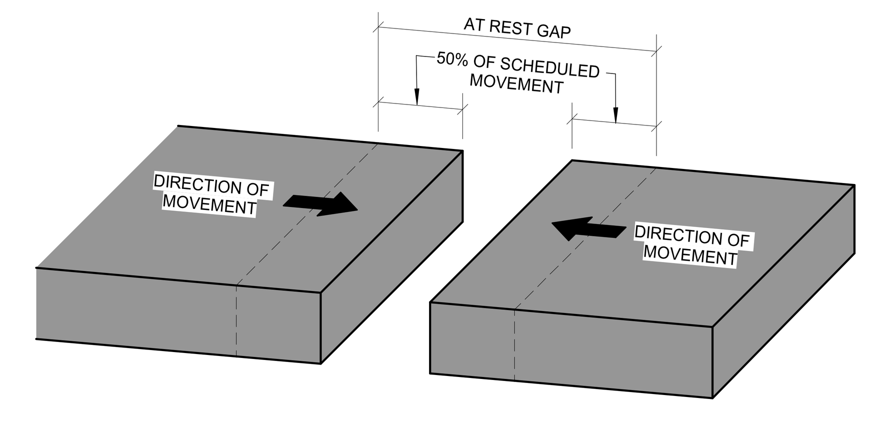
NCT4 WET CURE TOPPING SLABS.



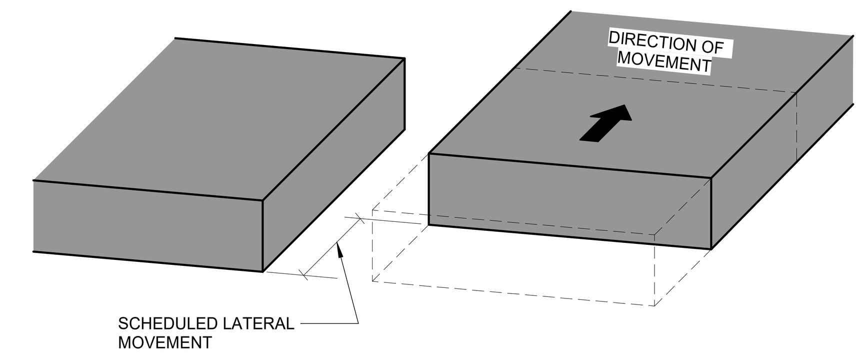
MAXIMUM OUTWARD LATERAL MOVEMENT PERPENDICULAR TO JOINT (1)



MAXIMUM VERTICAL MOVEMENT PERPENDICULAR TO JOINT (3)



MAXIMUM INWARD LATERAL MOVEMENT PERPENDICULAR TO THE JOINT (2)



MAXIMUM LATERAL MOVEMENT PARALLEL TO THE JOINT (4)

SEPARATION JOINT ANTICIPATED MOVEMENTS

LEVEL	MAXIMUM OUTWARD LATERAL MOVEMENT PERPENDICULAR TO JOINT (1)	MAXIMUM INWARD LATERAL MOVEMENT PERPENDICULAR TO JOINT (2)	MAXIMUM VERTICAL MOVEMENT PERPENDICULAR TO JOINT (3)	MAXIMUM LATERAL MOVEMENT PARALLEL TO THE JOINT (4)
ROOF	4.75"	4.75"	1.75"	7.75"
SECOND FLOOR	3.25"	3.25"	1.75"	4.50"

NOTES:

1. JOINT DEVICES SHALL ACCOMODATE THE SIMULTANEOUS MOVEMENTS NOTED ABOVE. (1) THRU (4)

SEPARATION JOINT MOVEMENT DETAIL

1 GENERAL NOTES CONTINUED

12" = 1'-0"

CORGAN

401 N. Houston Street Dallas, TX 75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLD DESIGN CONSULTING LLC

ISSUES		
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

REVISIONS		
A	04.24.25	COA - PERMIT COMMENTS

COLORADO LICENSED PROFESSIONAL ENGINEER NICHOLAS W. DAVID 65236

AG&E Structural Engenuity
F-8435

Date of issue:
04.24.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

GENERAL NOTES

JOB 24464.0000
DATE 04.24.2025
SHEET

S0-02

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

4/24/2025 4:16:44 PM S0-02 GENERAL NOTES

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

FIRST FLOOR LOADING LEGEND

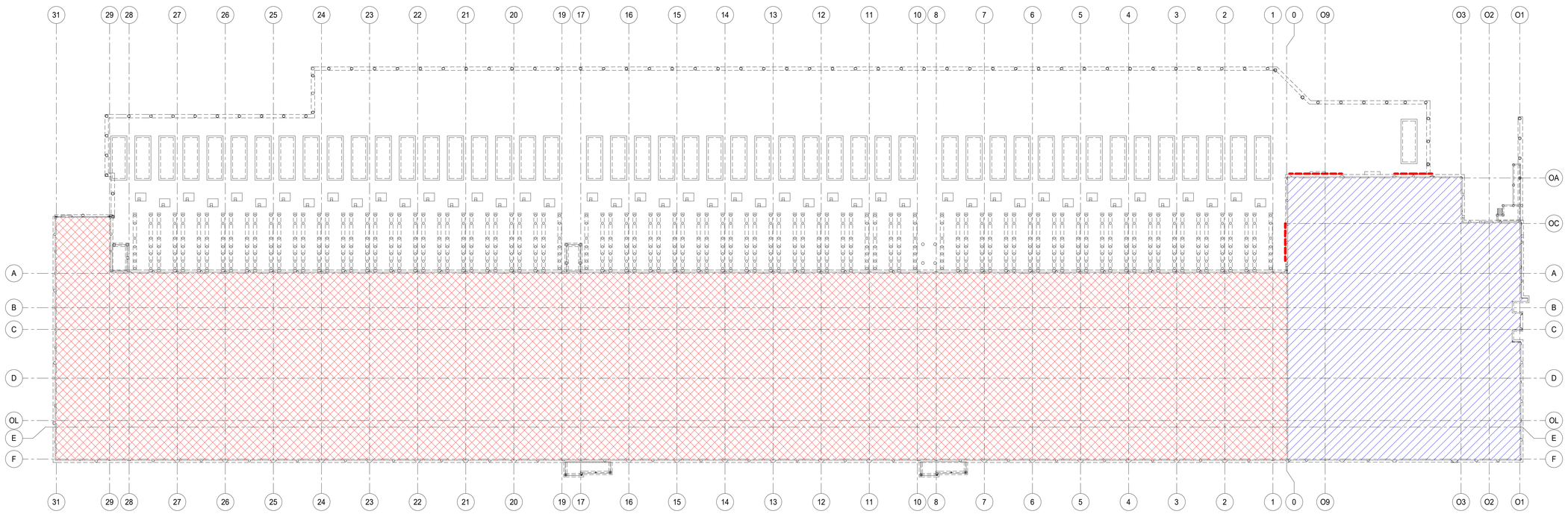
DESIGN DEAD LOADS
SLAB ON GRADE.....SELF WT

DESIGN CABINETS STORAGE LOADS
FLOOR LOADS.....SINGLE ARRAY OF SINGLE 6,000LBS (4'-6" x 2'-0" RACK DIMENSIONS) SERVER CABINETS SEPARATED BY 6' HOT AISLES AND 6' COLD AISLES 3,000 LB (CONCENTRATED)

DESIGN LIVE LOADS
FLOOR LIVE (TYP).....40 PSF IN HOT AISLES, 100 PSF IN COLD AISLES

DESIGN DEAD LOADS
SLAB ON GRADE.....SELF WT

DESIGN LIVE LOADS
FLOOR LIVE LOADS.....250 PSF (REDUCIBLE) 2,000 LB (CONCENTRATED)
MECHANICAL/ELECTRICAL/STORAGE.....250 PSF (UNREDUCIBLE) 2,000 LB (CONCENTRATED)



2 FIRST FLOOR LOADING DIAGRAM
1" = 40'-0"

2/4/2025 4:06:33 PM S0-03 LOADING DIAGRAM

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLC DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

	REVISIONS	

COLORADO LICENSED NICHOLAS W. HAND 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

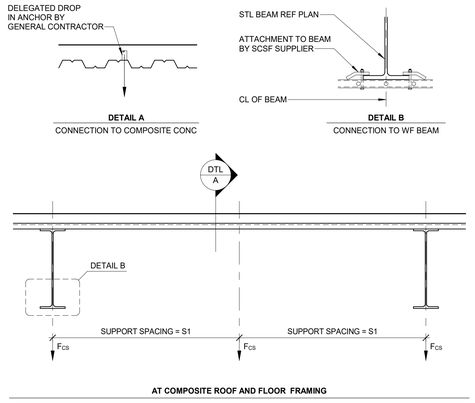
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STRUCTURED CEILING SUPPORT NOTES:

1. REFER TO THE LOADING DIAGRAMS FOR COLLATERAL DEAD LOADS HANGING BELOW THE FLOORS AND ROOF FOR WHICH THE STRUCTURED CEILING SUPPORT FRAMING (SCSF) SHALL BE DESIGNED FOR.
2. DESIGN OF ALL SCSF AND ITS APPURTENANCES IS CONSIDERED DELEGATED DESIGN AND SHALL BE PERFORMED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED.
3. HANGERS TO SUPPORT THESE STRUCTURED CEILINGS AND/OR THE SCSF MAY BE ATTACHED DIRECTLY TO THE COMPOSITE CONCRETE SLAB OR ROOF USING THE ANCHORS AS SHOWN IN THIS DETAIL. DESIGN OF ANY ALTERNATE HANGERS ATTACHMENT METHOD TO THE COMPOSITE CONCRETE SLAB OR ROOF SHALL BE CONSIDERED PART OF THE DELEGATED DESIGN OF THE SCSF AND WILL BECOME THE RESPONSIBILITY OF THE SCSF SYSTEM'S STRUCTURAL ENGINEER.
4. THE CONTRACTOR MUST CARRY AN APPROPRIATE ALLOWANCE IN THEIR BIDS FOR ANY MISCELLANEOUS FRAMING THAT IS REQUIRED TO BYPASS ANY OBSTRUCTION SUCH AS AN EXISTING MEP APPURTENANCE OR A FRAMING MEMBER TO TRANSMIT THE HANGING LOAD TO THE ANCHORS AS SHOWN IN THIS DETAIL.
5. IF THE STRUCTURED CEILING HANGERS ARE ATTACHED DIRECTLY TO THE COMPOSITE SLAB, ANY OTHER MEP APPURTENANCES GREATER THAN 100 POUNDS MUST BE HUNG FROM FLOOR FRAMING MEMBERS, NOT FROM THE SLAB.
6. ATTACHMENT OF THE SCSF AND/OR THE CEILING HANGER TO THE METAL ROOF DECK IS NOT ALLOWED.
7. ATTACHMENTS TO FLOOR FRAMING MEMBERS SHALL BE SYMMETRICAL TO THE CENTERLINE OF THE FRAMING MEMBER, AND ANY CLAMP TYPE DEVICES THAT INDUCE TORSIONAL STRESSES IN THE FLOOR FRAMING MEMBERS ARE NOT PERMITTED.

2 STRUCTURED CEILING ATTACHMENT DETAIL
3/4" = 1'-0"

SECOND FLOOR LOADING LEGEND

DESIGN DEAD LOADS
FRAMING MEMBERS.....SELF WEIGHT
MISC (CEILING, MECH, FLOORING, ETC).....15 PSF

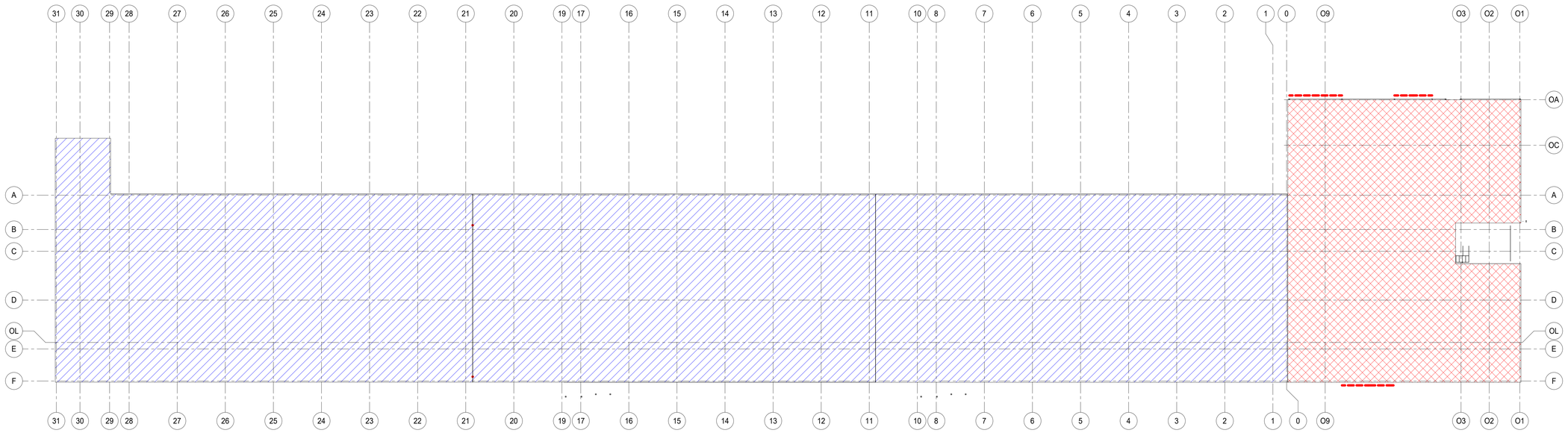
DESIGN LIVE LOADS
FLOOR LIVE (TYP).....250 PSF (UNREDUCIBLE)
250 PSF (UNREDUCIBLE AT STAIRS)
250 PSF (UNREDUCIBLE AT STORAGE ROOMS)
2,000 LB (CONCENTRATED)

DESIGN DEAD LOADS
COLLATERAL HANGING BELOW FLOOR FRAMING.....100 PSF
ATTACHMENTS TO FLOOR FRAMING MEMBERS SHALL BE SYMMETRICAL TO THE CENTERLINE OF THE FRAMING MEMBER. NO ATTACHMENT TO THE UNDERSIDE OF DECK ALLOWED. 65 PSF FOR WEIGHT OF BASE BUILDING SYSTEMS INCLUDING THE WEIGHT OF THE CEILING SYSTEM + 35 PSF HANGING LOAD AVAILABLE TO THE CUSTOMER). REF 2-S0-04 FOR ADD'L INFO.

FLOOR DEAD LOAD.....SELF WEIGHT

DESIGN SERVER CABINET STORAGE LOADS:
FLOOR LOADS.....SINGLE ARRAY OF SINGLE 6,000 LBS (4'-6" x 2'-0" RACK DIMENSIONS) SERVER CABINETS SEPARATED BY 6' HOT AISLES AND 6' COLD AISLES
3,000 LBS (CONCENTRATED)

DESIGN LIVE LOADS
FLOOR LIVE (TYP).....40 PSF IN HOT AISLES, 100 PSF IN COLD AISLES



1 SECOND FLOOR LOADING DIAGRAM
1" = 40'-0"

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ISSUES

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REVISIONS

COLORADO LICENSED
NICHOLAS W. [illegible]
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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ROOF LOADING LEGEND

DESIGN DEAD LOADS
FRAMING MEMBERS.....SELF WT
ROOFING AND INSULATION.....10 PSF
COLLATERAL HANGING BELOW ROOF FRAMING.....8 PSF
(INCLUDES CEILINGS, PIPING, DUCTWORK, LIGHTS, ELECTRICAL)

DESIGN LIVE LOADS
ROOF LIVE.....20 PSF (UNREDUCIBLE)
ROOF SNOW.....40 PSF + DRIFTS (UNREDUCIBLE)

DESIGN DEAD LOADS
FRAMING MEMBERS.....SELF WT
ROOFING INSULATION.....10 PSF
COLLATERAL HANGING BELOW FLOOR FRAMING.....100 PSF
ATTACHMENTS TO FLOOR FRAMING MEMBERS SHALL BE SYMMETRICAL TO THE CENTERLINE OF THE FRAMING MEMBER. NO ATTACHMENT TO THE UNDERSIDE OF DECK IS ALLOWED. 65 PSF FOR WEIGHT OF BASE BUILDING SYSTEMS INCLUDING THE WEIGHT OF THE CEILING SYSTEM + 35 PSF HANGING LOAD AVAILABLE TO THE CUSTOMER). REF 2-S0-04 FOR ADDTL INFO

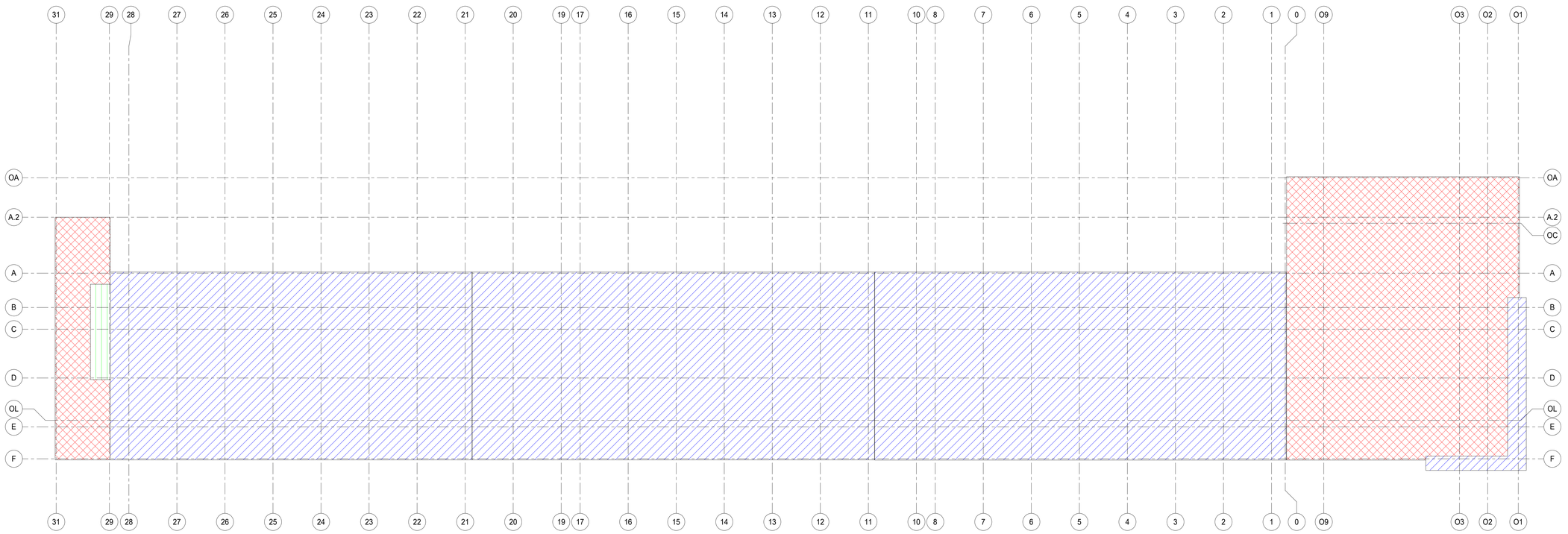
DESIGN LIVE LOADS
ROOF LIVE.....20 PSF (UNREDUCIBLE)
ROOFING INSULATION.....SEE SNOW LOADING PLAN

DESIGN LIVE LOADS
ROOF LIVE.....20 PSF (UNREDUCIBLE)
ROOF SNOW.....40 PSF + DRIFTS

DESIGN DEAD LOADS
FRAMING MEMBERS.....SELF WT
MISC (CEILING, MECH, FLOORING, ETC).....10 PSF

DESIGN LIVE LOADS
FLOOR LIVE.....100 PSF (UNREDUCIBLE)
100 PSF (UNREDUCIBLE AT STAIRS)
100 PSF (UNREDUCIBLE AT STORAGE ROOMS)

2,000 LBS (CONCENTRATED)



1 ROOF LOADING DIAGRAM
1" = 40'-0"

2/4/2025 4:06:39 PM S0-05 LOADING DIAGRAM

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REVISIONS

COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
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Date of issue:
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KEYPLAN

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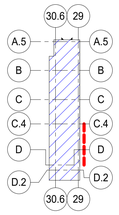
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PENTHOUSE ROOF LOADING LEGEND

DESIGN DEAD LOADS
FRAMING MEMBERS.....SELF WT
ROOFING INSULATION.....10 PSF
COLLATERAL HANGING BELOW ROOF FRAMING.....8 PSF
(INCLUDES CEILINGS, PIPING, DUCTWORK, LIGHTS, ELECTRICAL)

DESIGN LIVE LOADS
ROOF LIVE.....20 PSF (UNREDUCIBLE)



PLATFORM LOADING LEGEND

DESIGN DEAD LOADS
FRAMING MEMBERS.....SELF WT

DESIGN LIVE LOADS
FLOOR LIVE.....60 PSF (UNREDUCIBLE)
EQUIPMENT LOADING.....SELF WT
HANGING BELOW PLATFORM FRAMING.....50 PSF (UNREDUCIBLE)

DESIGN DEAD LOADS
FRAMING MEMBERS.....SELF WT

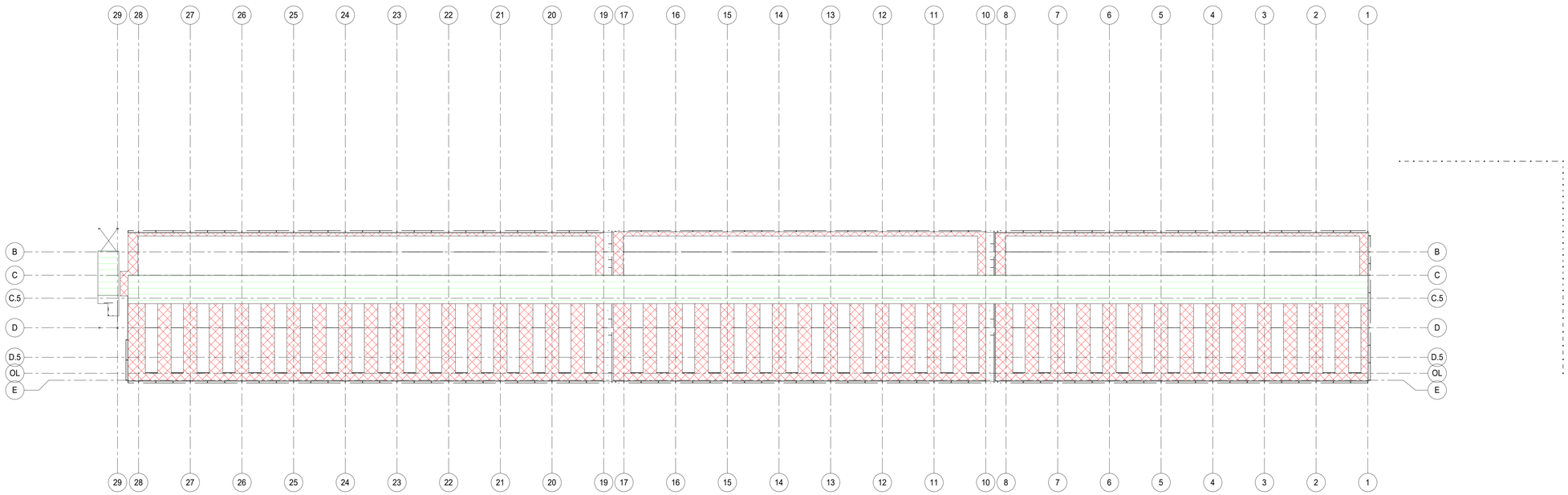
DESIGN LIVE LOADS
FLOOR LIVE.....60 PSF (UNREDUCIBLE)
EQUIPMENT LOADING.....SELF WT
HANGING BELOW PLATFORM FRAMING.....100 PSF (UNREDUCIBLE)

DESIGN DEAD LOADS
FRAMING MEMBERS.....SELF WT
MISC (CEILING, MECH, FLOORING, ETC.).....15 PSF

DESIGN DEAD LOADS
FLOOR LIVE.....100 PSF (UNREDUCIBLE)
100 PSF (UNREDUCIBLE AT STAIRS)
100 PSF (UNREDUCIBLE AT STORAGE ROOM)
2,000 LB (CONCENTRATED)

2 PENTHOUSE ROOF LOADING DIAGRAM

1" = 40'-0"



1 PLATFORM LOADING DIAGRAM

1" = 40'-0"

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NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

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F-8435

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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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2/4/2025 4:06:40 PM S0-06 LOADING DIAGRAM

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SNOW LOADING KEY

1	81 PSF+ BALANCED SNOW LOAD, X = 16'-10'
2	173 PSF+ BALANCED SNOW LOAD, X = 28'-0'
3	226 PSF+ BALANCED SNOW LOAD, X = 12'-0"
4	94 PSF+ BALANCED SNOW LOAD, X = 19'-6"
5	184 PSF+ BALANCED SNOW LOAD, X = 38'-6"
6	46 PSF+ BALANCED SNOW LOAD, X = 10'-0"
7	66 PSF+ BALANCED SNOW LOAD, X = 24'-6"
8	94 PSF+ BALANCED SNOW LOAD, X = 14'-9"
9	225 PSF+ BALANCED SNOW LOAD, X = 46'-6"
10	79 PSF+ BALANCED SNOW LOAD, X = 16'-4"
11	39 PSF+ BALANCED SNOW LOAD, X = 8'-3"
12	266 PSF+ BALANCED SNOW LOAD, X = 37'-8"
13	44 PSF+ BALANCED SNOW LOAD, X = 26'-0"
14	66 PSF+ BALANCED SNOW LOAD, X = 33'-6"
15	172 PSF+ BALANCED SNOW LOAD, X = 36'-0"

SNOW LOADING PRESENTED FOR INFORMATION ONLY. DRIFTS HAVE BEEN CONSIDERED IN JOIST AND JOIST GIRDER SELECTIONS SHOWN ON PLANS.

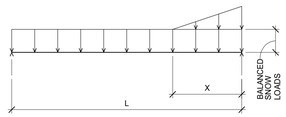
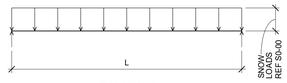
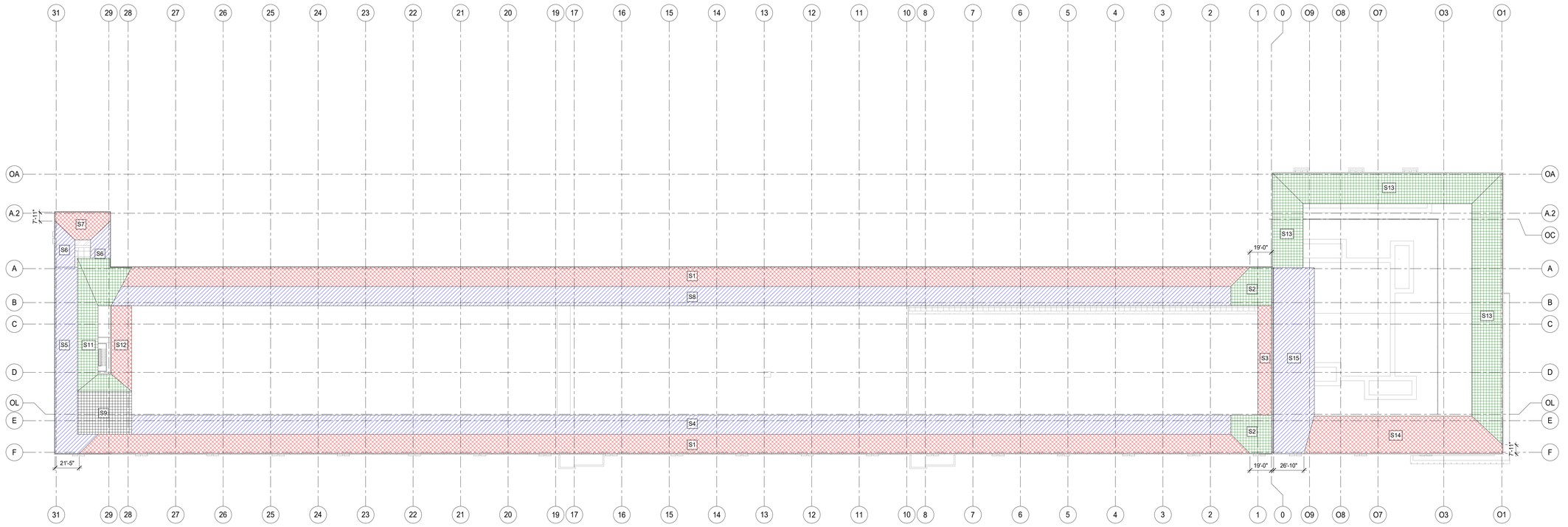


DIAGRAM 1



BALANCED



1 ROOF SNOW LOADING DIAGRAM
1" = 40'-0"

2/4/2025 4:06:41 PM S0-07 SNOW LOAD DIAGRAM

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KEYPLAN

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SNOW LOAD DIAGRAM

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SNOW LOADING KEY

1	227 PSF+ BALANCED SNOW LOAD, X = 16'-10'
2	117 PSF+ BALANCED SNOW LOAD, X = 28'-0'
3	51 PSF+ BALANCED SNOW LOAD, X = 12'-0"

SNOW LOADING PRESENTED FOR INFORMATION ONLY. DRIFTS HAVE BEEN CONSIDERED IN JOIST AND JOIST GIRDER SELECTIONS SHOWN ON PLANS.

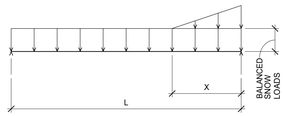
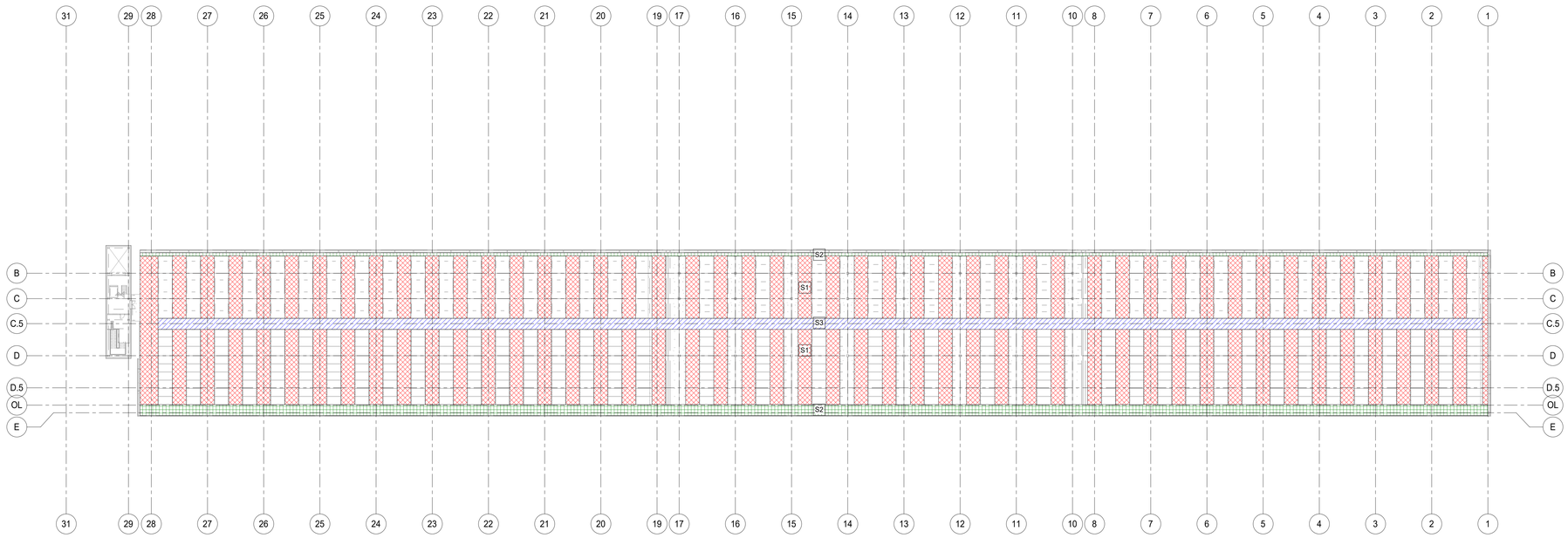


DIAGRAM 1



BALANCED



1 PLATFORM SNOW LOADING DIAGRAM
1" = 40'-0"

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KEYPLAN

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SNOW LOAD DIAGRAM

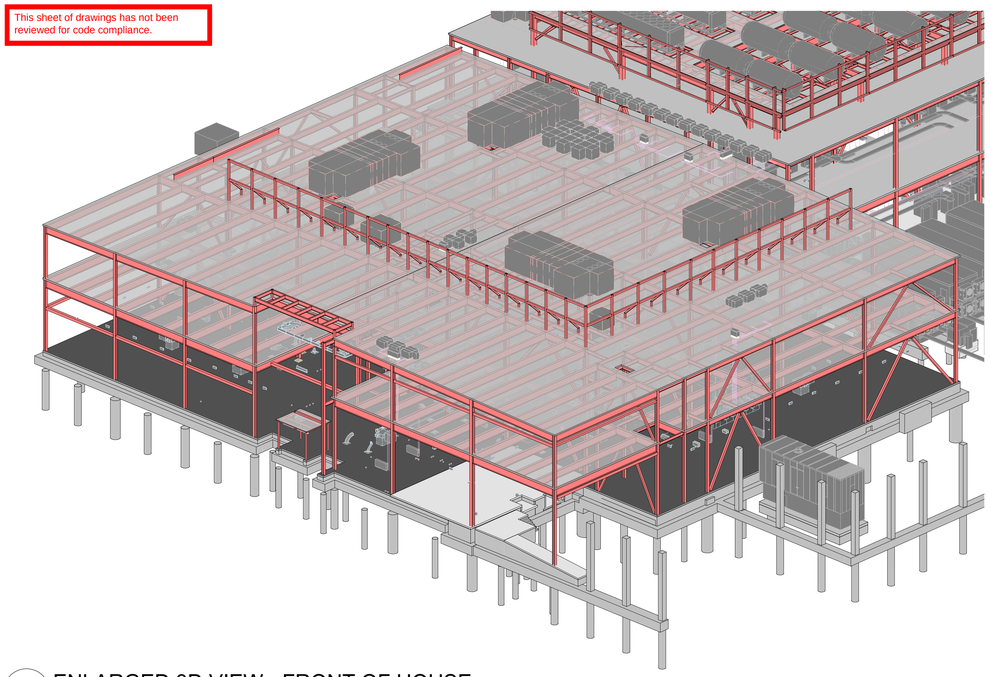
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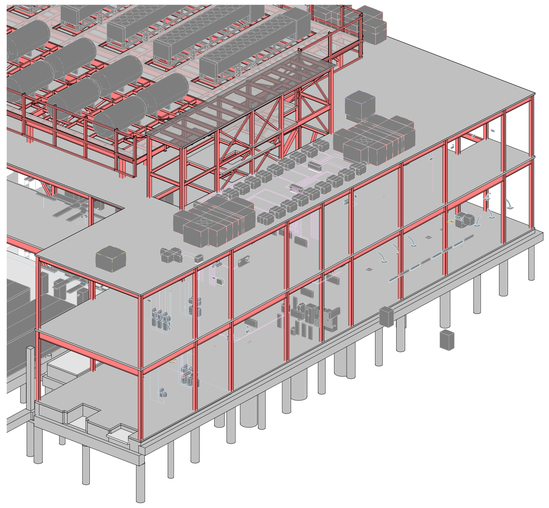
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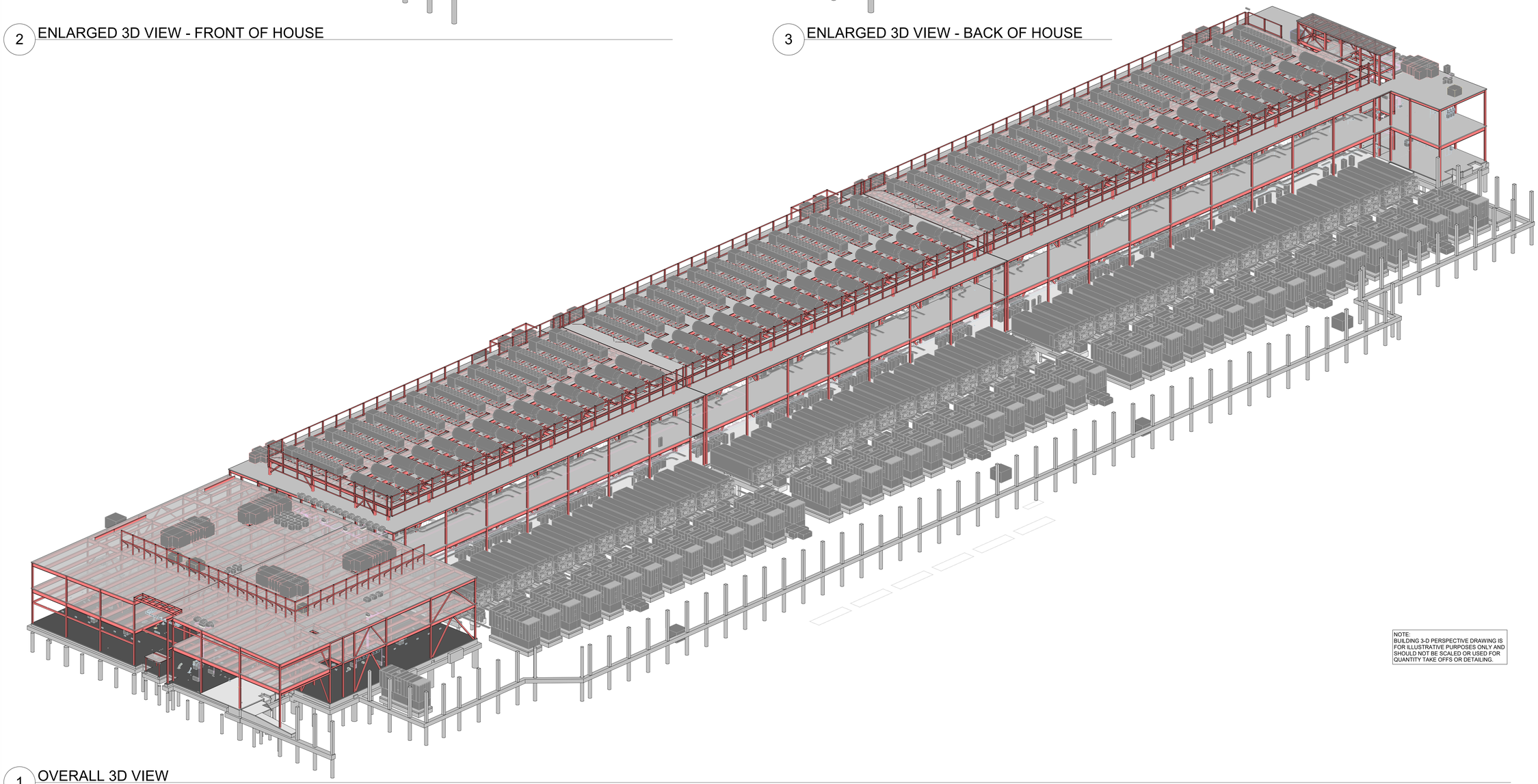
RSN: 1881854 | PERMIT#: 25-2513934-CM



2 ENLARGED 3D VIEW - FRONT OF HOUSE



3 ENLARGED 3D VIEW - BACK OF HOUSE



NOTE:
BUILDING 3-D PERSPECTIVE DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY AND SHOULD NOT BE SCALED OR USED FOR QUANTITY TAKE OFFS OR DETAILING.

1 OVERALL 3D VIEW

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OVERALL 3D VIEW

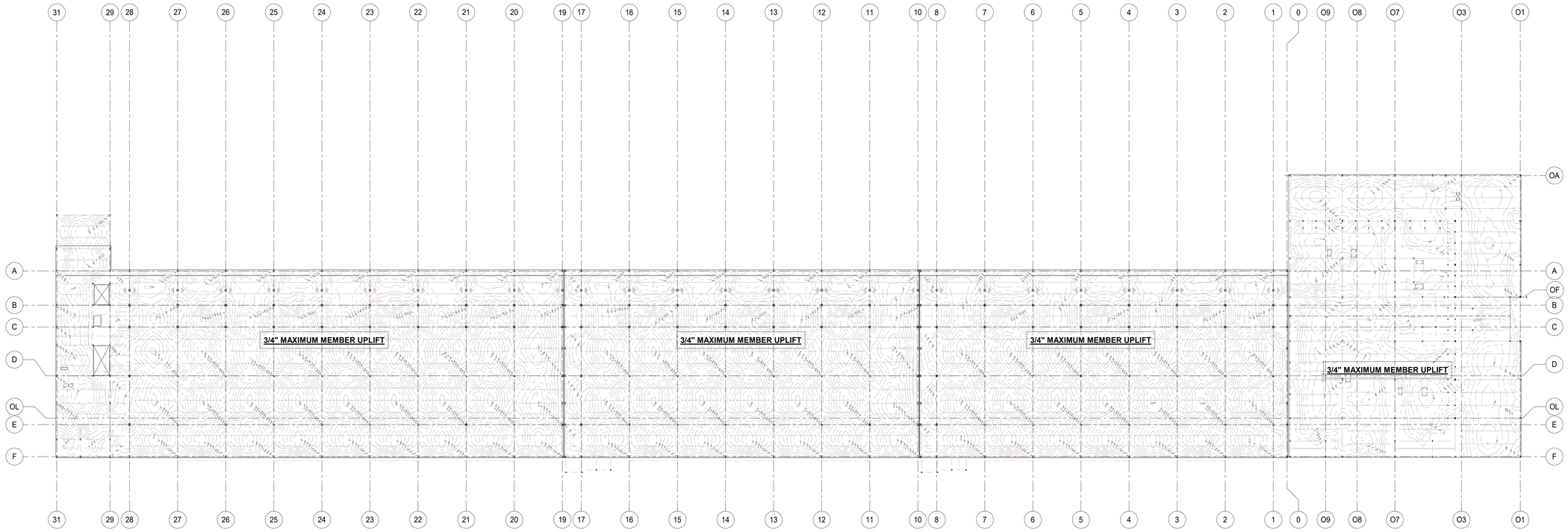
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2/4/2025 4:07:27 PM S0-09 OVERALL 3D VIEW

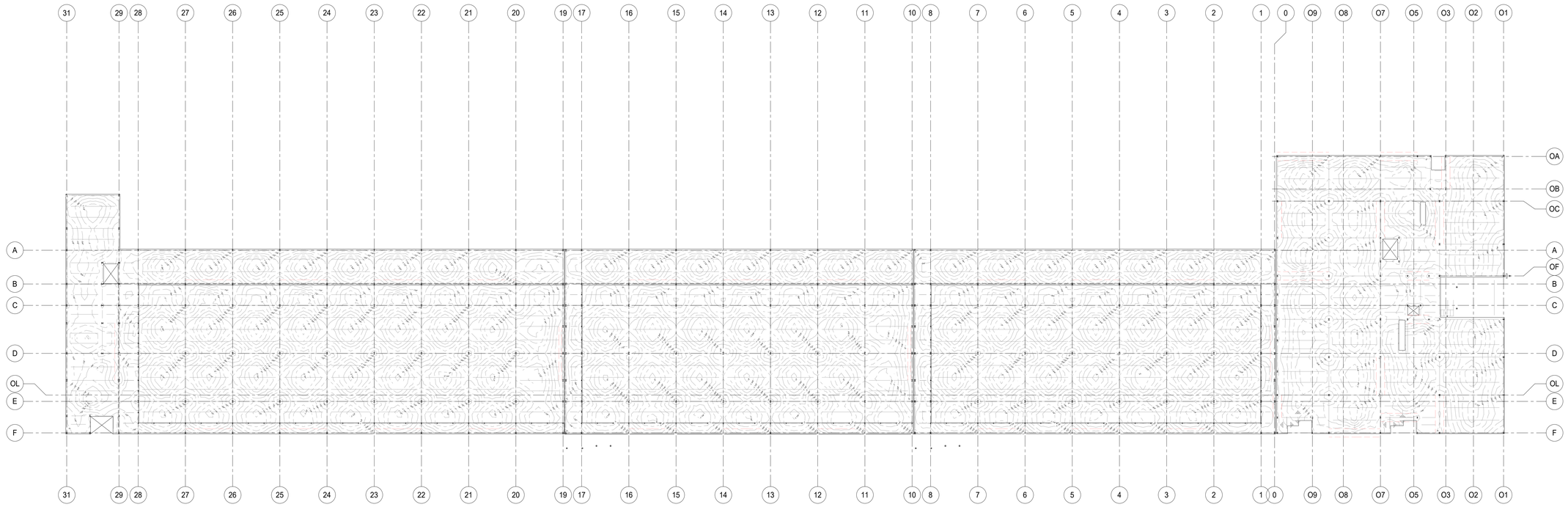
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2 ROOF DEFLECTION DIAGRAM

1" = 40'-0"



1 SECOND FLOOR DEFLECTION DIAGRAM

1" = 40'-0"

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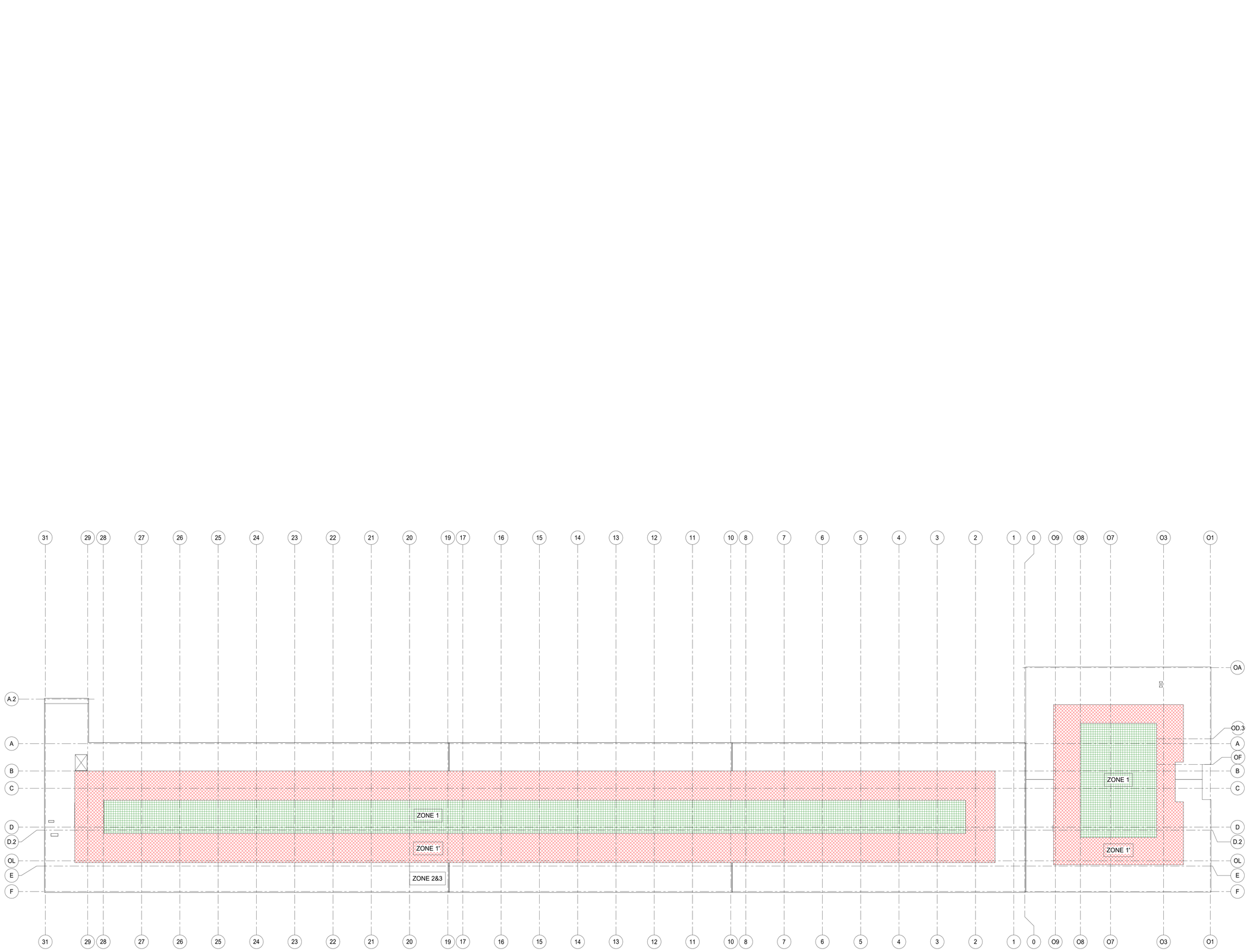
DEFLECTION DIAGRAM

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2/4/2025 4:07:40 PM S0-10 DEFLECTION DIAGRAM

City of Aurora Building Division
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1 ROOF WIND UPLIFT DIAGRAM
1" = 40'-0"

2/4/2025 4:07:41 PM S0-11 ROOF WIND UPLIFT DIAGRAM

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ROOF WIND
UPLIFT DIAGRAM

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S0-11

City of Aurora Building Division
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SPECIAL INSPECTIONS

SPECIAL INSPECTIONS SHALL CONFORM TO SECTION 1705 OF THE 2021 IBC, CONTRACT DOCUMENTS AND APPROVED SUBMITTALS.

THESE ARE CONSIDERED MINIMUM SPECIAL INSPECTION REQUIREMENTS FOR STRUCTURAL ITEMS. CONTRACTOR TO FULFILL ADDITIONAL SPECIAL INSPECTIONS REQUIRED BY OWNER AND OTHER DISCIPLINES.

THE OWNER SHALL EMPLOY A SPECIAL INSPECTOR DURING CONSTRUCTION ON THE FOLLOWING PHASES OF WORK:

STEEL CONSTRUCTION

THE SPECIAL INSPECTIONS AND NONDESTRUCTIVE TESTING OF STEEL CONSTRUCTION IN BUILDINGS, STRUCTURES, AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH THIS SECTION.

EXCEPTION:
SPECIAL INSPECTIONS OF THE STEEL FABRICATION PROCESS SHALL NOT BE REQUIRED WHERE THE FABRICATOR DOES NOT PERFORM ANY WELDING, THERMAL CUTTING OR HEATING OPERATION OF ANY KIND AS PART OF THE FABRICATION PROCESS. IN SUCH CASES, THE FABRICATOR SHALL BE REQUIRED TO SUBMIT A DETAILED PROCEDURE FOR MATERIAL CONTROL THAT DEMONSTRATES THE FABRICATOR'S ABILITY TO MAINTAIN SUITABLE RECORDS AND PROCEDURES SUCH THAT, AT ANY TIME DURING THE FABRICATION PROCESS, THE MATERIAL SPECIFICATION AND GRADE FOR THE MAIN STRESS-CARRYING ELEMENTS ARE CAPABLE OF BEING DETERMINED. MILL TEST REPORTS SHALL BE IDENTIFIABLE TO THE MAIN STRESS-CARRYING ELEMENTS WHEN REQUIRED BY THE APPROVED CONSTRUCTION DOCUMENTS.

NOTE 1
THE SPECIAL INSPECTOR NEED NOT BE CONTINUOUSLY PRESENT DURING WELDING OF THE FOLLOWING ITEMS, PROVIDED THAT THE MATERIALS, WELDING PROCEDURES AND QUALIFICATIONS OF WELDERS ARE VERIFIED PRIOR TO THE START OF THE WORK; PERIODIC INSPECTIONS ARE MADE OF THE WORK IN PROGRESS; AND A VISUAL INSPECTION OF ALL WELDS IS MADE PRIOR TO COMPLETION OR PRIOR TO SHIPMENT OF SHOP WELDING:
- SINGLE-PASS FILLET WELDS NOT EXCEEDING 5/16 INCH (7.9 MM) IN SIZE.
- FLOOR AND ROOF DECK WELDING.
- WELDED STUDS WHERE NOT INSTALLED WITH AN AUTOMATICALLY TIMED STUD WELDING MACHINE IN ACCORDANCE WITH SECTION 7 OF AWS D1.1.
- WELDED SHEET STEEL FOR COLD-FORMED STEEL MEMBERS.
- WELDING OF STAIRS AND RAILING SYSTEMS.

FOR WELDED STUDS INSTALLED WITH AN AUTOMATICALLY TIMED STUD WELDING MACHINE AND IN ACCORDANCE WITH SECTION 7 OF AWS D1.1, THE SPECIAL INSPECTOR NEED NOT BE CONTINUOUSLY PRESENT DURING INSTALLATION OF WELDED STUDS SUBJECT TO THE FOLLOWING PROVISIONS:
THE SPECIAL INSPECTOR SHALL PERFORM A VISUAL INSPECTION OF ALL WELDED STUDS IN ACCORDANCE WITH SECTIONS 7 AND 7.8.1 OF AWS D1.1. VISUAL INSPECTION OF WELDED STUDS INSTALLED WITH AN AUTOMATICALLY TIMED STUD WELDING MACHINE MAY TAKE PLACE EITHER IN THE FABRICATION SHOP PRIOR TO COMPLETION OR PRIOR TO SHIPMENT, OR ON-SITE PRIOR TO COVERAGE.
THE FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

STRUCTURAL STEEL
SPECIAL INSPECTIONS AND NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS IN BUILDINGS, STRUCTURES, AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF AISC 360.

EXCEPTION:
SPECIAL INSPECTION OF RAILING SYSTEMS COMPOSED OF STRUCTURAL STEEL ELEMENTS SHALL BE LIMITED TO WELDING INSPECTION OF WELDS AT THE BASE OF CANTILEVERED RAIL POSTS.

STRUCTURAL DETAILS

THE QAI SHALL BE ON THE PREMISES FOR INSPECTION DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. AS A MINIMUM, THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE, SHALL BE VERIFIED PRIOR TO PLACEMENT OF CONCRETE.
THE QAI SHALL INSPECT THE FABRICATED STEEL OR ERECTED STEEL FRAME, AS APPROPRIATE, TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION DOCUMENTS.

INSPECTION OF WELDING

WELDING INSPECTION TASKS SHALL BE IN ACCORDANCE WITH THE TABLES BELOW.

O - OBSERVE ON A RANDOM BASIS
P - PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER
QC - QUALITY CONTROL
QCI - QUALITY CONTROL INSPECTION
QA - QUALITIY ASSURANCE
QAI - QUALITY ASSURANCE INSPECTION

REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD*
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:			
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS AND SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	AISC 360, SECTION A3.3 AND APPLICABLE ASTM MATERIAL STANDARDS
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	X	-
2. INSPECTION OF HIGH-STRENGTH BOLTING:			
a. SNUG-TIGHT JOINTS.	-	X	AISC 360, SECTION M2.5 SEE ADDITIONAL REQUIREMENT IN AISC 360, SECTION N5. ITEM 6
b. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION.	-	X	
c. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION.	X	-	
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL:			
a. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360.	-	X	AISC 360, SECTION N2.1
b. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	APPLICABLE ASTM MATERIAL STANDARDS
c. MANUFACTURER'S CERTIFIED TEST REPORTS.	-	X	-
4. MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK:			
a. MANUFACTURER'S CERTIFIED TEST REPORTS.	-	X	-
5. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:			
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	AISC 360, SECTION A3.5 ANDAPPLICABLE AWS A5 DOCUMENTS
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	X	-
6. INSPECTION OF WELDING:			
a. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:			
1) COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS.	X	-	AWS D1.1
2) MULTIPASS FILLET WELDS.	X	-	
3) SINGLE-PASS FILLET WELDS > 5/16".	X	-	
4) PLUG AND SLOT WELDS.	X	-	
5) SINGLE-PASS FILLET WELDS ≤ 5/16".	-	X	
6) FLOOR AND ROOF DECK WELDS.	-	X	AWS D1.3
b. REINFORCING STEEL:			
1) VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706.	-	X	AWS D1.4, ACI 318 SECTION 4.2.2
2) REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT.	X	-	
3) SHEAR REINFORCEMENT.	X	-	
4) OTHER REINFORCING STEEL.	-	X	
7. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:			
a. DETAILS SUCH AS BRACING AND STIFFENING.	-	X	-
b. MEMBER LOCATION.	-	X	
c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	-	X	

WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.

SPECIAL INSPECTIONS SHALL CONFORM TO SECTION 1705 OF THE 2019 OSSC, CONTRACT DOCUMENTS AND APPROVED SUBMITTALS. REFER TO TABLES 1 THROUGH 2A FOR SPECIAL INSPECTION AND TABLES 6 FOR TESTING REQUIREMENTS.

INSPECTION OF OTHER STEEL ELEMENTS

OTHER STEEL ELEMENTS INSPECTION TASKS SHALL BE IN ACCORDANCE WITH THE TABLE BELOW.

O - OBSERVE ON A RANDOM BASIS
P - PERFORM THESE TASKS FOR EACH ITEM OR ELEMENT

INSPECTION OF OTHER STEEL ELEMENTS	QC	QA
1. RBS REQUIREMENTS, IF APPLICABLE - CONTOUR AND FINISH - DIMENSIONAL TOLERANCES	P	P
2. PROTECTED ZONE - NO HOLES AND UNAPPROVED ATTACHMENTS MADE BY FABRICATOR OR ERECTOR, AS APPLICABLE	P	P

INSPECTION OF COMPOSITE CONSTRUCTION

COMPOSITE CONSTRUCTION INSPECTION TASKS SHALL BE IN ACCORDANCE WITH THE TABLE BELOW.

O - OBSERVE ON A RANDOM BASIS
P - PERFORM THESE TASKS FOR EACH ITEM OR ELEMENT
QC - QUALITY CONTROL
QCI - QUALITY CONTROL INSPECTION
QA - QUALITY ASSURANCE
QAI - QUALITY ASSURANCE INSPECTION

INSPECTION OF STEEL ELEMENTS OF COMPOSITE CONSTRUCTION PRIOR TO CONCRETE PLACEMENT	QC	QA
1. PLACEMENT AND INSTALLATION OF STEEL DECK	P	P
2. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	P	P
3. DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS	P	P

INSPECTION OF COLD-FORMED STEEL DECK

SPECIAL INSPECTIONS AND QUALIFICATION OF WELDING SPECIAL INSPECTORS FOR COLD-FORMED STEEL FLOOR AND ROOF DECK SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF SDI QA/QC. COLD-FORMED STEEL DECK INSPECTION TASKS SHALL BE IN ACCORDANCE WITH THE TABLES BELOW.

O - OBSERVE ON A RANDOM BASIS
P - PERFORM THESE TASKS FOR EACH ITEM OR ELEMENT

INSPECTION TASKS PRIOR TO DECK PLACEMENT	QC	QA
1. VERIFY COMPLIANCE OF MATERIALS (DECK AND ALL DECK ACCESSORIES) WITH CONSTRUCTION DOCUMENTS, INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE METAL THICKNESS	P	P
2. DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES	P	P

INSPECTION TASKS AFTER DECK PLACEMENT	QC	QA
1. VERIFY COMPLIANCE OF DECK AND ALL DECK ACCESSORIES INSTALLATION WITH CONSTRUCTION DOCUMENTS	P	P
2. VERIFY DECK MATERIALS ARE REPRESENTED BY THE MILL CERTIFICATIONS THAT COMPLY WITH THE CONSTRUCTION DOCUMENTS	-	P
3. DOCUMENT ACCEPTANCE OR REJECTION OF INSTALLATION OF DECK AND DECK ACCESSORIES	P	P

INSPECTION TASKS PRIOR TO WELDING	QC	QA
1. WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	O	O
2. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	O	O
3. MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
4. CHECK WELDING EQUIPMENT	O	O

INSPECTION TASKS DURING WELDING	QC	QA
1. USE OF QUALIFIED WELDERS	O	O
2. CONTROL AND HANDLING OF WELDING CONSUMABLES	O	O
3. ENVIRONMENTAL CONDITIONS (WIND SPEED, MOISTURE, TEMPERATURE)	O	O
4. WPS FOLLOWED	O	O

INSPECTION TASKS AFTER WELDING	QC	QA
1. VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP, AND PERIMETER WELDS.	P	P
2. WELDS MEET VISUAL ACCEPTANCE CRITERIA	P	P
3. VERIFY REPAIR ACTIVITIES	P	P
4. DOCUMENT ACCEPTANCE OR REJECTION OF WELDS	P	P

INSPECTION TASKS PRIOR TO MECHANICAL FASTENING	QC	QA
1. MANUFACTURER INSTALLATION INSTRUCTIONS AVAILABLE FOR MECHANICAL FASTENERS	O	O
2. PROPER TOOLS AVAILABLE FOR FASTENER INSTALLATION	O	O
3. PROPER STORAGE FOR MECHANICAL FASTENERS	O	O

INSPECTION TASKS DURING MECHANICAL FASTENING	QC	QA
1. FASTENERS ARE POSITIONED AS REQUIRED	O	O
2. FASTENERS ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS	O	O

INSPECTION TASKS AFTER MECHANICAL FASTENING	QC	QA
1. CHECK SPACING, TYPE, AND INSTALLATION OF SUPPORT FASTENERS	P	P
2. CHECK SPACING, TYPE, AND INSTALLATION OF SIDELAP FASTENERS	P	P
3. CHECK SPACING, TYPE, AND INSTALLATION OF PERIMETER FASTENERS	P	P
4. VERIFY REPAIR ACTIVITIES	P	P
5. DOCUMENT ACCEPTANCE OR REJECTION OF MECHANICAL FASTENERS	P	P

CONCRETE CONSTRUCTION

THE SPECIAL INSPECTIONS AND VERIFICATIONS FOR CONCRETE CONSTRUCTION SHALL BE AS REQUIRED BELOW. REFER TO OSSC 2021 IBC FOR REFERENCE STANDARDS.

WELDING OF REINFORCING BARS

SPECIAL INSPECTIONS OF WELDING AND QUALIFICATIONS OF SPECIAL INSPECTORS FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.4 FOR SPECIAL INSPECTION AND OF AWS D1.4 FOR SPECIAL INSPECTOR QUALIFICATION.

MATERIAL TESTS

IN THE ABSENCE OF SUFFICIENT DATA OR DOCUMENTATION PROVIDING EVIDENCE OF CONFORMANCE TO QUALITY STANDARDS FOR MATERIALS IN CHAPTERS 19 AND 20 OF ACI 318, TESTING OF MATERIALS IS REQUIRED IN ACCORDANCE WITH THE APPROPRIATE STANDARDS AND CRITERIA FOR THE MATERIAL IN CHAPTERS 19 AND 20 OF ACI 318.

CONCRETE CONSTRUCTION	CONTINUOUS	PERIODIC
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT		X
2. REINFORCING BAR WELDING:		
a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706;		X
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND		X
c. INSPECT ALL OTHER WELDS.	X	
3. INSPECT ANCHORS CAST IN CONCRETE.		X
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.		
a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.		X
5. VERIFY USE OF REQUIRED DESIGN MIX.		X
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.		X
9. INSPECT PRESTRESSED CONCRETE FOR:		
a. APPLICATION OF PRESTRESSING FORCES; AND	X	
b. GROUTING OF BONDED PRESTRESSING TENDONS	X	
10. INSPECTION ERECTION OF PRECAST CONCRETE MEMBERS.		X
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.		X
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.		X

EXCEPTIONS:
1. ISOLATED SPREAD FOOTINGS OF BUILDINGS 3 STORIES OR LESS ABOVE GRADE PLANE THAT ARE FULLY SUPPORTED ON EARTH OR ROCK.
2. CONTINUOUS FOOTINGS SUPPORTING WALLS OF BUILDINGS 3 STORIES OF LESS ABOVE GRADE PLANE THAT ARE FULLY SUPPORTED ON EARTH OR ROCK WHERE:
   a. THE FOOTINGS SUPPORT WALLS OF LIGHT-FRAME CONSTRUCTION
   b. THE FOOTINGS ARE DESIGNED IN ACCORDANCE WITH TABLE 1809.7.
   c. THE STRUCTURAL DESIGN OF THE FOOTING IS BASED ON A SPECIFIED COMPRESSIVE STRENGTH F'c <= 2500 PSI, REGARDLESS OF THE COMPRESSIVE STRENGTH SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS OR USED IN THE FOOTING CONSTRUCTION.
3. NONSTRUCTURAL CONCRETE SLABS SUPPORTED DIRECTLY ON THE GROUND, INCLUDING PRESTRESSED SLABS ON GRADE, WHERE THE EFFECTIVE PRESTRESS IN THE CONCRETE IS LESS THAN 150 PSI.
4. CONCRETE FOUNDATION WALLS CONSTRUCTED IN ACCORDANCE WITH TABLE 1807.1.6.2.
5. CONCRETE PATIOS, DRIVEWAYS AND SIDEWALKS, ON GRADE.

INSPECTION OF SOILS

SOILS INSPECTION TASKS SHALL BE IN ACCORDANCE WITH SECTION 1705.6 OF 2021 IBC AND THE TABLE BELOW.

SOILS	CONTINUOUS	PERIODIC
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.		X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		X

INSPECTION OF CAST-IN-PLACE DEEP FOUNDATIONS

CAST-IN-PLACE DEEP FOUNDATIONS TASKS SHALL BE IN ACCORDANCE WITH SECTION 1705.8 OF 2021 IBC AND THE TABLE BELOW.

SOILS	CONTINUOUS	PERIODIC
1. INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE ACCURATE RECORDS FOR EACH ELEMENT.	X	
2. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGHT, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.	X	
3. FOR CONCRETE ELEMENTS, PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH SECTION 1705.3.	IN ACCORDANCE WITH SECTION 1705.3	

WIND-RESISTING COMPONENTS

PERIODIC SPECIAL INSPECTION IS REQUIRED FOR FASTENING OF THE FOLLOWING SYSTEMS AND COMPONENTS:
1. ROOF COVERING, ROOF DECK AND ROOF FRAMING CONNECTIONS.
2. EXTERIOR WALL COVERING AND WALL CONNECTIONS TO ROOF AND FLOOR DIAPHRAGMS AND FRAMING.

ARCHITECTURAL, MEP COMPONENTS

ARCHITECTURAL, MECHANICAL AND ELECTRICAL COMPONENTS REQUIRING SPECIAL INSPECTIONS AND TESTING PER THE BUILDING CODE ARE NOT LISTED HERE. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR SPECIAL INSPECTION REQUIREMENTS FOR THESE COMPONENTS.

SPECIAL INSPECTOR

THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE HIS COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF A PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR

- THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.
- THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE ENGINEER OR ARCHITECT OF RECORD, AND OTHER DESIGNATED PERSONS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE PROPER DESIGN AUTHORITY.
- THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.

CONTRACTOR RESPONSIBILITY

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND OR SEISMIC FORCE RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND OR SEISMIC COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING:
1. ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTION.
2. ACKNOWLEDGEMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL.
3. PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS, AND
4. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.

STRUCTURAL OBSERVATION REQUIREMENT & STATEMENT

1. PER SECTION 1704.6, THE OWNER OR THE OWNER AUTHORIZED AGENT SHALL EMPLOY THE REGISTERED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATIONS. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS OR THE SPECIAL INSPECTIONS.
2. THE STRUCTURAL OBSERVATION WILL BE PERFORMED IN ACCORDANCE TO SECTIONS 1704.6.1 AND 1704.6.2 TO REVIEW THE CONSTRUCTION OF THE LATERAL RESISTING SYSTEM. THE STRUCTURAL OBSERVATION WILL BE LIMITED TO VISUAL OBSERVATIONS OF THE CONSTRUCTION AND TO VERIFY GENERAL CONFORMANCE TO THE APPROVED STRUCTURAL DRAWINGS AND SPECIFICATIONS AND DOES NOT SUBSTITUTE FOR ANY SPECIAL INSPECTIONS REQUIRED BY CODE AND/OR THE BUILDING DEPARTMENT.
3. AFTER EACH STRUCTURAL OBSERVATION, A REPORT WILL BE SUBMITTED TO THE OWNER AND BUILDING OFFICIALS WHICH INCLUDES A SUMMARY OF THE ELEMENTS/ CONNECTIONS OBSERVED AND ANY DEFICIENCIES IDENTIFIED.
4. AT THE CONCLUSION OF THE WORK INCLUDED IN PERMIT, THE STRUCTURAL OBSERVER SHALL SUBMIT A WRITTEN STATEMENT TO THE OWNER AND BUILDING OFFICIALS THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES THAT, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN SOLVED.
5. STRUCTURAL OBSERVATIONS SHALL BE PERFORMED AT THE FOLLOWING STAGES OF CONSTRUCTION AS A MINIMUM. GENERAL CONTRACTOR TO PROVIDE MINIMUM 3 DAYS NOTIFICATIONS TO THE STRUCTURAL ENGINEER PRIOR TO THESE STAGES.
   a. PRIOR TO PLACEMENT OF CONCRETE AND AFTER PLACEMENT OF STEEL REINFORCEMENT FOR THE FIRST FOUNDATION POUR (I.E., PILES, PILE CAPS, GRADE BEAMS, PEDESTALS, AND SLABS)
   b. DURING STRUCTURAL STEEL ERECTION AT ALL FLOORS.
   c. AFTER ERECTION OF THE FIRST SEISMIC RESISTING SYSTEM ELEMENTS (I.E., BRACED FRAMES, COLLECTORS AND THEIR CONNECTIONS)
   d. PRIOR TO THE PLACEMENT OF CONCRETE IN METAL DECK (AND AFTER PLACEMENT OF METAL DECK, REINFORCEMENTS AND SHEAR STUDS).
   e. FINAL PUNCH WALK AFTER COMPLETION OF ALL STRUCTURAL COMPONENTS AND PRIOR TO ARCHITECTURAL FINISHES.

EXPANSION ANCHORS

- DURING INSTALLATION OF EXPANSION BOLTS TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, DRILL-BIT TYPE, HOLE DIMENSIONS, HOLE CLEANING PROCEDURE, ANCHOR SPACING, EDGE DISTANCES, CONCRETE MEMBER THICKNESS, ANCHOR EMBEDMENT, TIGHTENING TORQUE AND ADHERENCE TO THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS.

EPOXY ANCHORS AND DOWELS

- DURING INSTALLATION OF EPOXY ANCHORS AND DOWELS TO VERIFY ANCHOR/DOWEL TYPE, ANCHOR/DOWEL DIMENSIONS, CONCRETE TYPE, ADHESIVE IDENTIFICATION AND EXPIRATION DATE, DRILL-BIT TYPE, HOLE DIMENSIONS, HOLE CLEANING PROCEDURE, ANCHOR/DOWEL SPACING, EDGE DISTANCES, CONCRETE MEMBER THICKNESS, ANCHOR/DOWEL EMBEDMENT, TIGHTENING TORQUE AND ADHERENCE TO THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS.
- SPECIAL INSPECTOR SHALL VERIFY INITIAL INSTALLATION OF EACH TYPE AND SIZE OF ANCHOR/DOWEL BY CONSTRUCTION PERSONNEL ON SITE.
- ANY CHANGE IN ANCHOR/DOWEL PRODUCT BEING INSTALLED OR PERSONNEL PERFORMING THE INSTALLATION MUST REQUIRE AN INITIAL INSPECTION.
- FOR ONGOING INSTALLATIONS OVER A PERIOD OF TIME, SPECIAL INSPECTOR SHALL PERFORM REGULAR INSPECTIONS TO CONFIRM CORRECT HANDLING AND INSTALLATION OF PRODUCT.

NON-SHRINK GROUT

- DURING TIME FRESH GROUT IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS AND AS RECOMMENDED BY MANUFACTURER.
- INSPECTION OF GROUT PLACEMENT FOR PROPER APPLICATION TECHNIQUES AND TO VERIFY FULL BEARING BELOW BASE PLATE.

BOLTS INSTALLED IN CONCRETE

- DURING INSTALLATION OF BOLTS AND PLACING OF CONCRETE AROUND SUCH BOLTS.

1 STATEMENT OF SPECIAL INSPECTIONS CONT.
12" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000

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SYSKA HENNESSY GROUP

TLD DESIGN CONSULTING LLC

ISSUES

1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

REVISIONS

A	04.24.25	COA - PERMIT COMMENTS

COLORADO LICENSED
NICHOLAS W. HEYD
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
04.24.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

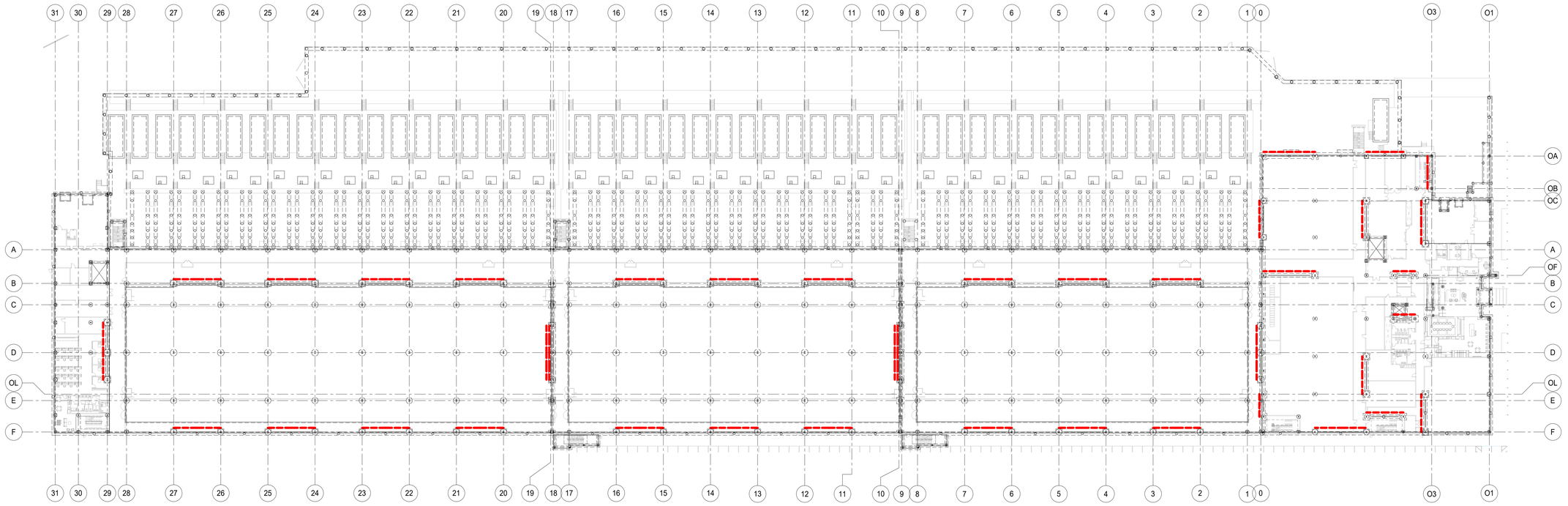
GENERAL NOTES

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DATE 04.24.2025
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4/24/2025 4:16:46 PM S0-12 GENERAL NOTES

This sheet of drawings has not been reviewed for code compliance.



1 OVERALL FOUNDATION PLAN
1" = 40'-0"

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

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	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
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	REVISIONS	

COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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OVERALL FOUNDATION PLAN

JOB 24464.0000
DATE 01.31.2025
SHEET

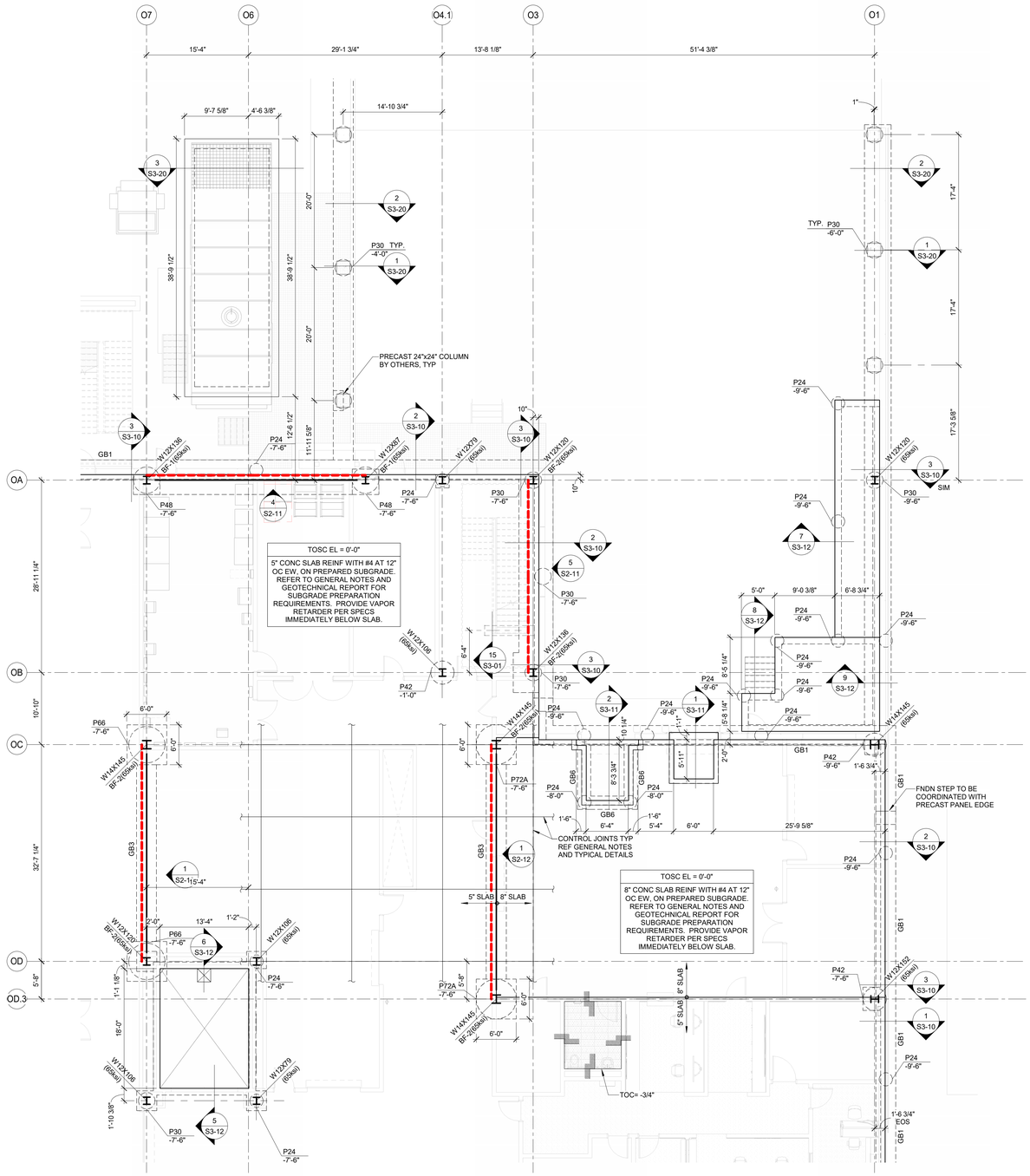
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2/4/2025 4:07:47 PM S1-10 OVERALL FOUNDATION PLAN

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

SHEET NOTES

1. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0"
2. VERIFY ALL WALL OPENING DIMENSIONS AND LOCATIONS WITH ARCH DRAWINGS.
3. DEVIATIONS FROM CONST JOINT/CONTROL JOINT PATTERN SHOWN MUST BE APPROVED BY THE ENGINEER OF RECORD.
4. REFER TO SHEET S3-00 FOR PIER SCHEDULE.
5. REFER TO SHEET S5-00 FOR COLUMN AND BASE PLATE SCHEDULE.
6. REFER TO S2-00 FOR BRACE FRAME ELEVATIONS.
7. PIERS WITHOUT CENTERLINES SHOWN ON PLANS, SECTIONS AND/OR DETAILS SHALL BE LOCATED AS FOLLOWS:
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10. METAL STAIR AND CANOPY BY STAIR MANUF.



1 FOUNDATION PLAN - SEGMENT A
1/8" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

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SYSKA HENNESSY GROUP

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REVISIONS		

COLORADO LICENSED
NICHOLAS W. SYKA
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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FOUNDATION PLAN - SEGMENT A

JOB 24464.0000
DATE 01.31.2025
SHEET

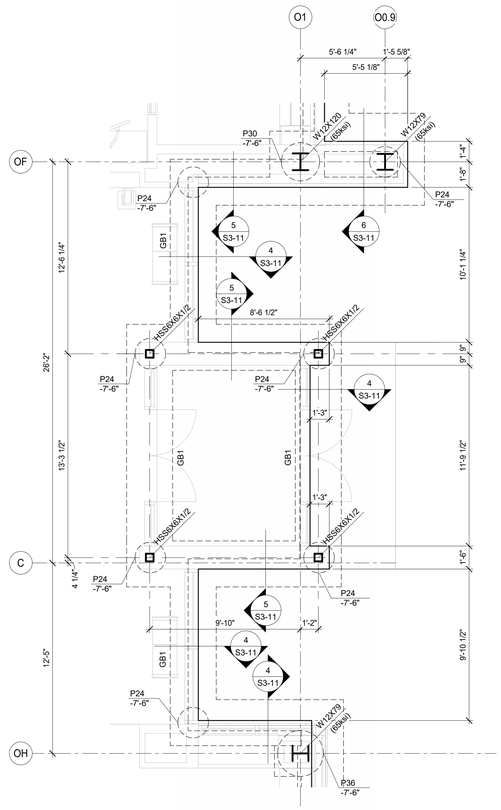
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2/4/2025 4:07:54 PM S1-10A FOUNDATION PLAN - SEGMENT A

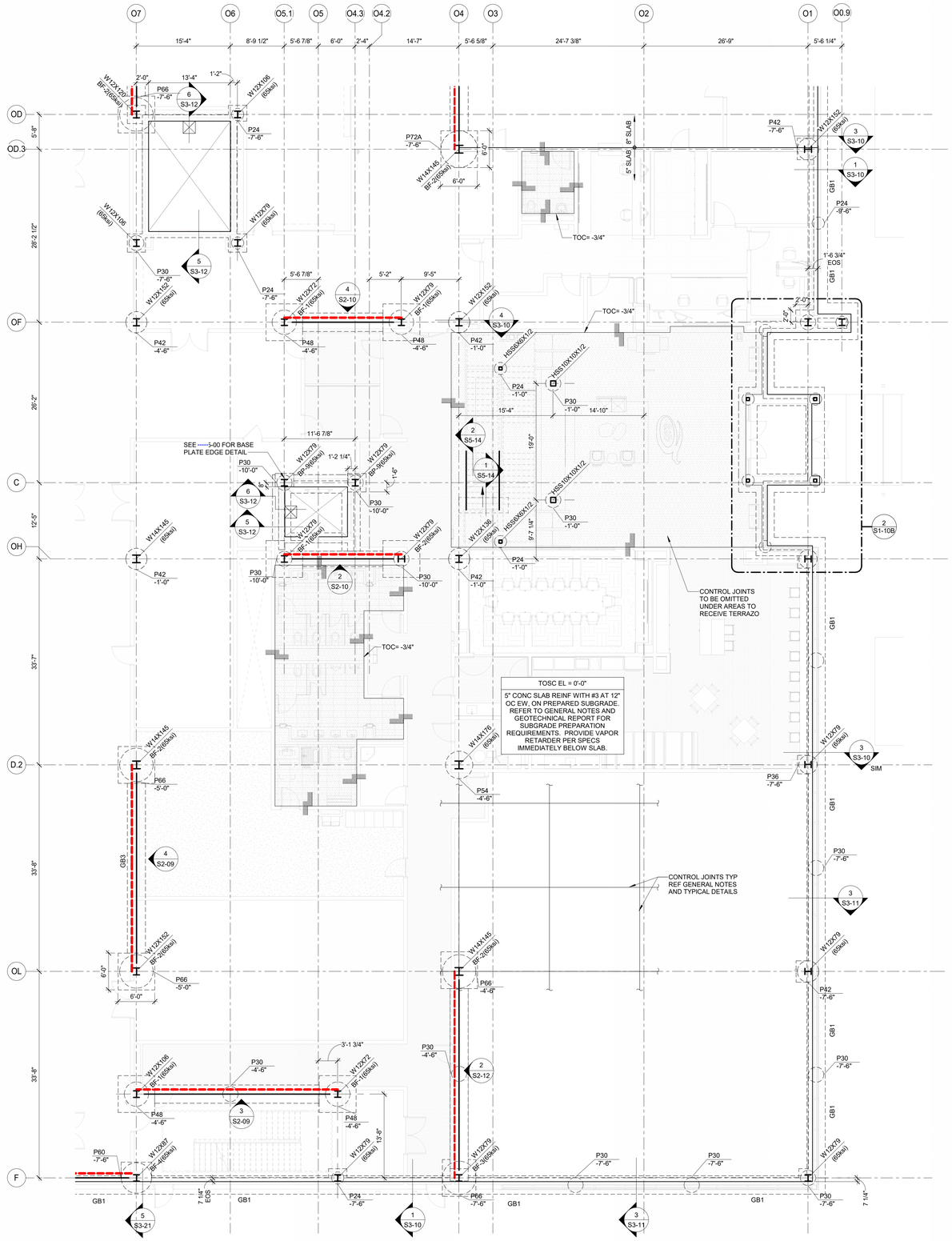
City of Aurora Building Division
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10. METAL STAIR AND CANOPY BY STAIR MANUF.



2 VESTIBULE FOUNDATION PLAN
1/4" = 1'-0"



1 FOUNDATION PLAN - SEGMENT B
1/8" = 1'-0"

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REVISIONS

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AG&E Structural Engenuity F-8435

Date of issue:
01.31.2025

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1140 N. GUN CLUB ROAD

KEYPLAN

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FOUNDATION PLAN - SEGMENT B

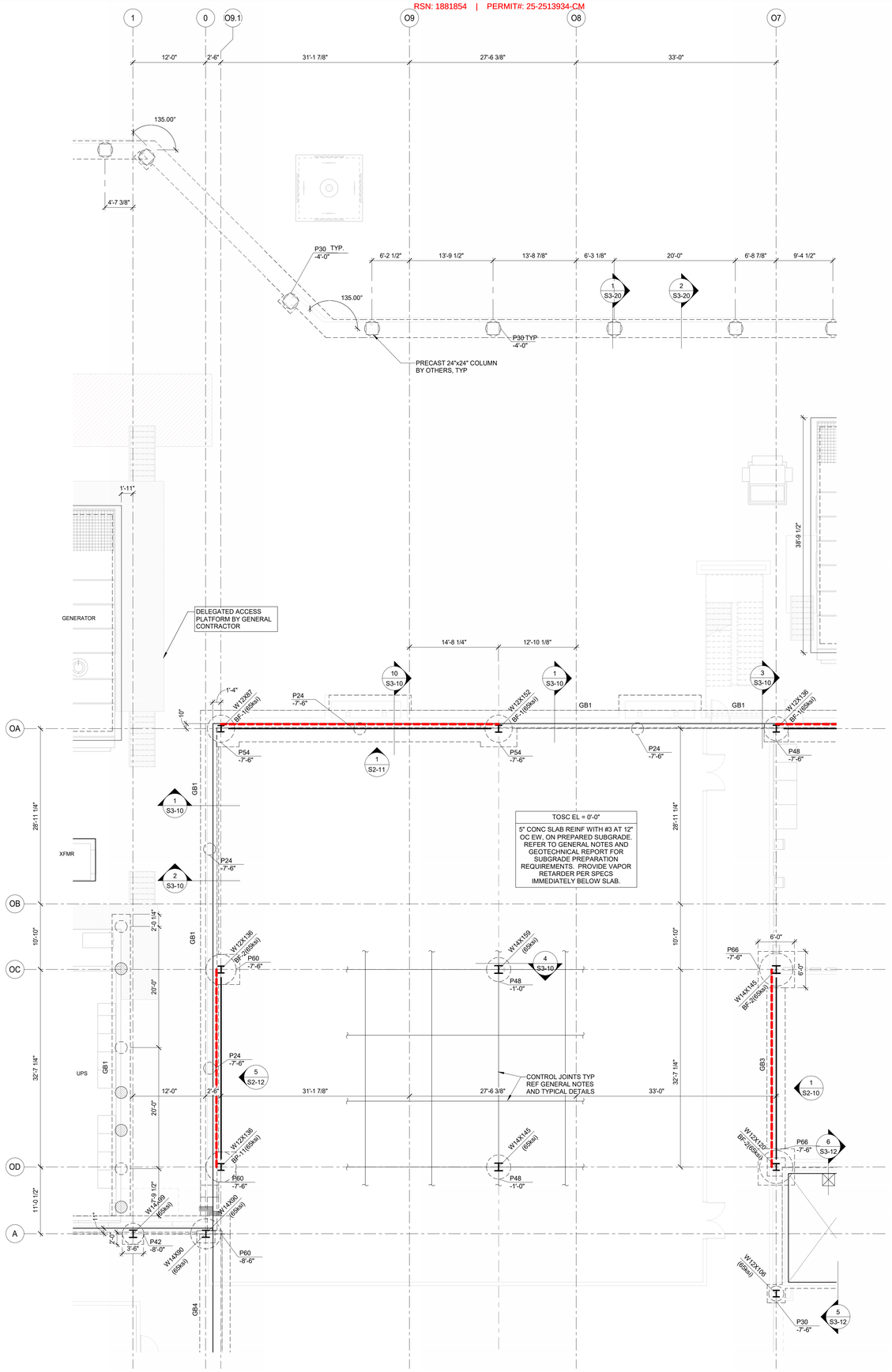
JOB 24464.0000
DATE 01.31.2025
SHEET

S1-10B

2/4/2025 4:07:59 PM S1-10B FOUNDATION PLAN - SEGMENT B

City of Aurora Building Division
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Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

RSN: 1881854 | PERMIT#: 25-2513934-CM



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

SHEET NOTES

1. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0"
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10. METAL STAIR AND CANOPY BY STAIR MANUF.

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

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SYSKA HENNESSY GROUP

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ISSUES		
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COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

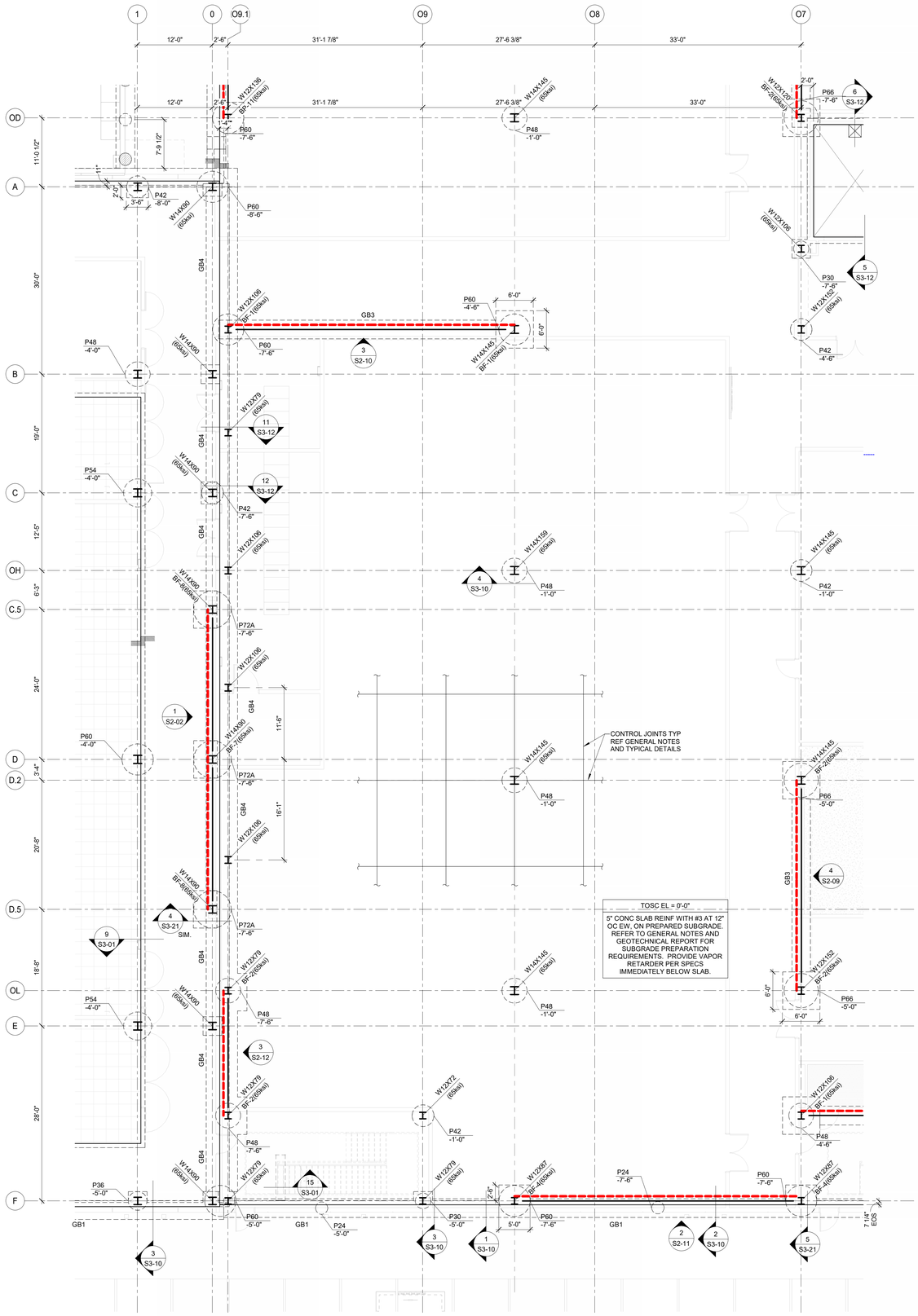
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FOUNDATION PLAN - SEGMENT C

JOB 24464.0000
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2/4/2025 4:08:03 PM S1-10C FOUNDATION PLAN - SEGMENT C

City of Aurora Building Division
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2021 INTERNATIONAL CODES & 2023 NEC



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10. METAL STAIR AND CANOPY BY STAIR MANUF.

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TCD DESIGN CONSULTING LLC

ISSUES

1	12.20.24	DESIGN DEVELOPMENT
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REVISIONS



AG&E Structural Engenuity
F-8435

Date of issue:
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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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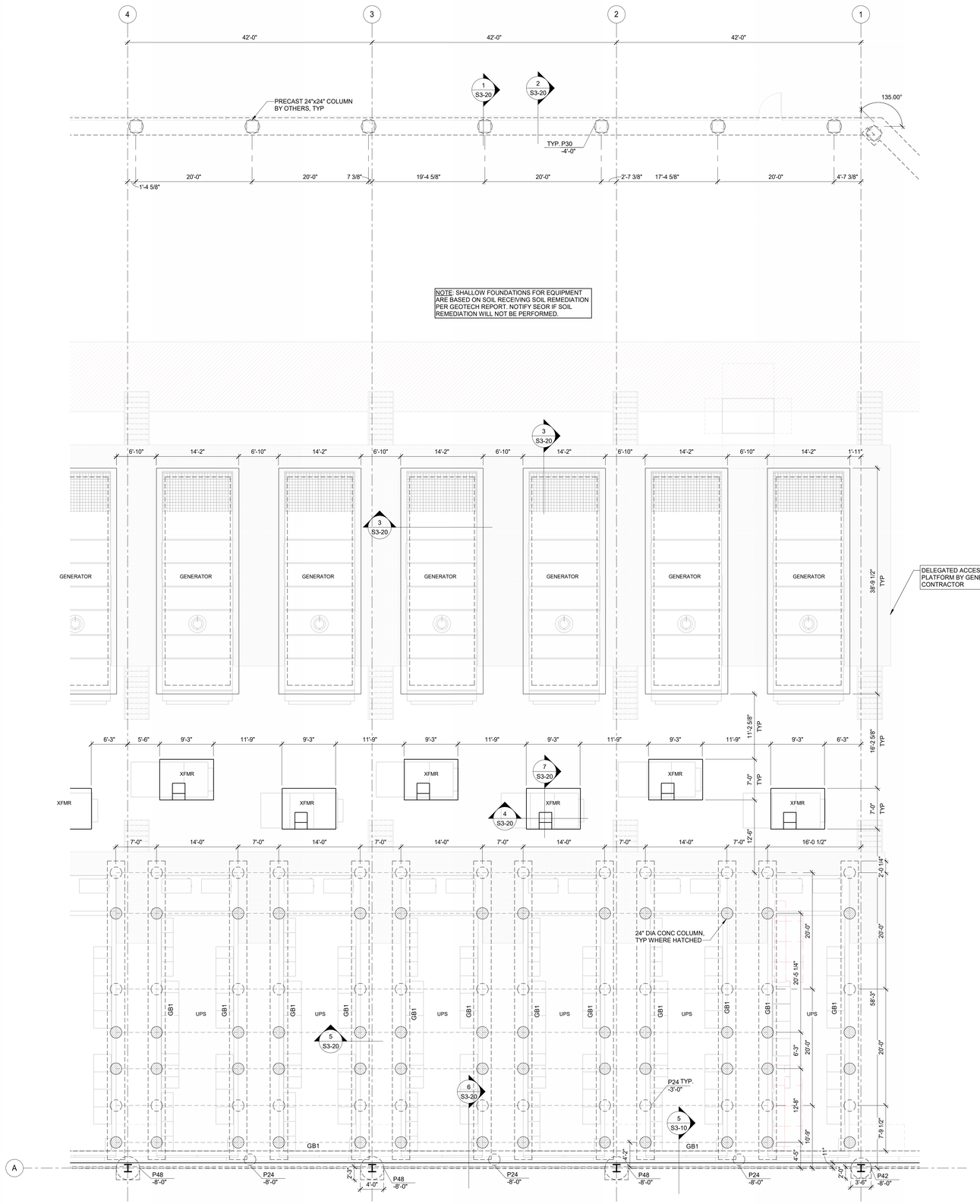
FOUNDATION PLAN - SEGMENT D

JOB 24464.0000
DATE 01.31.2025
SHEET

S1-10D

1 FOUNDATION PLAN - SEGMENT D
1/8" = 1'-0"

City of Aurora Building Division
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T: 214.748.2000
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ISSUES

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REVISIONS

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER
AG&E Structural Engenuity F-8435

Date of issue: 01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

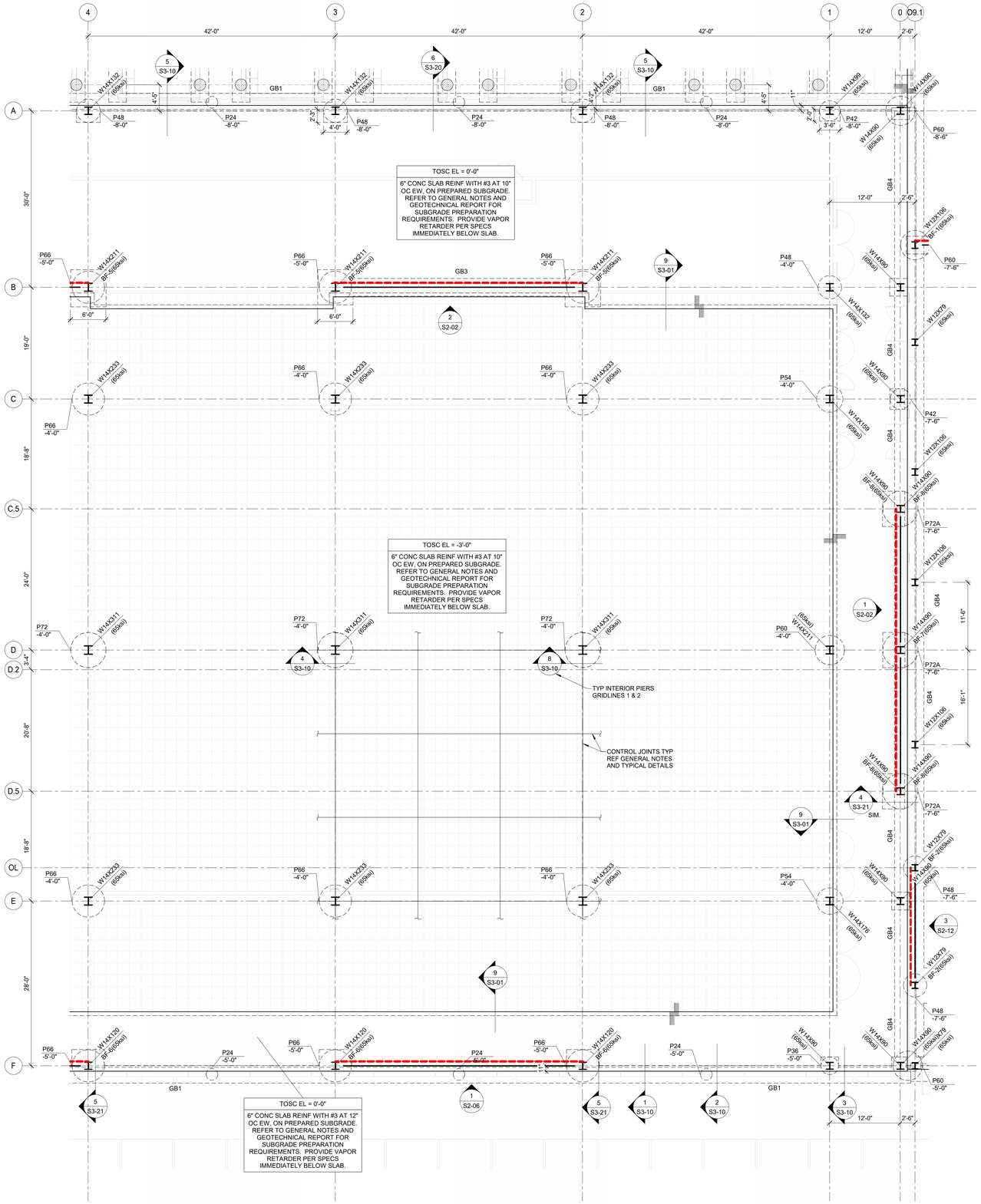
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FOUNDATION PLAN - SEGMENT E

JOB 24464.0000
DATE 01.31.2025
SHEET S1-10E

1 FOUNDATION PLAN - SEGMENT E
1/8" = 1'-0"

City of Aurora Building Division
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1 FOUNDATION PLAN - SEGMENT F
1/8" = 1'-0"

SHEET NOTES

1. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0"
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CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000
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ISSUES

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REVISIONS

COLORADO LICENSED
NICHOLAS W. DAVID
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AG&E Structural Engenuity
F-8435

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1140 N. GUN CLUB ROAD

KEYPLAN

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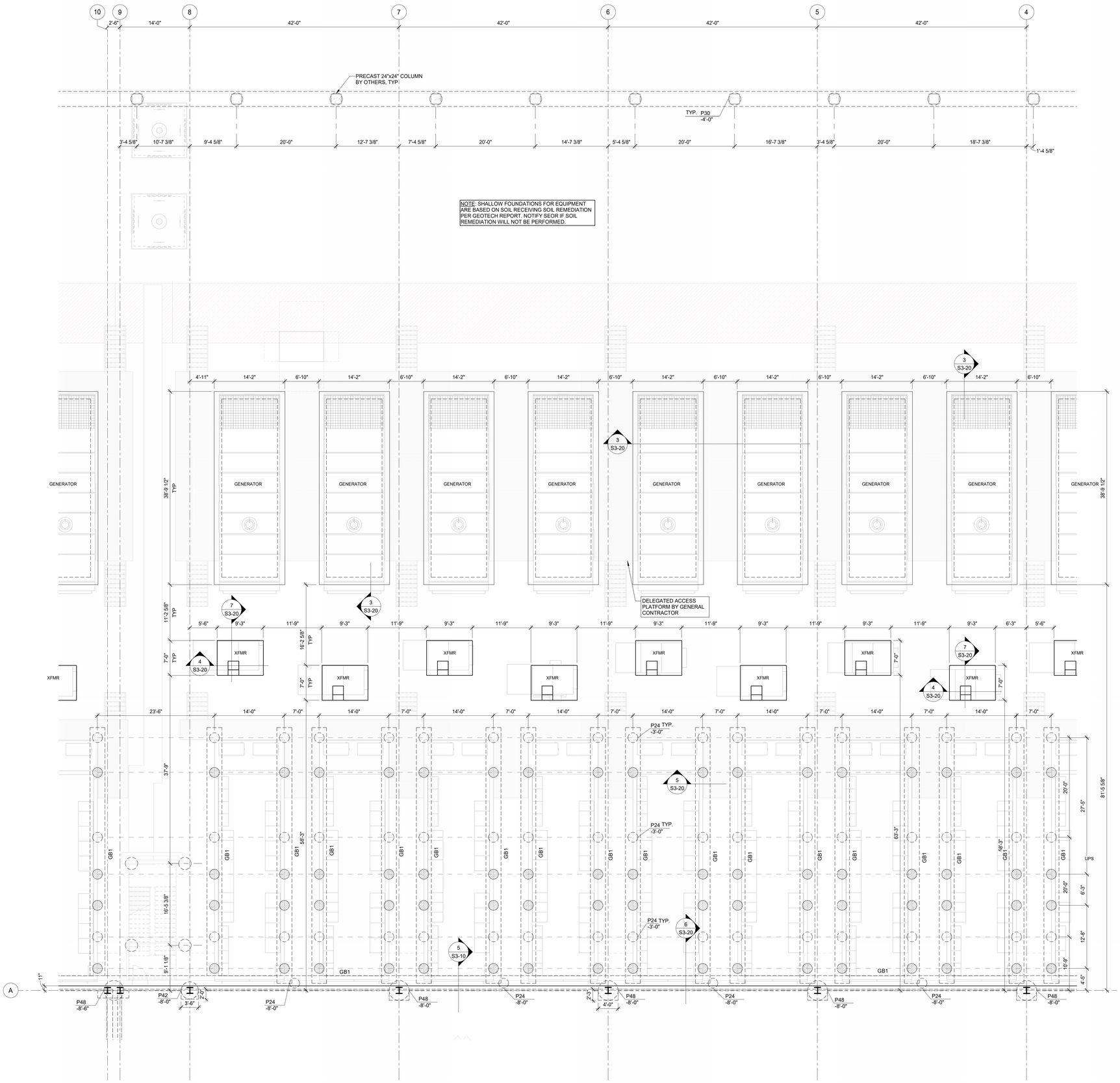
FOUNDATION PLAN - SEGMENT F

JOB 24464.0000
DATE 01.31.2025
SHEET

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RSN: 1881854 | PERMIT#: 25-2513934-CM



1 FOUNDATION PLAN - SEGMENT G
1/8" = 1'-0"

SHEET NOTES

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

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REVISIONS

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity F-8435

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QTS DEN1 DC2
1140 N. GUN CLUB ROAD
QTS

KEYPLAN

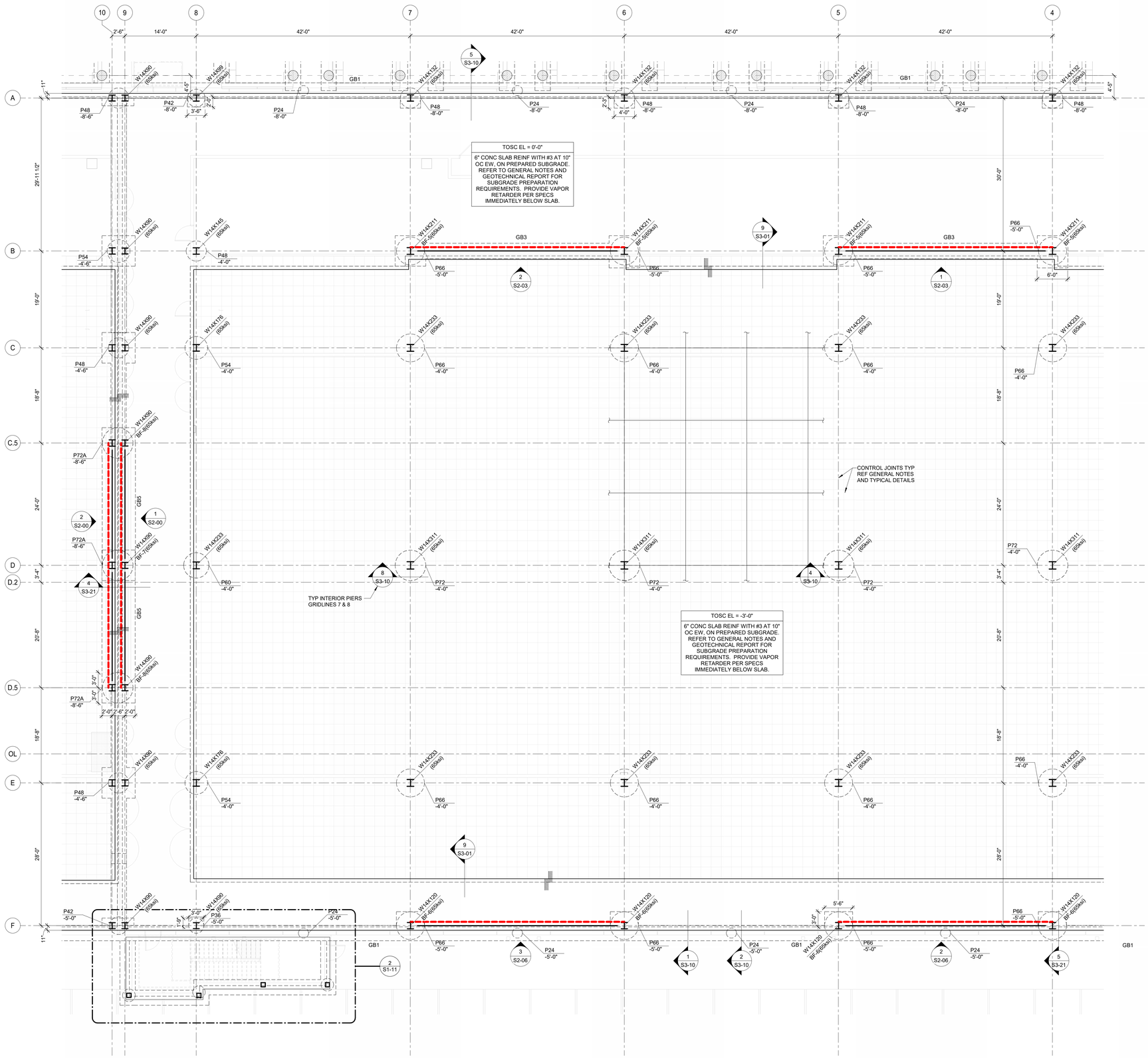
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FOUNDATION PLAN - SEGMENT G

JOB 24464.0000
DATE 01.31.2025
SHEET S1-10G

2/4/2025 4:08:19 PM S1-10G FOUNDATION PLAN - SEGMENT G

City of Aurora Building Division
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1 FOUNDATION PLAN - SEGMENT H
1/8" = 1'-0"

SHEET NOTES

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AG&E Structural Engeneuity F-6435

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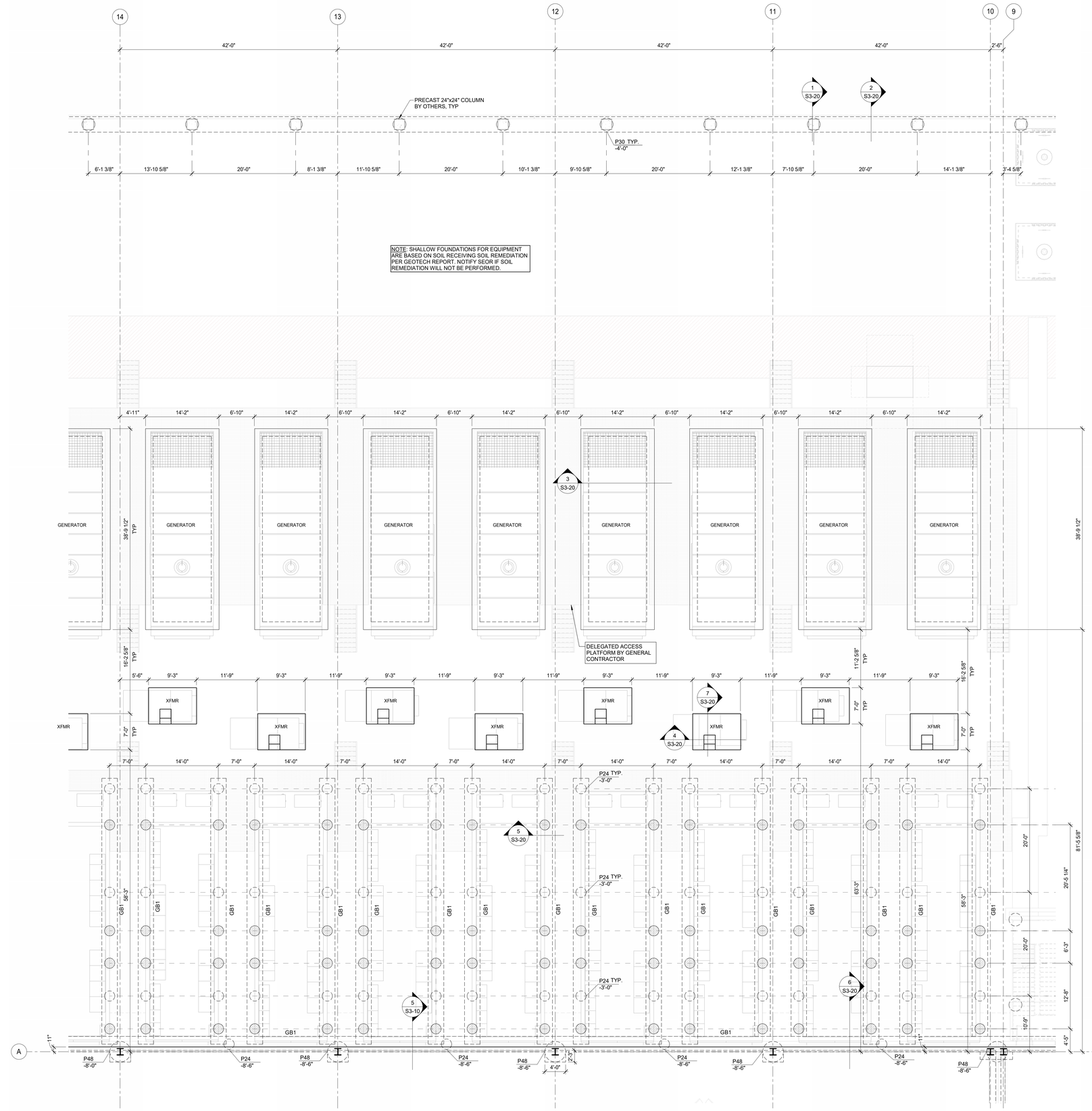
FOUNDATION PLAN - SEGMENT H

JOB 24464.0000
DATE 01.31.2025
SHEET

S1-10H

2/4/2025 4:08:23 PM S1-10H FOUNDATION PLAN - SEGMENT H

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



1 FOUNDATION PLAN - SEGMENT J
1/8" = 1'-0"

SHEET NOTES

1. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0"
2. VERIFY ALL WALL OPENING DIMENSIONS AND LOCATIONS WITH ARCH DRAWINGS.
3. DEVIATIONS FROM CONST JOINT/CONTROL JOINT PATTERN SHOWN MUST BE APPROVED BY THE ENGINEER OF RECORD.
4. REFER TO SHEET S3-00 FOR PIER SCHEDULE.
5. REFER TO SHEET S5-00 FOR COLUMN AND BASE PLATE SCHEDULE.
6. REFER TO S2-00 FOR BRACE FRAME ELEVATIONS.
7. PIERS 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 SHALL BE SPACED EQUALLY BETWEEN PIERS THAT ARE DIMENSIONALLY SET ON PLAN OR AS NOTED ABOVE.
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9. VERIFY ALL PAD OPENING DIMENSIONS AND LOCATIONS WITH ARCH/MEP DRAWINGS. VERIFY ALL PAD DIMENSIONS WITH EQUIPMENT MANUFACTURER PRIOR TO FABRICATING REINFORCING AND INSTALLATION.
10. METAL STAIR AND CANOPY BY STAIR MANUF.

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLD DESIGN CONSULTING LLC

ISSUES

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REVISIONS

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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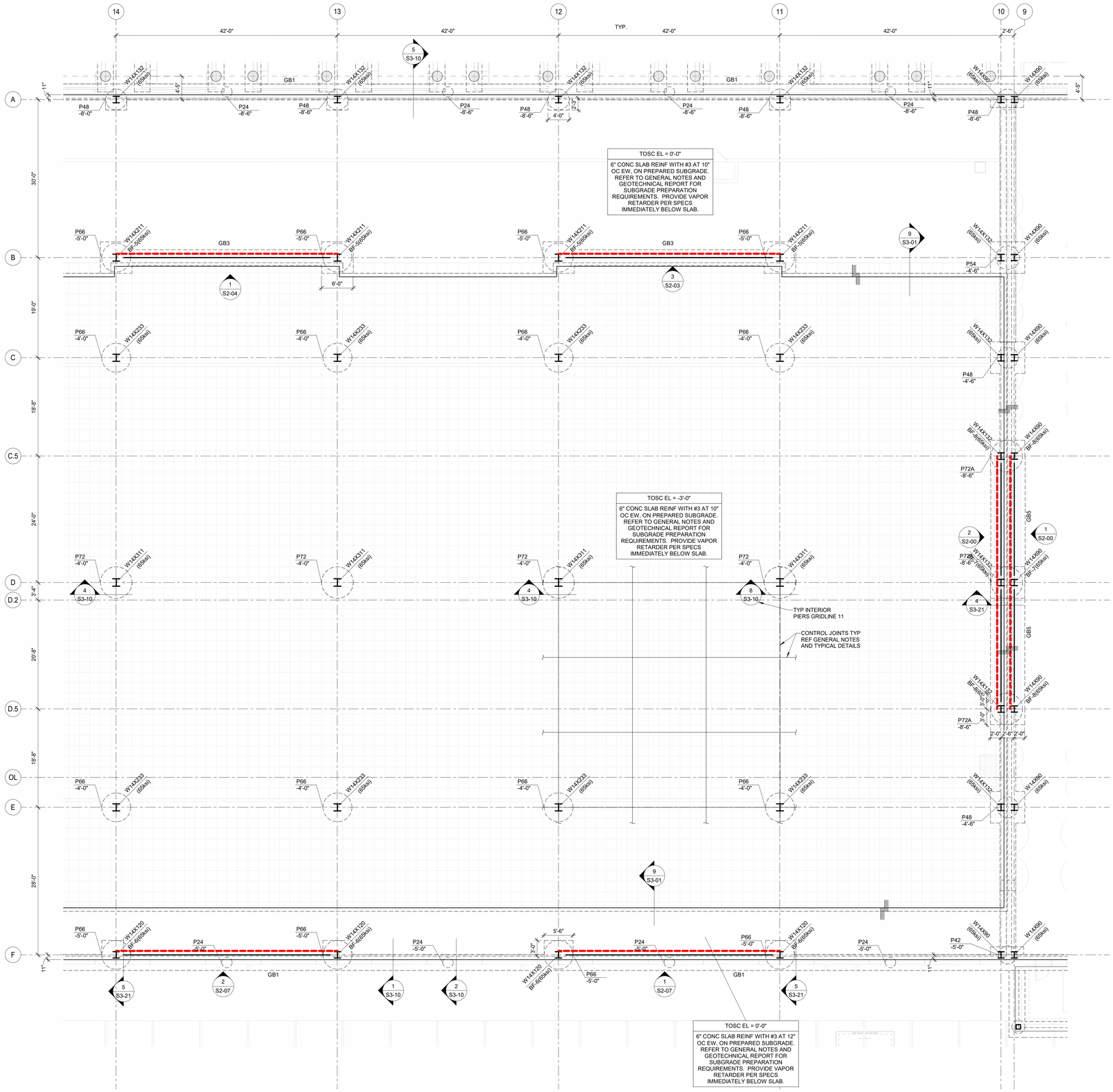
FOUNDATION PLAN - SEGMENT J

JOB 24464.0000
DATE 01.31.2025
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2/4/2025 4:08:27 PM S1-10J FOUNDATION PLAN - SEGMENT J

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



1 FOUNDATION PLAN - SEGMENT K

1/8" = 1'-0"

SHEET NOTES

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10. METAL STAIR AND CANOPY BY STAIR MANUF.

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

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SYSKA HENNESSY GROUP

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ISSUES

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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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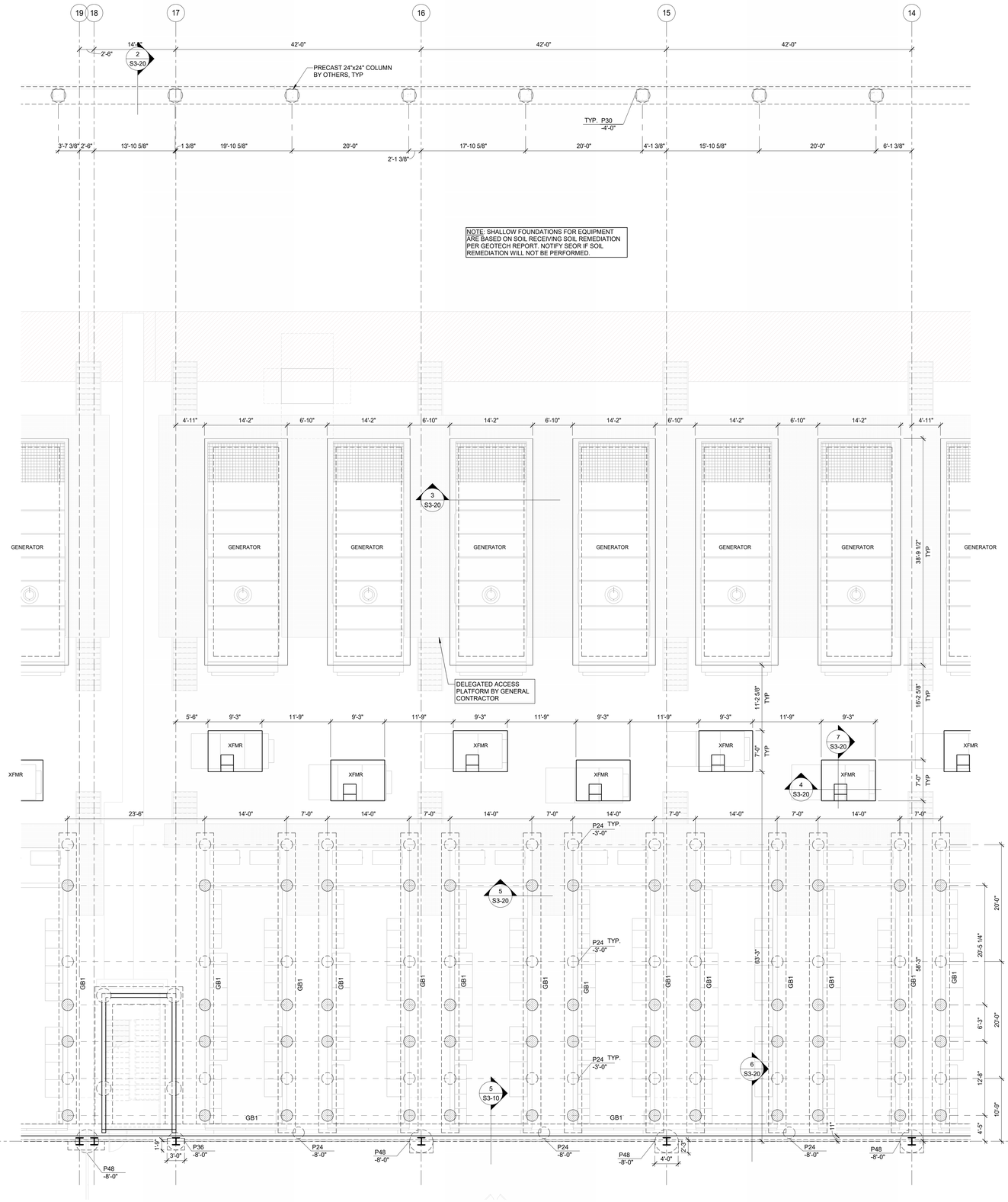
FOUNDATION PLAN - SEGMENT K

JOB 24464.0000
DATE 01.31.2025
SHEET

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2/4/2025 4:08:33 PM S1-10K FOUNDATION PLAN - SEGMENT K

City of Aurora Building Division
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10. METAL STAIR AND CANOPY BY STAIR MANUF.

1 FOUNDATION PLAN - SEGMENT L
1/8" = 1'-0"

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T: 214.748.2000
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SYSKA HENNESSY GROUP
DESIGN CONSULTING LLC

ISSUES

1	12.20.24	DESIGN DEVELOPMENT
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REVISIONS

COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER
AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

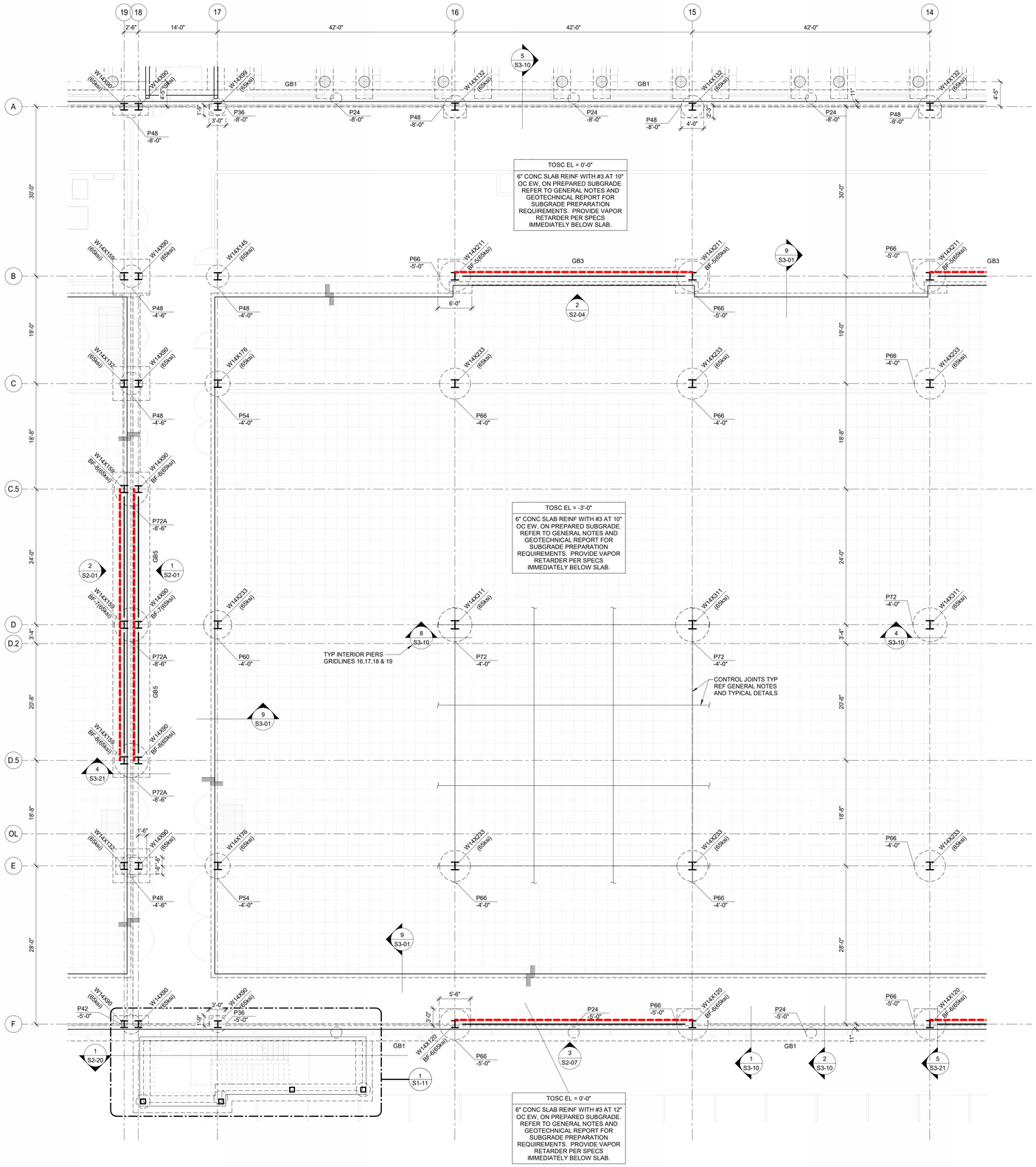
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FOUNDATION PLAN - SEGMENT L

JOB 24464.0000
DATE 01.31.2025
SHEET S1-10L

2/4/2025 4:08:39 PM S1-10L FOUNDATION PLAN - SEGMENT L

City of Aurora Building Division
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2021 INTERNATIONAL CODES & 2023 NEC



1 FOUNDATION PLAN - SEGMENT M
1/8" = 1'-0"

SHEET NOTES

1. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0"
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10. METAL STAIR AND CANOPY BY STAIR MANUF.

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000
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ISSUES

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REVISIONS

COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER
AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD
QTS

KEYPLAN

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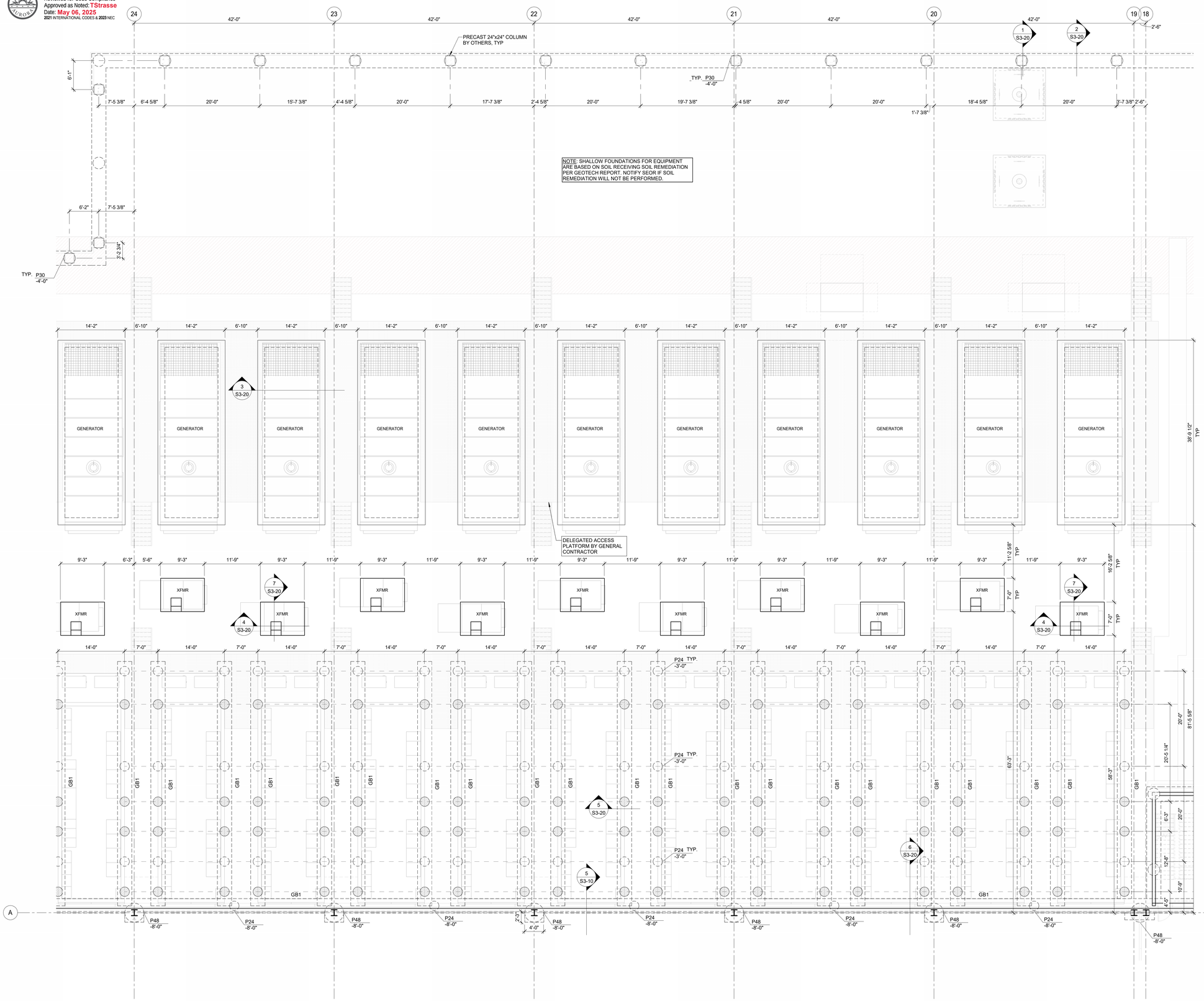
FOUNDATION PLAN - SEGMENT M

JOB 24464.0000
DATE 01.31.2025
SHEET

S1-10M

2/4/2025 4:08:43 PM S1-10M FOUNDATION PLAN - SEGMENT M

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



1 FOUNDATION PLAN - SEGMENT N
1/8" = 1'-0"

SHEET NOTES

1. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0"
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10. METAL STAIR AND CANOPY BY STAIR MANUF.

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

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TLD DESIGN CONSULTING LLC

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REVISIONS		

COLORADO LICENSED NICHOLAS W. HAND 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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FOUNDATION PLAN - SEGMENT N

JOB 24464.0000
DATE 01.31.2025
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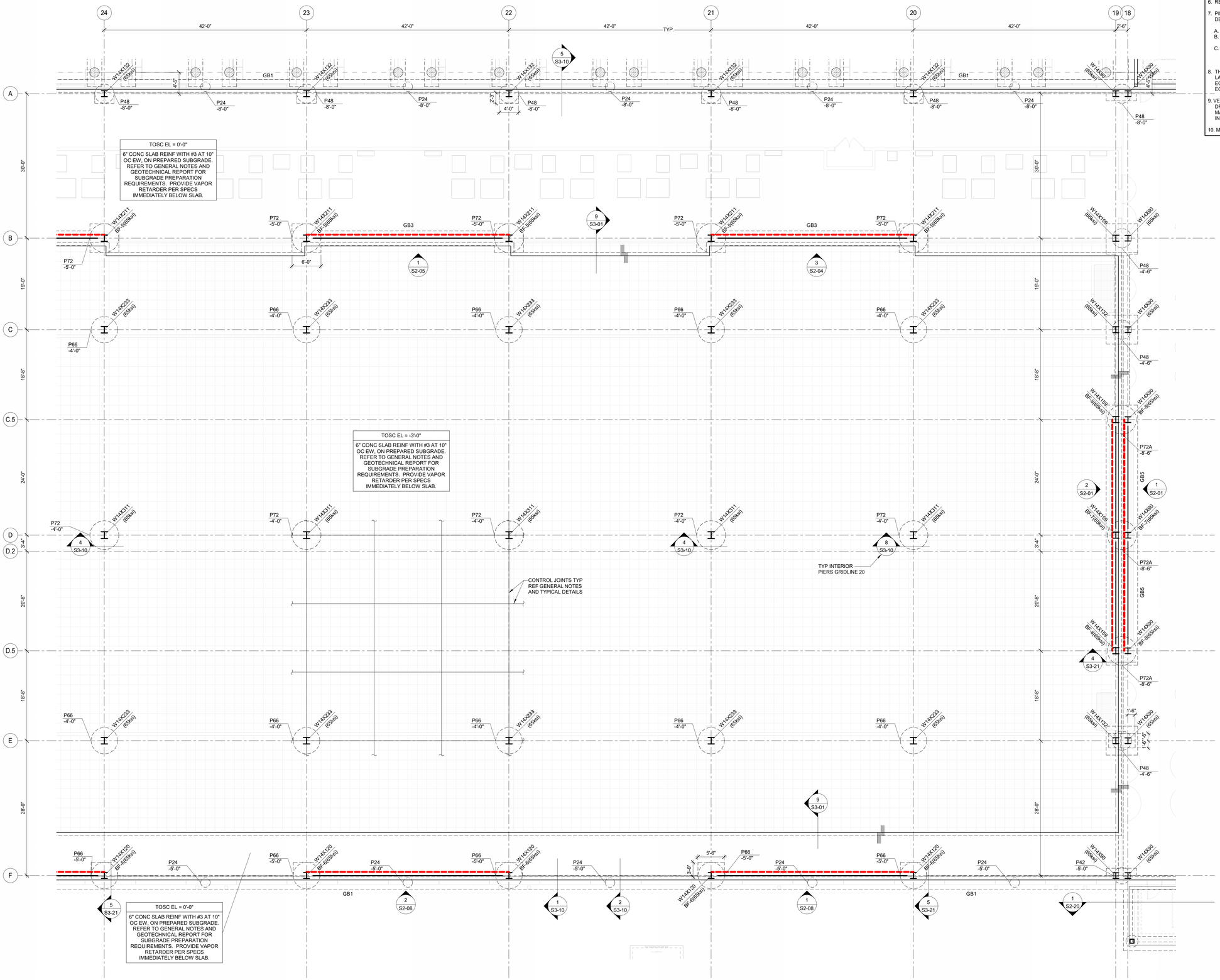
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City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

RSN: 1881854 | PERMIT#: 25-2513934-CM

SHEET NOTES

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10. METAL STAIR AND CANOPY BY STAIR MANUF.



1 FOUNDATION PLAN - SEGMENT P
1/8" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000
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SYSKA HENNESSY GROUP
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ISSUES

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REVISIONS

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity F-8435

Date of issue: 01.31.2025

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1140 N. GUN CLUB ROAD
QTS

KEYPLAN

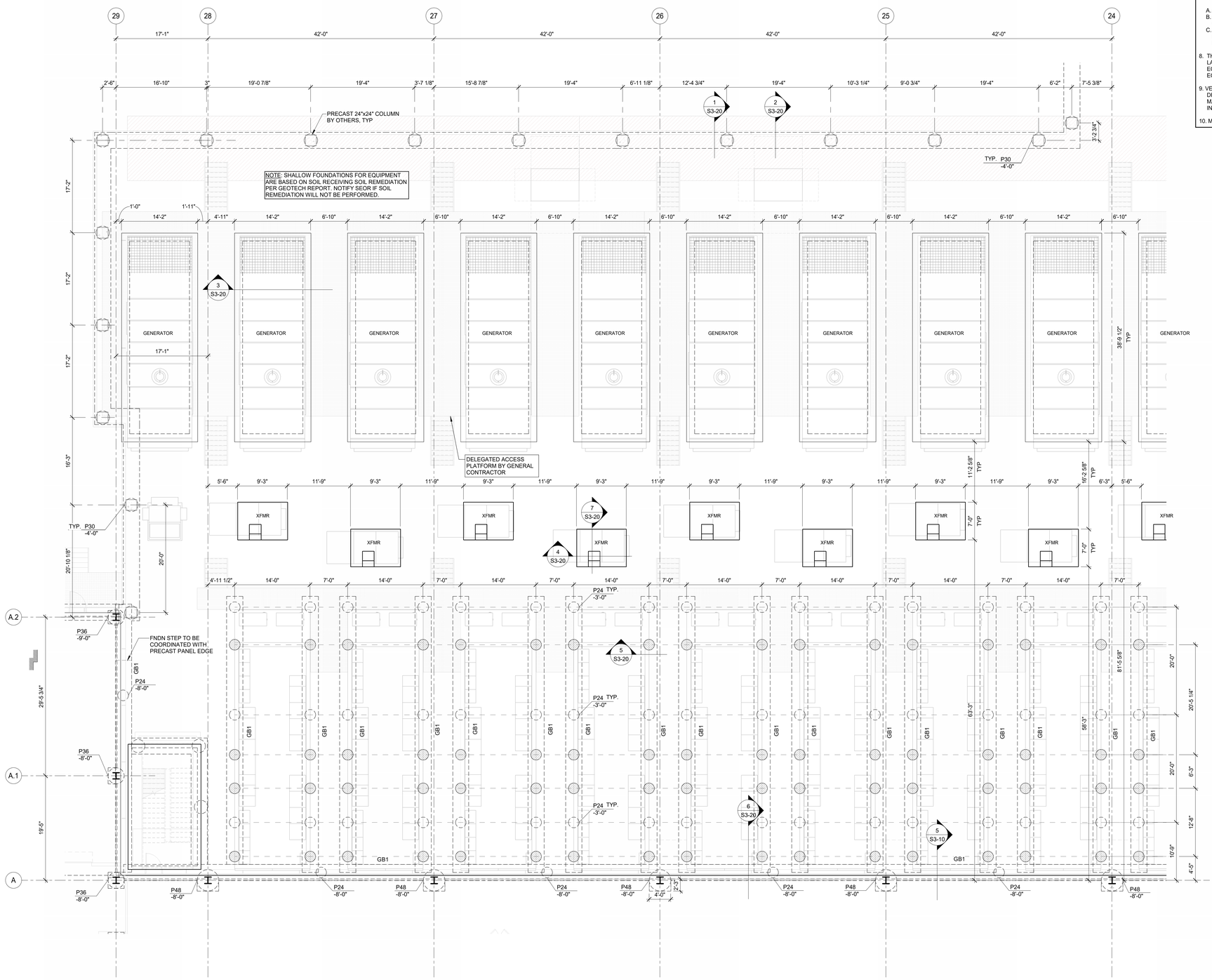
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FOUNDATION PLAN - SEGMENT P

JOB 24464.0000
DATE 01.31.2025
SHEET S1-10P

2/4/2025 4:08:53 PM S1-10P FOUNDATION PLAN - SEGMENT P

City of Aurora Building Division
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1 FOUNDATION PLAN - SEGMENT Q
1/8" = 1'-0"

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REVISIONS



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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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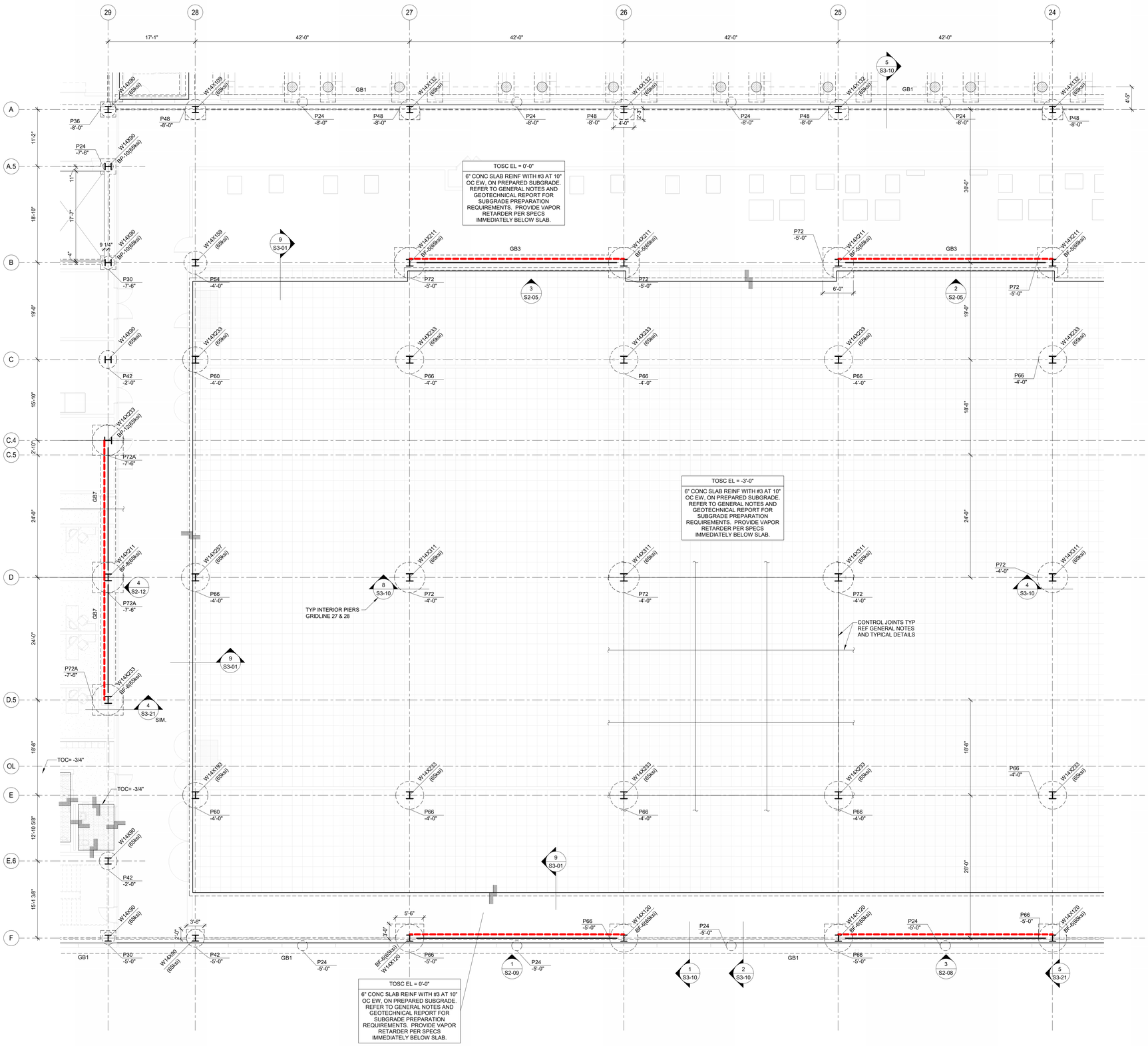
FOUNDATION PLAN - SEGMENT Q

JOB 24464.0000
DATE 01.31.2025
SHEET

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2/4/2025 4:08:58 PM S1-10Q FOUNDATION PLAN - SEGMENT Q

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1 FOUNDATION PLAN - SEGMENT R
1/8" = 1'-0"

SHEET NOTES

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DESIGN CONSULTING LLC

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AG&E Structural Engenuity
F-8435

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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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FOUNDATION PLAN - SEGMENT R

JOB 24464.0000
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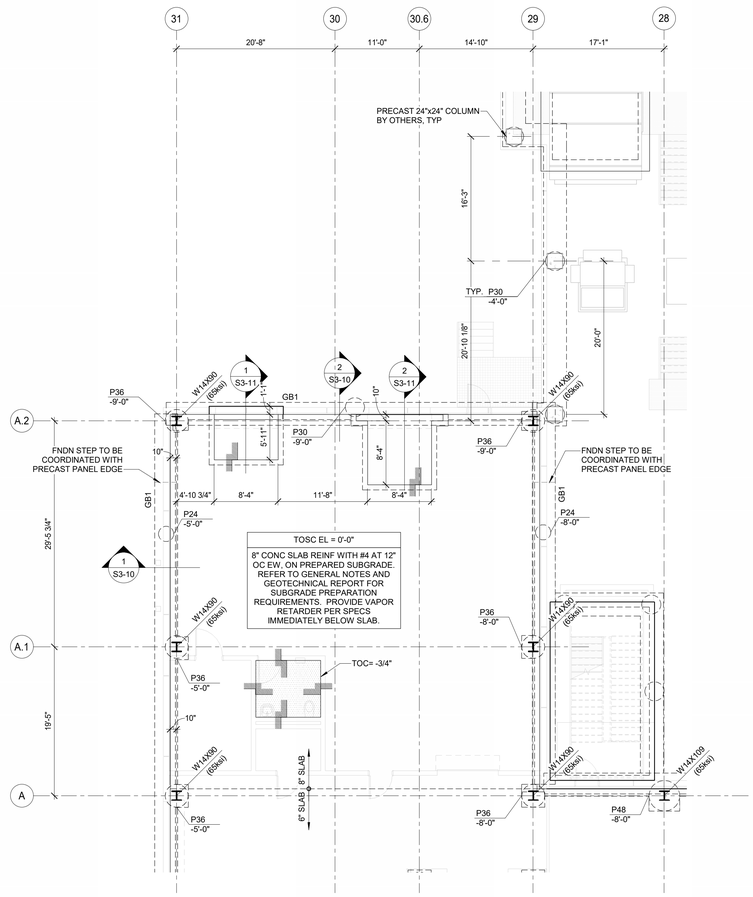
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2/4/2025 4:09:02 PM S1-10R FOUNDATION PLAN - SEGMENT R

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1. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0"
2. VERIFY ALL WALL OPENING DIMENSIONS AND LOCATIONS WITH ARCH DRAWINGS.
3. DEVIATIONS FROM CONST JOINT/CONTROL JOINT PATTERN SHOWN MUST BE APPROVED BY THE ENGINEER OF RECORD.
4. REFER TO SHEET S3-00 FOR PIER SCHEDULE.
5. REFER TO SHEET S5-00 FOR COLUMN AND BASE PLATE SCHEDULE.
6. REFER TO S2-00 FOR BRACE FRAME ELEVATIONS.
7. PIERS 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 SHALL BE SPACED EQUALLY BETWEEN PIERS THAT ARE DIMENSIONALLY SET ON PLAN OR AS NOTED ABOVE.
8. THE SERVICE YARD LAYOUT PROVIDED IS BASED ON INITIAL MEP LAYOUT. ALL DIMENSIONS SHALL BE COORDINATED WITH FINAL EQUIPMENT LAYOUT. ANY DISCREPANCIES SHALL BE PROVIDED TO THE EOR FOR APPROPRIATE CHANCES PRIOR TO INSTALLATION.
9. VERIFY ALL PAD OPENING DIMENSIONS AND LOCATIONS WITH ARCH/MEP DRAWINGS. VERIFY ALL PAD DIMENSIONS WITH EQUIPMENT MANUFACTURER PRIOR TO FABRICATING REINFORCING AND INSTALLATION.
10. METAL STAIR AND CANOPY BY STAIR MANUF.



1 FOUNDATION PLAN - SEGMENT S
1/8" = 1'-0"

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	ISSUES	
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REVISIONS

COLORADO LICENSED NICHOLAS W. [illegible] 65236 PROFESSIONAL ENGINEER
AG&E Structural Engenuity F-8435

Date of issue: 01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

S	Q	N	L	J	G	E	C	A
T	R	P	M	K	H	F	D	B

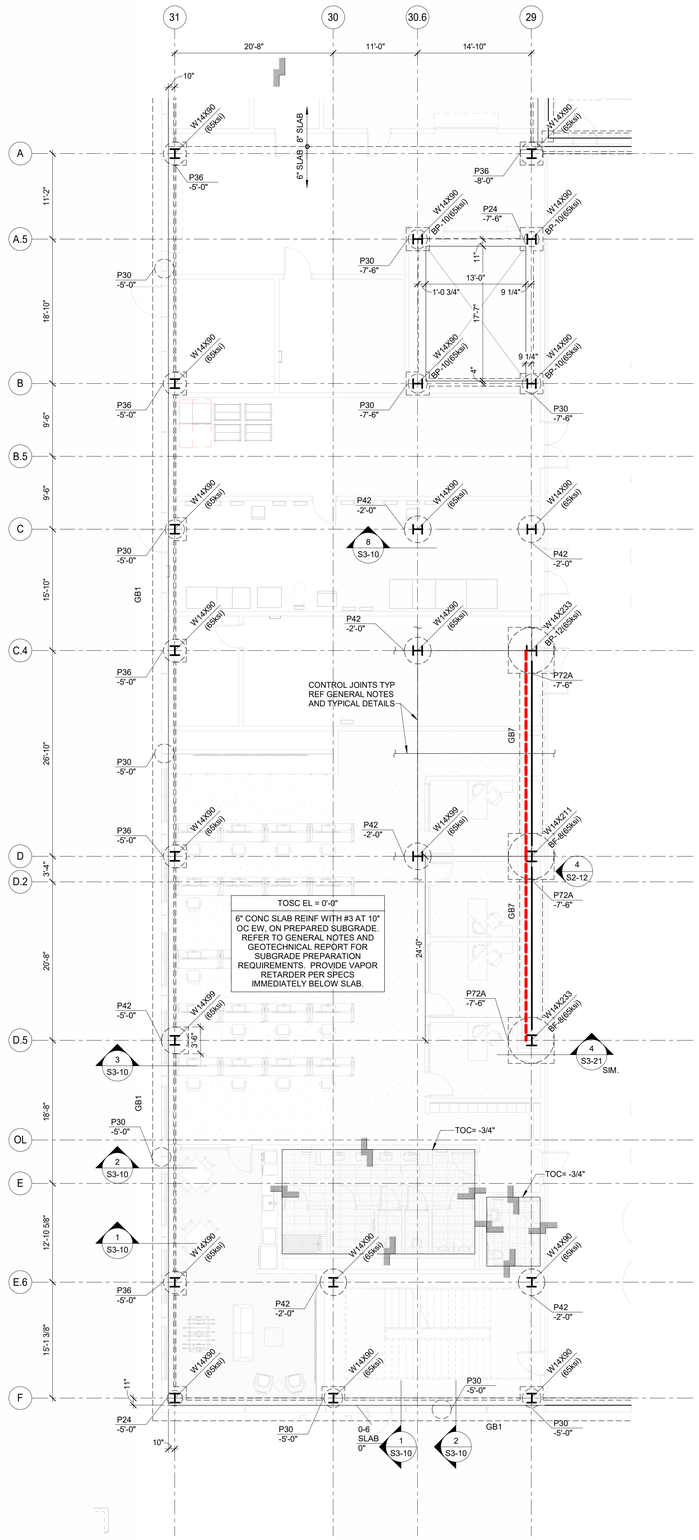
FOUNDATION PLAN - SEGMENT S

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DATE 01.31.2025
SHEET

S1-10S

2/4/2025 4:09:05 PM S1-10S FOUNDATION PLAN - SEGMENT S

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



SHEET NOTES

1. ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0"
2. VERIFY ALL WALL OPENING DIMENSIONS AND LOCATIONS WITH ARCH DRAWINGS.
3. DEVIATIONS FROM CONST JOINT/CONTROL JOINT PATTERN SHOWN MUST BE APPROVED BY THE ENGINEER OF RECORD.
4. REFER TO SHEET S3-00 FOR PIER SCHEDULE.
5. REFER TO SHEET S5-00 FOR COLUMN AND BASE PLATE SCHEDULE.
6. REFER TO S2-00 FOR BRACE FRAME ELEVATIONS.
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   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 SHALL BE SPACED EQUALLY BETWEEN PIERS THAT ARE DIMENSIONALLY SET ON PLAN OR AS NOTED ABOVE.
8. THE SERVICE YARD LAYOUT PROVIDED IS BASED ON INITIAL MEP LAYOUT. ALL DIMENSIONS SHALL BE COORDINATED WITH FINAL EQUIPMENT LAYOUT. ANY DISCREPANCIES SHALL BE PROVIDED TO THE EOR FOR APPROPRIATE CHANCES PRIOR TO INSTALLATION.
9. VERIFY ALL PAD OPENING DIMENSIONS AND LOCATIONS WITH ARCH/MEP DRAWINGS. VERIFY ALL PAD DIMENSIONS WITH EQUIPMENT MANUFACTURER PRIOR TO FABRICATING REINFORCING AND INSTALLATION.
10. METAL STAIR AND CANOPY BY STAIR MANUF.

1 FOUNDATION PLAN - SEGMENT T
1/8" = 1'-0"

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	ISSUES	
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COLORADO LICENSED
NICHOLAS W. [illegible]
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

S	Q	N	L	J	G	E	C	A	
T	R	P	M	K	H	F	D	B	

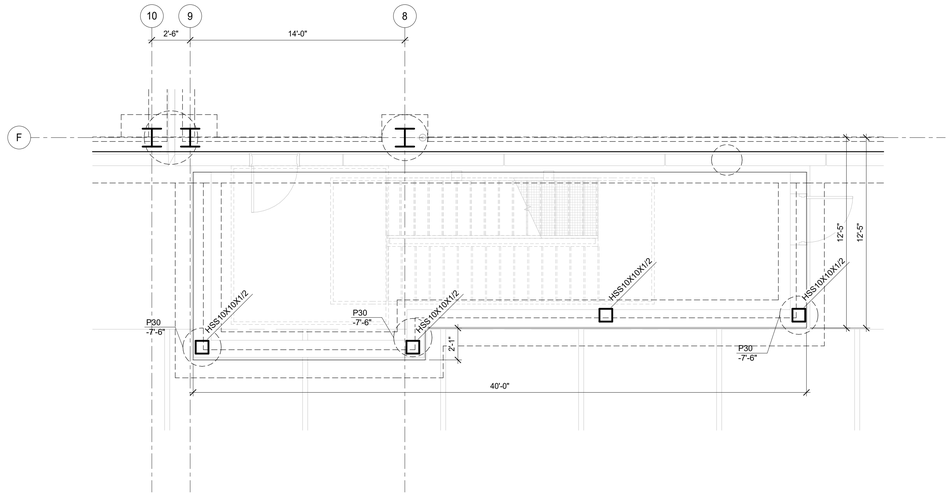
FOUNDATION PLAN - SEGMENT T

JOB 24464.0000
DATE 01.31.2025
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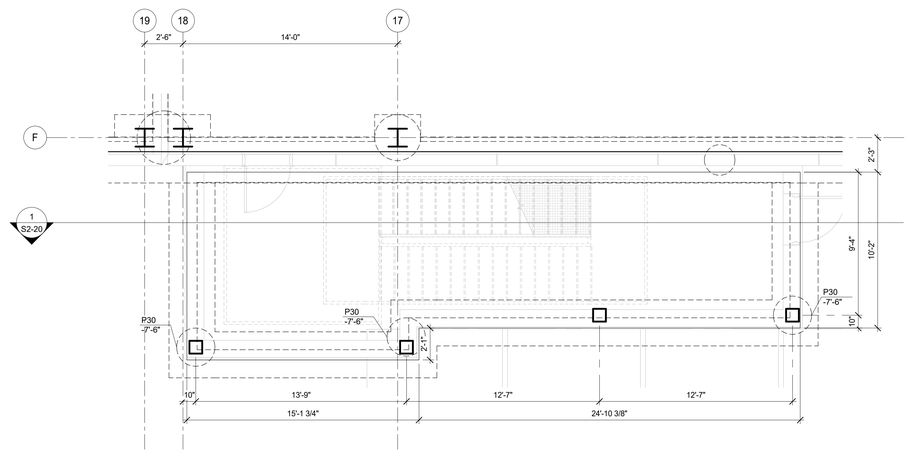
S1-10T

2/4/2025 4:09:09 PM S1-10T FOUNDATION PLAN - SEGMENT T

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2 EXTERIOR STAIR FOUNDATION PLAN
1/4" = 1'-0"



1 EXTERIOR STAIR FOUNDATION PLAN
1/4" = 1'-0"

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65236
PROFESSIONAL ENGINEER

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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

PARTIAL FOUNDATION PLANS

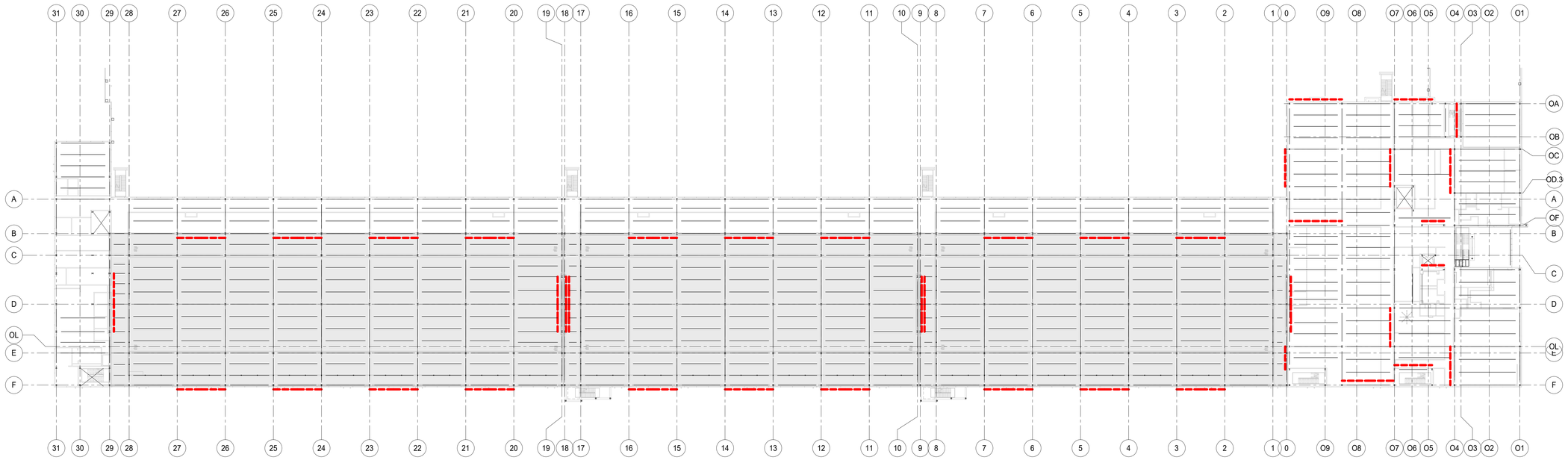
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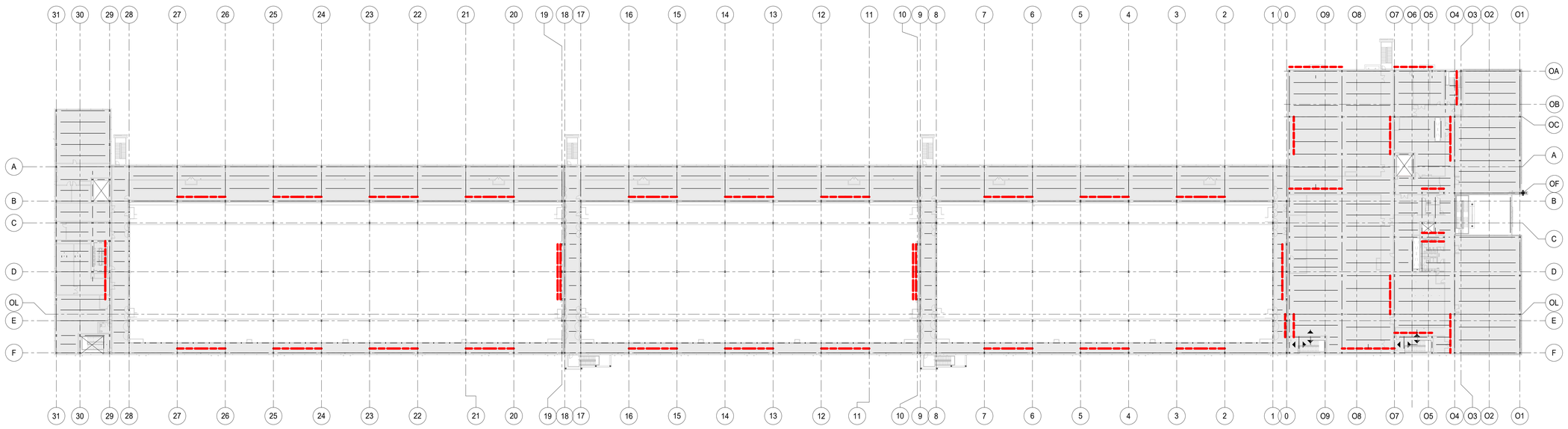
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RSN: 1881854 | PERMIT#: 25-2513934-CM



2 OVERALL SECOND FLOOR FRAMING PLAN (LO)

1" = 40'-0"



1 OVERALL SECOND FLOOR FRAMING PLAN (HI)

1" = 40'-0"

2/4/2025 4:09:18 PM S1-20 OVERALL SECOND FLOOR FRAMING PLAN

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65236
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Date of issue:
01.31.2025

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1140 N. GUN CLUB ROAD

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OVERALL SECOND FLOOR FRAMING PLAN

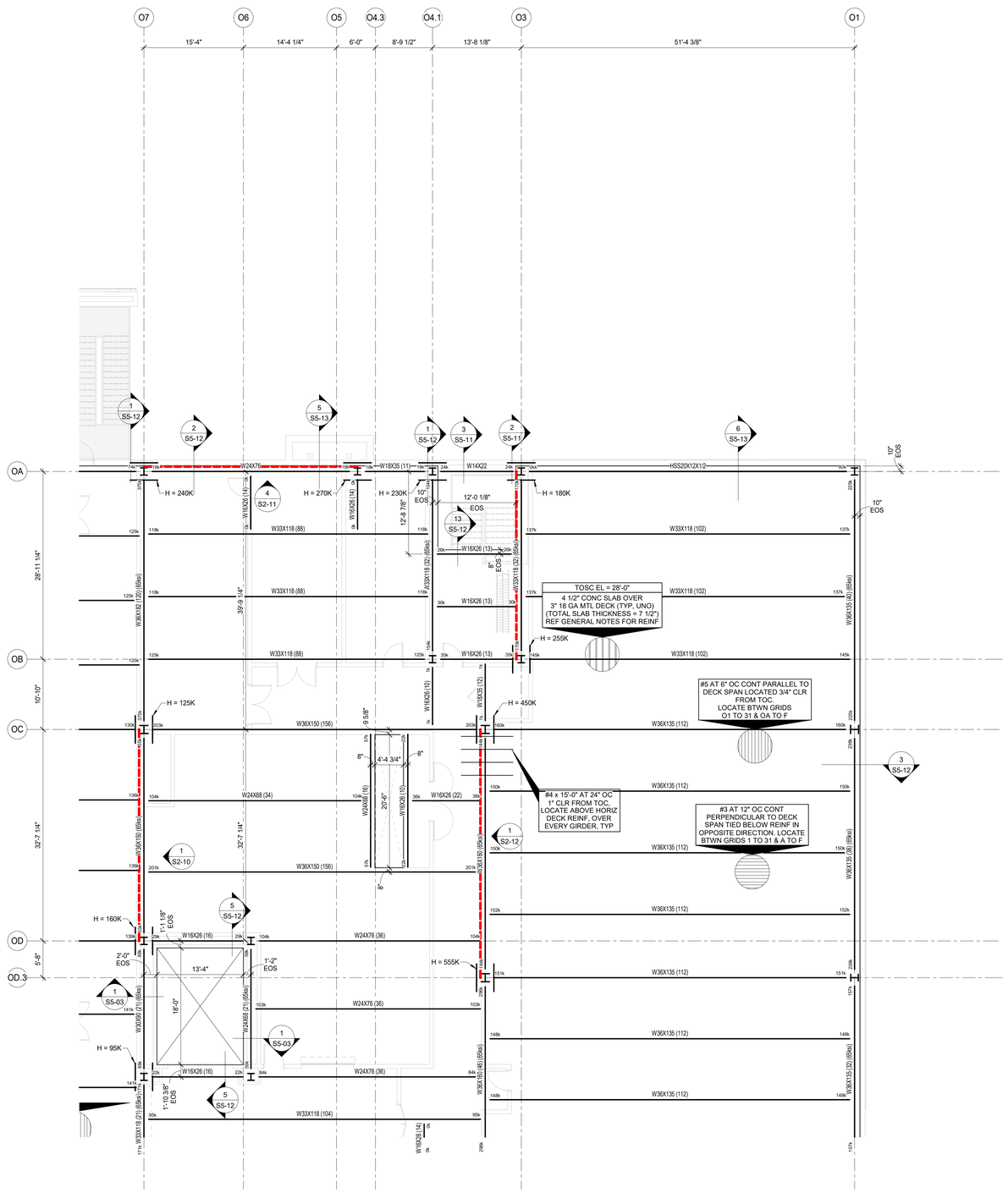
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S1-20

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SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
2. FOH & BOH TOSC EL = 28'-0"
   DATA HALL HIGH SLAB TOSC EL = 28'-0"
   DATA HALL LOW SLAB TOSC EL = 25'-0"
3. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.
4. DESIGN LIVE LOAD = REF SCHEDULE
5. COMPOSITE BEAM CONSTRUCTION IS UNSHORED.
6. BEAMS THAT ARE MARKED "REF ELEVATION" ARE SHOWN ON FRAME ELEVATIONS.
7. STEEL BEAMS/JOIST SHALL BE EQUALLY SPACED BETWEEN COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.



1 SECOND FLOOR FRAMING PLAN - SEGMENT A
1/8" = 1'-0"

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NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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SECOND FLOOR FRAMING PLAN - SEGMENT A

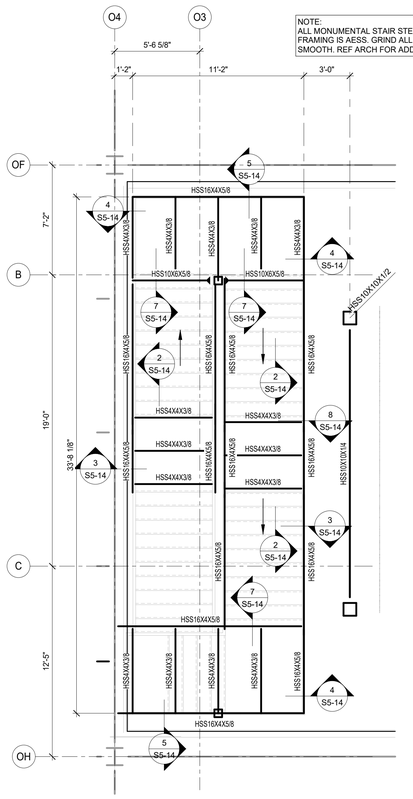
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DATE 01.31.2025
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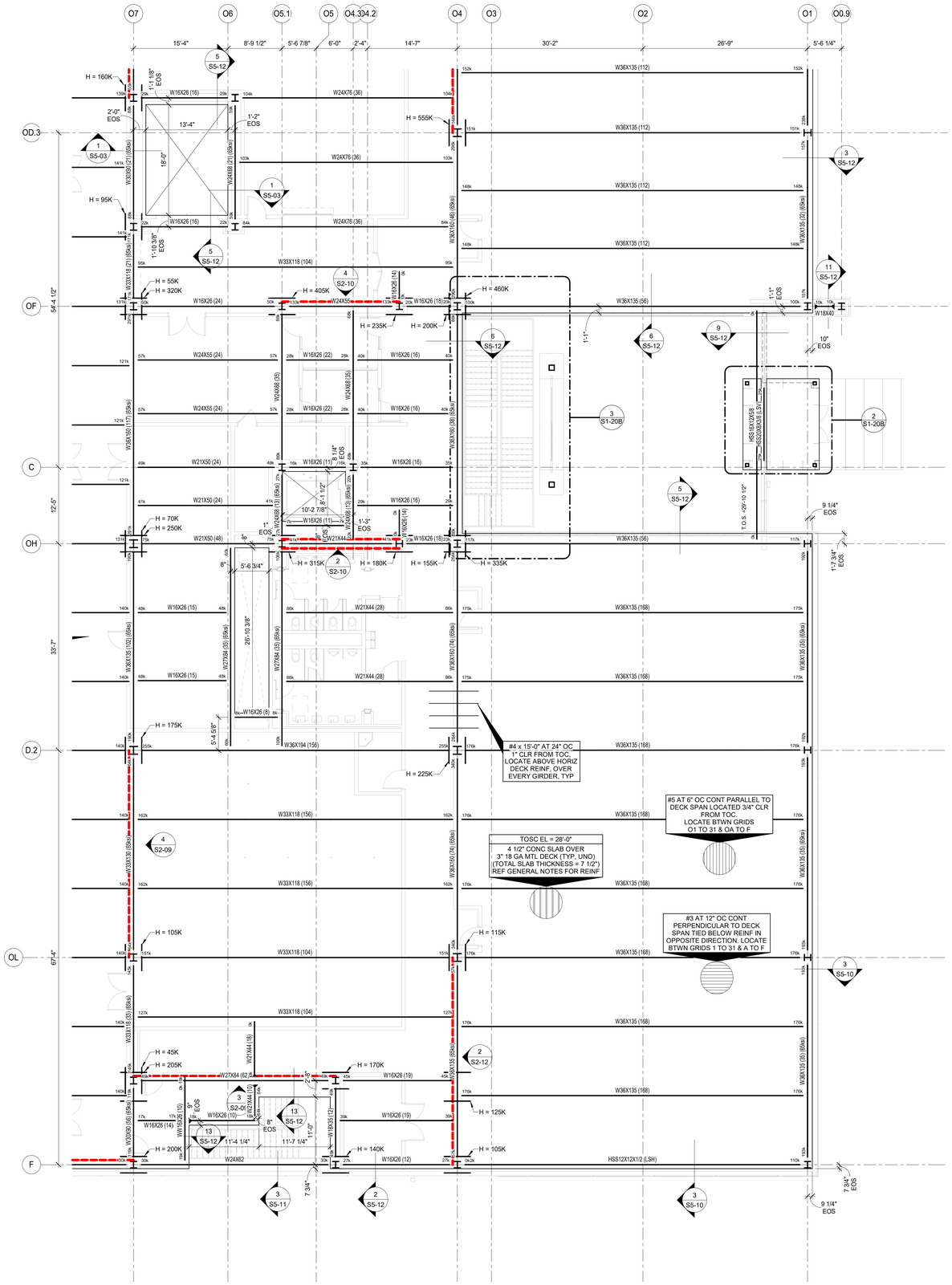
City of Aurora Building Division
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Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

SHEET NOTES

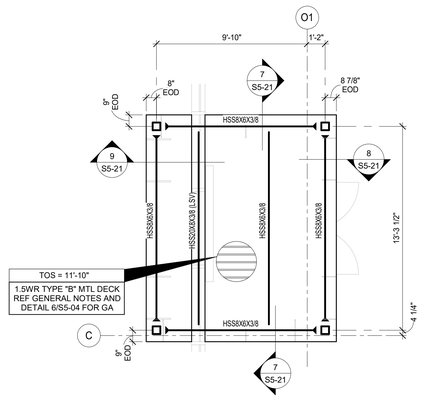
1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
2. FOH & BOH TOSC EL = 28'-0"
   DATA HALL HIGH SLAB TOSC EL = 28'-0"
   DATA HALL LOW SLAB TOSC EL = 25'-0"
3. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.
4. DESIGN LIVE LOAD = REF SCHEDULE
5. COMPOSITE BEAM CONSTRUCTION IS UNSHORED.
6. BEAMS THAT ARE MARKED "REF ELEVATION" ARE SHOWN ON FRAME ELEVATIONS.
7. STEEL BEAMS/JOIST SHALL BE EQUALLY SPACED BETWEEN COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.



3 MONUMENT STAIR FRAMING PLAN
1/4" = 1'-0"



1 SECOND FLOOR FRAMING PLAN - SEGMENT B
1/8" = 1'-0"



2 VESTIBULE FRAMING PLAN
1/4" = 1'-0"

2/4/2025 4:09:23 PM S1-20B SECOND FLOOR FRAMING PLAN - SEGMENT B

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COLORADO LICENSED
NICHOLAS W. PAYNE
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
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01.31.2025

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KEYPLAN

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SECOND FLOOR FRAMING PLAN - SEGMENT B

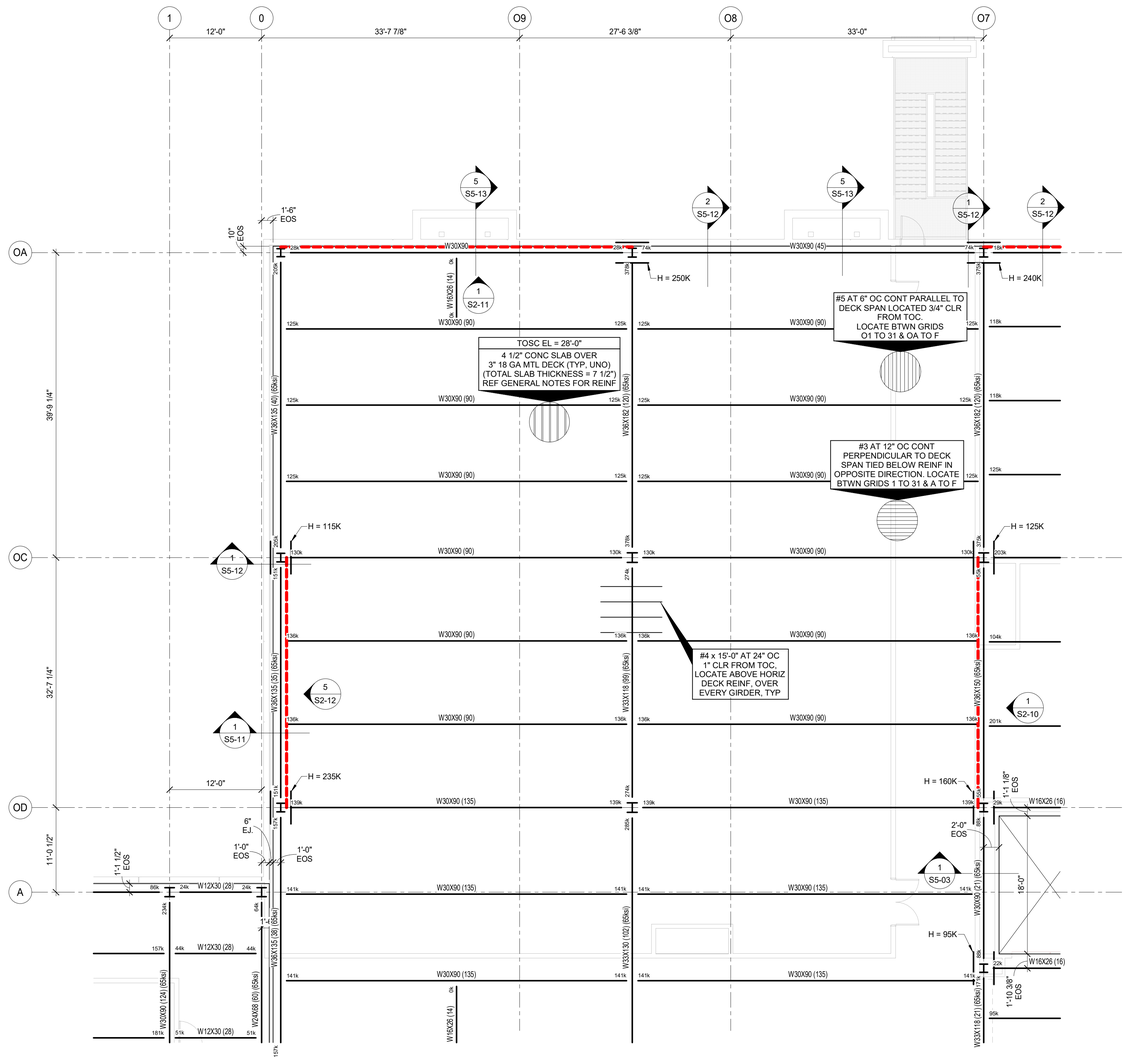
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S1-20B

City of Aurora Building Division
Reviewed for Code Compliance
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Date: May 06, 2025
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SHEET NOTES

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6. BEAMS THAT ARE MARKED "REF ELEVATION" ARE SHOWN ON FRAME ELEVATIONS.
7. STEEL BEAMS/JOIST SHALL BE EQUALLY SPACED BETWEEN COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.



1 SECOND FLOOR FRAMING PLAN - SEGMENT C
1/8" = 1'-0"

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NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

S	Q	N	L	J	G	E	C	A
T	R	P	M	K	H	F	D	B

SECOND FLOOR FRAMING PLAN - SEGMENT C

JOB 24464.0000
DATE 01.31.2025
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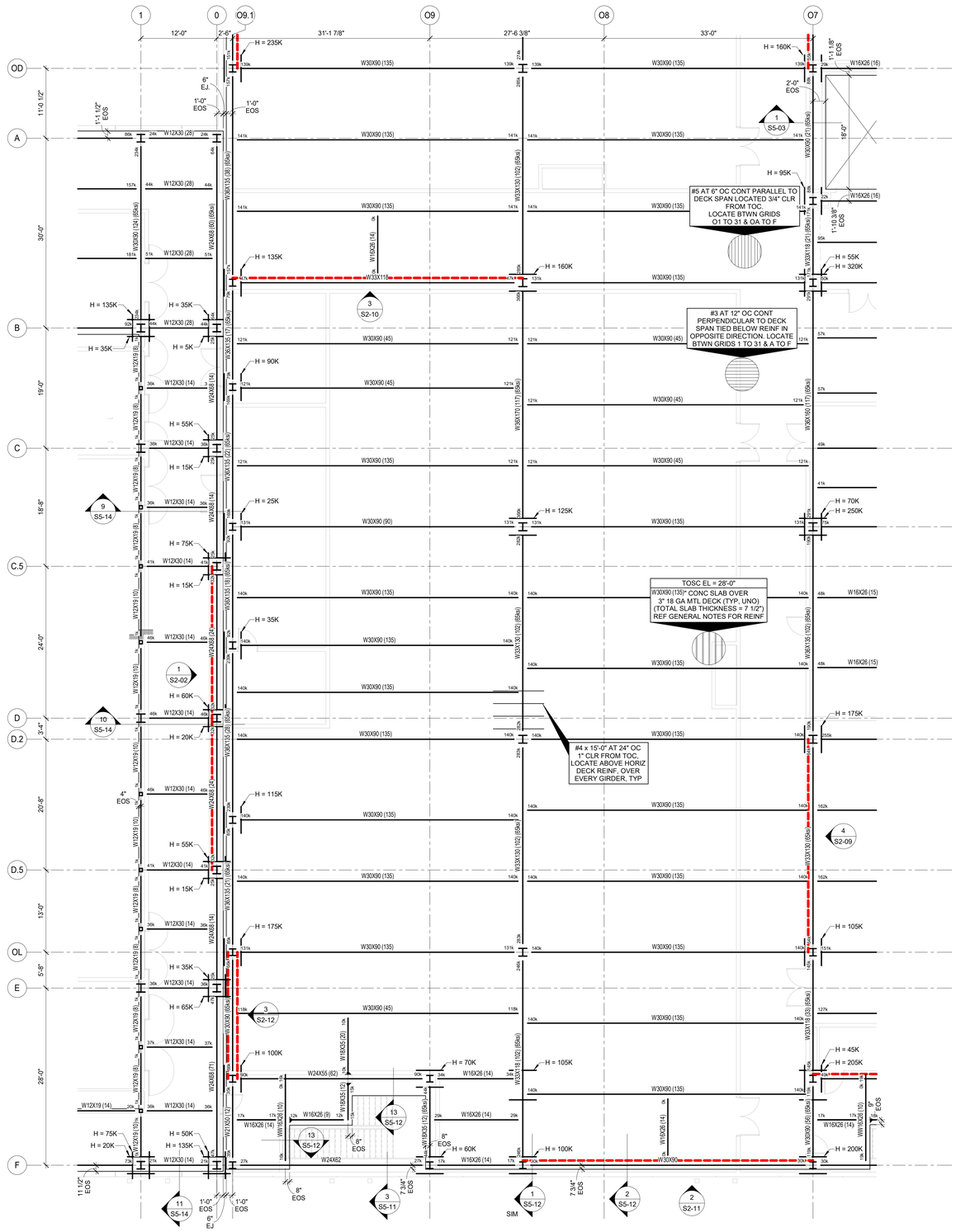
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SHEET NOTES

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7. STEEL BEAMS/JOIST SHALL BE EQUALLY SPACED BETWEEN COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.



1 SECOND FLOOR FRAMING PLAN - SEGMENT D
1/8" = 1'-0"

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AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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SECOND FLOOR FRAMING PLAN - SEGMENT D

JOB 24464.0000
DATE 01.31.2025
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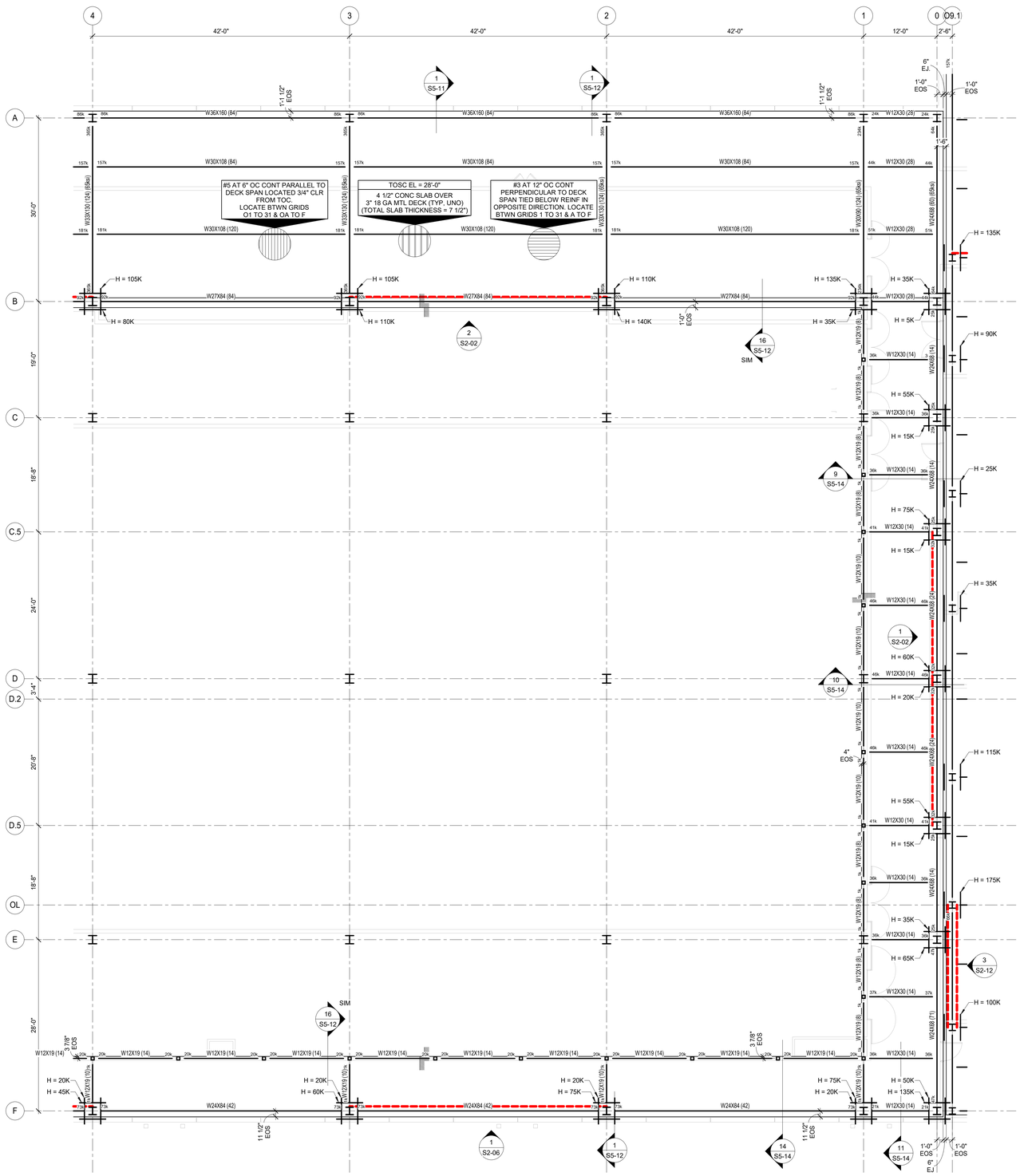
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SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
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7. STEEL BEAMS/JOIST SHALL BE EQUALLY SPACED BETWEEN COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.



1 SECOND FLOOR FRAMING PLAN - SEGMENT F
1/8" = 1'-0"

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65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

KEYPLAN

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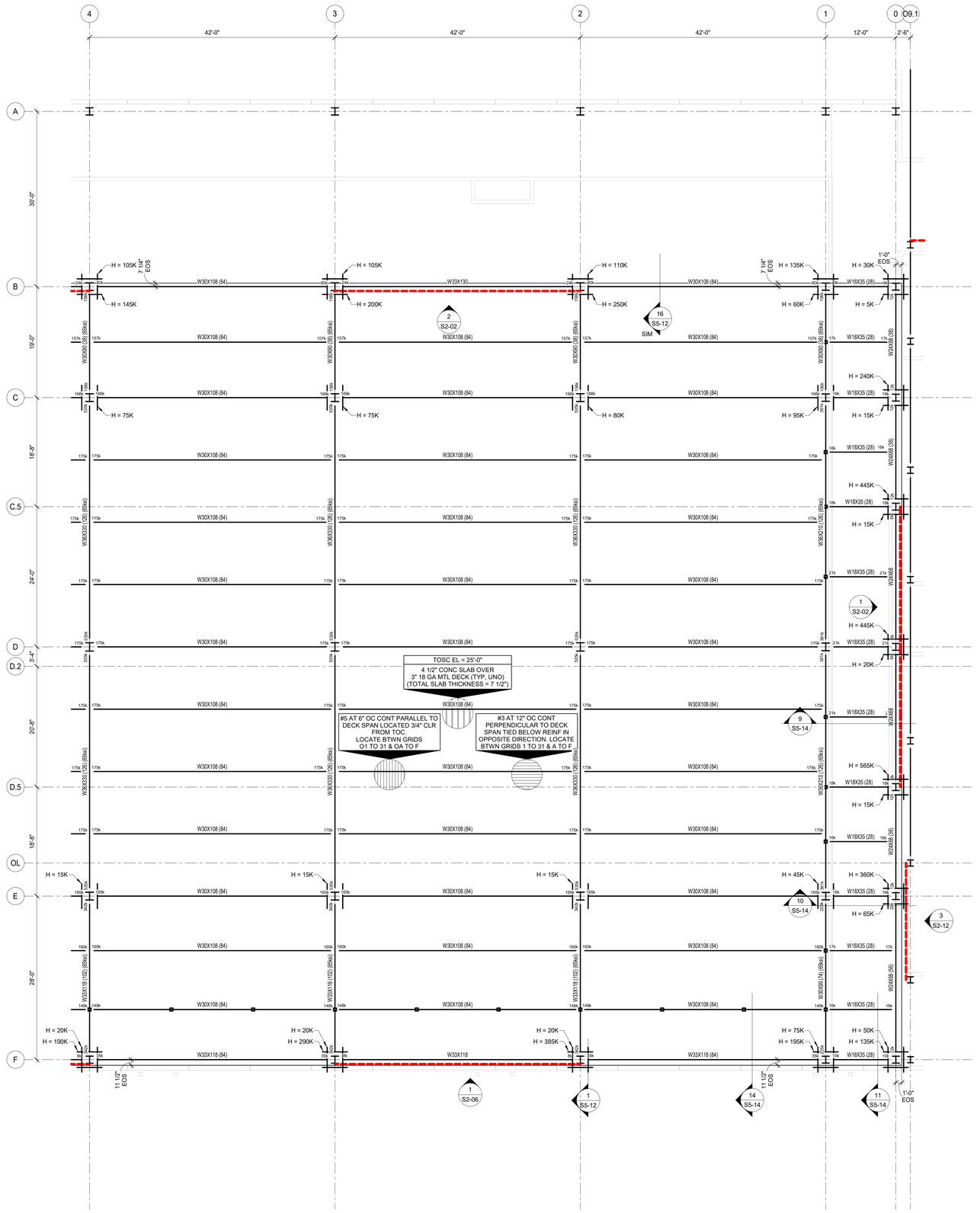
SECOND FLOOR FRAMING PLAN - SEGMENT F

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DATE 01.31.2025
SHEET

S1-20F

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1 SECOND FLOOR FRAMING PLAN - SEGMENT F-LOW
1/8" = 1'-0"

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ISSUES

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REVISIONS

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity
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01.31.2025

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1140 N. GUN CLUB ROAD

KEYPLAN

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LOWER SECOND FLOOR FRAMING PLAN - SEGMENT F

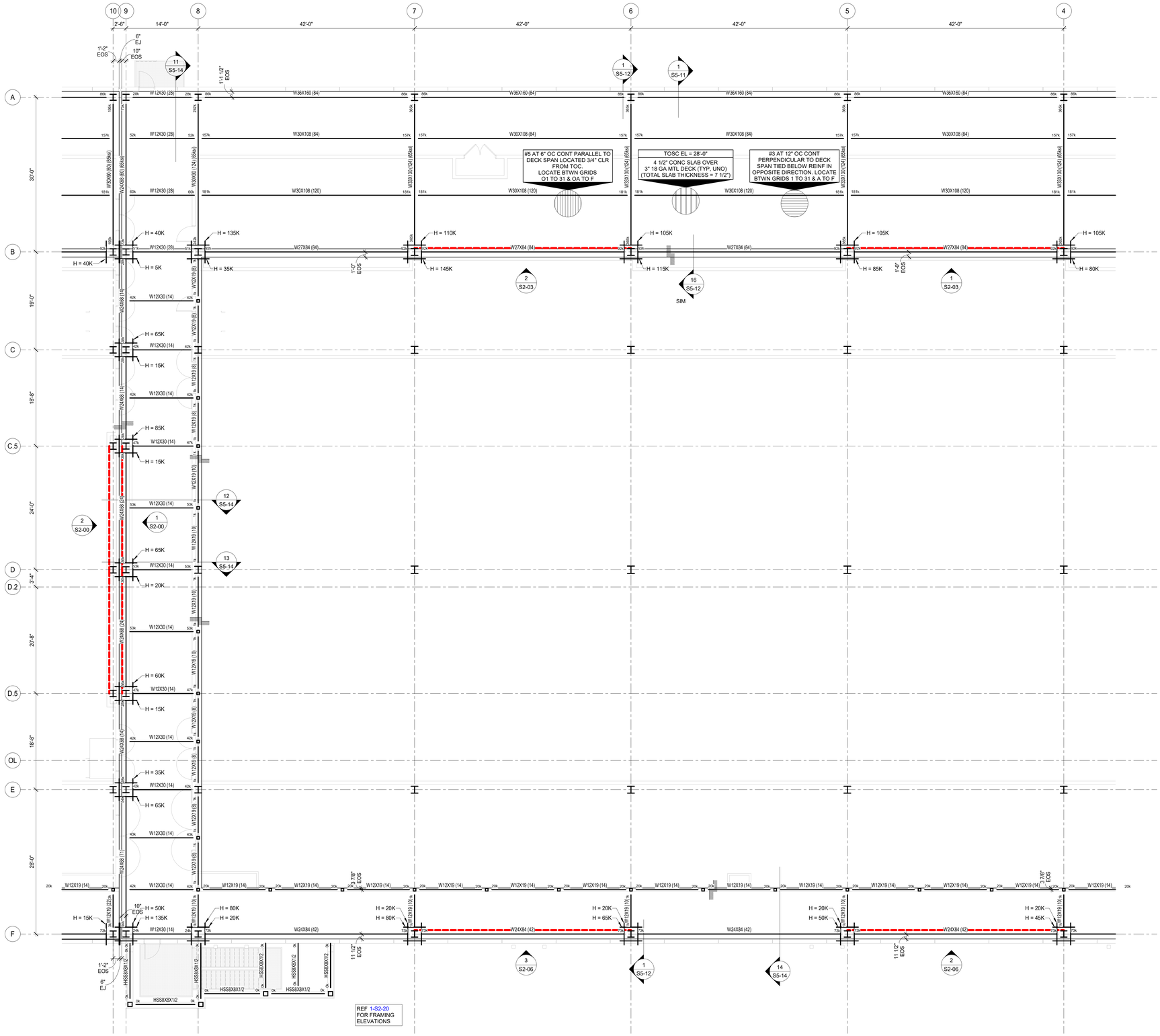
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SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
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   DATA HALL LOW SLAB TOSC EL = 25'-0"
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4. DESIGN LIVE LOAD = REF SCHEDULE
5. COMPOSITE BEAM CONSTRUCTION IS UNSHORED.
6. BEAMS THAT ARE MARKED "REF ELEVATION" ARE SHOWN ON FRAME ELEVATIONS.
7. STEEL BEAMS/JOIST SHALL BE EQUALLY SPACED BETWEEN COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.



1 SECOND FLOOR FRAMING PLAN - SEGMENT H
1/8" = 1'-0"

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ISSUES		
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NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

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F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

S	Q	N	L	J	G	E	C	A
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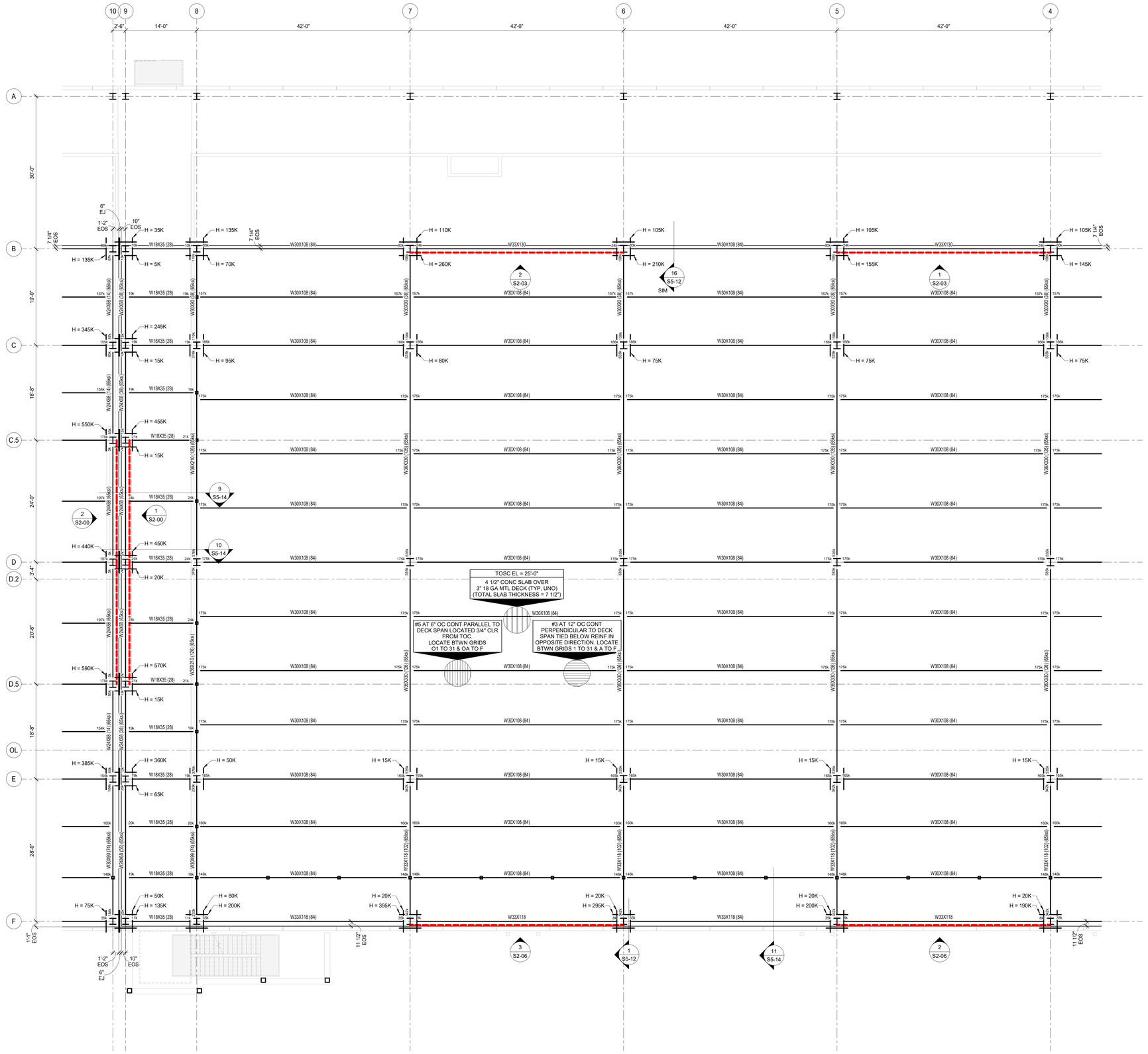
SECOND FLOOR FRAMING PLAN - SEGMENT H

JOB 24464.0000
DATE 01.31.2025
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S1-20H

2/4/2025 4:09:36 PM S1-20H SECOND FLOOR FRAMING PLAN - SEGMENT H

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
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1 SECOND FLOOR FRAMING PLAN - SEGMENT H-LOW
1/8" = 1'-0"

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ISSUES		
1	12.20.24	DESIGN DEVELOPMENT
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NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

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1140 N. GUN CLUB ROAD

KEYPLAN

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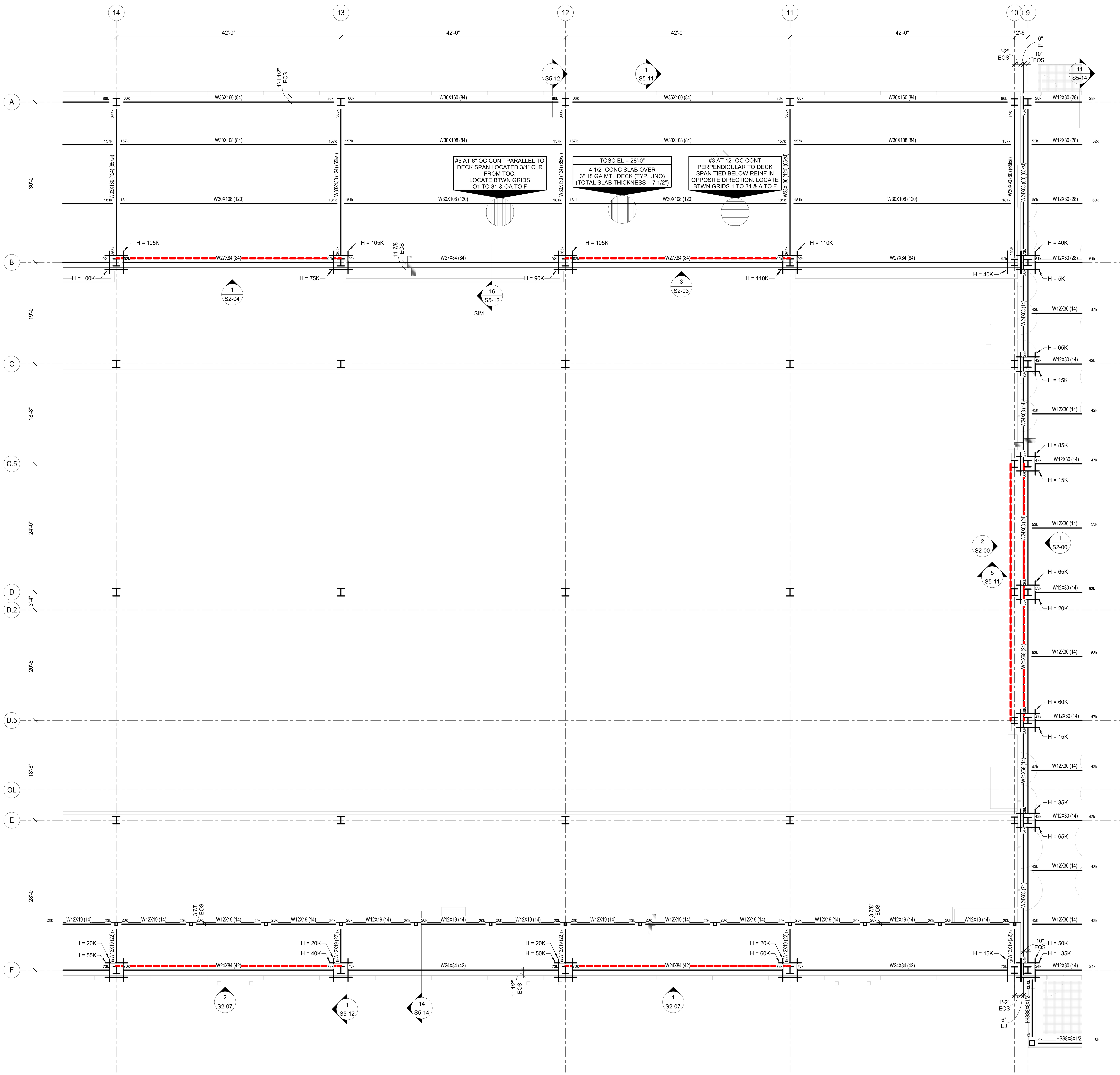
LOWER SECOND FLOOR FRAMING PLAN - SEGMENT H

JOB 24464.0000
DATE 01.31.2025
SHEET

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2/4/2025 4:09:38 PM S1-20Hb LOWER SECOND FLOOR FRAMING PLAN - SEGMENT H

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Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



1 SECOND FLOOR FRAMING PLAN - SEGMENT K

1/8" = 1'-0"

SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
2. FOH & BOH TOSC EL = 28'-0"
   DATA HALL HIGH SLAB TOSC EL = 28'-0"
   DATA HALL LOW SLAB TOSC EL = 25'-0"
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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

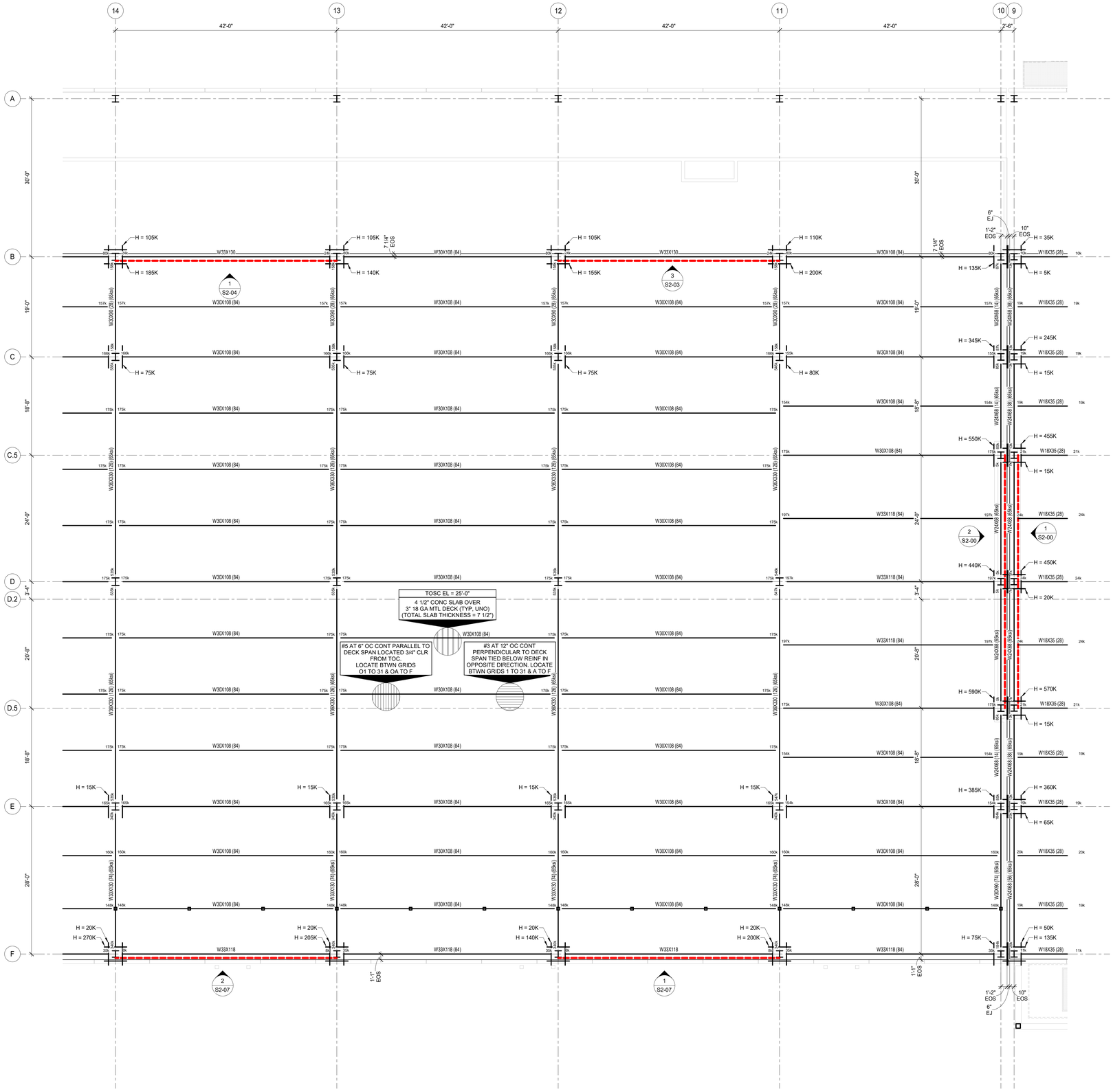
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SECOND FLOOR FRAMING PLAN - SEGMENT K

JOB 24464.0000
DATE 01.31.2025
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S1-20K

City of Aurora Building Division
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1 SECOND FLOOR FRAMING PLAN - SEGMENT K-LOW
1/8" = 1'-0"

2/4/2025 4:09:43 PM S1-20Kb LOWER SECOND FLOOR FRAMING PLAN - SEGMENT K

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ISSUES		
1	12.20.24	DESIGN DEVELOPMENT
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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

S	Q	N	L	J	G	E	C	A
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LOWER SECOND FLOOR FRAMING PLAN - SEGMENT K

JOB 24464.0000
DATE 01.31.2025
SHEET

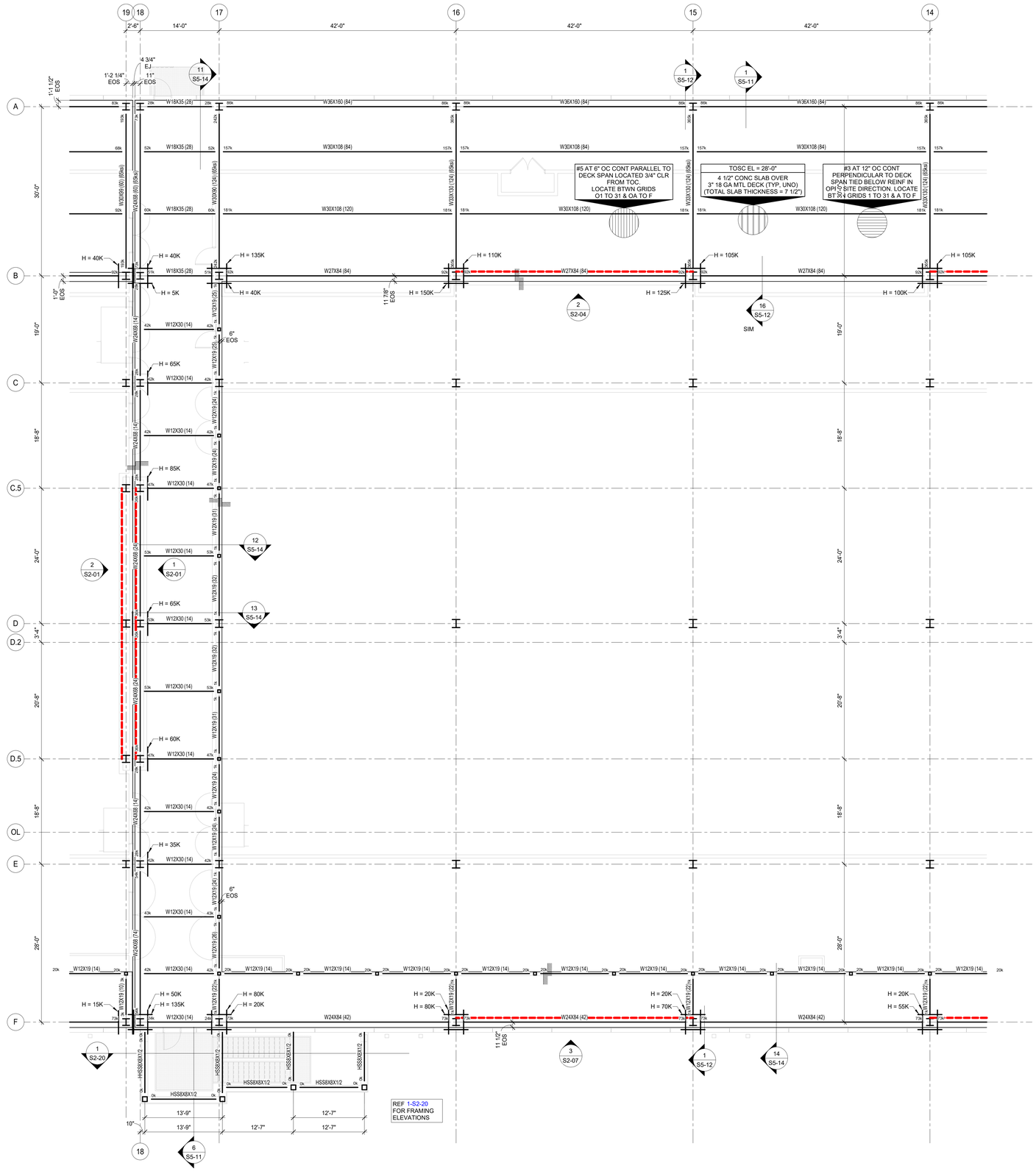
S1-20Kb

City of Aurora Building Division
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Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

RSN: 1881854 | PERMIT#: 25-2513934-CM

SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
2. FOH & BOH TOSC EL = 28'-0"
   DATA HALL HIGH SLAB TOSC EL = 28'-0"
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1 SECOND FLOOR FRAMING PLAN - SEGMENT M
1/8" = 1'-0"

2/4/2025 4:09:45 PM S1-20M SECOND FLOOR FRAMING PLAN - SEGMENT M

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ISSUES		
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PROFESSIONAL ENGINEER

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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

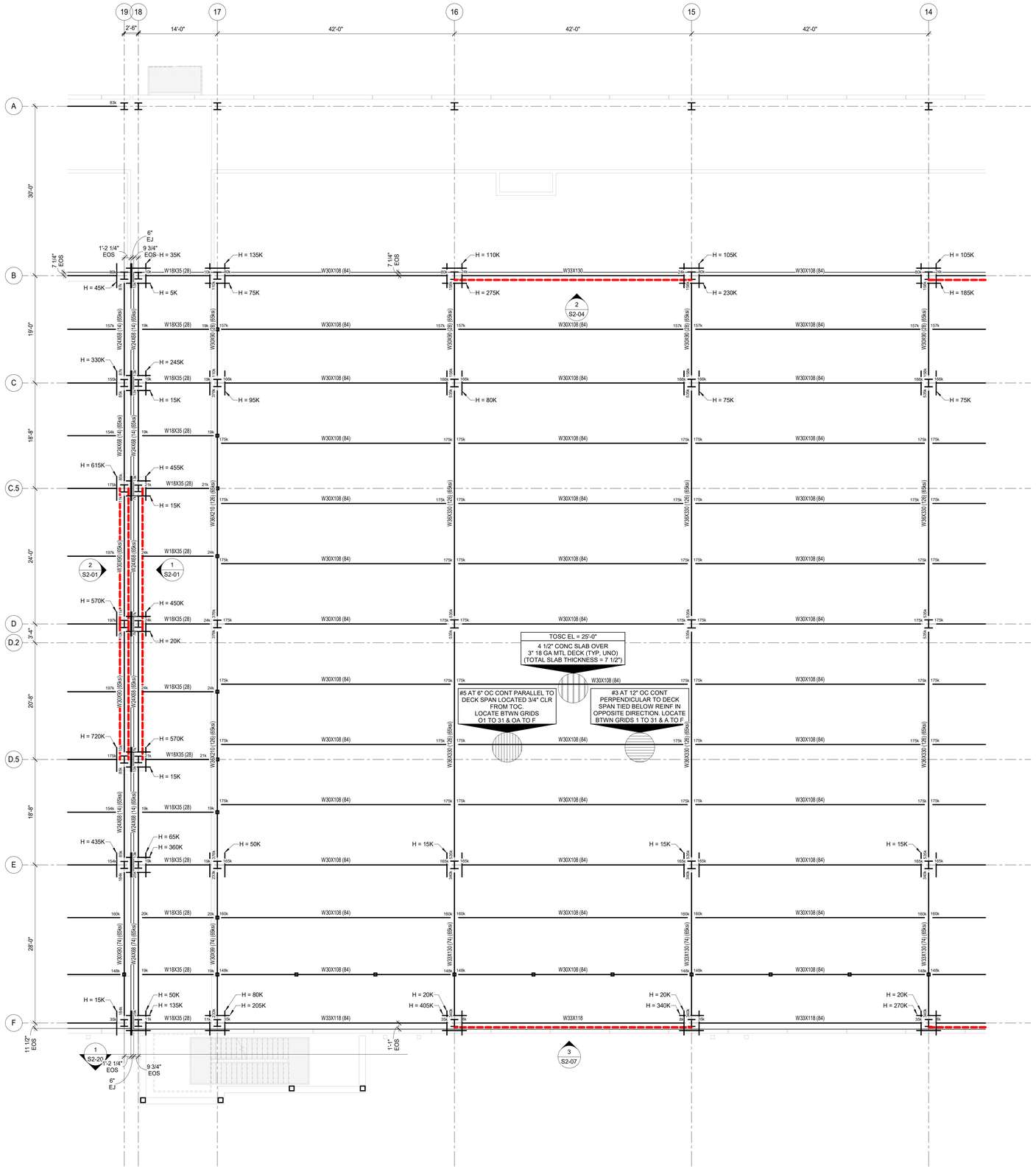
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SECOND FLOOR FRAMING PLAN - SEGMENT M

JOB 24464.0000
DATE 01.31.2025
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S1-20M

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1 SECOND FLOOR FRAMING PLAN - SEGMENT M-LOW
1/8" = 1'-0"

2/4/2025 4:09:48 PM S1-20Mb LOWER SECOND FLOOR FRAMING PLAN - SEGMENT M

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01.31.2025

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KEYPLAN

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LOWER SECOND FLOOR FRAMING PLAN - SEGMENT M

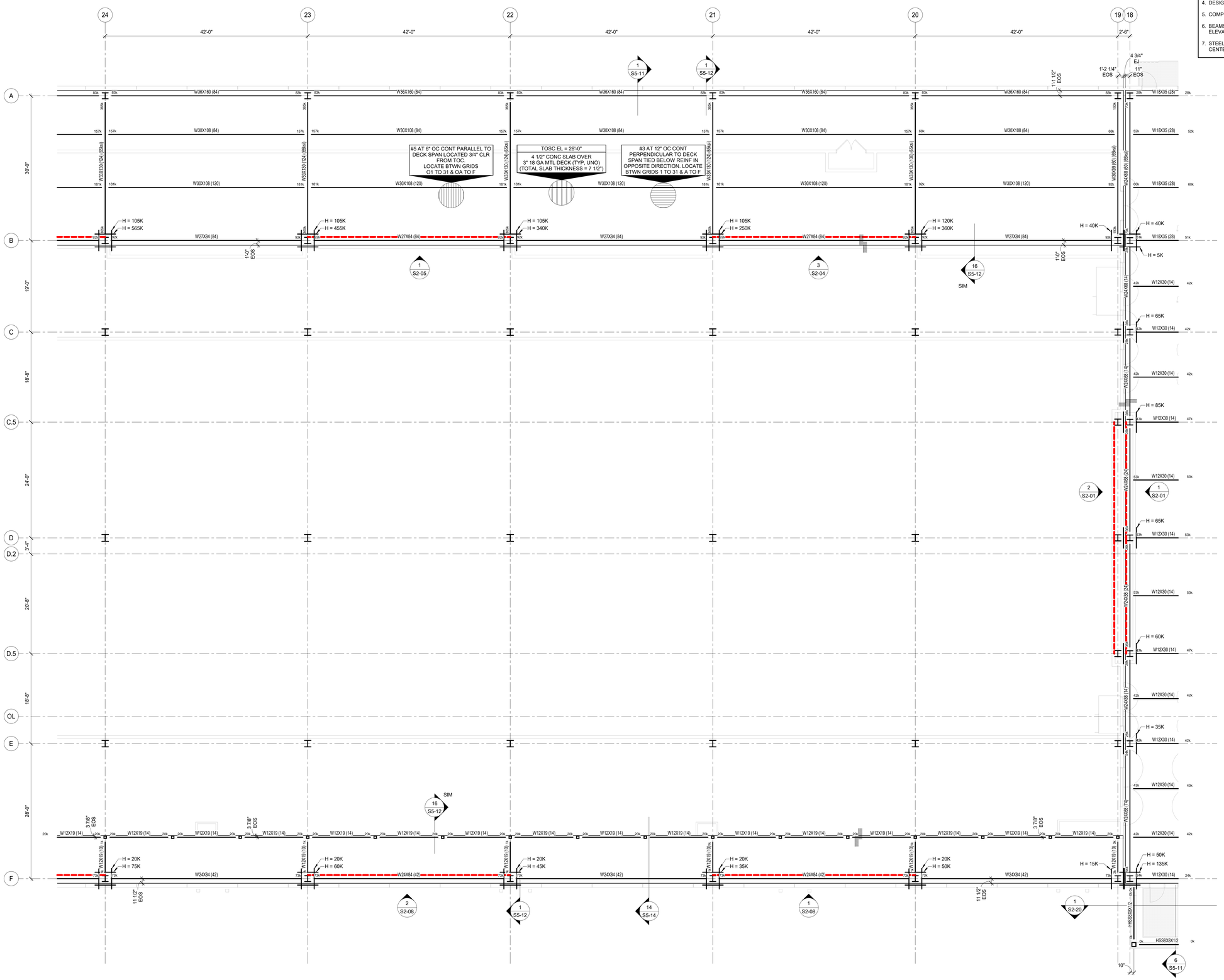
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DATE 01.31.2025
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S1-20Mb

City of Aurora Building Division
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SHEET NOTES

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1 SECOND FLOOR FRAMING PLAN - SEGMENT P
1/8" = 1'-0"

2/4/2025 4:09:50 PM S1-20P SECOND FLOOR FRAMING PLAN - SEGMENT P

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Date of issue:
01.31.2025

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QTS

KEYPLAN

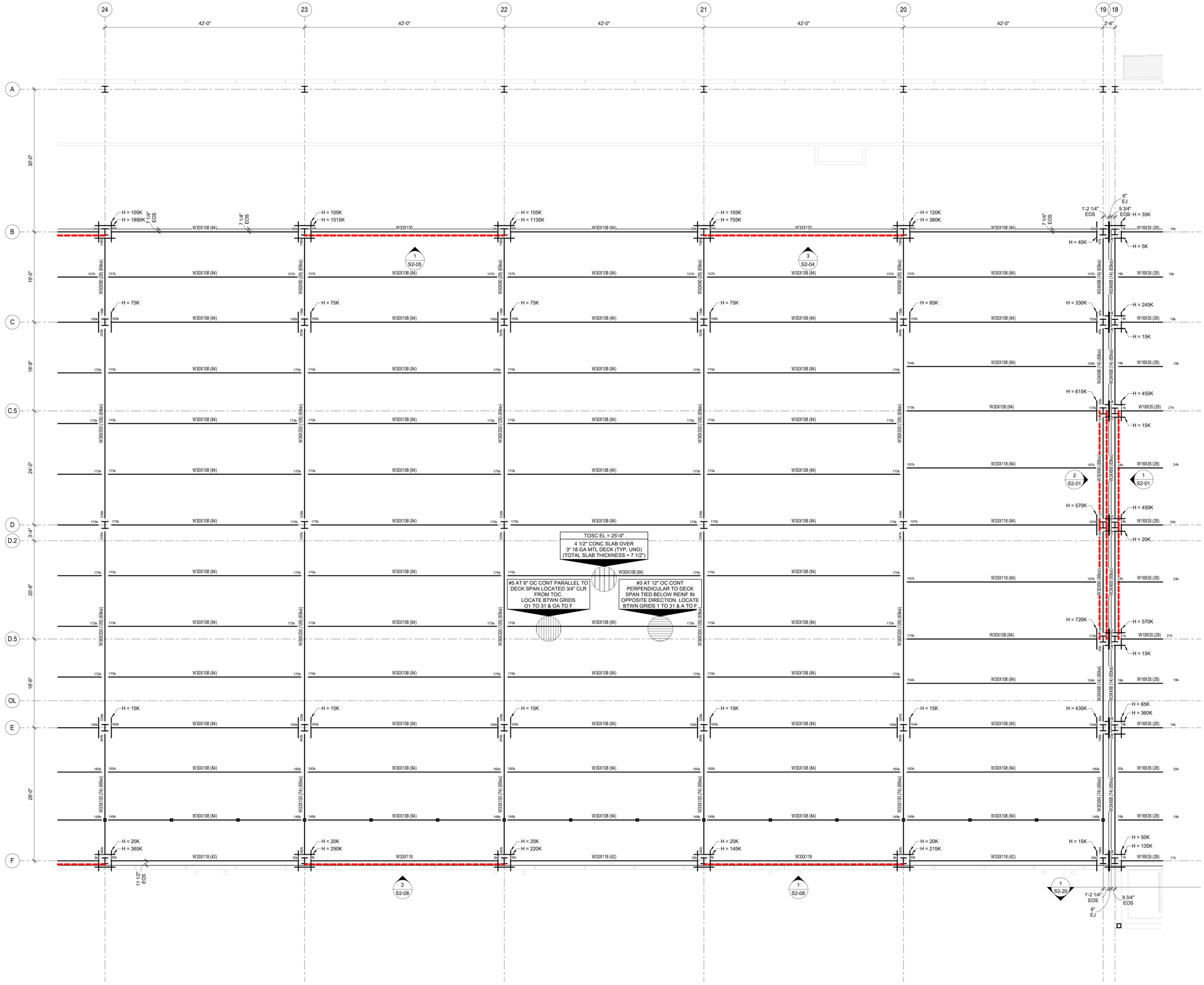
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SECOND FLOOR FRAMING PLAN - SEGMENT P

JOB 24464.0000
DATE 01.31.2025
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S1-20P

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Date: May 06, 2025
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1 SECOND FLOOR FRAMING PLAN - SEGMENT P-LOW
1/8" = 1'-0"

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NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

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Date of issue:
01.31.2025

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KEYPLAN

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LOWER SECOND FLOOR FRAMING PLAN - SEGMENT P

JOB 24464.0000
DATE 01.31.2025
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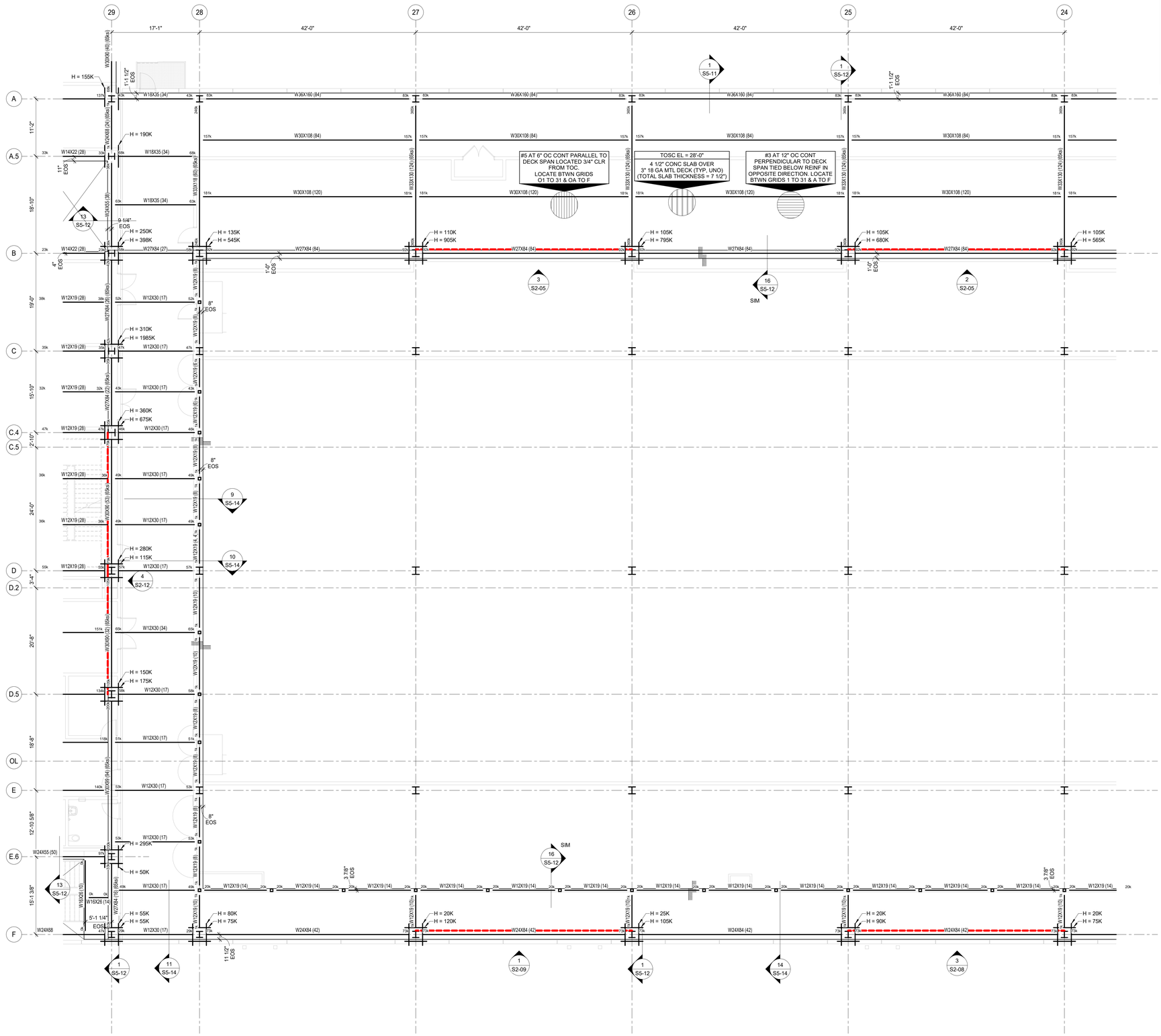
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City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
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1 SECOND FLOOR FRAMING PLAN - SEGMENT R
1/8" = 1'-0"

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NICHOLAS W. [illegible]
65236
PROFESSIONAL ENGINEER

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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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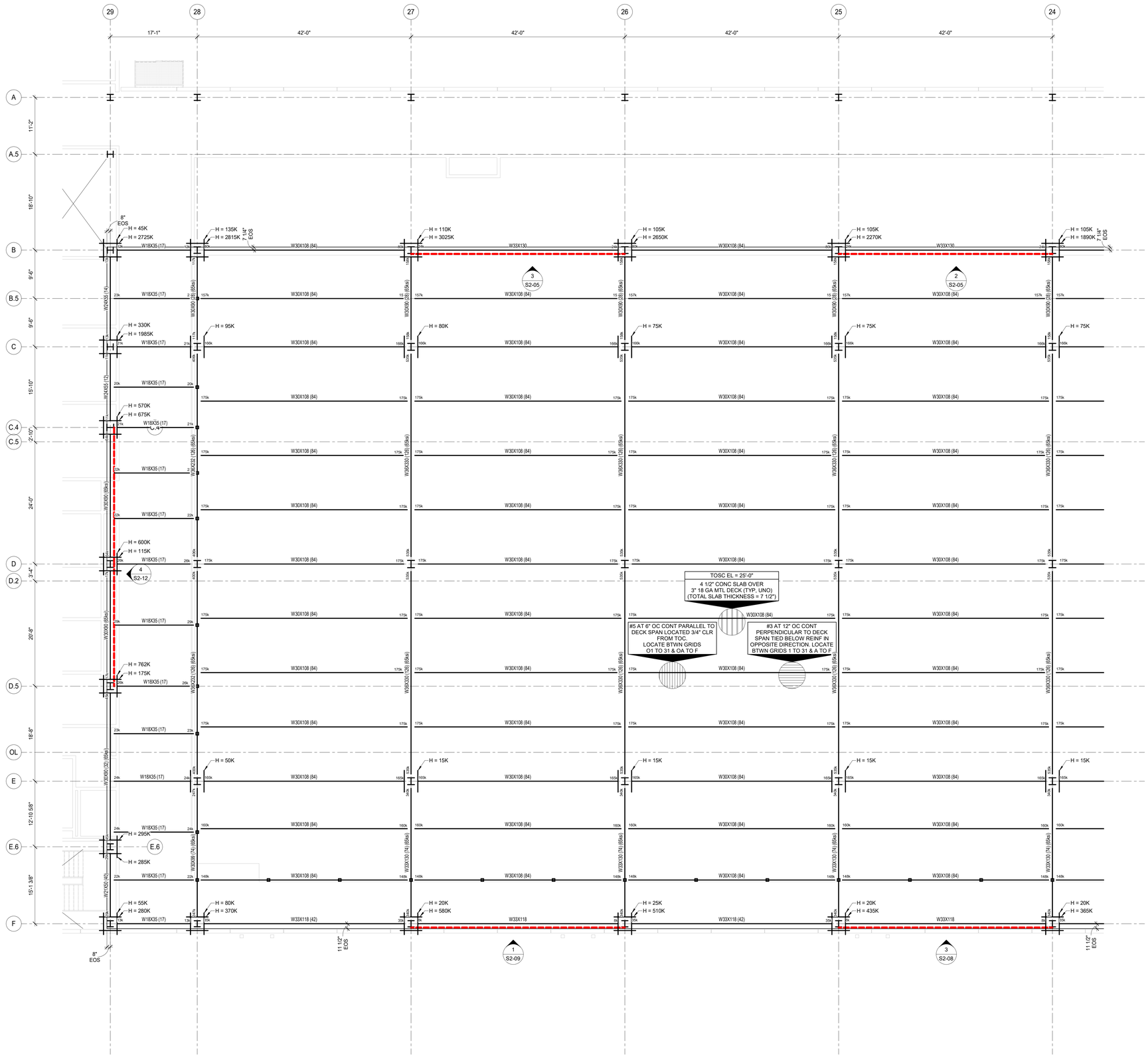
SECOND FLOOR FRAMING PLAN - SEGMENT R

JOB 24464.0000
DATE 01.31.2025
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2/4/2025 4:09:55 PM S1-20R SECOND FLOOR FRAMING PLAN - SEGMENT R

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Date: May 06, 2025
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1 SECOND FLOOR FRAMING PLAN - SEGMENT R-LOW
1/8" = 1'-0"

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ISSUES		
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REVISIONS

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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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LOWER SECOND FLOOR FRAMING PLAN - SEGMENT R

JOB 24464.0000
DATE 01.31.2025
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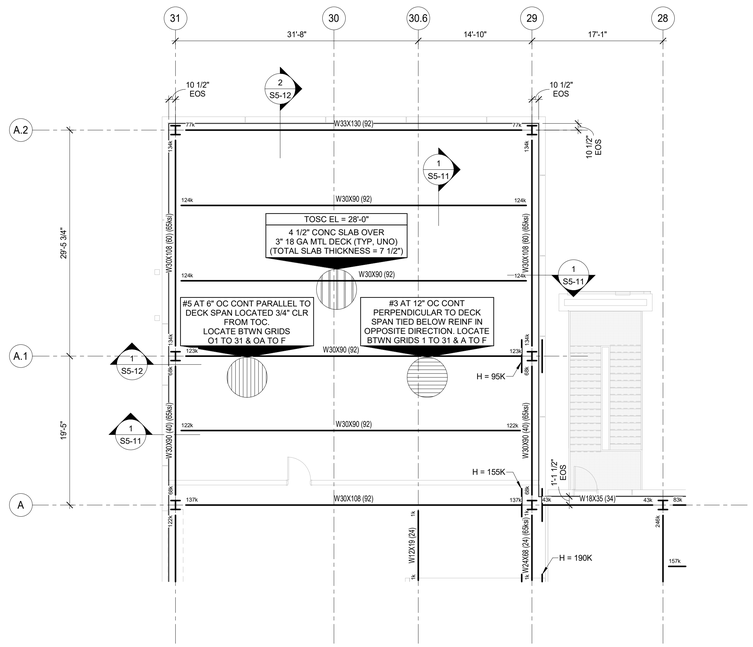
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2/4/2025 4:09:57 PM S1-20Rb LOWER SECOND FLOOR FRAMING PLAN - SEGMENT R

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
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1 SECOND FLOOR FRAMING PLAN - SEGMENT S
1/8" = 1'-0"

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	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
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REVISIONS

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NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
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Date of issue:
01.31.2025

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1140 N. GUN CLUB ROAD

KEYPLAN

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SECOND FLOOR FRAMING PLAN - SEGMENT S

JOB 24464.0000
DATE 01.31.2025
SHEET

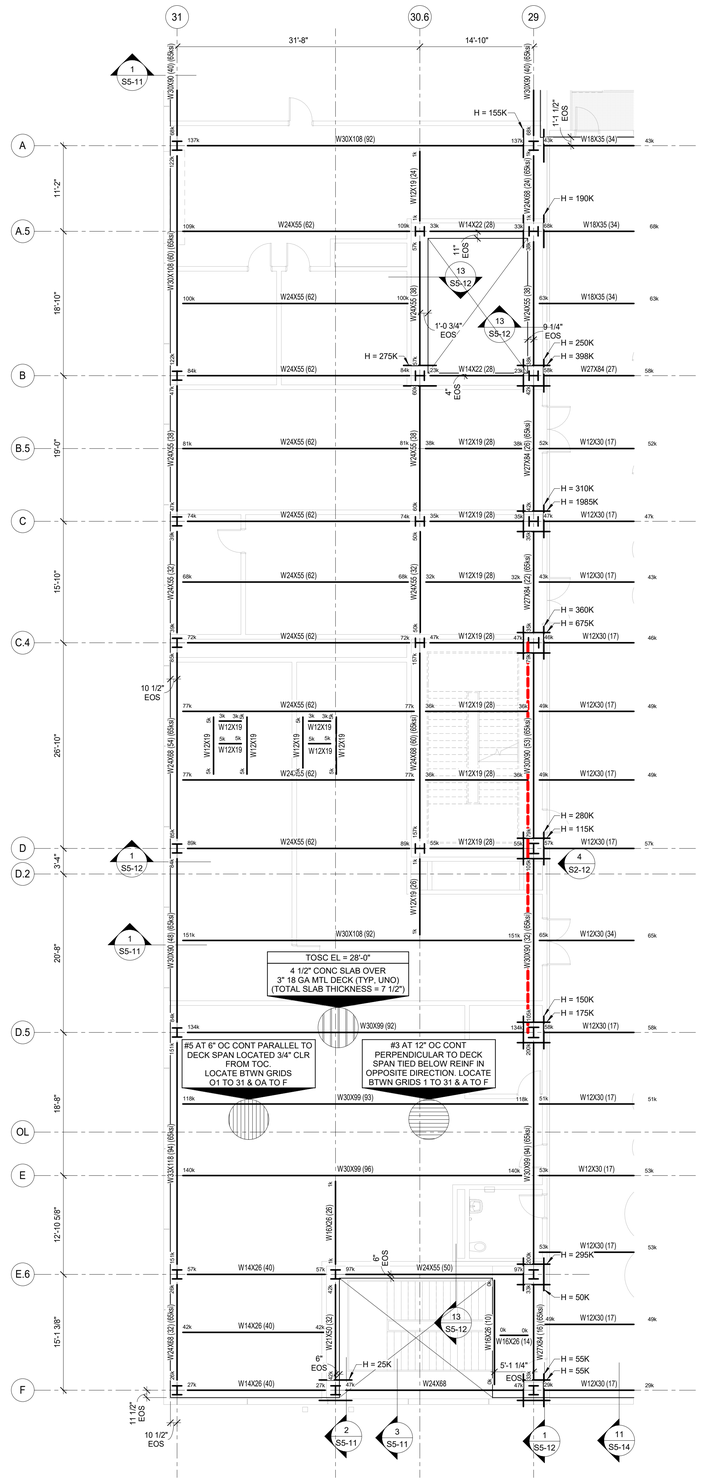
S1-20S

2/4/2025 4:09:59 PM S1-20S SECOND FLOOR FRAMING PLAN - SEGMENT S

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Approved as Noted: TStrasse
Date: May 06, 2025
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SHEET NOTES

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1 SECOND FLOOR FRAMING PLAN - SEGMENT T
1/8" = 1'-0"

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	ISSUES	
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KEYPLAN

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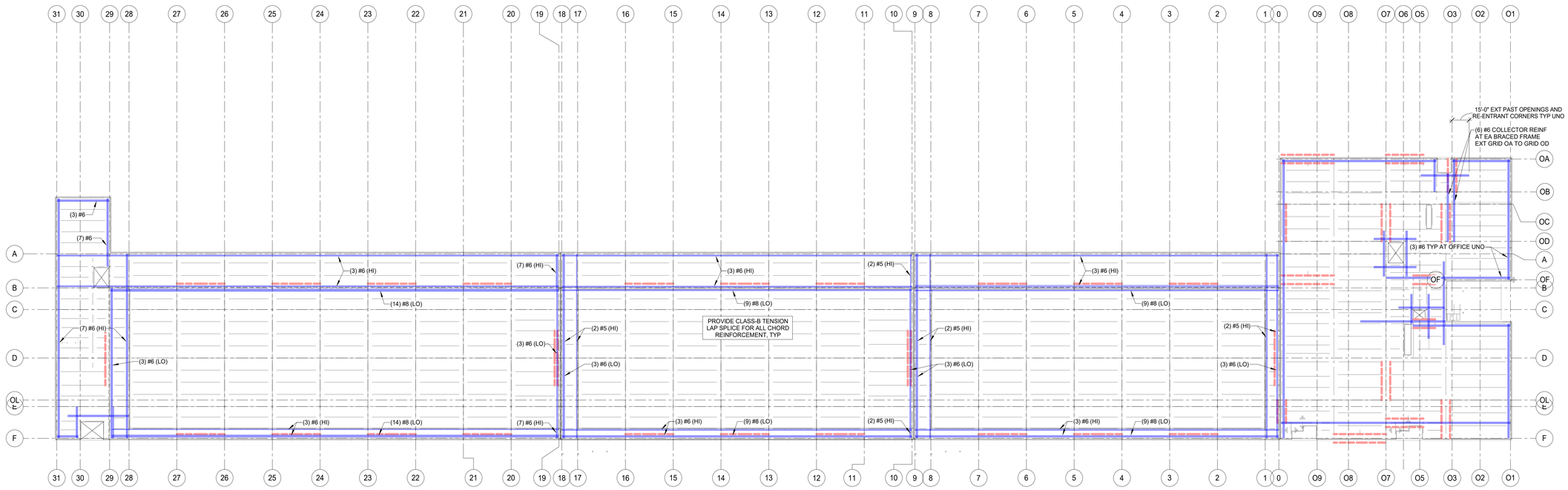
SECOND FLOOR FRAMING PLAN - SEGMENT T

JOB 24464.0000
DATE 01.31.2025
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S1-20T

2/4/2025 4:10:02 PM S1-20T SECOND FLOOR FRAMING PLAN - SEGMENT T

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2021 INTERNATIONAL CODES & 2023 NEC



1 SECOND FLOOR CHORD REINFORCING DIAGRAM
1" = 40'-0"

2/4/2025 4:10:08 PM S1-21 SECOND FLOOR CHORD REINFORCING DIAGRAM

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ISSUES		
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NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

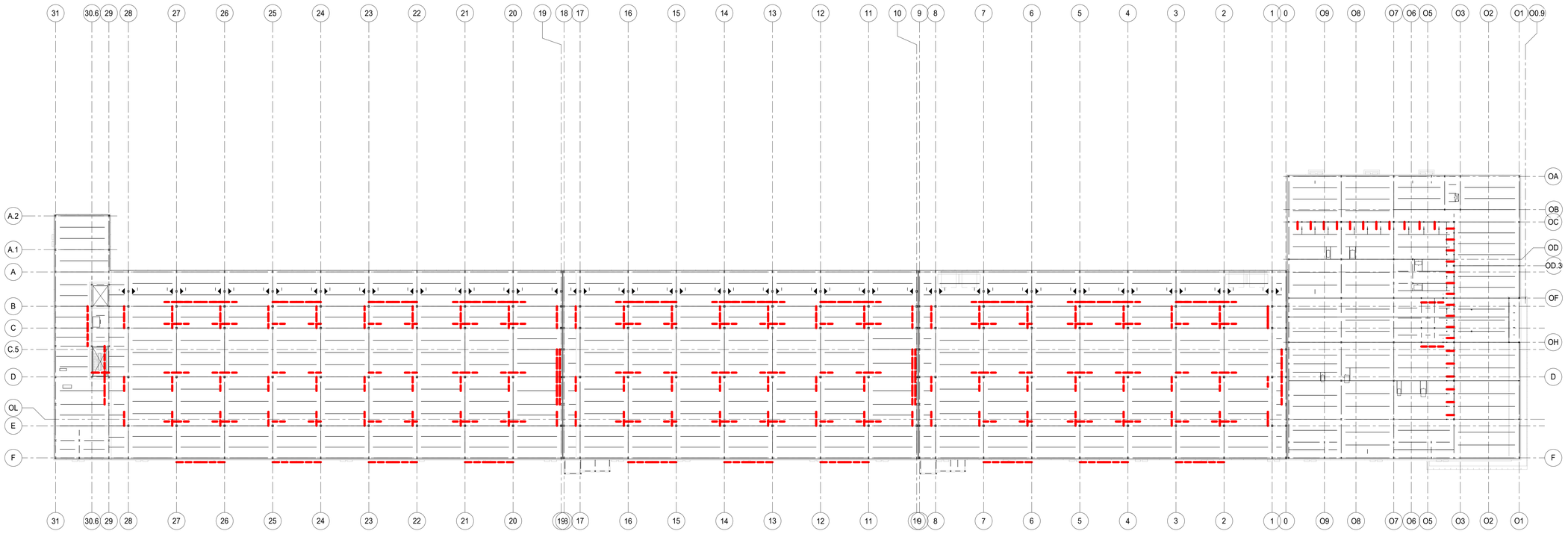
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SECOND FLOOR CHORD REINFORCING DIAGRAM

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S1-21

This sheet of drawings has not been reviewed for code compliance.



1 OVER ALL ROOF FRAMING PLAN
1" = 40'-0"

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1	12.20.24	DESIGN DEVELOPMENT
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65236
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KEYPLAN

S	Q	N	L	J	G	E	C	A
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OVERALL ROOF FRAMING PLAN

JOB 24464.0000
DATE 01.31.2025
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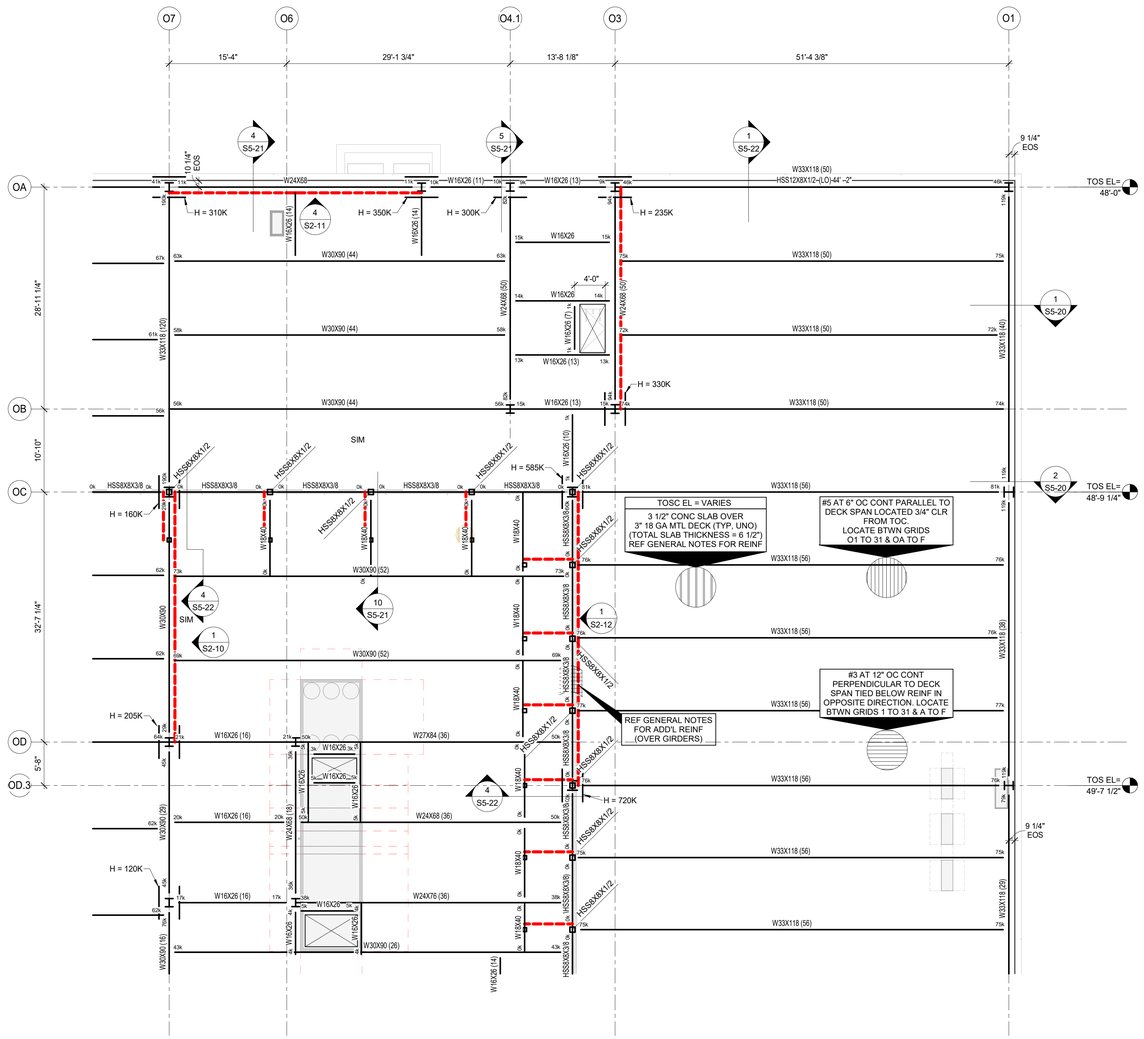
S1-30

2/4/2025 4:10:14 PM S1-30 OVERALL ROOF FRAMING PLAN

City of Aurora Building Division
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Approved as Noted: TStrasse
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SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
2. ALL ELEVATIONS ARE BASED ON TOSC EL = SEE PLAN
3. REFER TO ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF FRAMING MEMBERS AND DECK FASTENER TYPE, SIZE AND SPACING.
4. REF ARCH FOR TOP OF WALL ELEVATIONS.
5. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.
6. TOS EL = BOTTOM OF DECK.
7. STEEL BEAMS/JOIST SHALL BE EQUALLY SPACED BETWEEN COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.



1 ROOF FRAMING PLAN - SEGMENT A
1/8" = 1'-0"

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KEYPLAN

S Q N L J G E C A
T R P M K H F D B

ROOF FRAMING PLAN - SEGMENT A

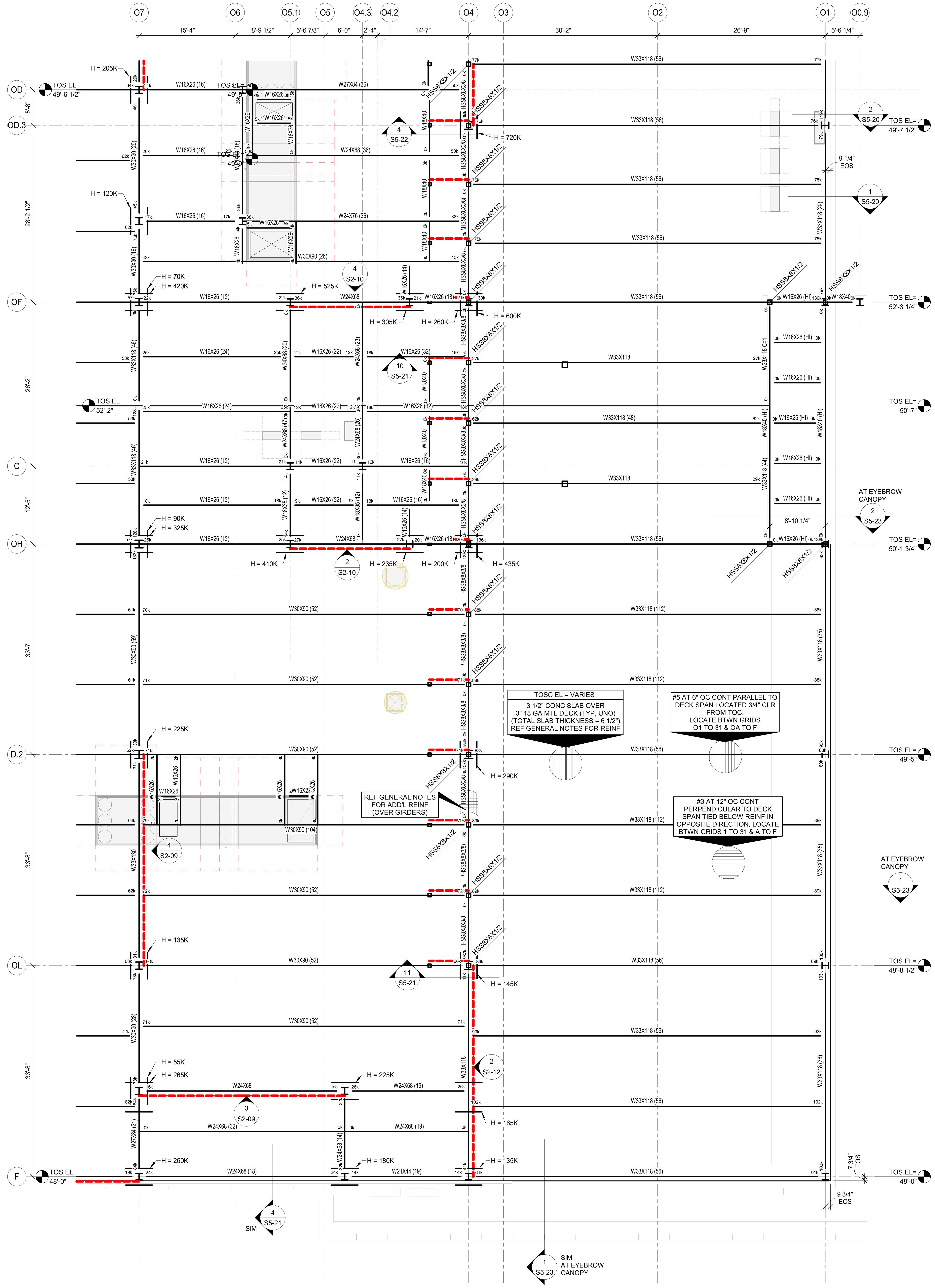
JOB 24464.0000
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SHEET S1-30A

2/4/2025 4:10:18 PM S1-30A ROOF FRAMING PLAN - SEGMENT A

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1 ROOF FRAMING PLAN - SEGMENT B
1/8" = 1'-0"

2/4/2025 4:10:23 PM S1-30B ROOF FRAMING PLAN - SEGMENT B

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KEYPLAN

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ROOF FRAMING PLAN - SEGMENT B

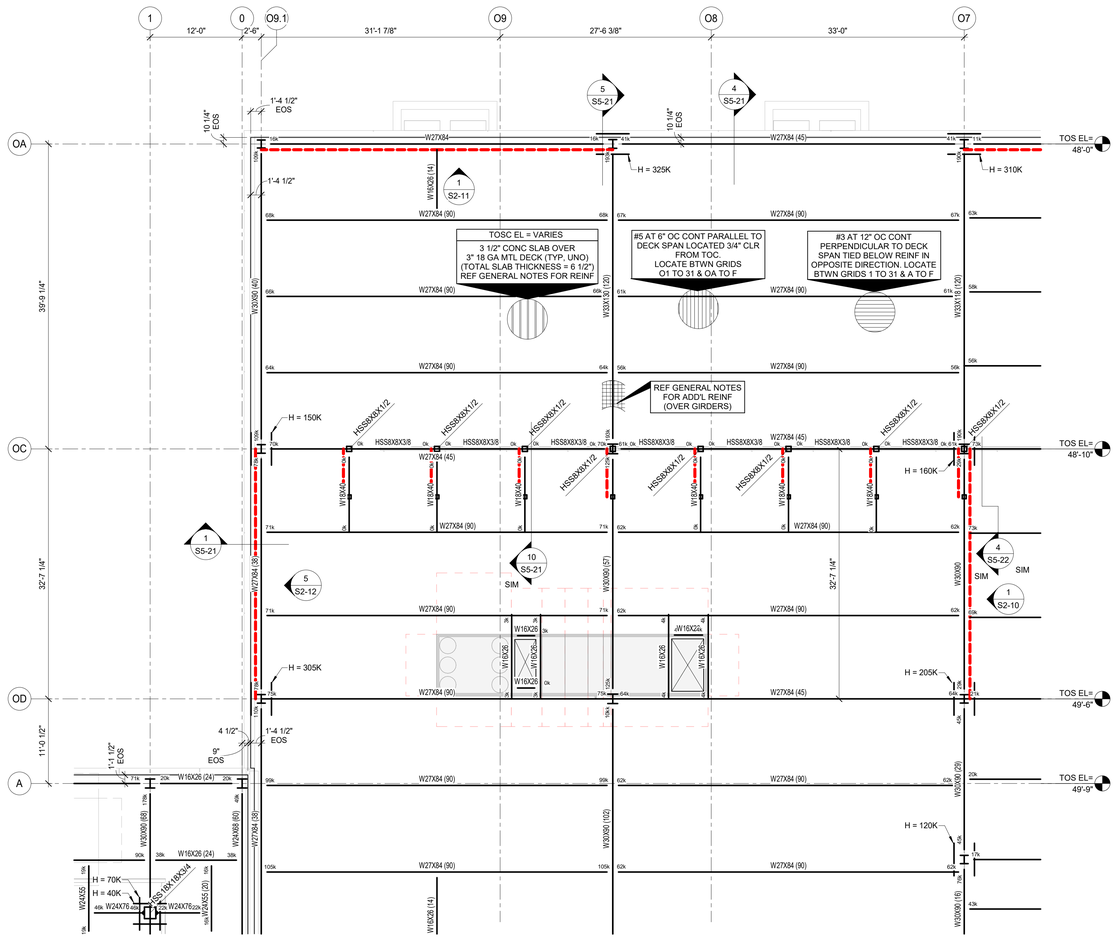
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DATE 01.31.2025
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S1-30B

City of Aurora Building Division
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1 ROOF FRAMING PLAN - SEGMENT C
1/8" = 1'-0"

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KEYPLAN

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ROOF FRAMING PLAN - SEGMENT C

JOB 24464.0000
DATE 01.31.2025
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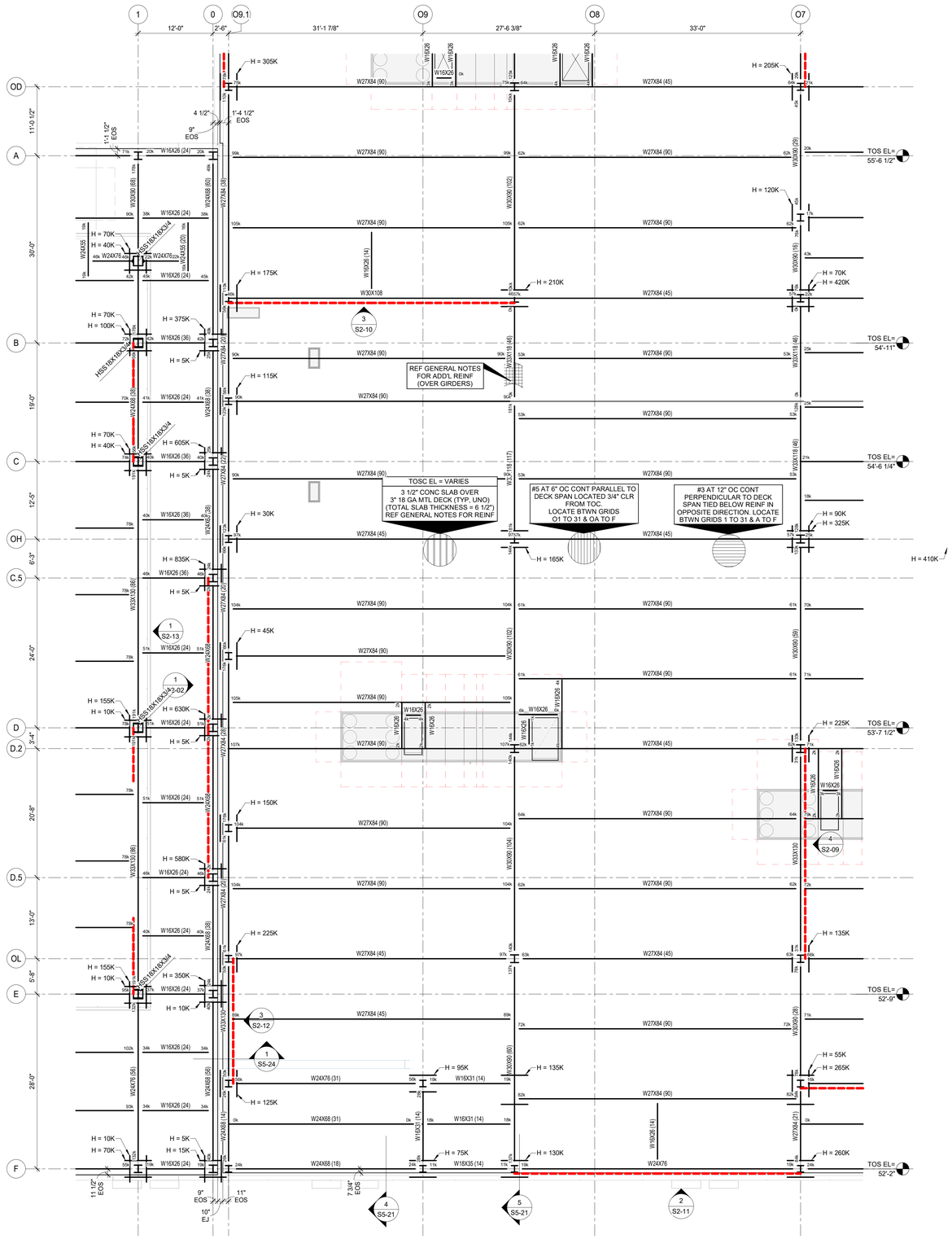
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2/4/2025 4:10:26 PM S1-30C ROOF FRAMING PLAN - SEGMENT C

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

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KEYPLAN

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ROOF FRAMING PLAN - SEGMENT D

JOB 24464.0000
DATE 01.31.2025
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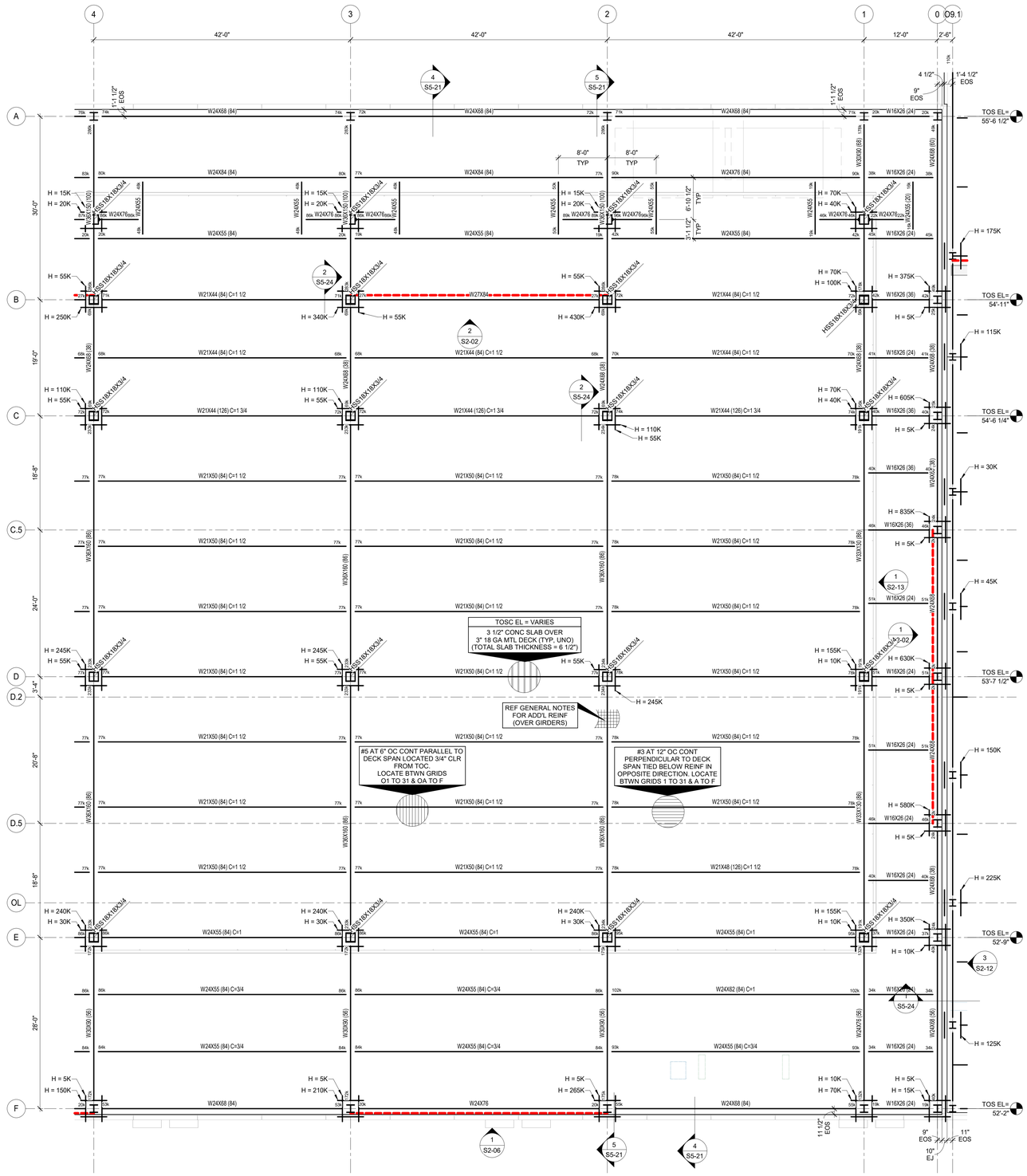
S1-30D

2/4/2025 4:10:31 PM S1-30D ROOF FRAMING PLAN - SEGMENT D

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2021 INTERNATIONAL CODES & 2023 NEC

SHEET NOTES

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1 ROOF FRAMING PLAN - SEGMENT F
1/8" = 1'-0"

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KEYPLAN

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T R P M K H F D B

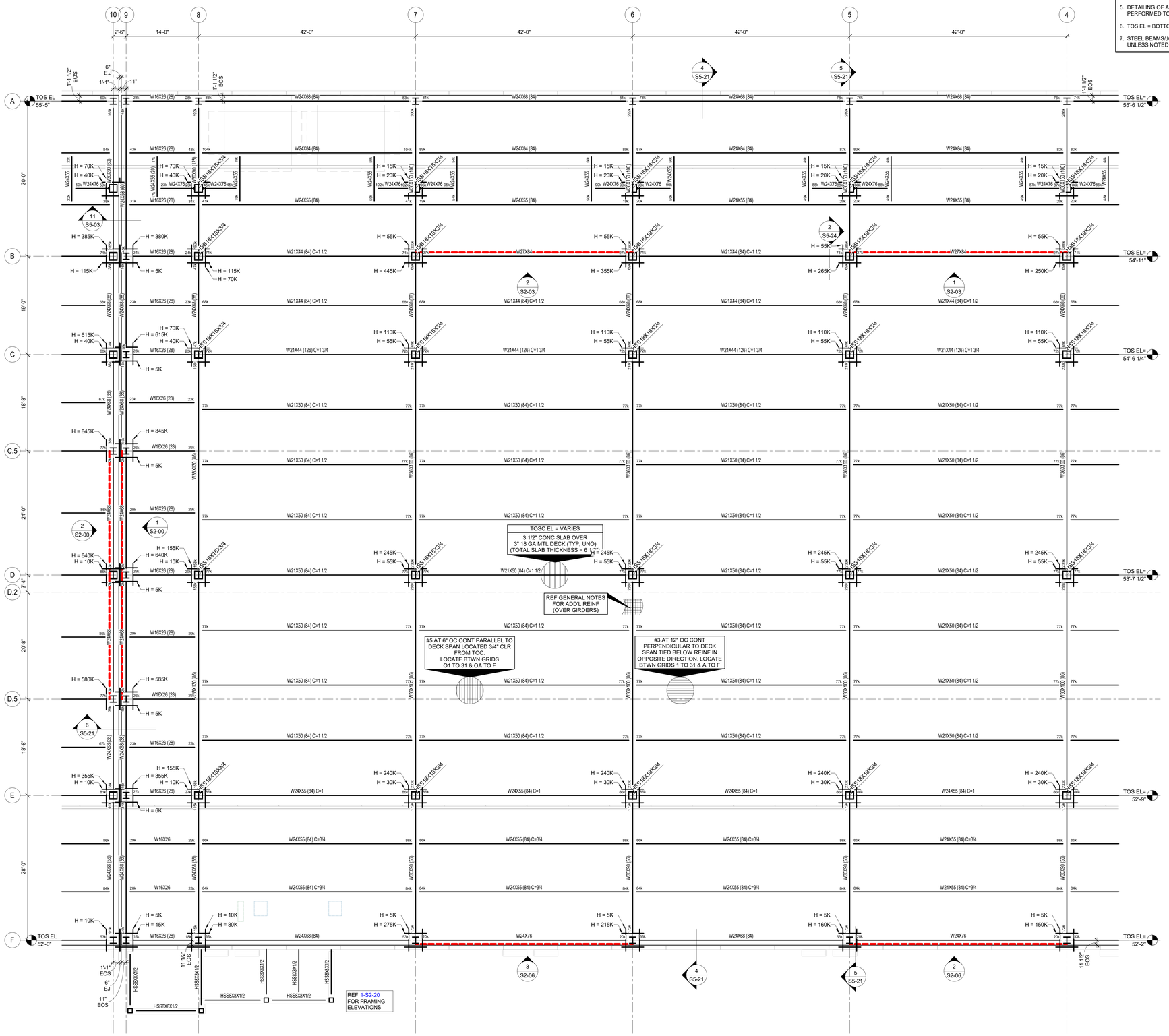
ROOF FRAMING PLAN - SEGMENT F

JOB 24464.0000
DATE 01.31.2025
SHEET S1-30F

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SHEET NOTES

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1 ROOF FRAMING PLAN - SEGMENT H
1/8" = 1'-0"

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KEYPLAN

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ROOF FRAMING PLAN - SEGMENT H

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DATE 01.31.2025
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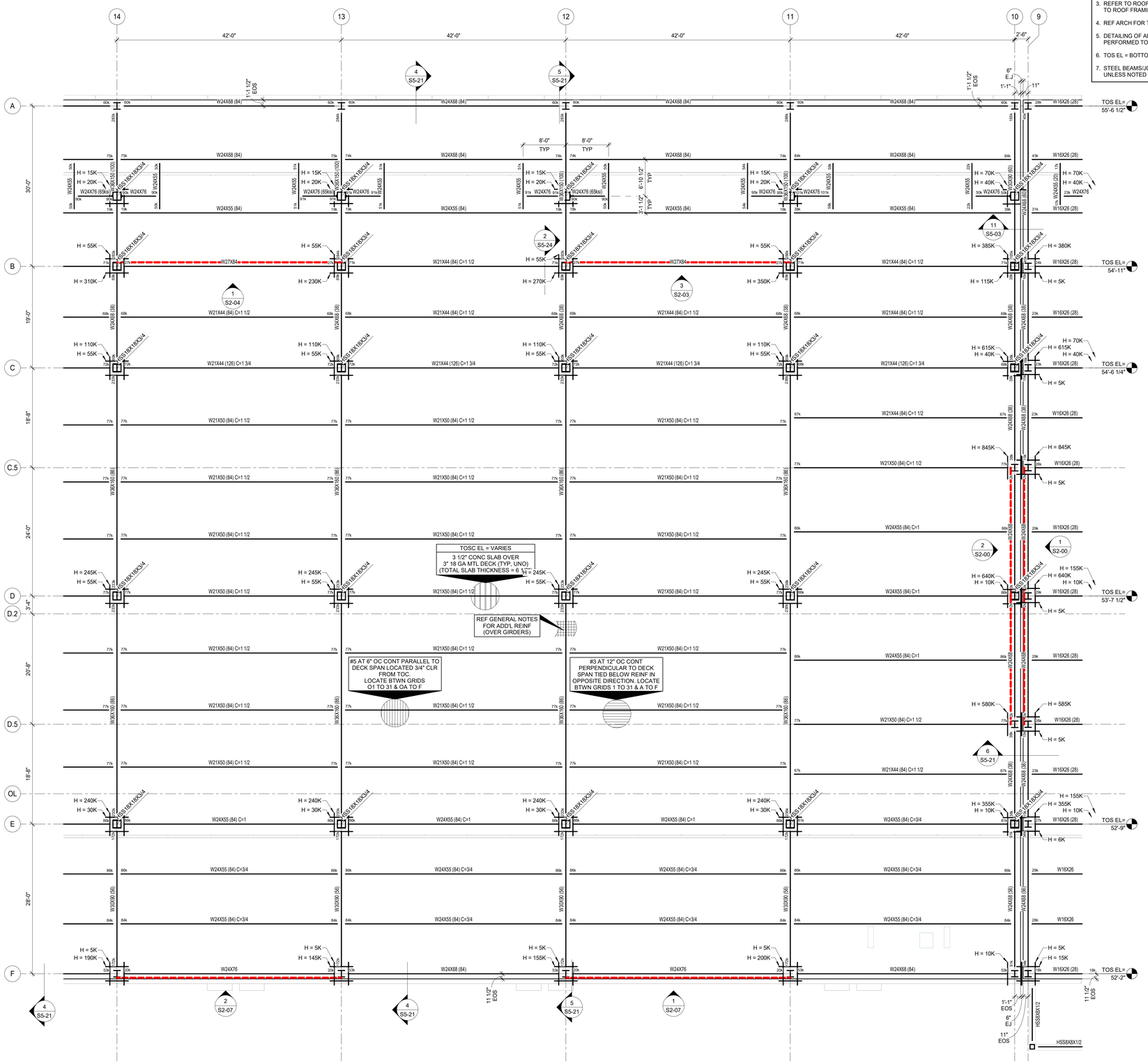
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1 ROOF FRAMING PLAN - SEGMENT K
1/8" = 1'-0"

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ISSUES		
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ROOF FRAMING PLAN - SEGMENT K

JOB 24464.0000
DATE 01.31.2025
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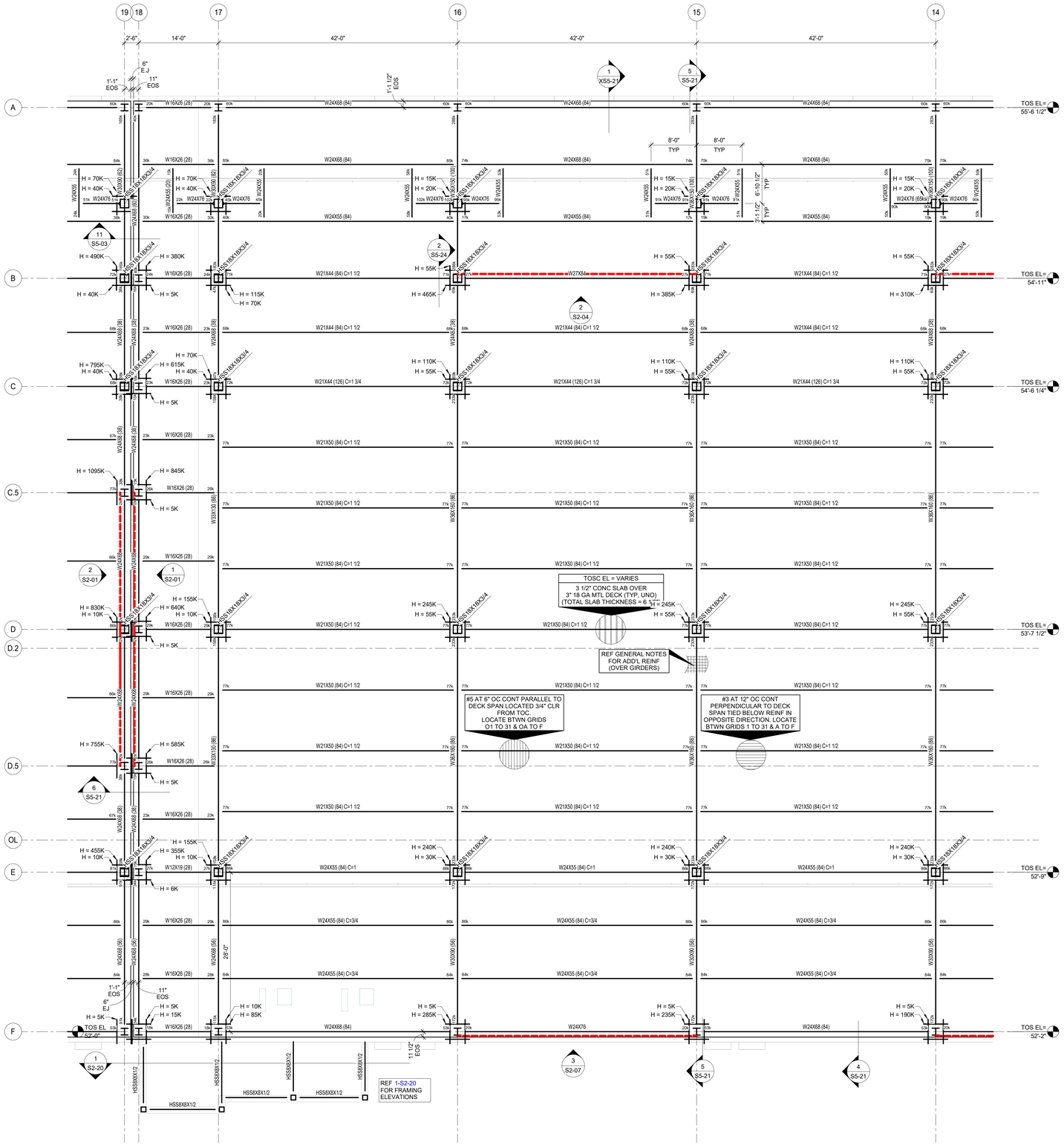
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2/4/2025 4:10:45 PM S1-30K ROOF FRAMING PLAN - SEGMENT K

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1 ROOF FRAMING PLAN - SEGMENT M
1/8" = 1'-0"

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KEYPLAN

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ROOF FRAMING PLAN - SEGMENT M

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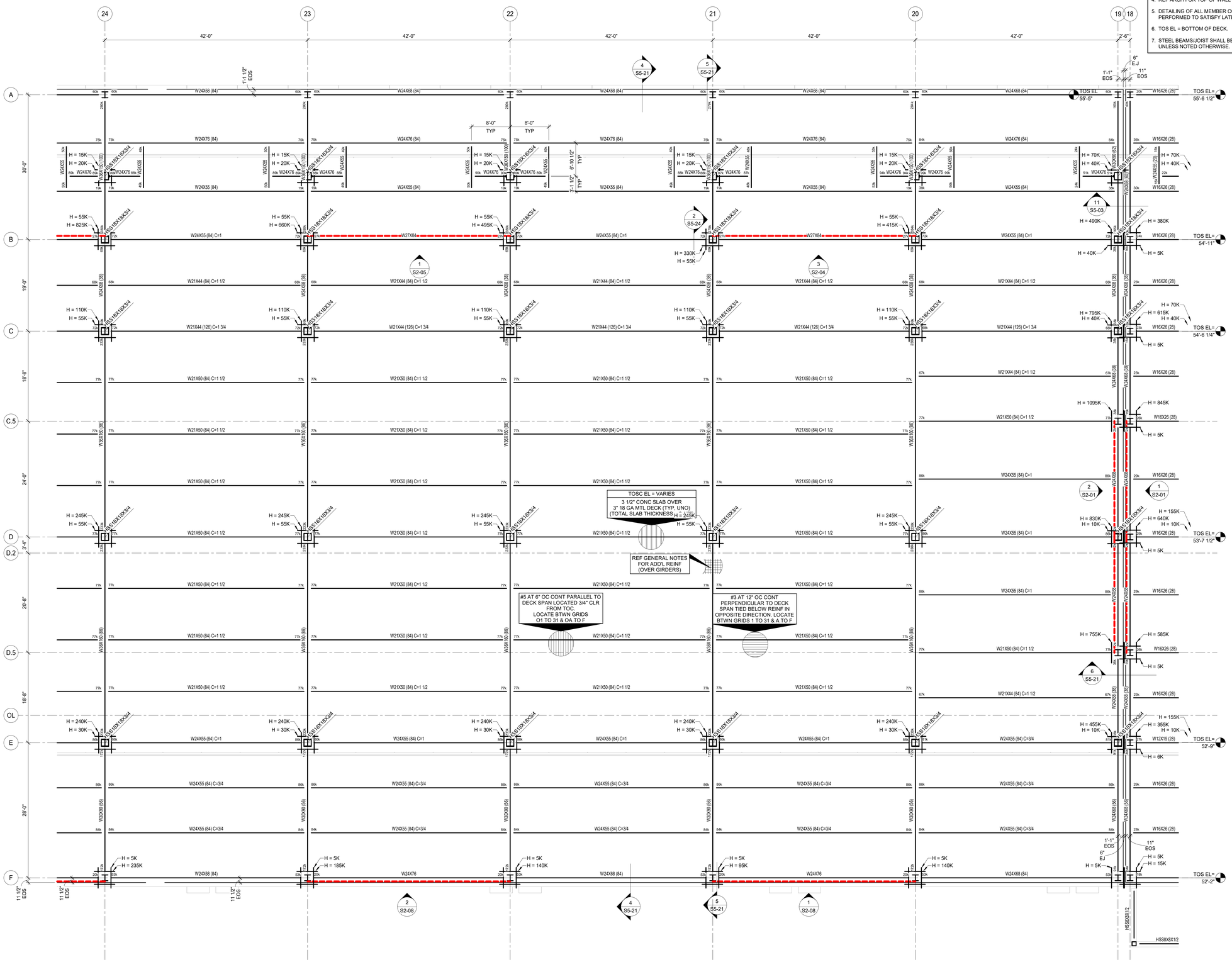
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2/4/2025 4:10:49 PM S1-30M ROOF FRAMING PLAN - SEGMENT M

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1 ROOF FRAMING PLAN - SEGMENT P
1/8" = 1'-0"

2/4/2025 4:10:54 PM S1-30P ROOF FRAMING PLAN - SEGMENT P

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KEYPLAN

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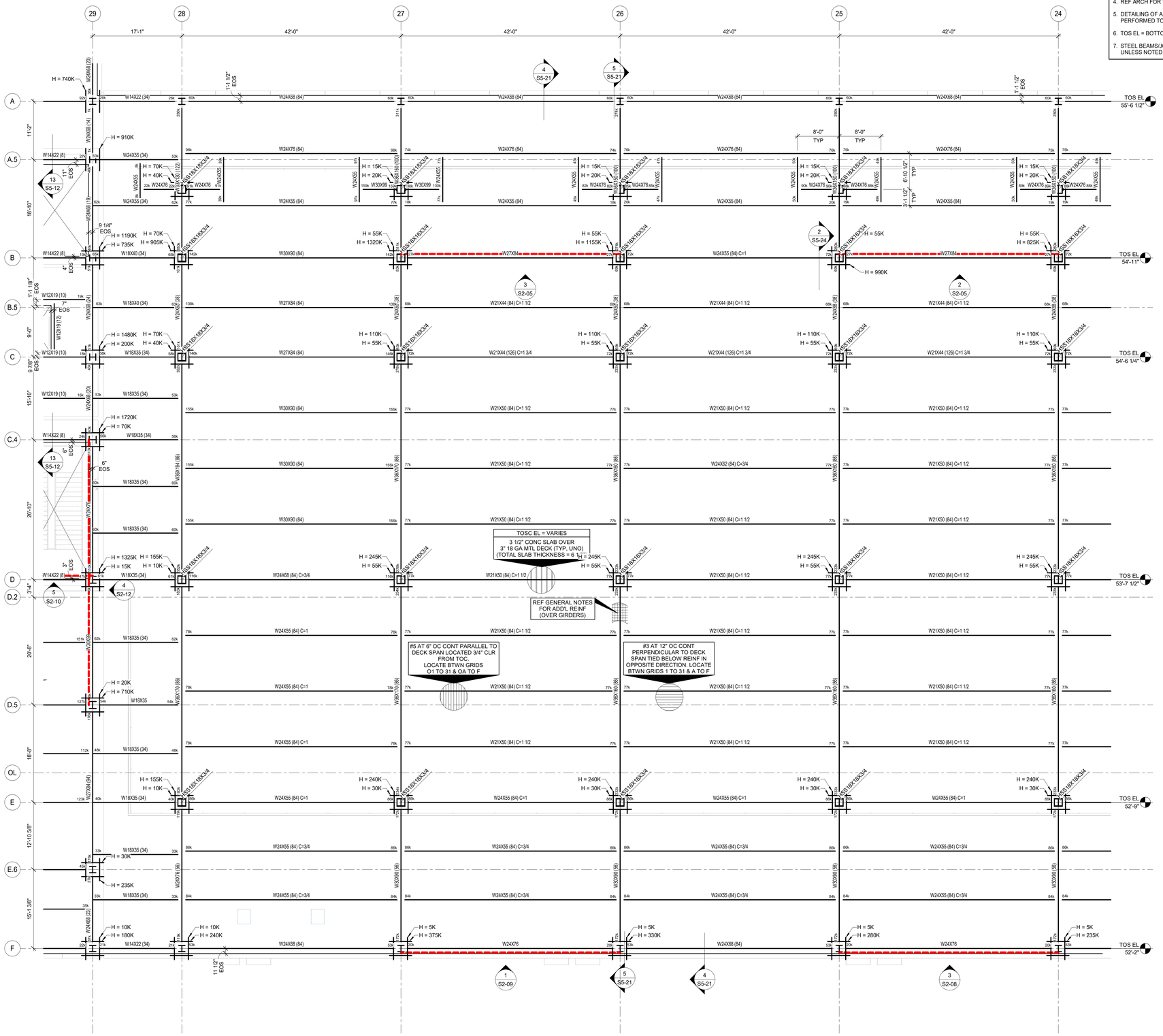
ROOF FRAMING PLAN - SEGMENT P

JOB 24464.0000
DATE 01.31.2025
SHEET S1-30P

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1 ROOF FRAMING PLAN - SEGMENT R
1/8" = 1'-0"

2/4/2025 4:10:59 PM S1-30R ROOF FRAMING PLAN - SEGMENT R

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AG&E Structural Engenuity F-8435

Date of issue: 01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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ROOF FRAMING PLAN - SEGMENT R

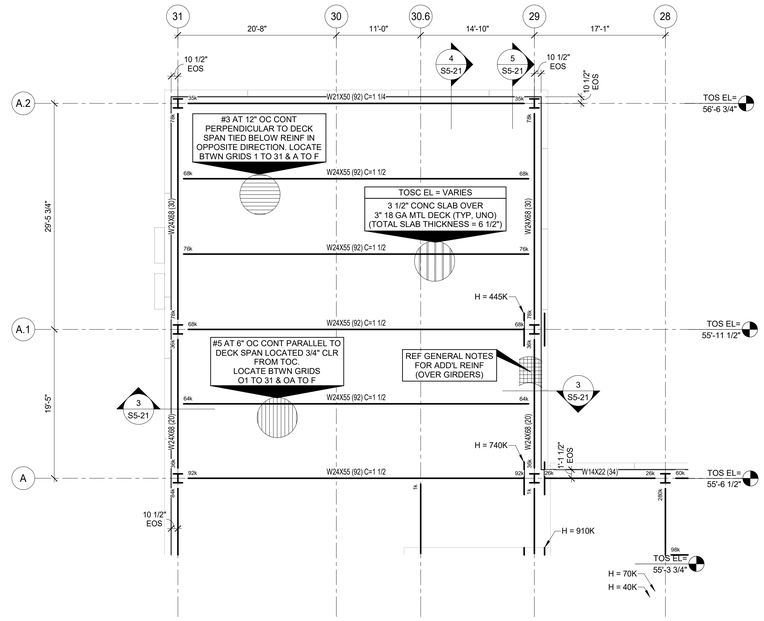
JOB 24464.0000
DATE 01.31.2025
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S1-30R

City of Aurora Building Division
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Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
2. ALL ELEVATIONS ARE BASED ON TOSC EL = SEE PLAN
3. REFER TO ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF FRAMING MEMBERS AND DECK FASTENER TYPE, SIZE AND SPACING.
4. REF ARCH FOR TOP OF WALL ELEVATIONS.
5. DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY LATEST OSHA ERECTION REQUIREMENTS.
6. TOS EL = BOTTOM OF DECK.
7. STEEL BEAMS/JOIST SHALL BE EQUALLY SPACED BETWEEN COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.



1 ROOF FRAMING PLAN - SEGMENT S
1/8" = 1'-0"

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Date of issue: 01.31.2025

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KEYPLAN

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ROOF FRAMING PLAN - SEGMENT S

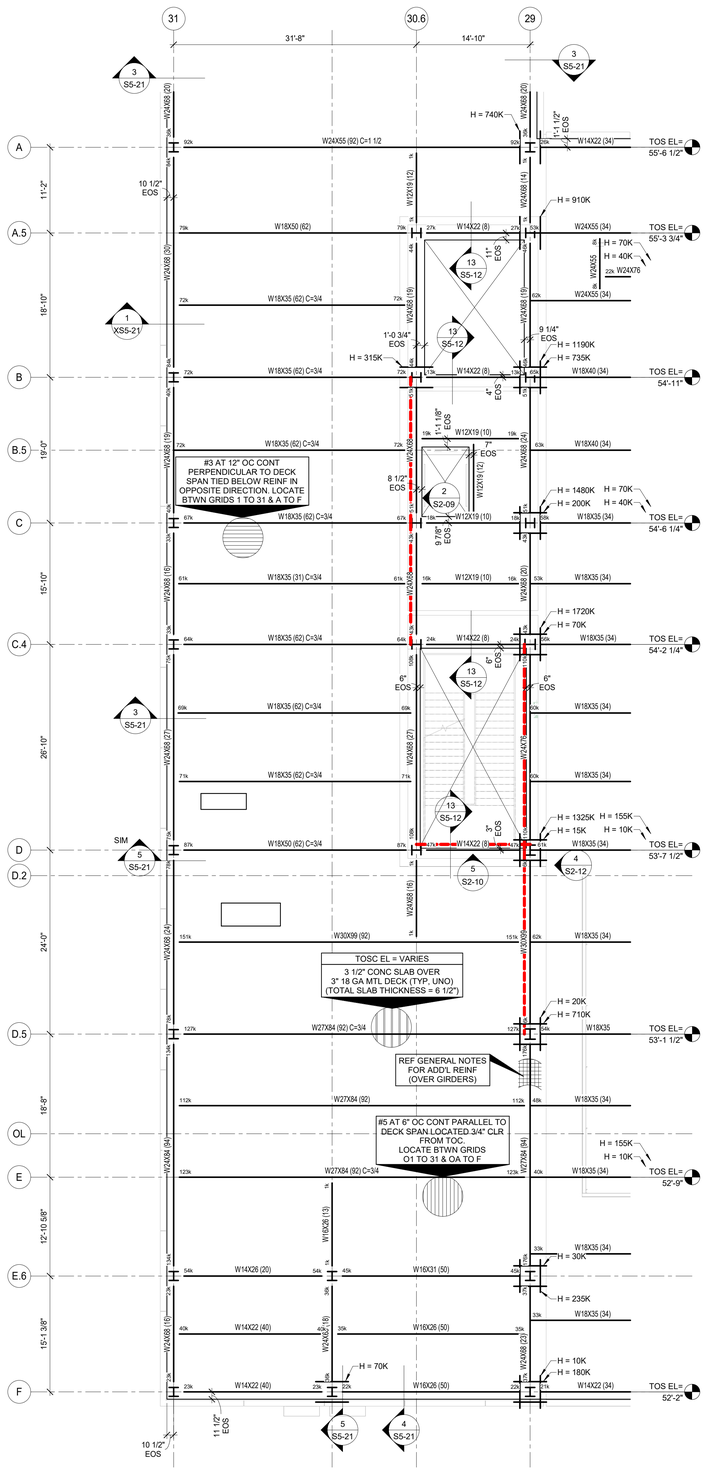
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2/4/2025 4:11:02 PM S1-30S ROOF FRAMING PLAN - SEGMENT S

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1 ROOF FRAMING PLAN - SEGMENT T
1/8" = 1'-0"

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KEYPLAN

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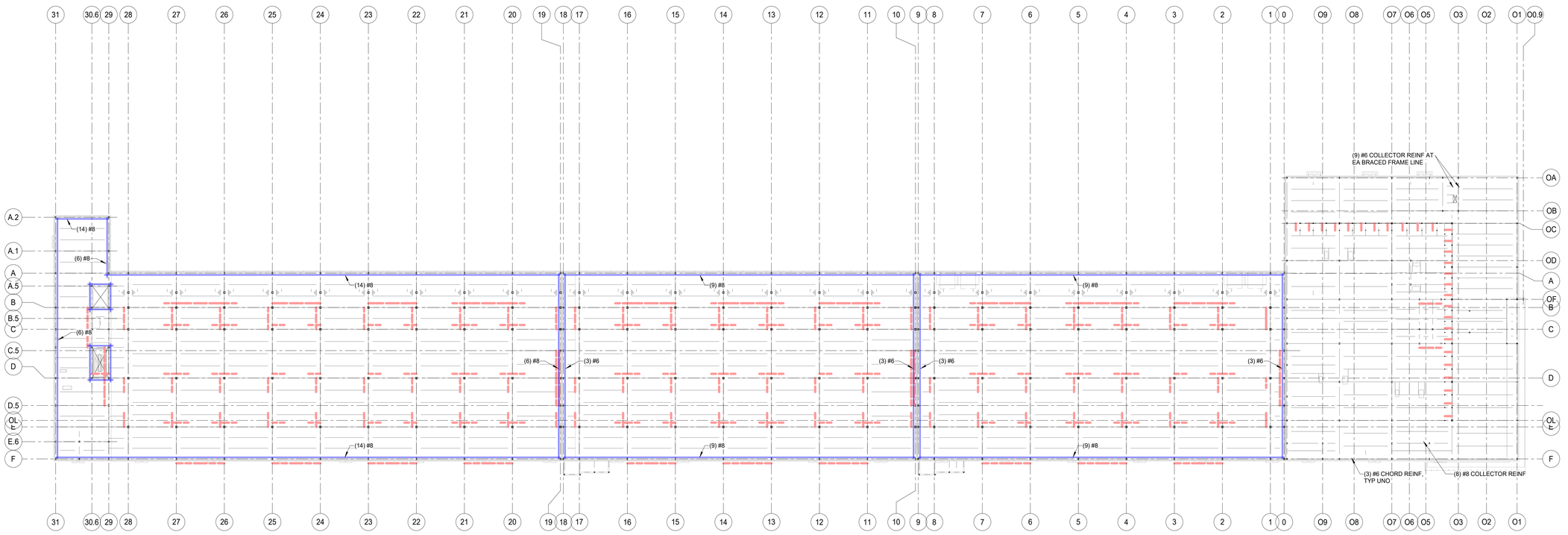
ROOF FRAMING PLAN - SEGMENT T

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2/4/2025 4:11:06 PM S1-30T ROOF FRAMING PLAN - SEGMENT T

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1 ROOF CHORD REINFORCING DIAGRAM
1" = 40'-0"

2/4/2025 4:11:13 PM S1-31 ROOF CHORD REINFORCING DIAGRAM

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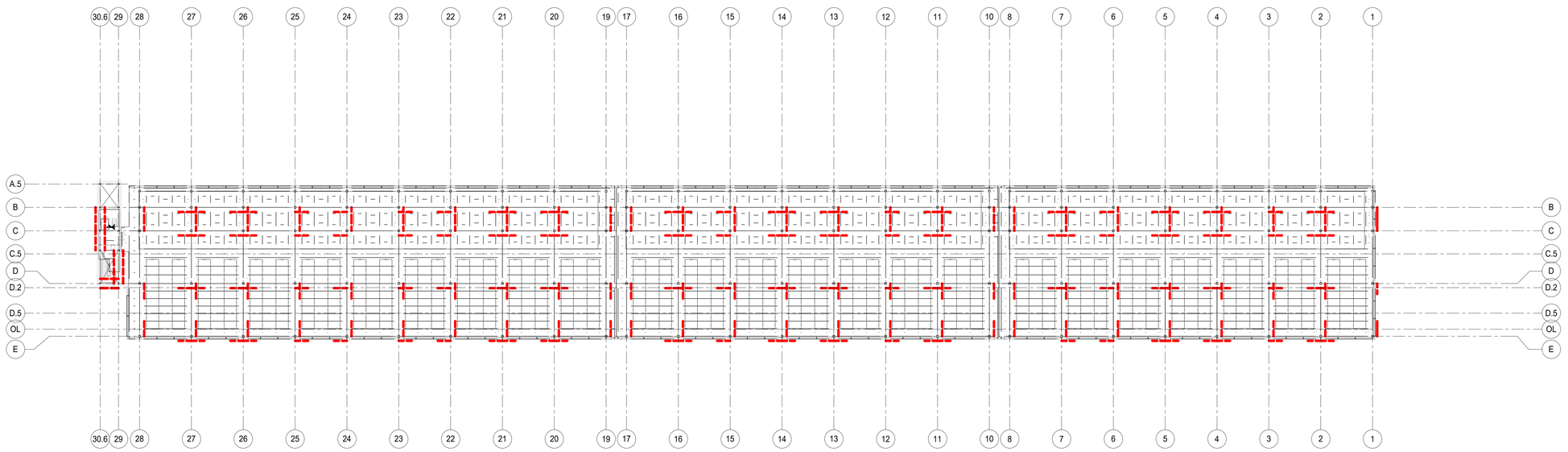
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ROOF CHORD REINFORCING DIAGRAM

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S1-31

This sheet of drawings has not been reviewed for code compliance.



1 OVERALL PLATFORM FRAMING PLAN
1" = 40'-0"

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KEYPLAN

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OVERALL PLATFORM FRAMING PLAN

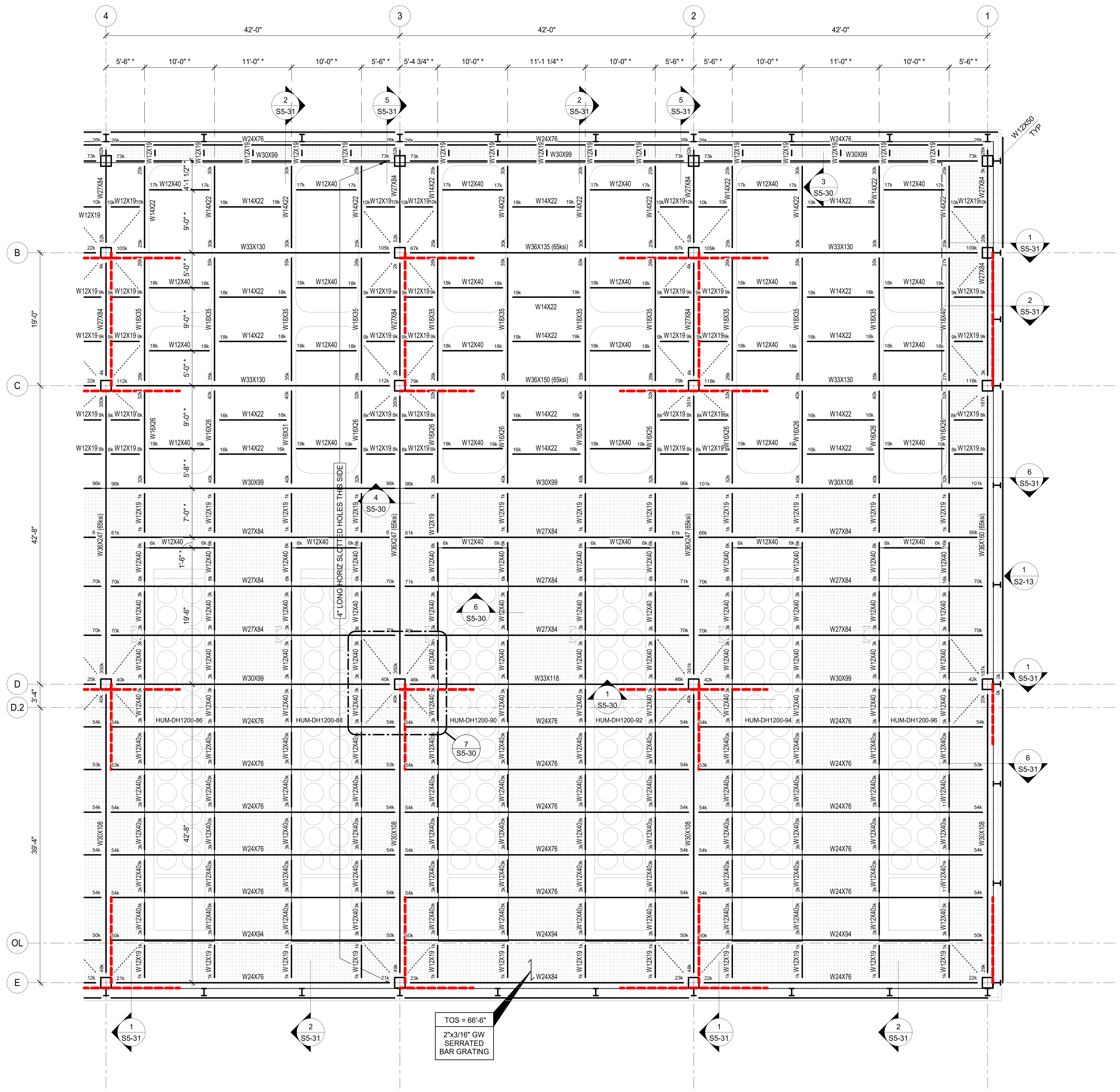
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Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

RSN: 1881854 | PERMIT#: 25-2513934-CM



1 PLATFORM FRAMING PLAN - SEGMENT F

1/8" = 1'-0"

SHEET NOTES

1. REFER TO SHEETS S0 SERIES AND S5 SERIES FOR GENERAL NOTES, SCHEDULES, AND DESIGN CRITERIA.
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7. DIMENSIONS DENOTED * REQUIRE GC VERIFICATION WITH PROCURED EQUIPMENT. REF DETAIL 6/S5-30 FOR CLARITY ON CHILLER ISOLATOR CONNECTION.
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9. HORIZONTAL BRACE L5x5x5/16 "H" FORCE = +/-30K (LRFD) TYP.

BEAM AXIAL AND MINOR SHEAR FORCES (LRFD)

BEAM SIZE	AXIAL FORCE	MINOR AXIS SHEAR
W12X19	±16K	0K
W12X40	±19K	±5K
W14X22	±19K	±5K
W16X26	±11K	±5K
W18X35	±16K	±5K
W24X62	±8K	±5K
W24X68	±22K	±5K
W24X76	±53K	±11K
W24X94	±22K	±5K
W27X84	±135K	±6K
W30X99	±76K	±6K
W30X108	±168K	±11K
W33X118	±29K	±5K
W33X130	±177K	±5K
W36X135	±184K	±5K
W36X150	±17K	0K
W36X160	±19K	±5K
W36X170	±27K	±5K
W36X247	±25K	±8K

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KEYPLAN

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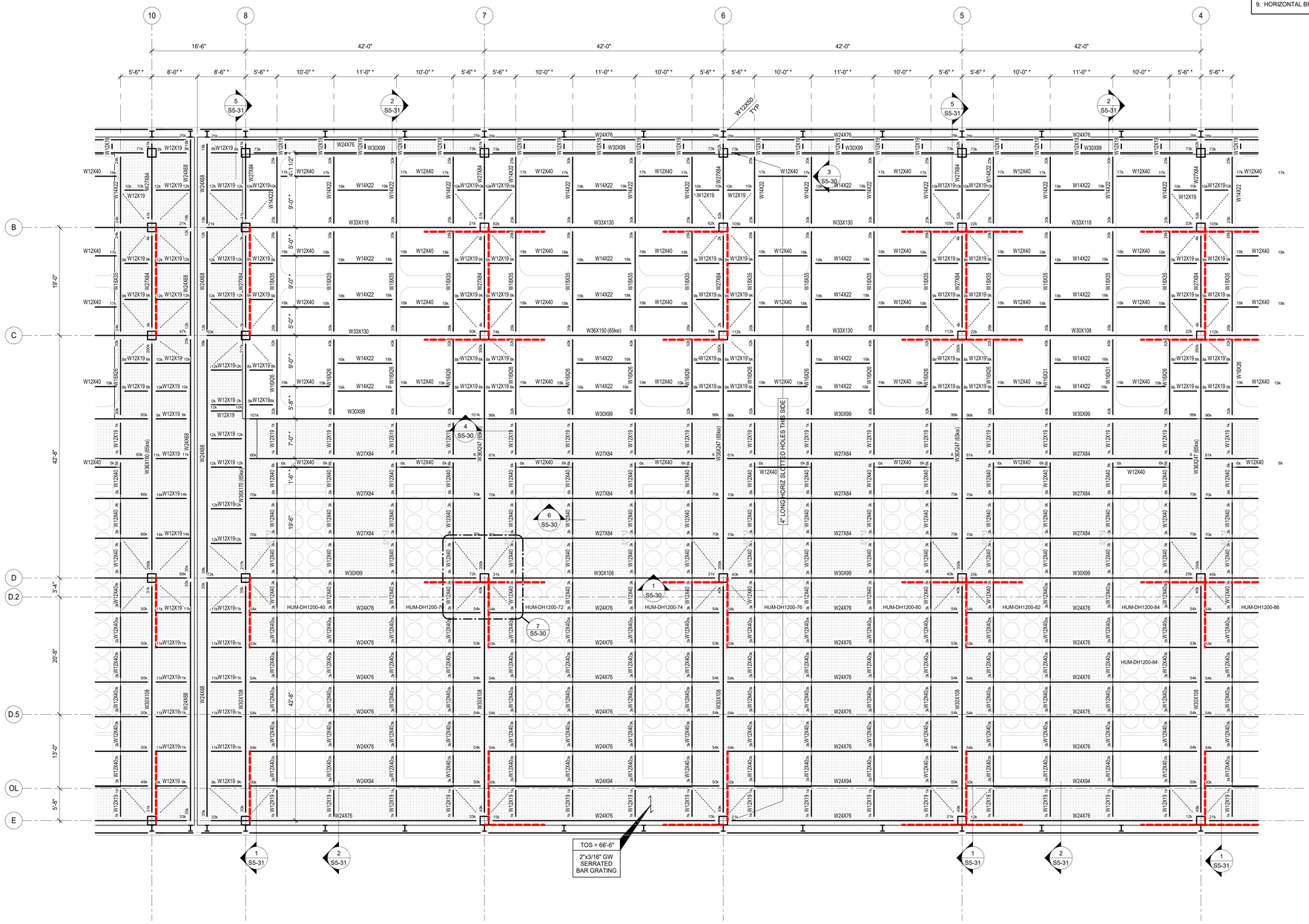
PLATFORM FRAMING - SEGMENT F

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S1-40F

City of Aurora Building Division
Reviewed for Code Compliance
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9. HORIZONTAL BRACE L5x5x5/16 "H" FORCE = +/-30K (LRFD) TYP.



1 PLATFORM FRAMING PLAN - SEGMENT H

1/8" = 1'-0"

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01.31.2025

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PLATFORM FRAMING - SEGMENT H

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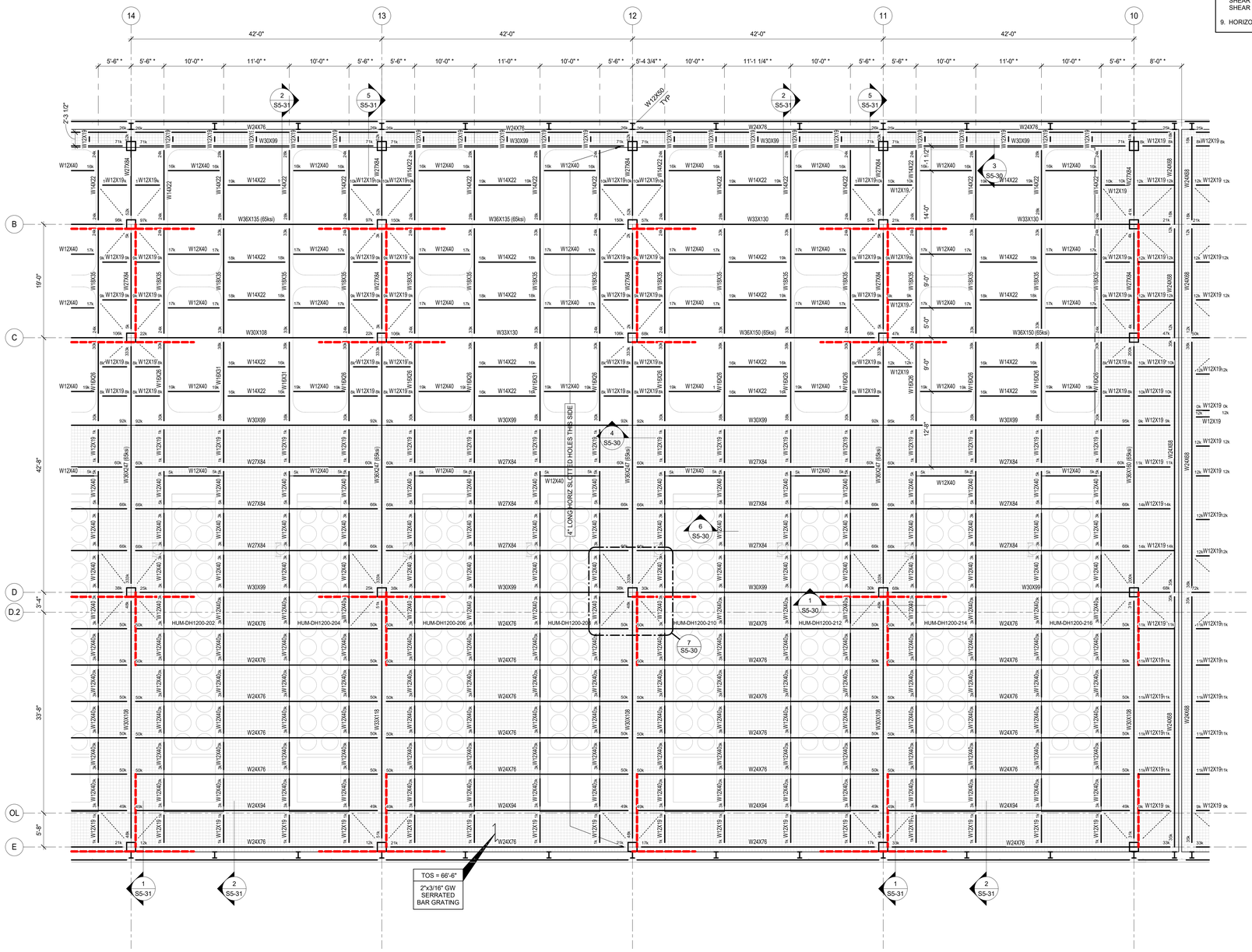
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2/4/2025 4:11:41 PM S1-40H PLATFORM FRAMING - SEGMENT H

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1 PLATFORM FRAMING PLAN - SEGMENT K
1/8" = 1'-0"

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65236
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KEYPLAN

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PLATFORM FRAMING - SEGMENT K

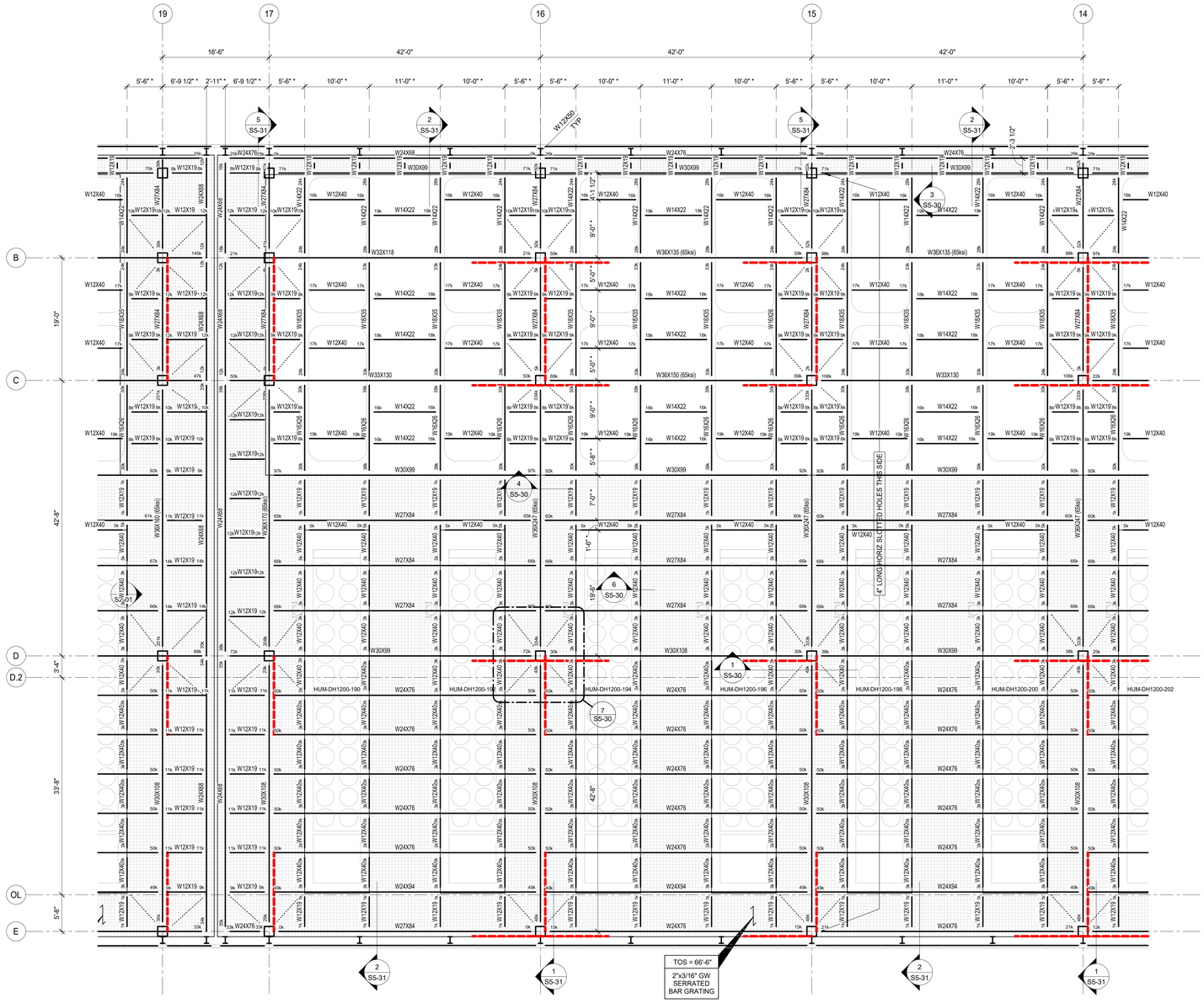
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1 PLATFORM FRAMING PLAN - SEGMENT M
1/8" = 1'-0"

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KEYPLAN

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PLATFORM FRAMING - SEGMENT M

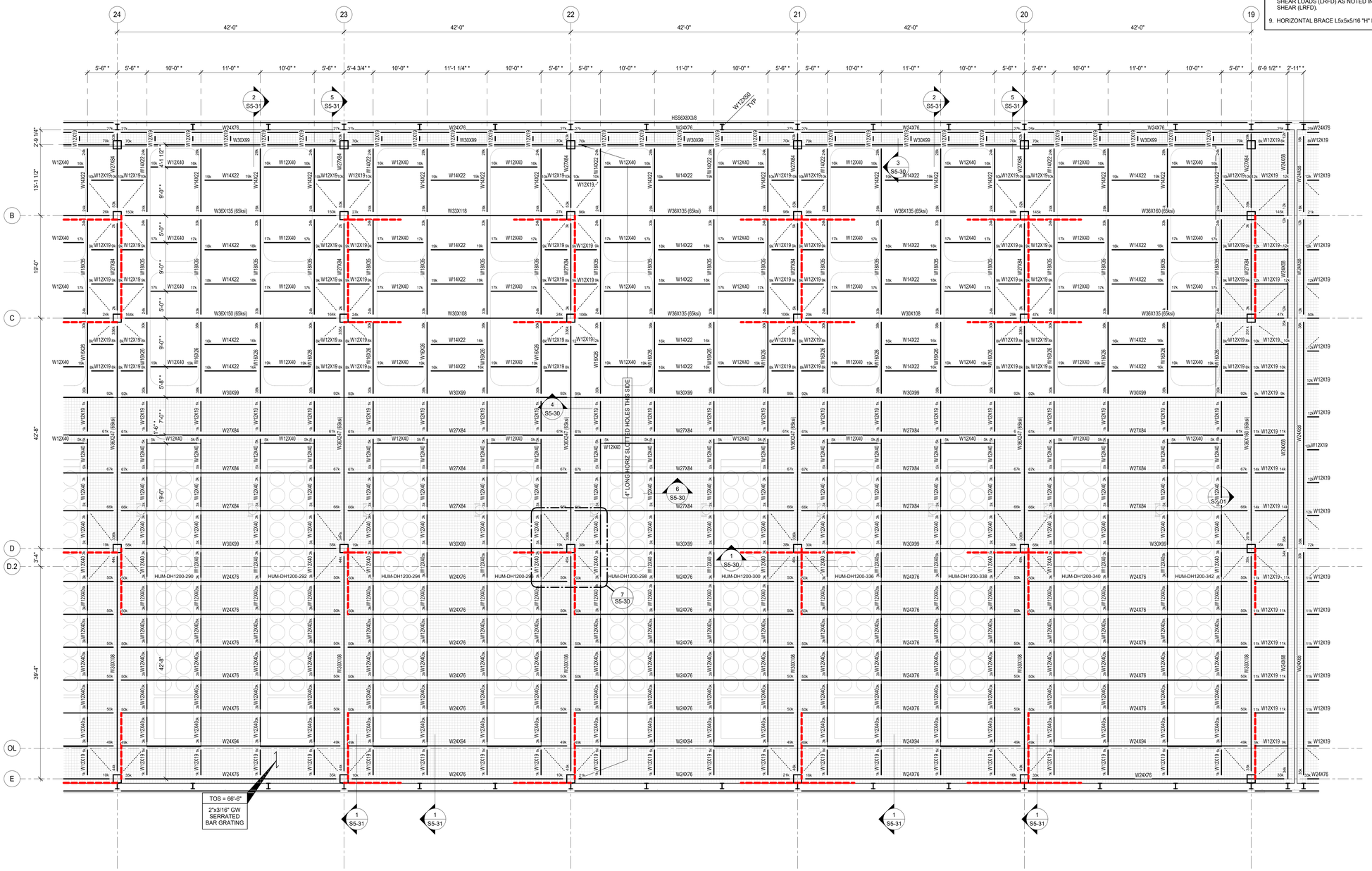
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1 PLATFORM FRAMING PLAN - SEGMENT P
1/8" = 1'-0"

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PLATFORM FRAMING - SEGMENT P

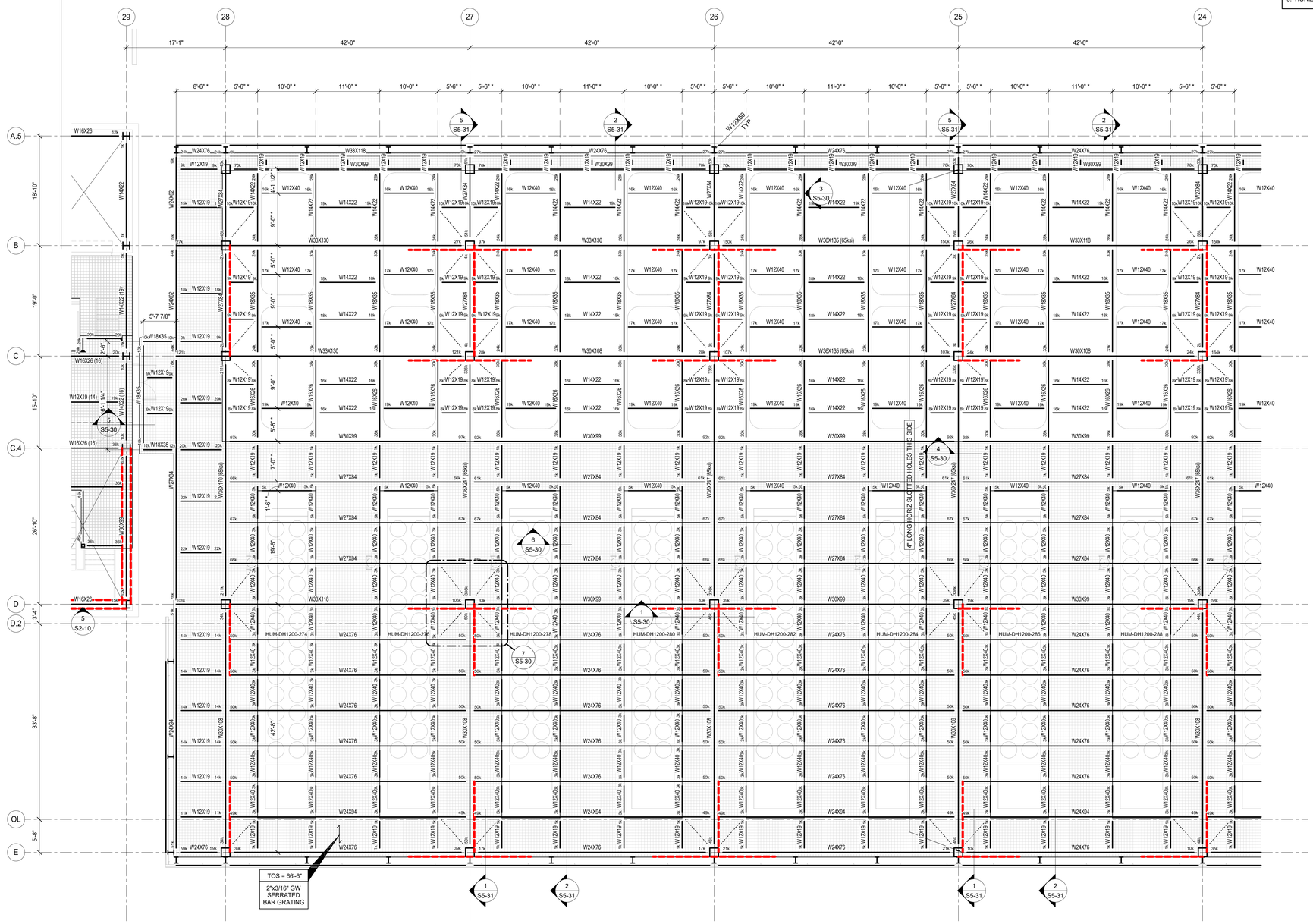
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1 PLATFORM FRAMING PLAN - SEGMENT R
1/8" = 1'-0"

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REVISIONS

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MICHAEL W. DAVID
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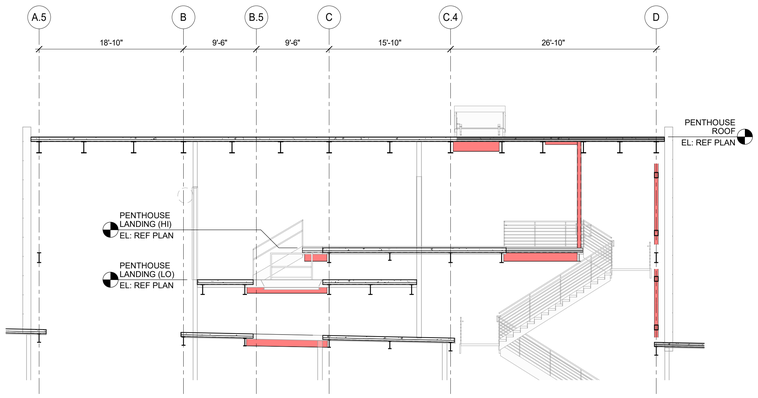
PLATFORM FRAMING - SEGMENT R

JOB 24464.0000
DATE 01.31.2025
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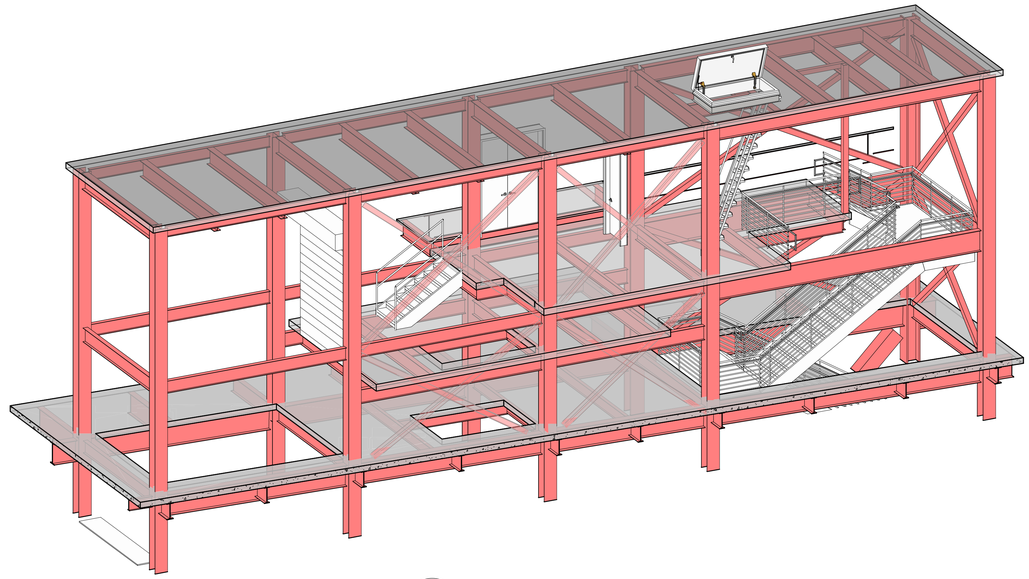
S1-40R

2/4/2025 4:12:07 PM S1-40R PLATFORM FRAMING - SEGMENT R

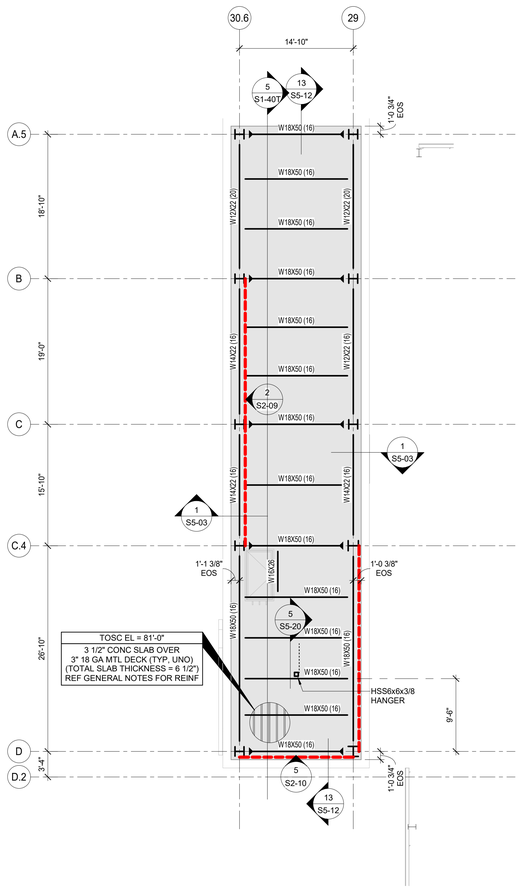
City of Aurora Building Division
Reviewed for Code Compliance
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Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



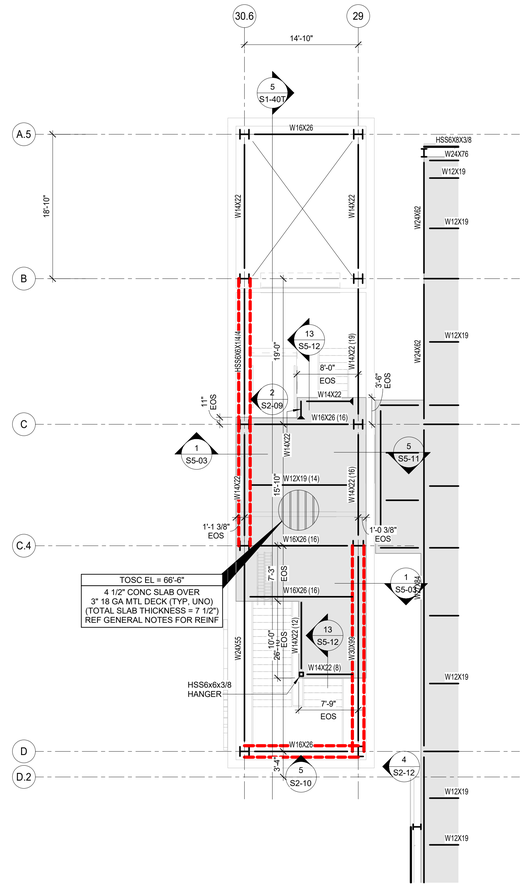
5 PENTHOUSE SECTION
1/8" = 1'-0"



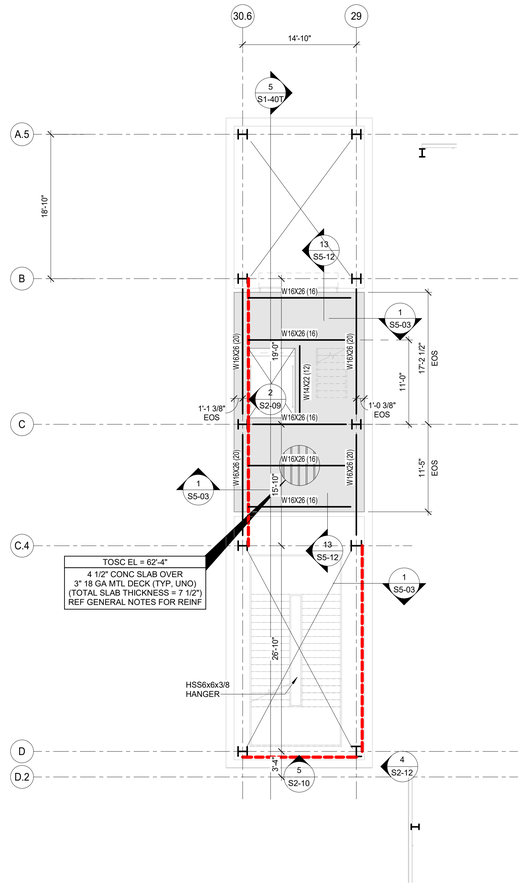
4 penthouse view



3 PENTHOUSE ROOF FRAMING PLAN
1/8" = 1'-0"



2 PENTHOUSE LANDING FRAMING PLAN (HI)
1/8" = 1'-0"



1 PENTHOUSE LANDING FRAMING PLAN (LO)
1/8" = 1'-0"

2/4/2025 4:12:12 PM S1-40T PENTHOUSE ROOF FRAMING PLAN - SEGMENT T

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	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
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AG&E Structural Engenuity F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

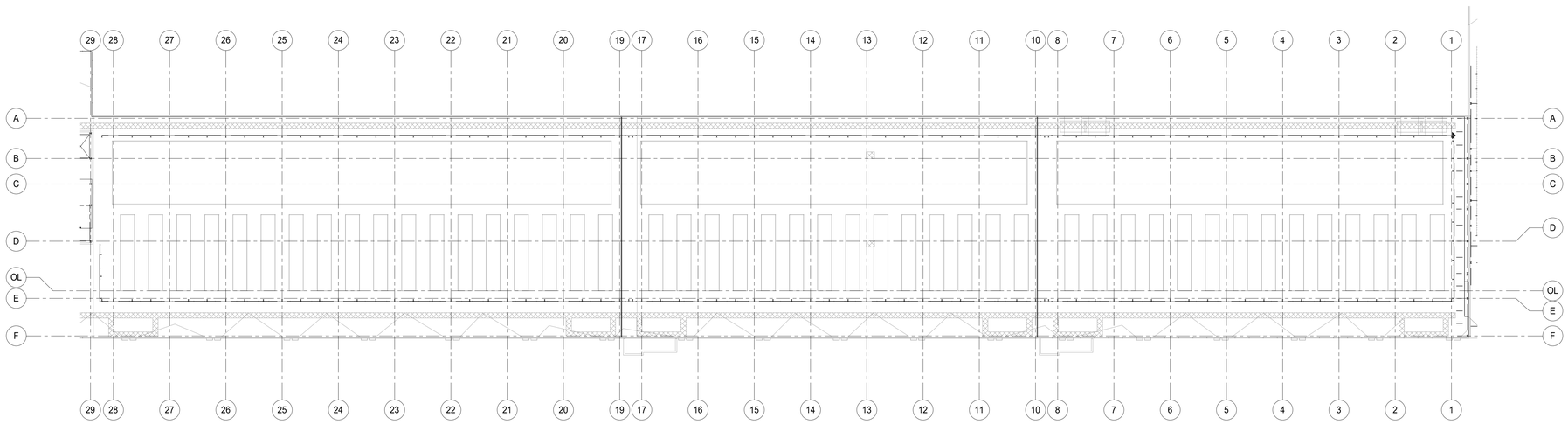
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PENTHOUSE ROOF FRAMING PLAN - SEGMENT T

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S1-40T

This sheet of drawings has not been reviewed for code compliance.



1 OVERALL PLATFORM GIRT FRAMING PLAN
1" = 40'-0"

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PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

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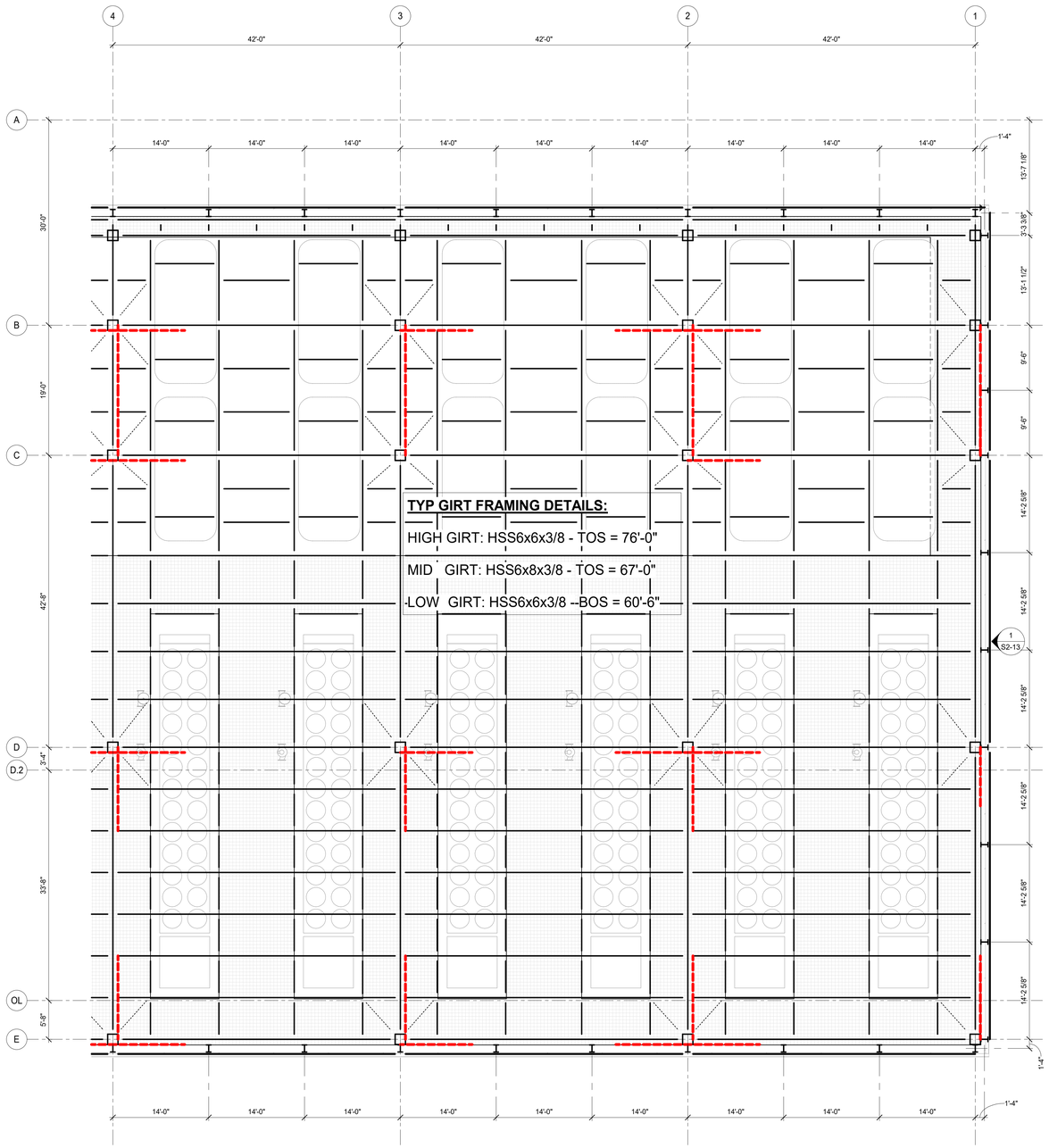
OVERALL PLATFORM GIRT FRAMING PLAN

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S1-50

2/4/2025 4:12:13 PM S1-50 OVERALL PLATFORM GIRT FRAMING PLAN

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1 PLATFORM GIRT FRAMING PLAN - SEGMENT F
1/8" = 1'-0"

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F-8435

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1140 N. GUN CLUB ROAD

KEYPLAN

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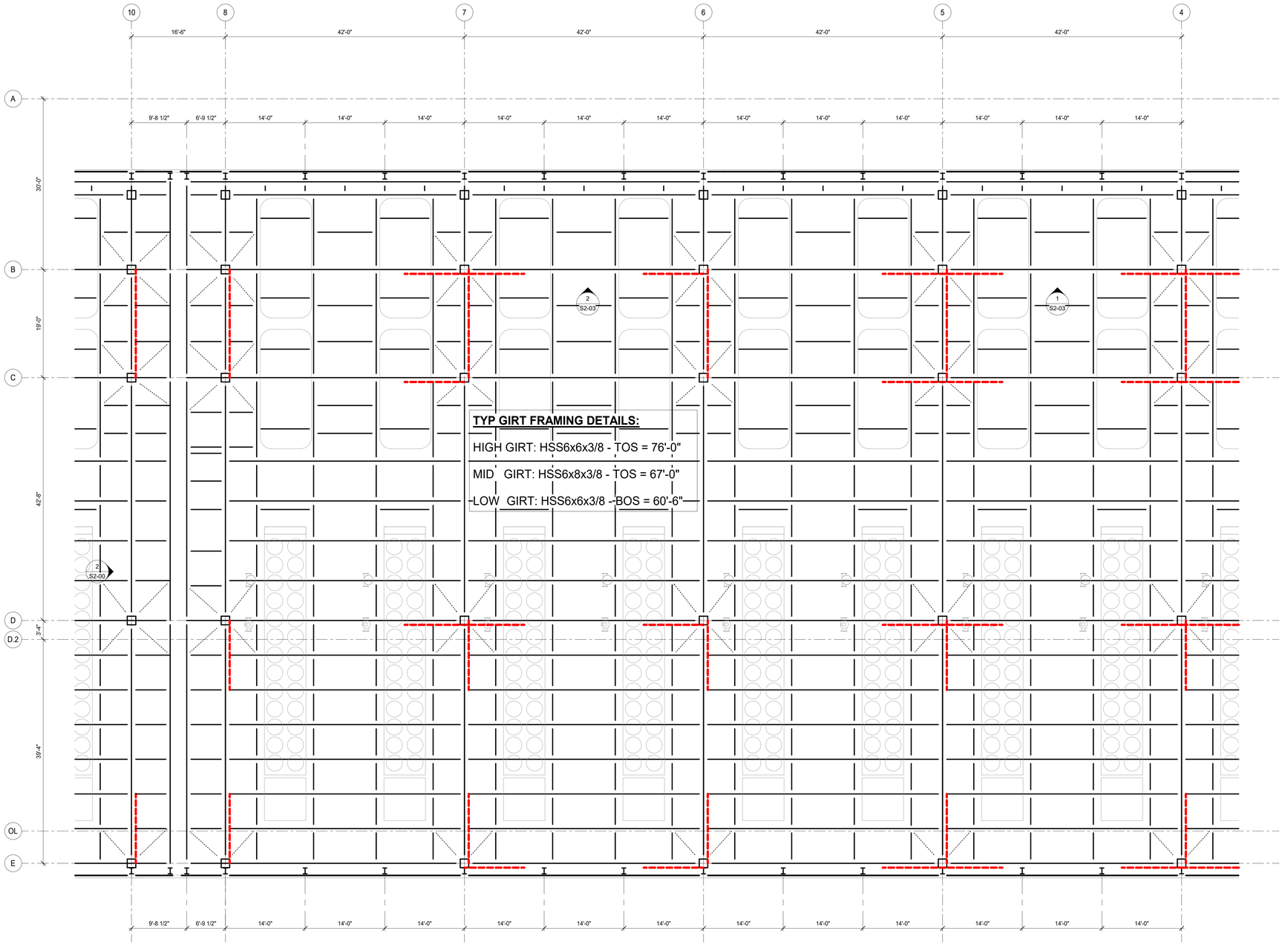
PLATFORM GIRT FRAMING PLAN - SEGMENT F

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S1-50F

2/4/2025 4:12:14 PM S1-50F PLATFORM GIRT FRAMING PLAN - SEGMENT F

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1 PLATFORM GIRT FRAMING PLAN - SEGMENT H
1/8" = 1'-0"

2/4/2025 4:12:16 PM S1-50H PLATFORM GIRT FRAMING PLAN - SEGMENT H

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1140 N. GUN CLUB ROAD

KEYPLAN

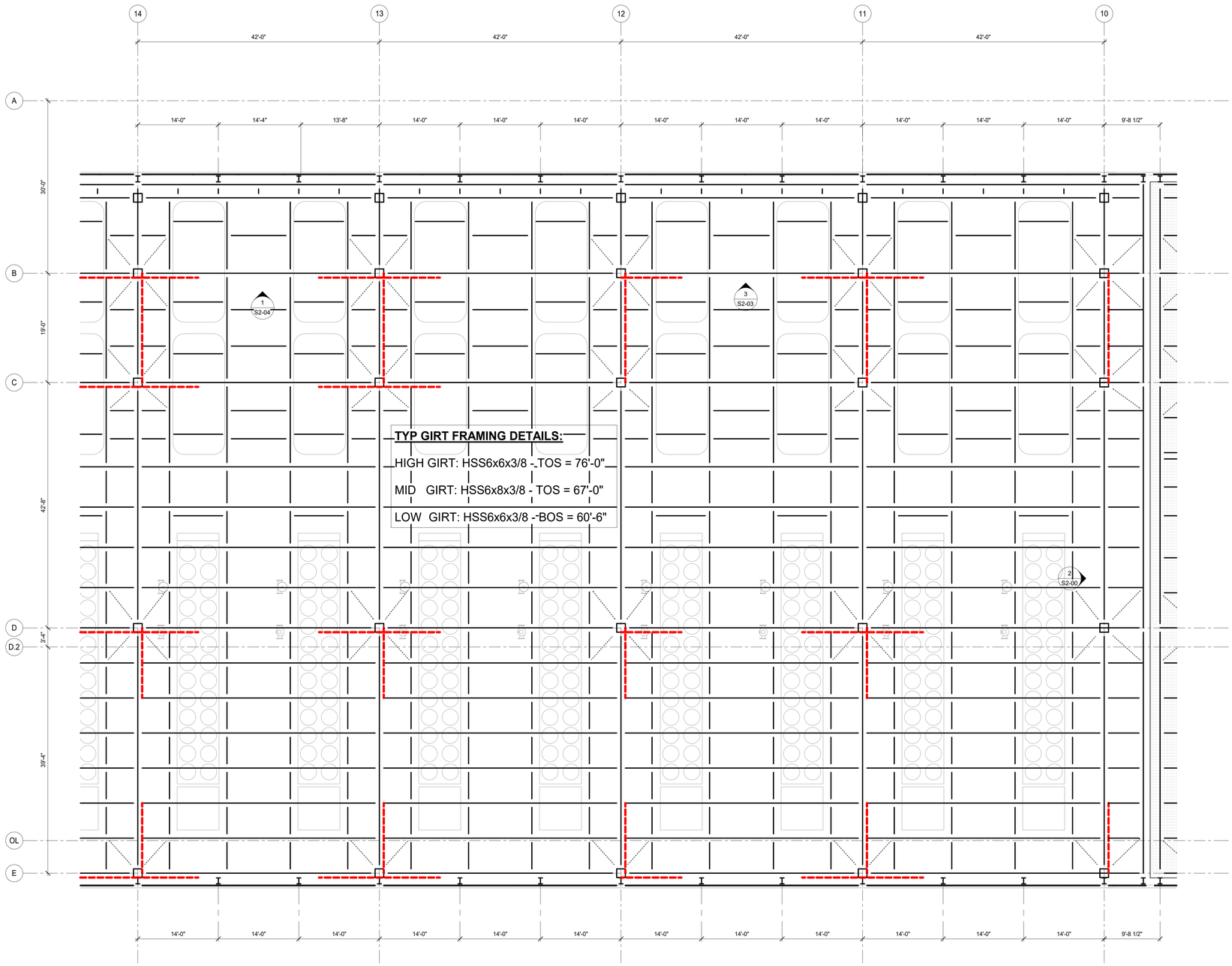
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PLATFORM GIRT FRAMING PLAN - SEGMENT H

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S1-50H

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1 PLATFORM GIRT FRAMING PLAN - SEGMENT K
1/8" = 1'-0"

2/4/2025 4:12:18 PM S1-50K PLATFORM GIRT FRAMING PLAN - SEGMENT K

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01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

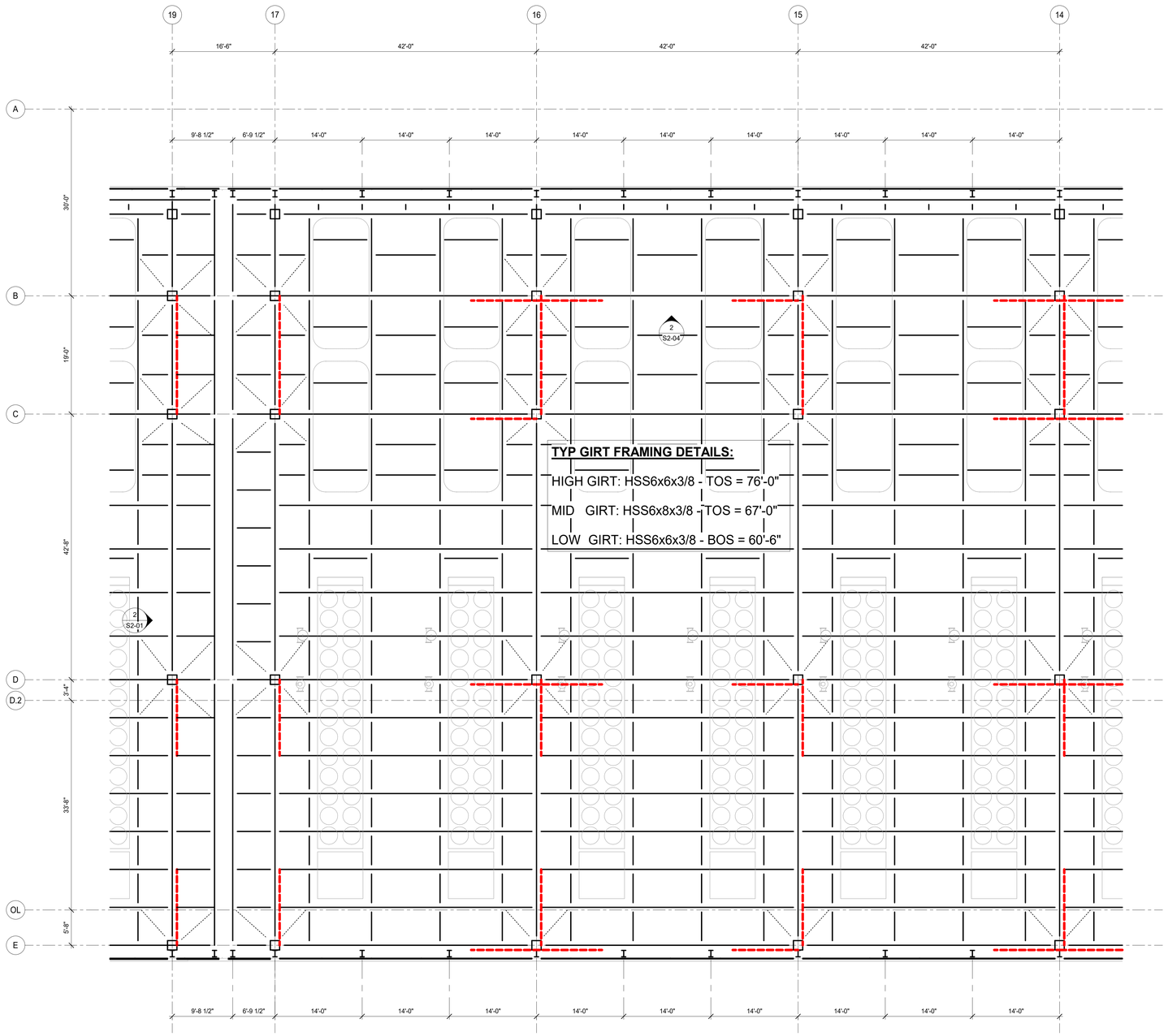
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PLATFORM GIRT FRAMING PLAN - SEGMENT K

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S1-50K

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1 PLATFORM GIRT FRAMING PLAN - SEGMENT M
1/8" = 1'-0"

2/4/2025 4:12:20 PM S1-50M PLATFORM GIRT FRAMING PLAN - SEGMENT M

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1140 N. GUN CLUB ROAD

KEYPLAN

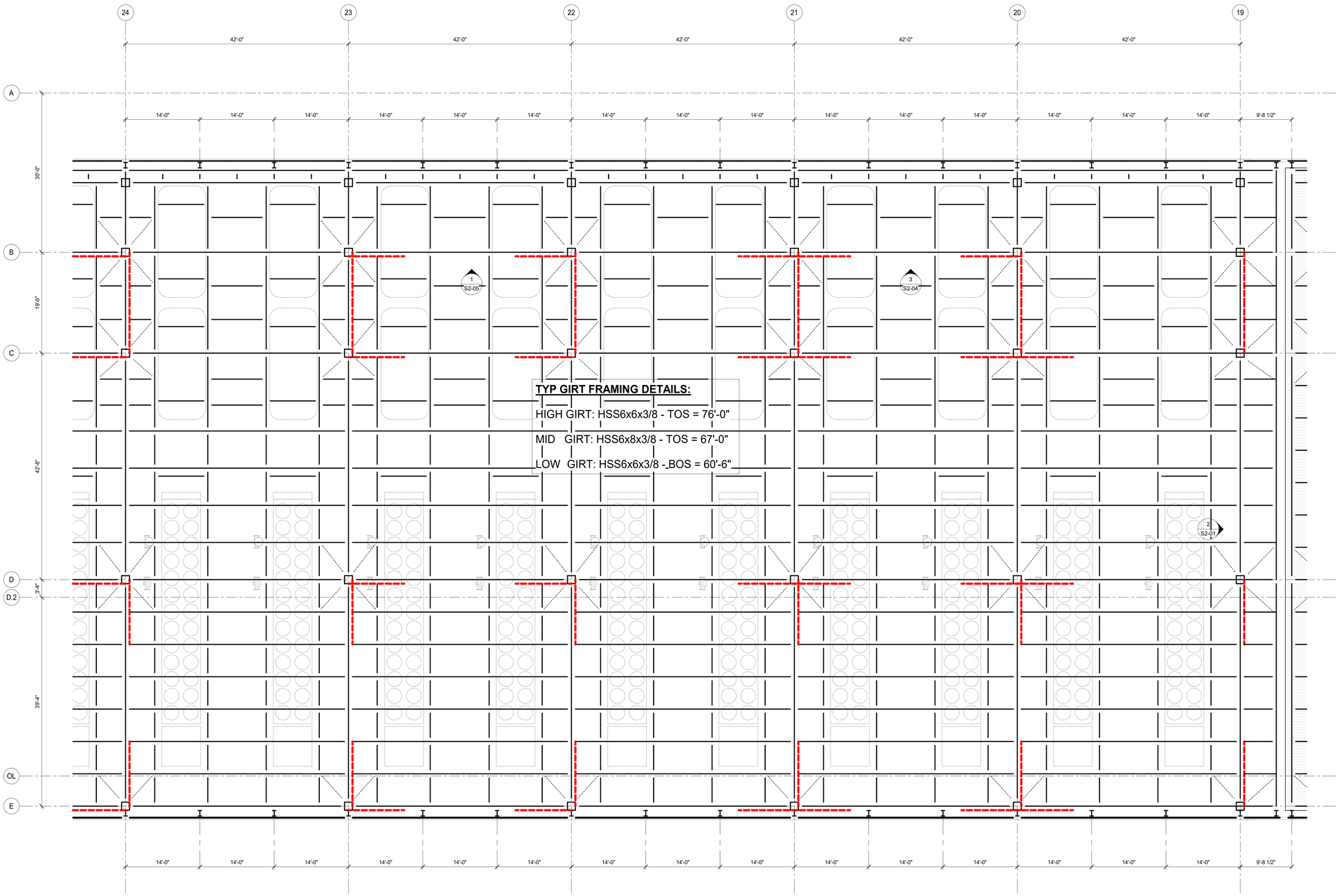
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PLATFORM GIRT FRAMING PLAN - SEGMENT M

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S1-50M

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1 PLATFORM GIRT FRAMING PLAN - SEGMENT P
1/8" = 1'-0"

2/4/2025 4:12:22 PM S1-50P PLATFORM GIRT FRAMING PLAN - SEGMENT P

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1140 N. GUN CLUB ROAD

KEYPLAN

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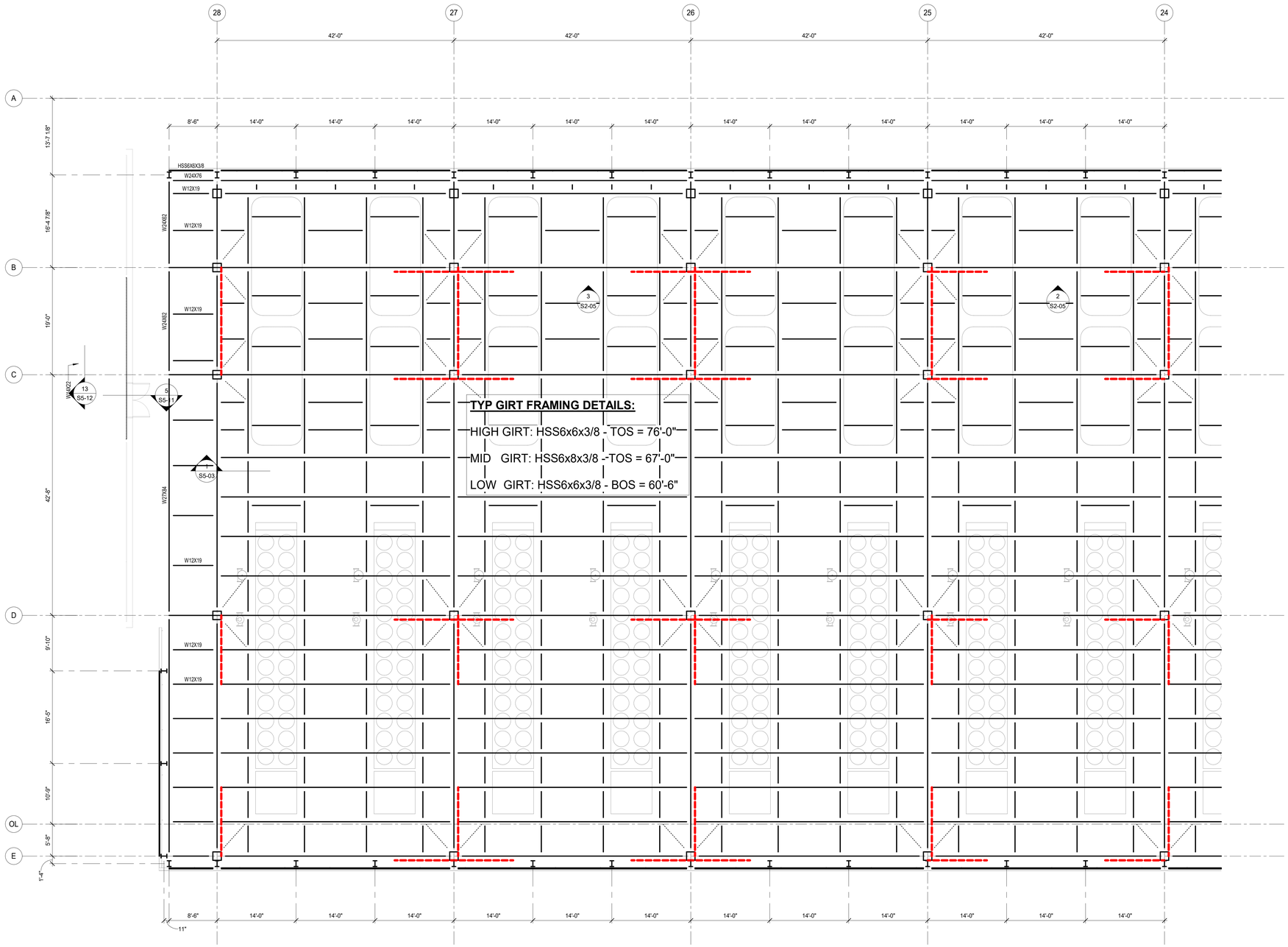
PLATFORM GIRT FRAMING PLAN - SEGMENT P

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DATE 01.31.2025
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S1-50P

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RSN: 1881854 | PERMIT#: 25-2513934-CM



1 PLATFORM GIRT FRAMING PLAN - SEGMENT R
1/8" = 1'-0"

2/4/2025 4:12:24 PM S1-50R PLATFORM GIRT FRAMING PLAN - SEGMENT R

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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

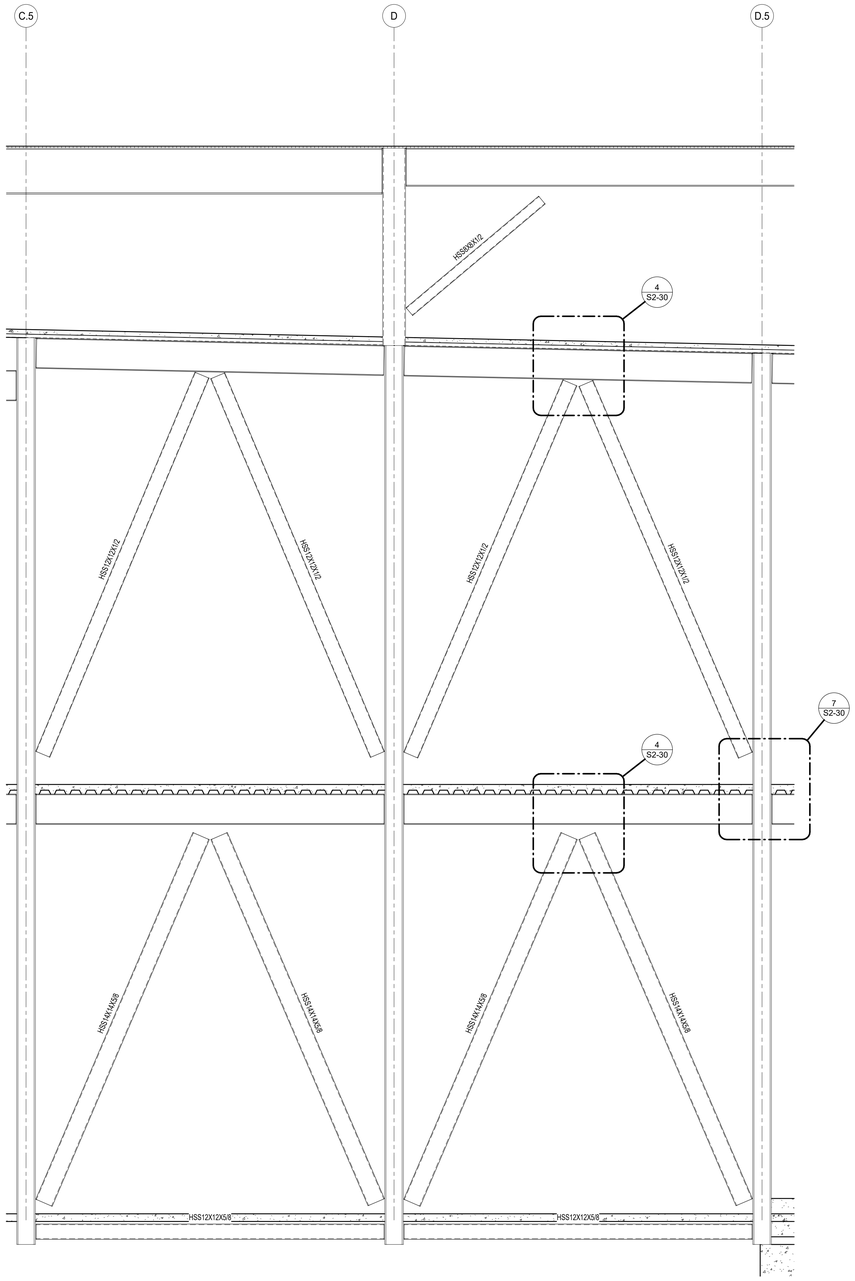
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PLATFORM GIRT FRAMING PLAN - SEGMENT R

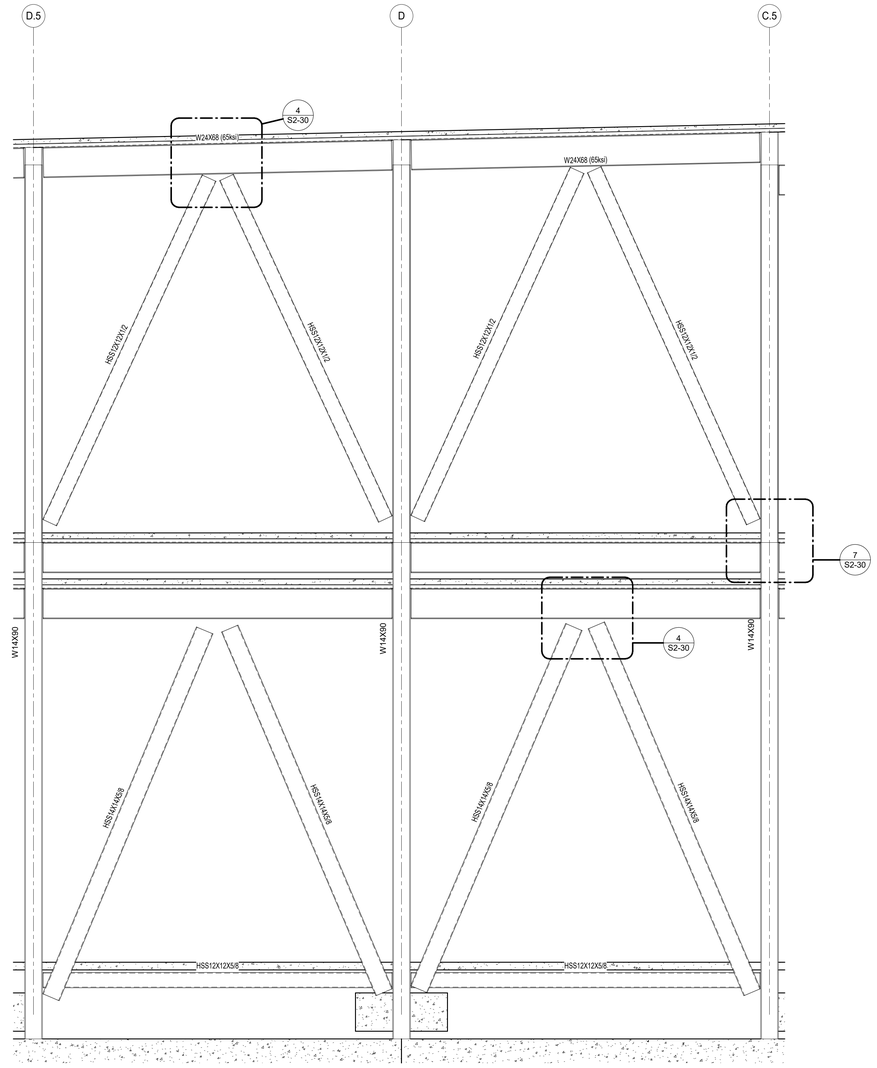
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2 BRACED FRAME ELEVATION ALONG GRID 10
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID 9
1/4" = 1'-0"

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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

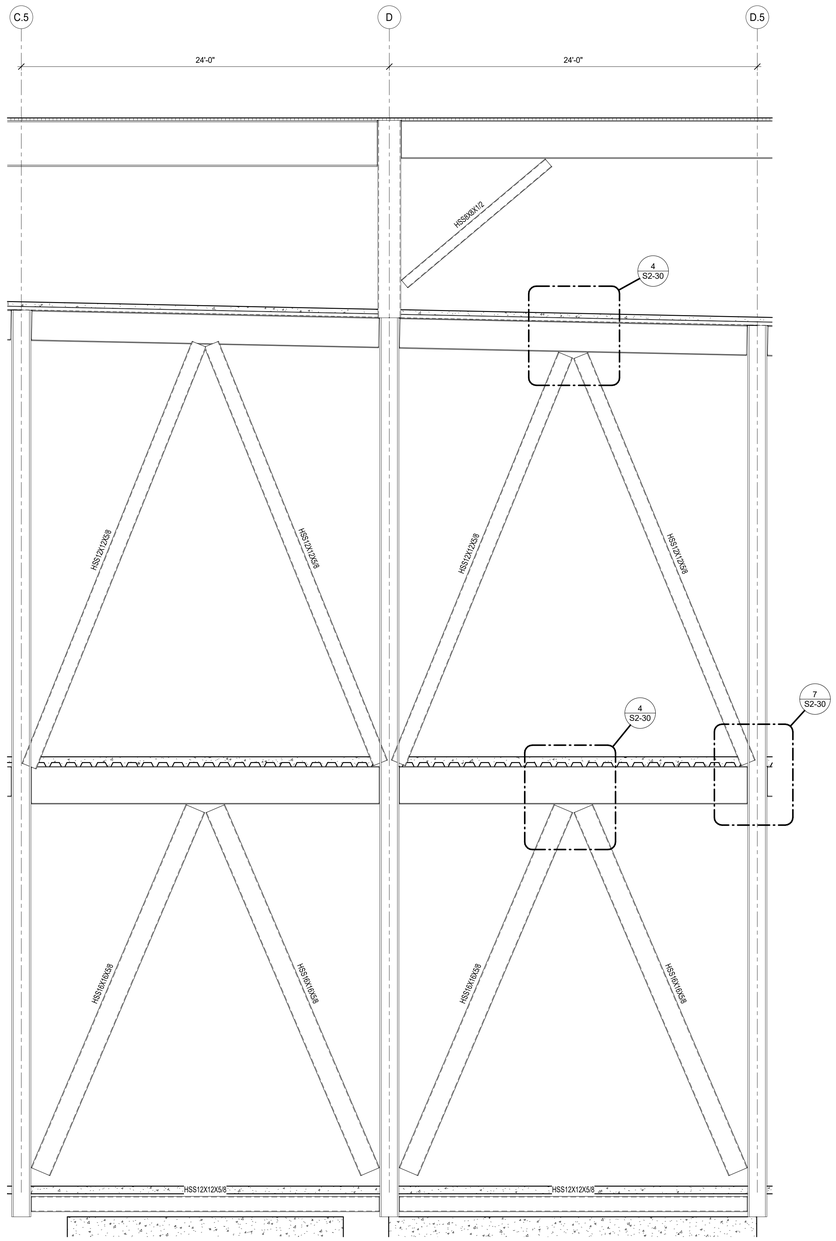
FRAME ELEVATIONS

JOB 24464.0000
DATE 01.31.2025
SHEET

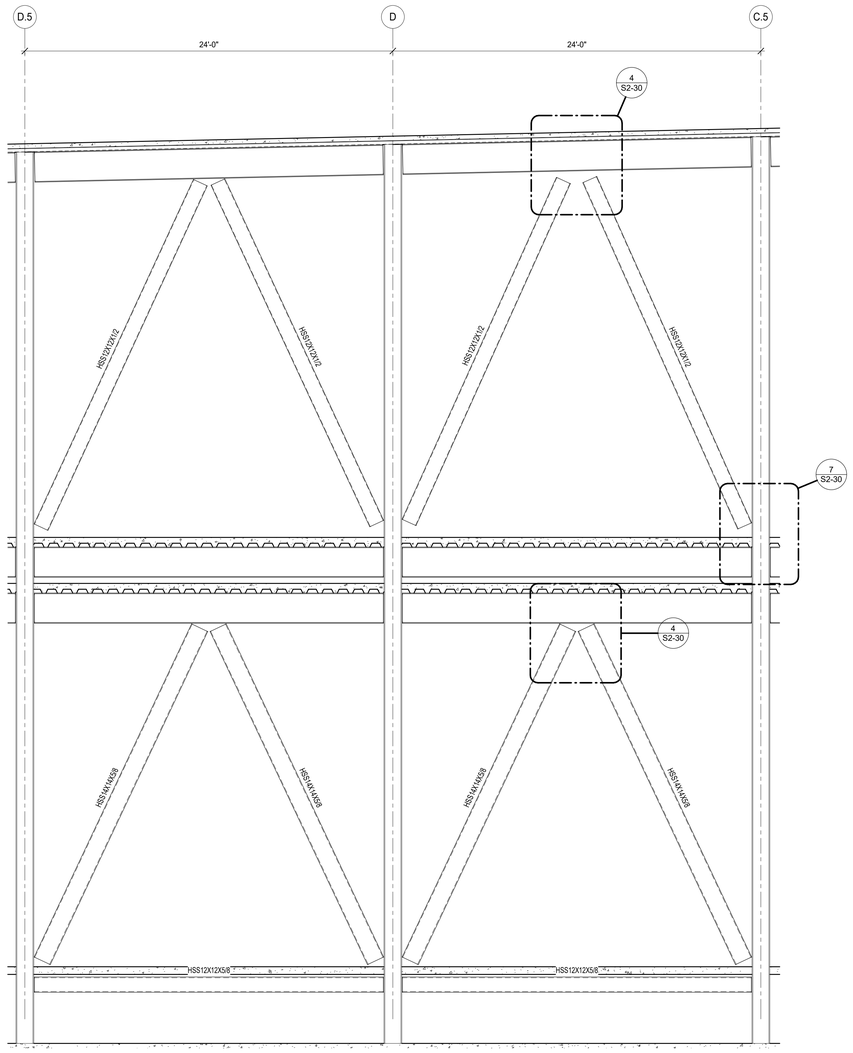
S2-00

2/4/2025 4:12:25 PM S2-00 FRAME ELEVATIONS

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2021 INTERNATIONAL CODES & 2023 NEC



2 BRACED FRAME ELEVATION ALONG GRID 19
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID 18
1/4" = 1'-0"

2/4/2025 4:12:26 PM S2-01 FRAME ELEVATIONS

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PROFESSIONAL ENGINEER

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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

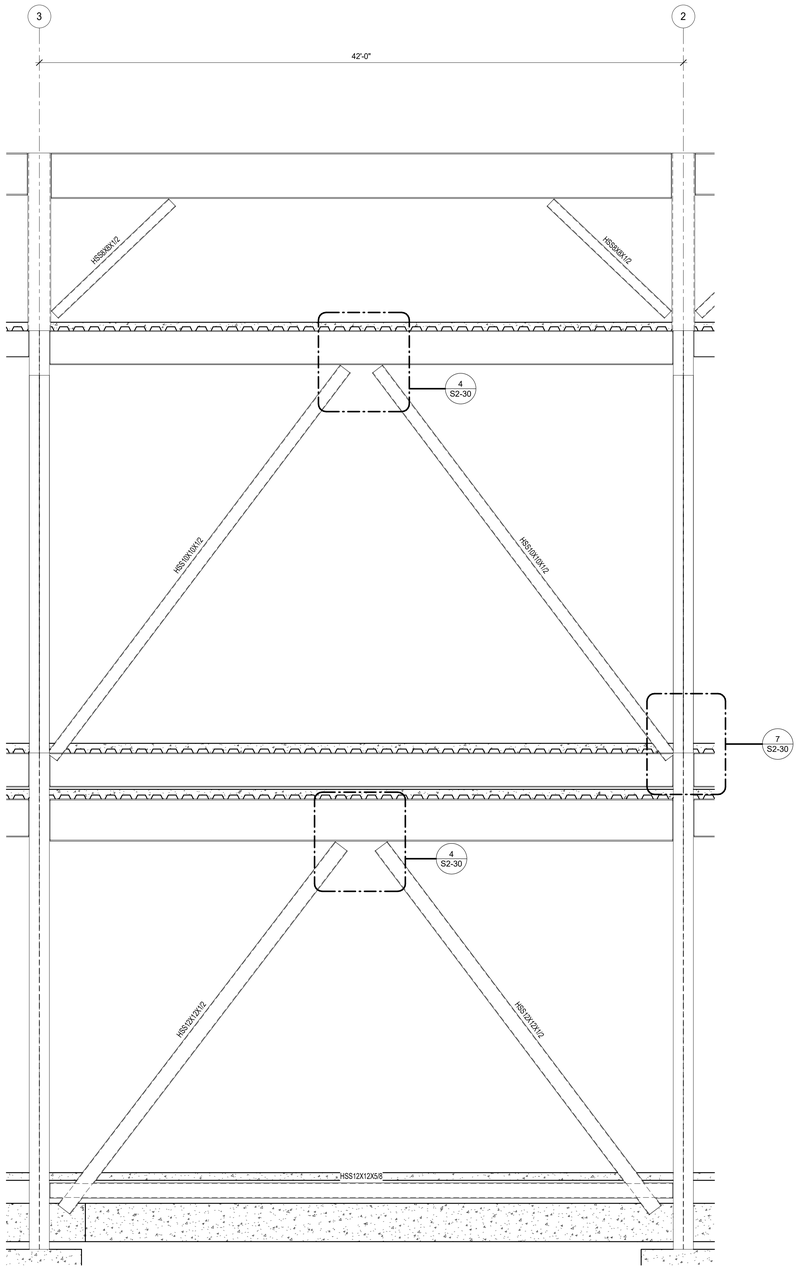
QTS

FRAME ELEVATIONS

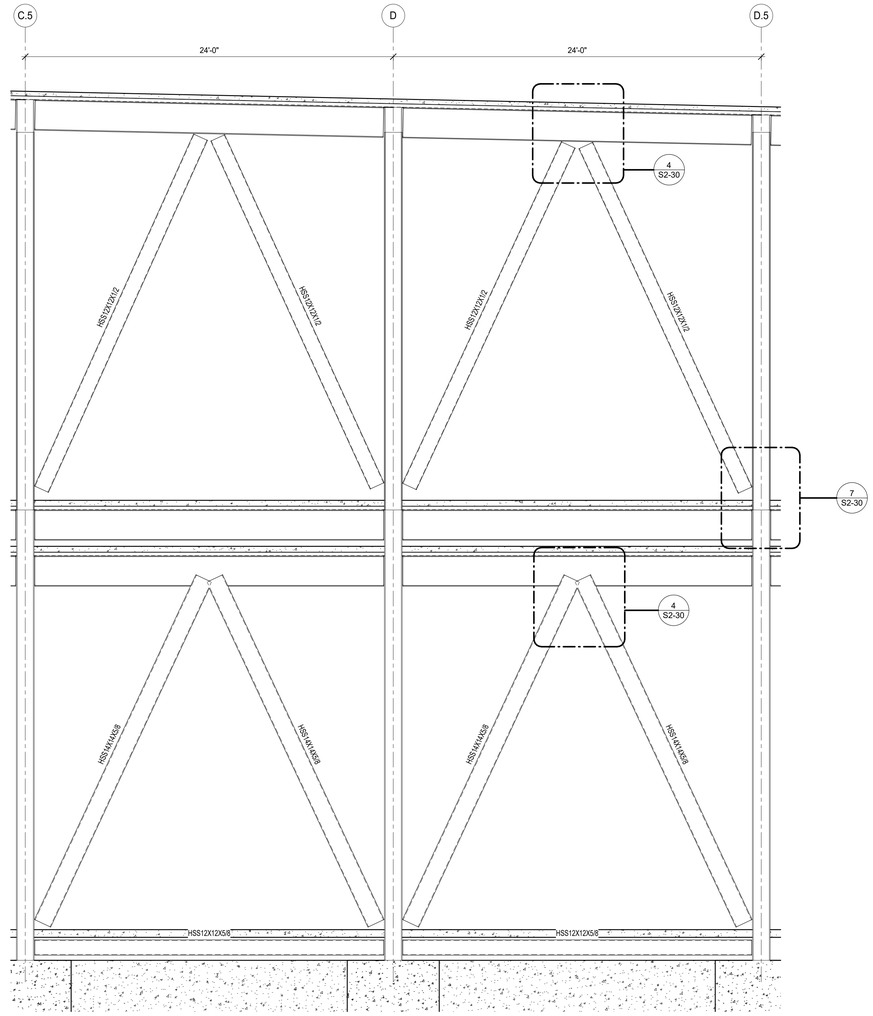
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S2-01

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2 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID 0
1/4" = 1'-0"

2/4/2025 4:12:27 PM S2-02 FRAME ELEVATIONS

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QTS DEN1 DC2
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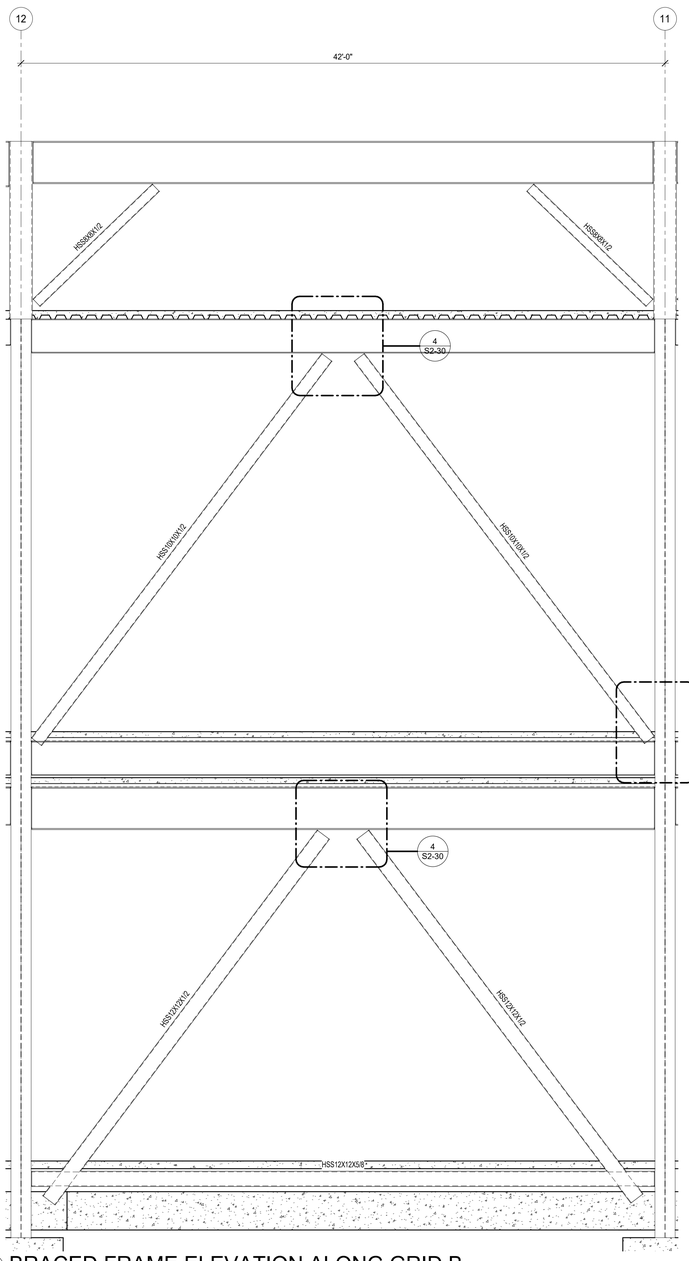
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FRAME ELEVATIONS

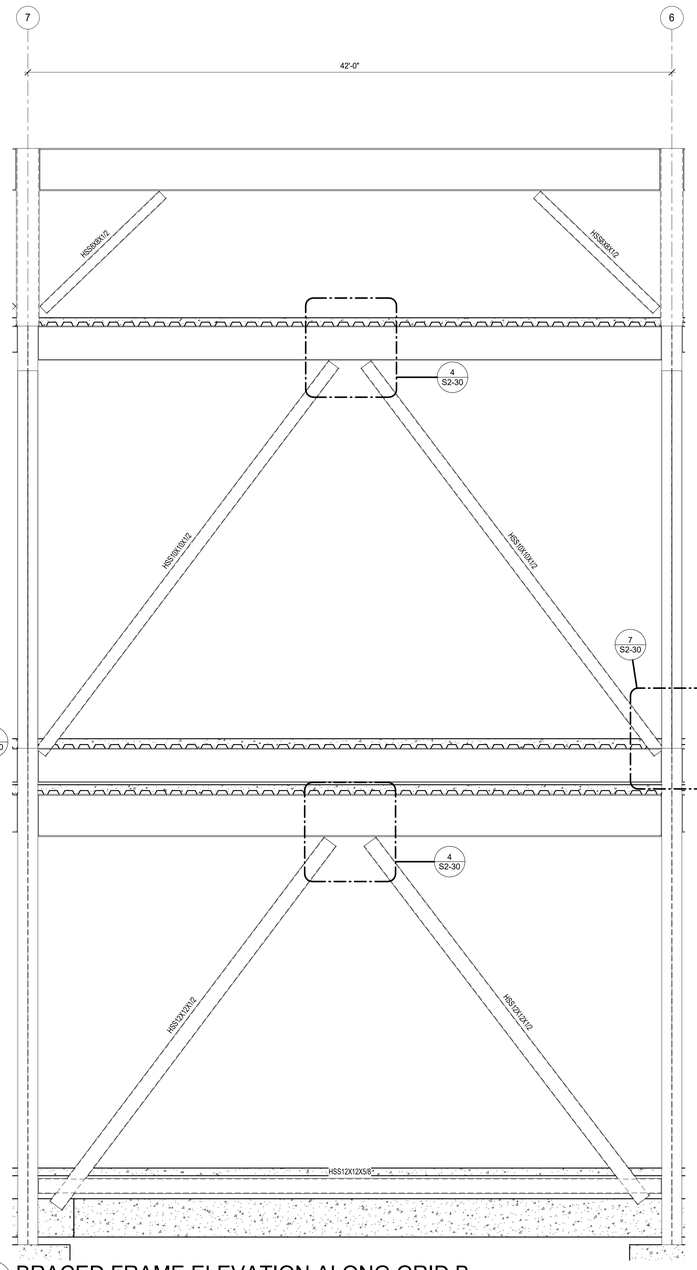
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S2-02

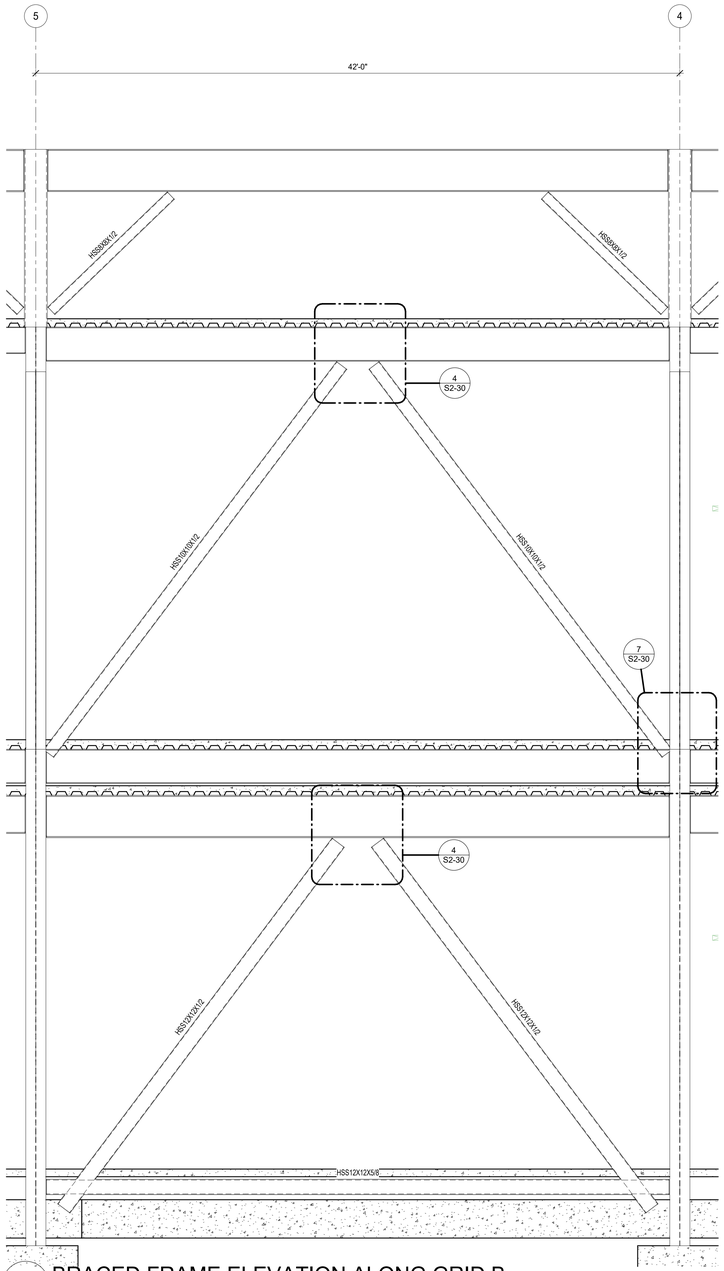
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2021 INTERNATIONAL CODES & 2023 NEC



3 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"



2 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"

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	ISSUES	
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QTS

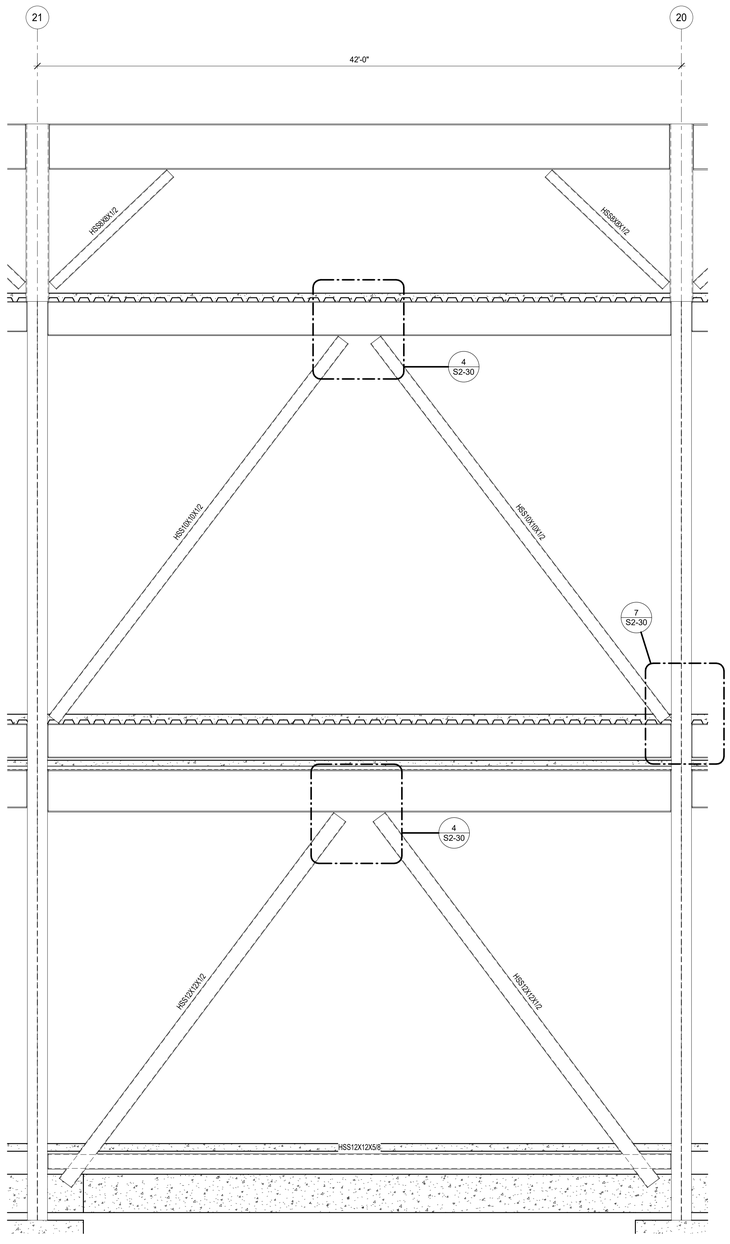
FRAME ELEVATIONS

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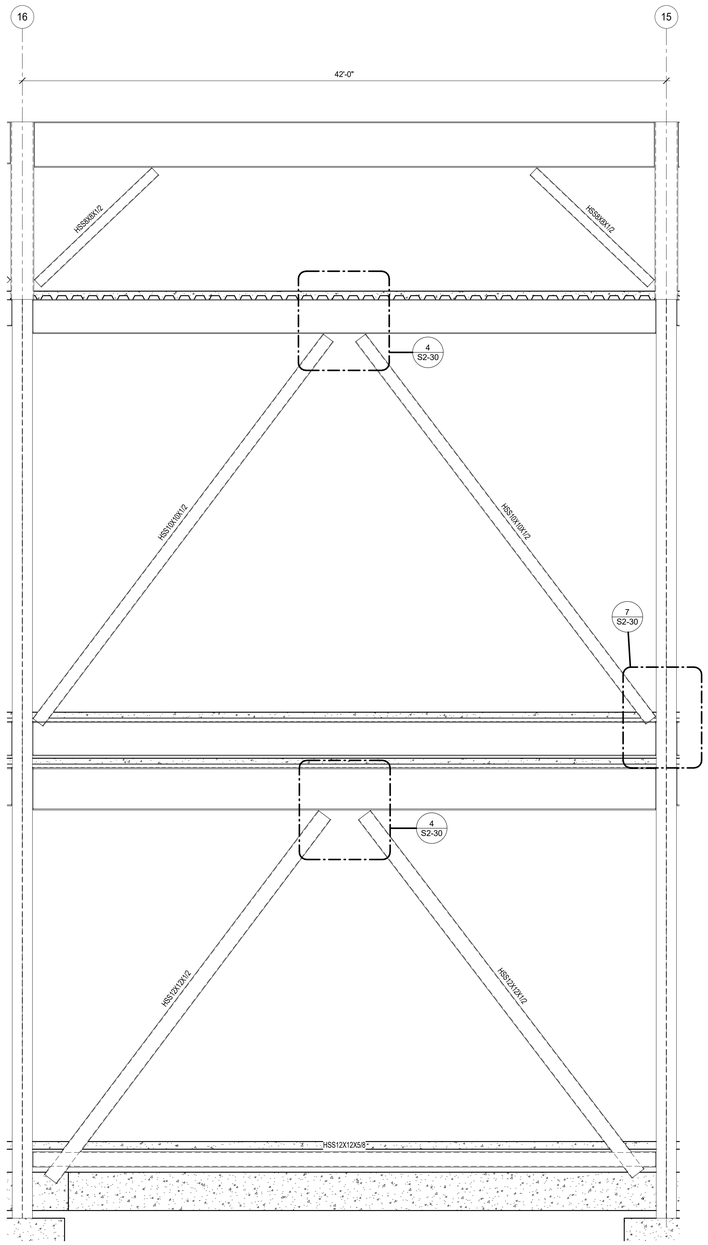
S2-03

2/4/2025 4:12:29 PM S2-03 FRAME ELEVATIONS

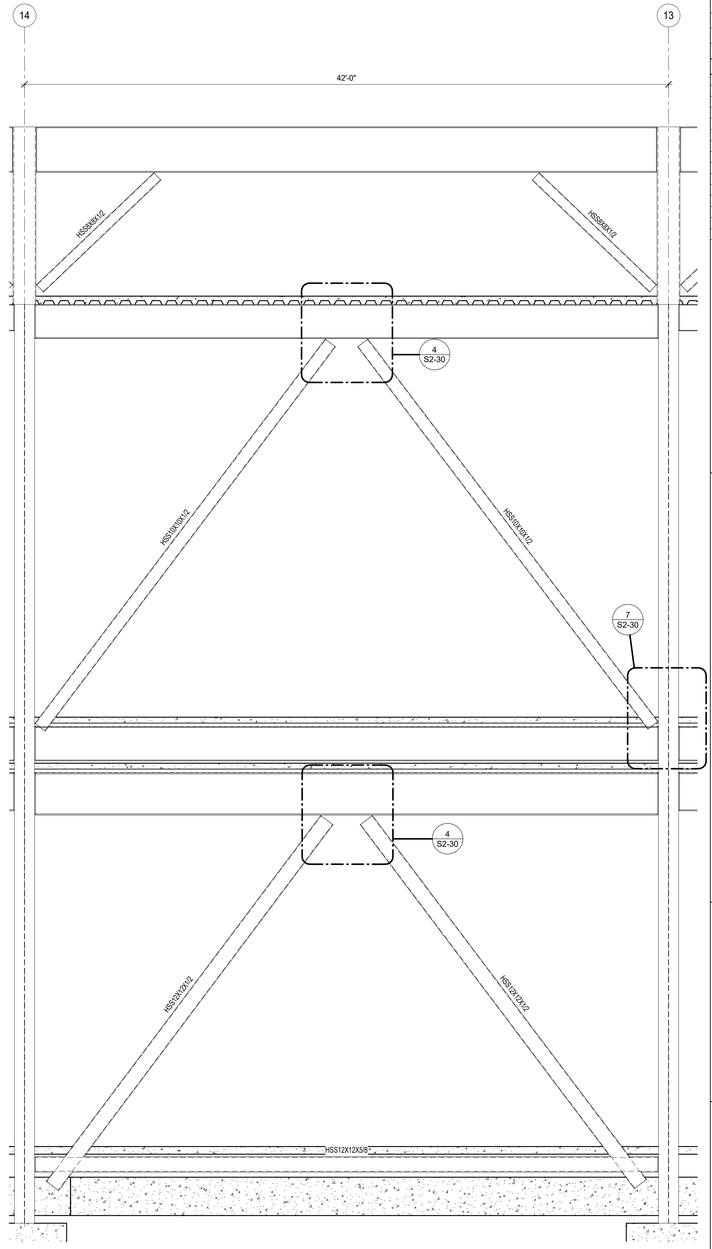
City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



3 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"



2 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"

2/4/2025 4:12:31 PM S2-04 FRAME ELEVATIONS

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TLC DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
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	REVISIONS	

COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

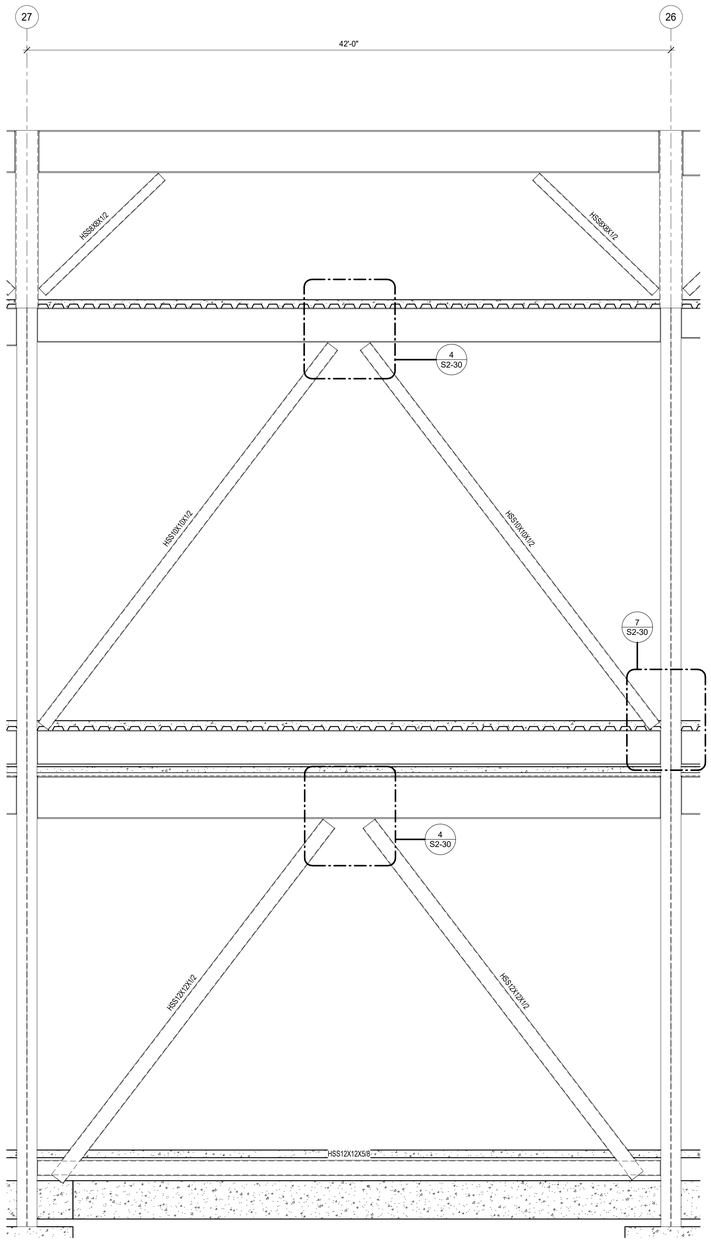
QTS DEN1 DC2
1140 N. GUN CLUB ROAD

FRAME ELEVATIONS

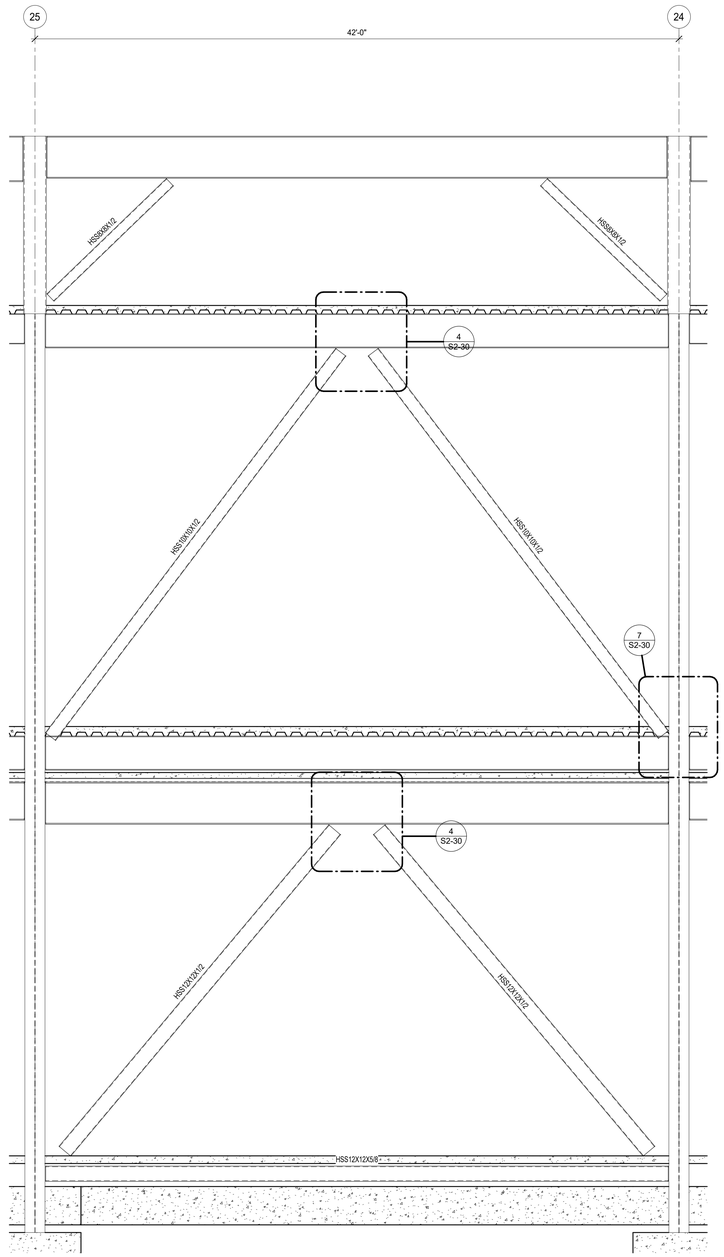
JOB 24464.0000
DATE 01.31.2025
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S2-04

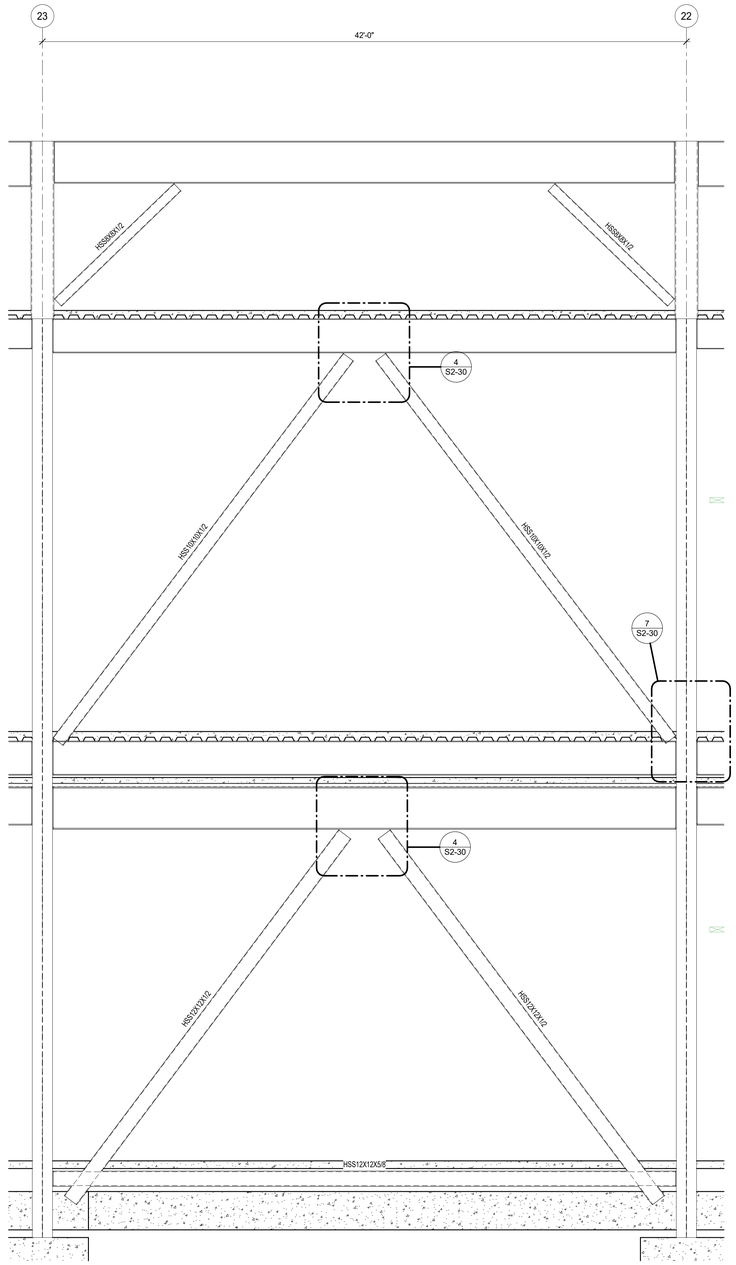
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2021 INTERNATIONAL CODES & 2023 NEC



3 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"



2 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID B
1/4" = 1'-0"

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	REVISIONS	

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F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

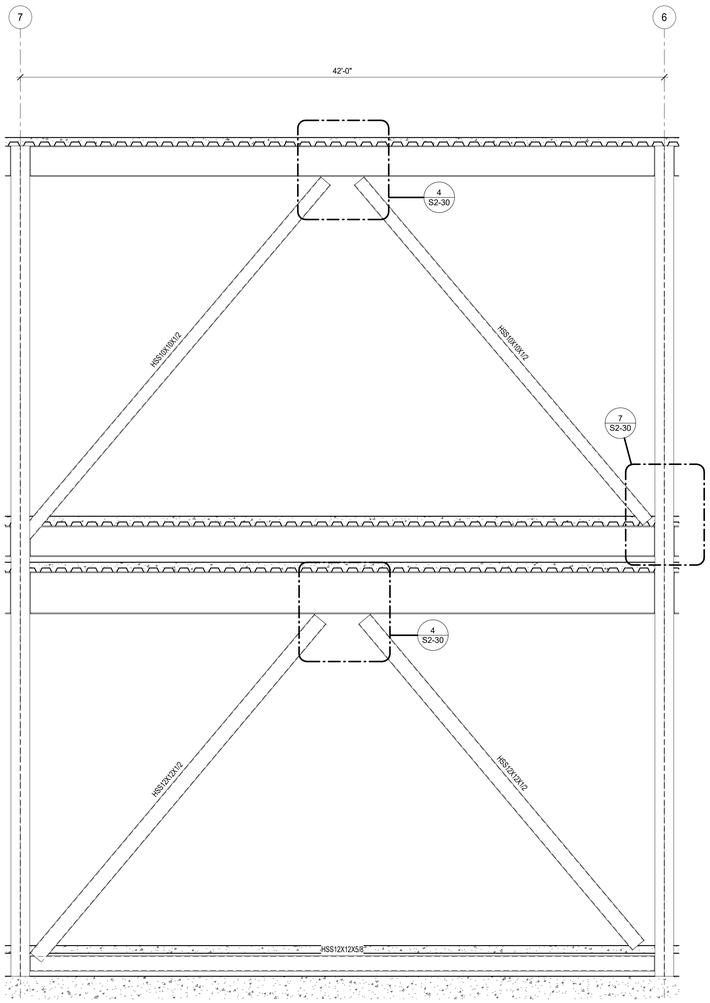
FRAME ELEVATIONS

JOB 24464.0000
DATE 01.31.2025
SHEET

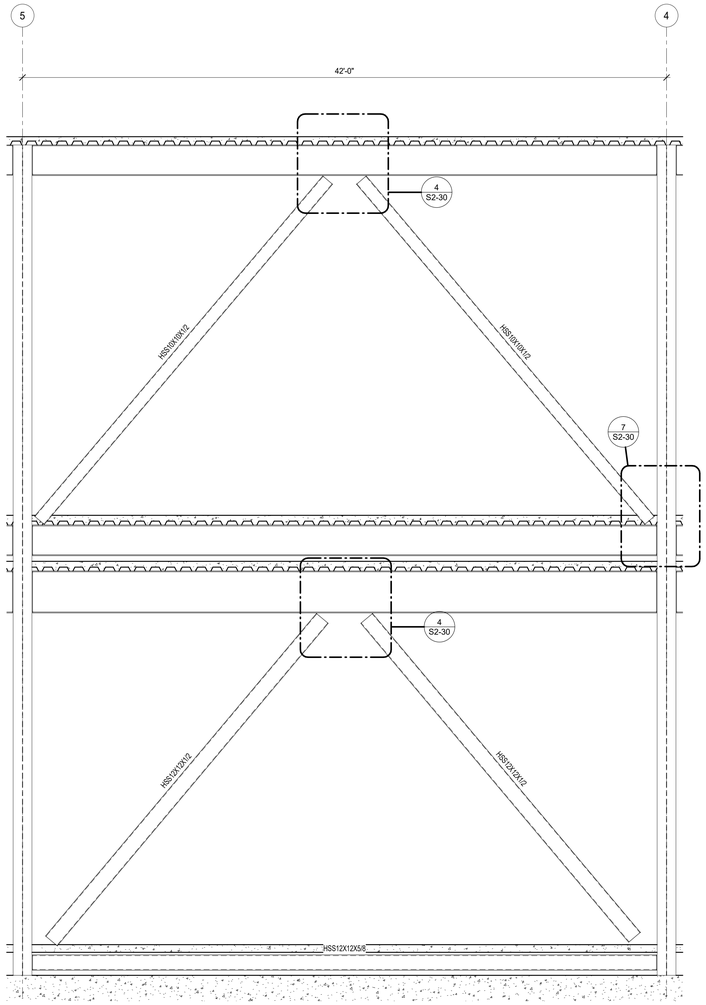
S2-05

2/4/2025 4:12:33 PM S2-05 FRAME ELEVATIONS

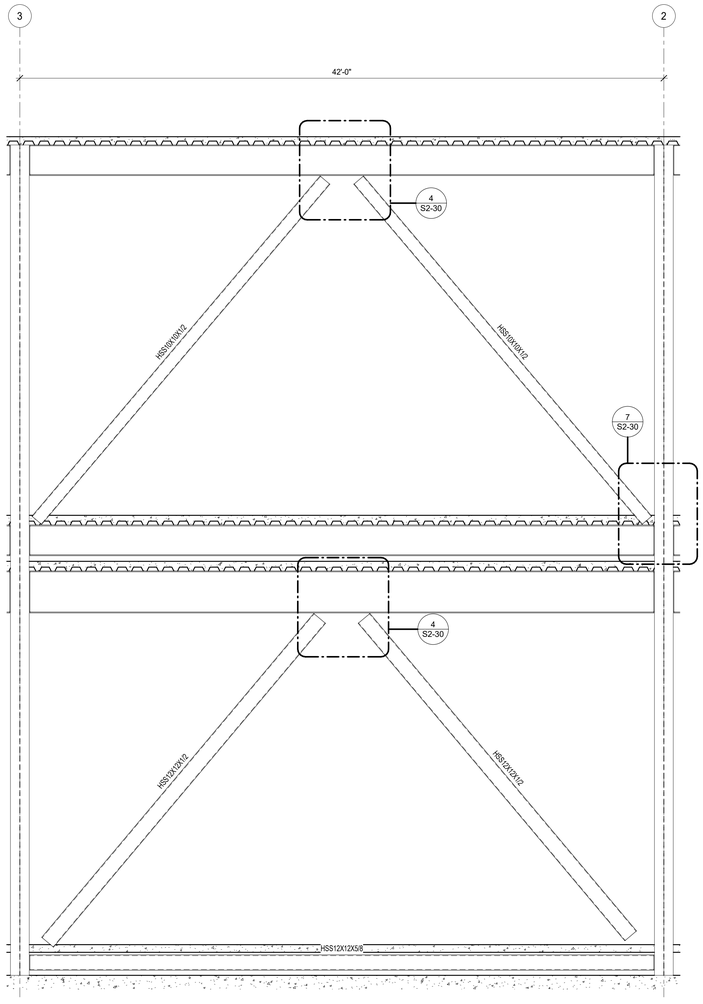
City of Aurora Building Division
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2021 INTERNATIONAL CODES & 2023 NEC



3 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"



2 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"

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	ISSUES	
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	REVISIONS	

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NICHOLAS W. DAVID
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PROFESSIONAL ENGINEER

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F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

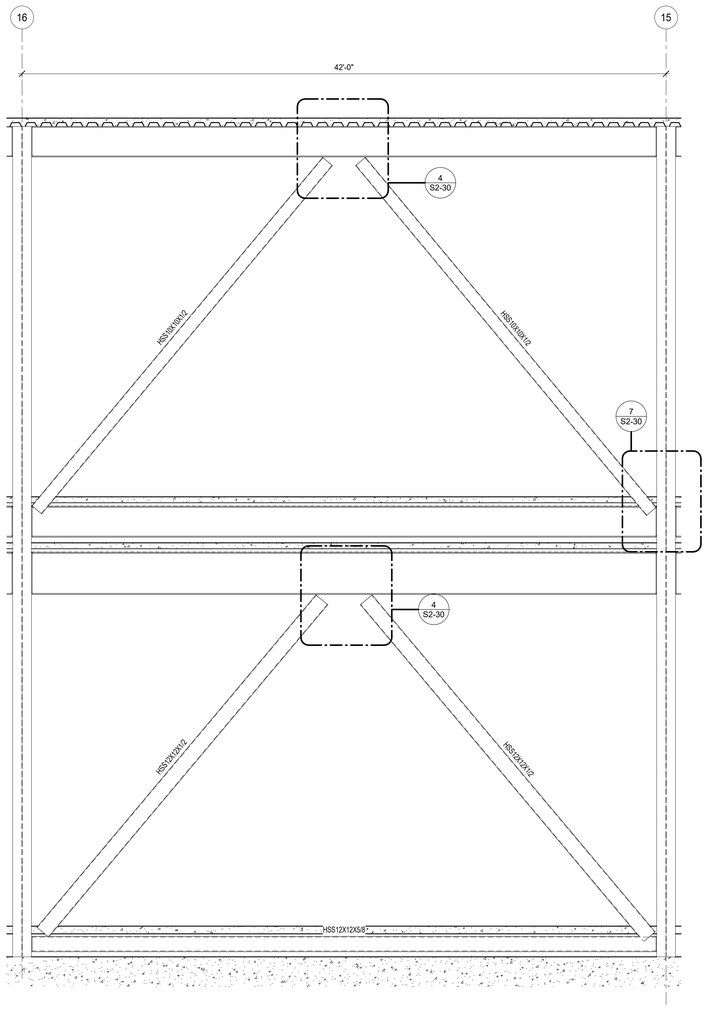
FRAME ELEVATIONS

JOB 24464.0000
DATE 01.31.2025
SHEET

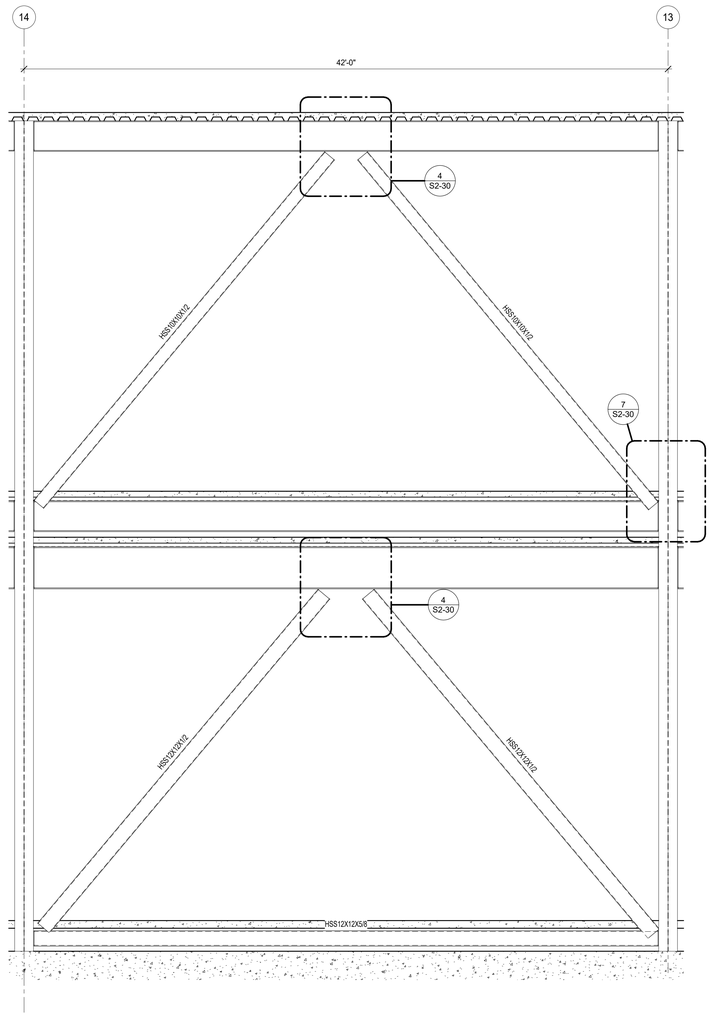
S2-06

2/4/2025 4:12:35 PM S2-06 FRAME ELEVATIONS

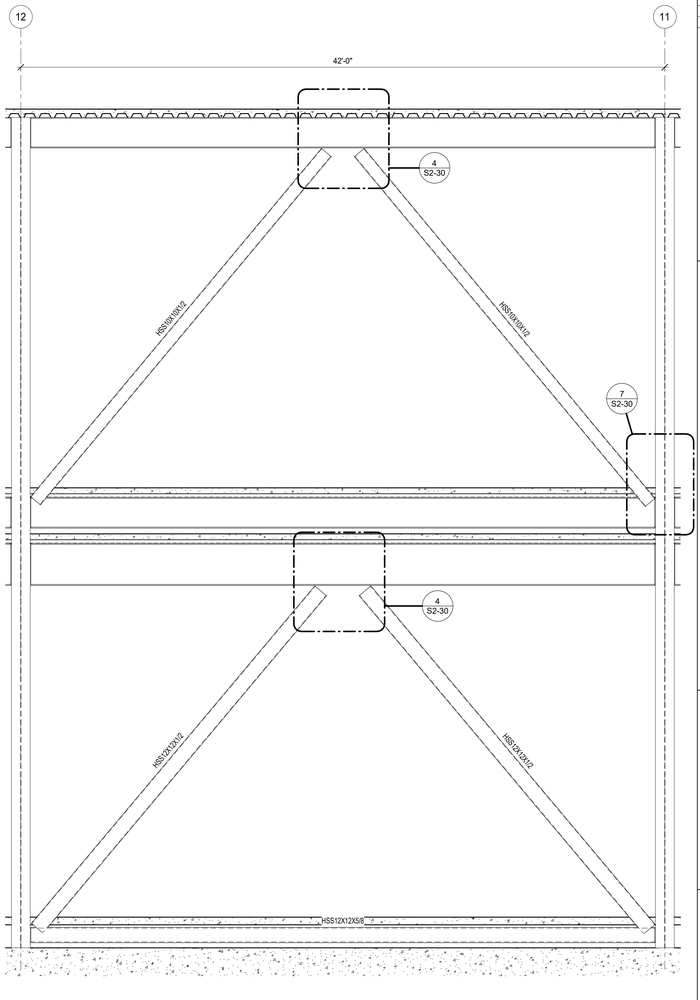
City of Aurora Building Division
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Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



3 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"



2 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"

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ISSUES		
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REVISIONS

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NICHOLAS W. HAND
65236
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AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

FRAME ELEVATIONS

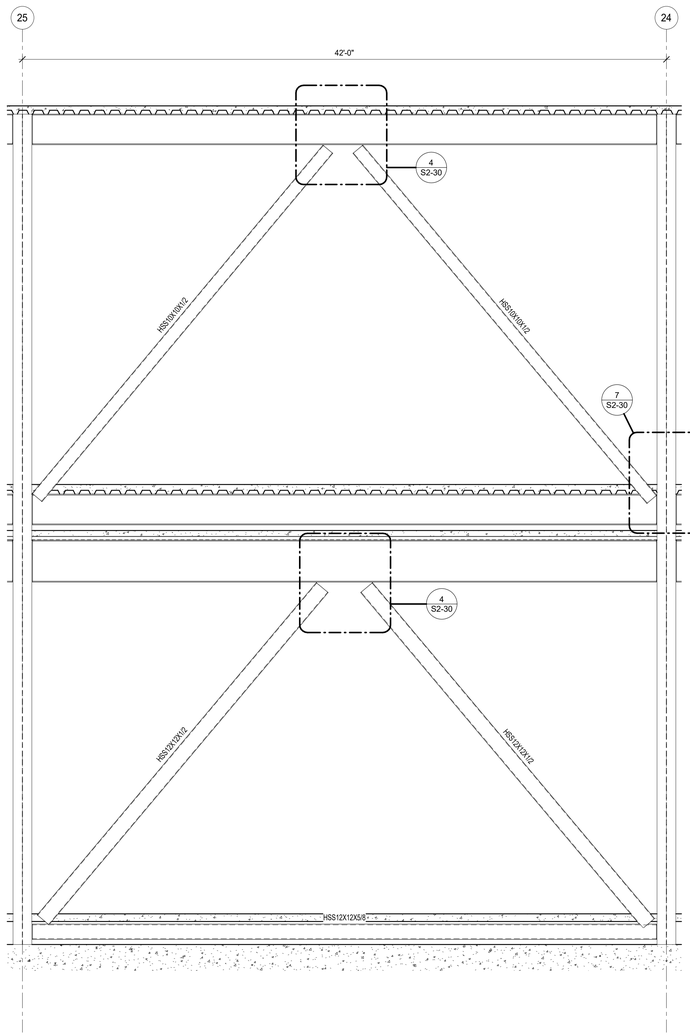
JOB 24464.0000
DATE 01.31.2025
SHEET

S2-07

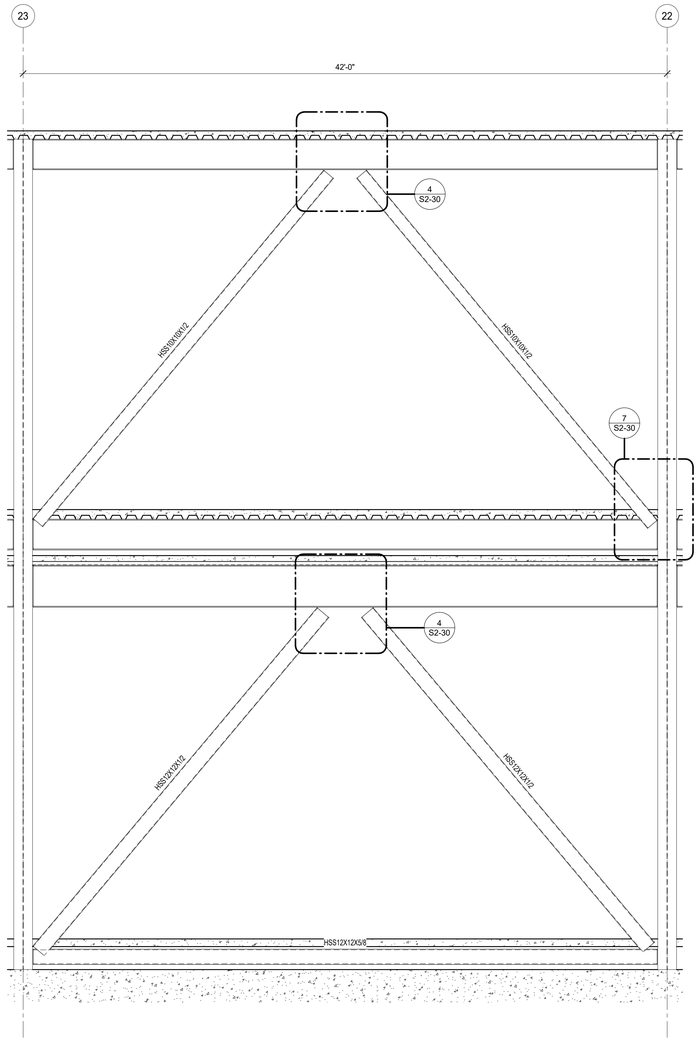
2/4/2025 4:12:36 PM S2-07 FRAME ELEVATIONS

City of Aurora Building Division
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2021 INTERNATIONAL CODES & 2023 NEC

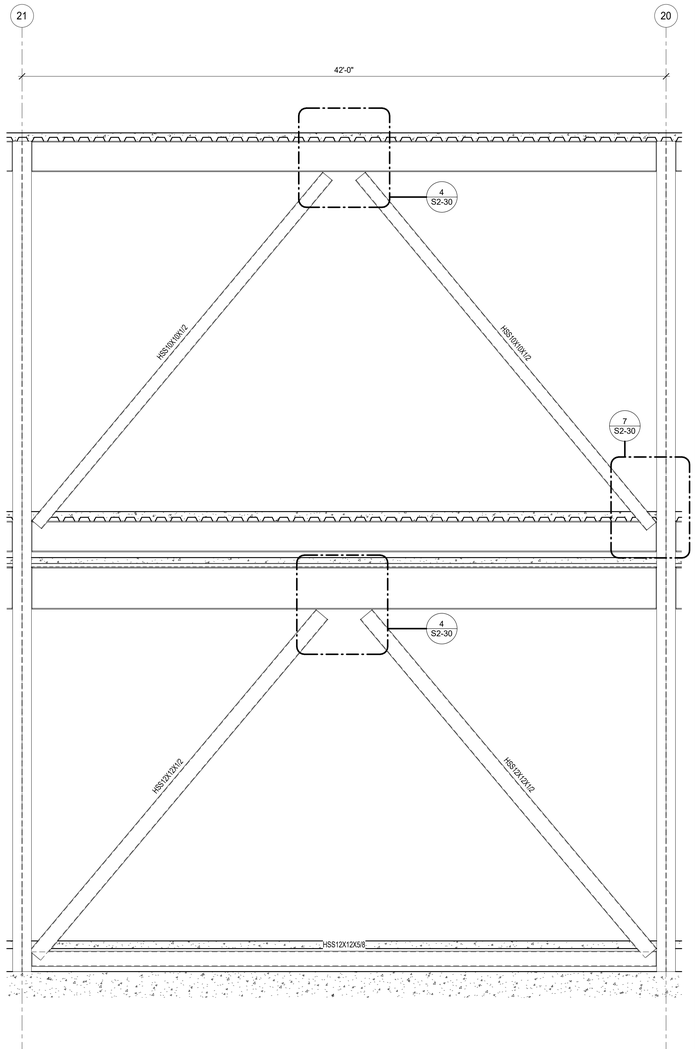
RSN: 1881854 | PERMIT#: 25-2513934-CM



3 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"



2 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"

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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

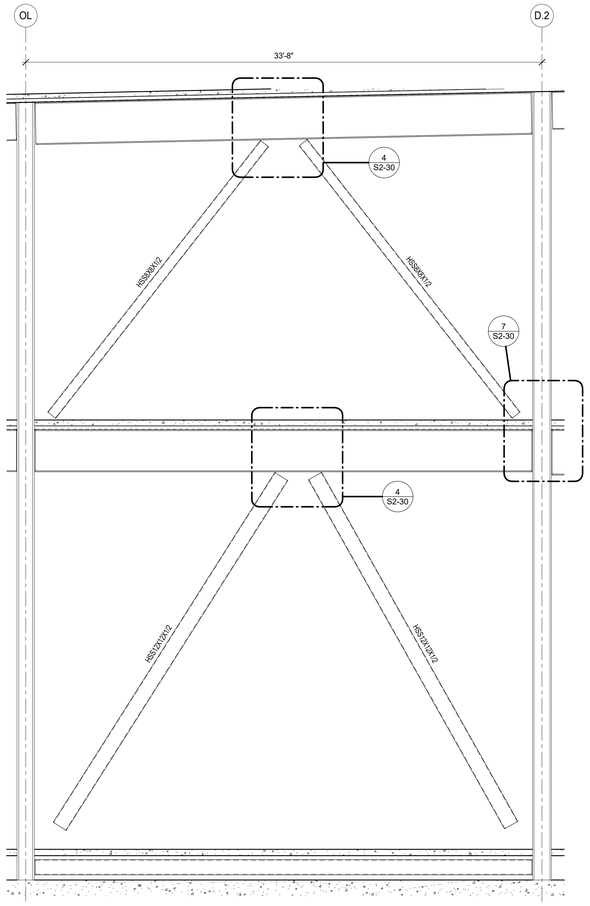
FRAME ELEVATIONS

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DATE 01.31.2025
SHEET

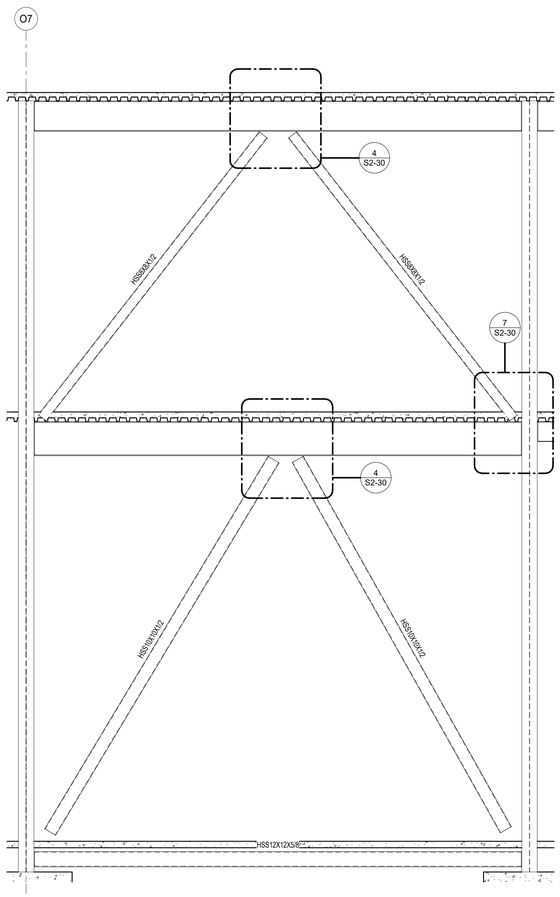
S2-08

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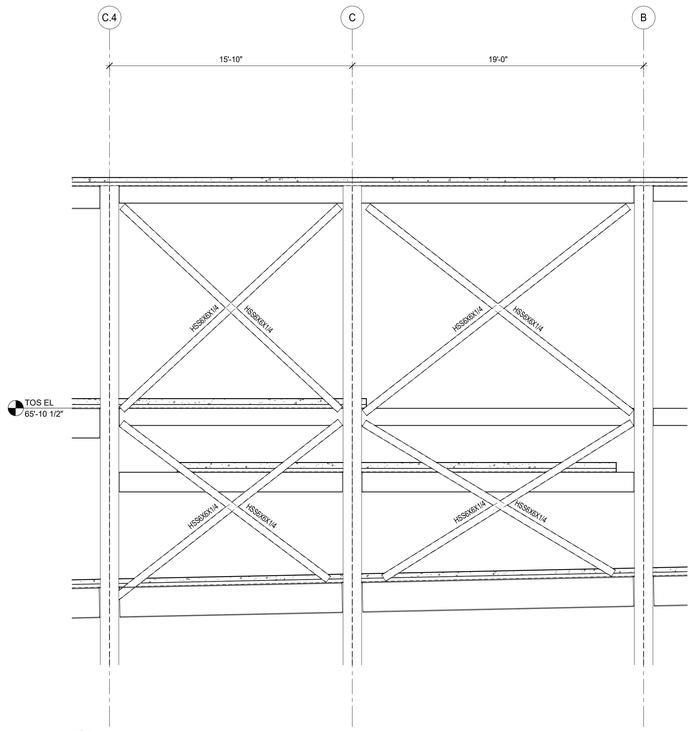
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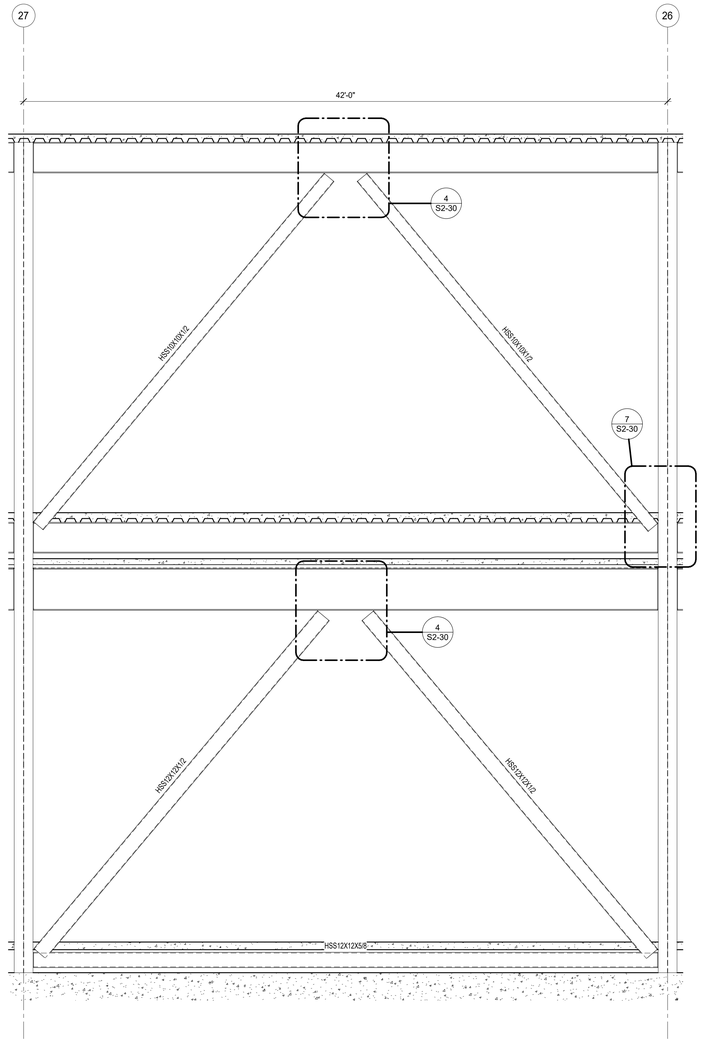
4 BRACED FRAME ELEVATION ALONG GRID O7
1/4" = 1'-0"



3 BRACED FRAME ELEVATION ALONG GRID OM
1/4" = 1'-0"



2 BRACED FRAME ELEVATION ALONG GRID 30.6
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID F
1/4" = 1'-0"

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DESIGN CONSULTING LLC

ISSUES		
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65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

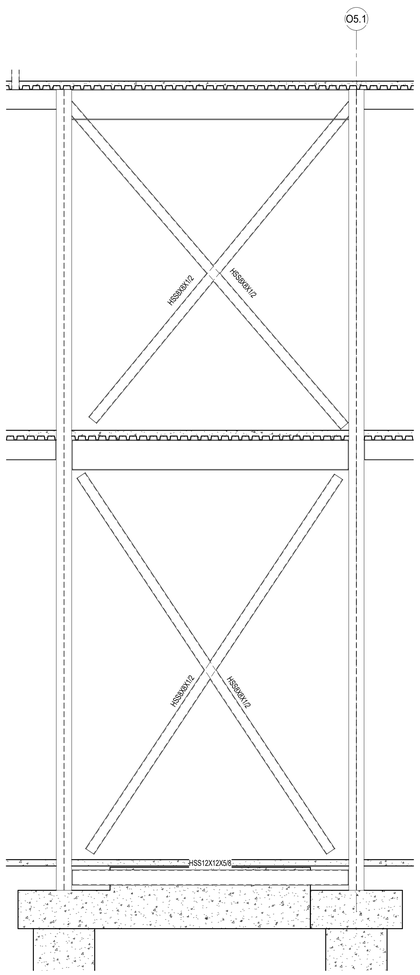
FRAME ELEVATIONS

JOB 24464.0000
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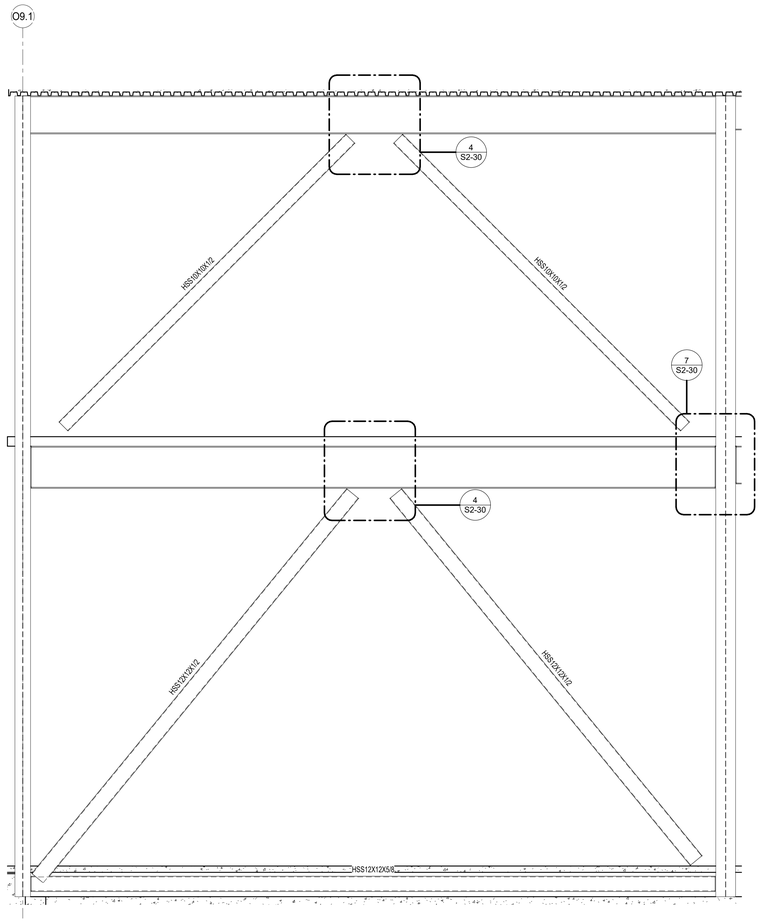
S2-09

2/4/2025 4:12:40 PM S2-09 FRAME ELEVATIONS

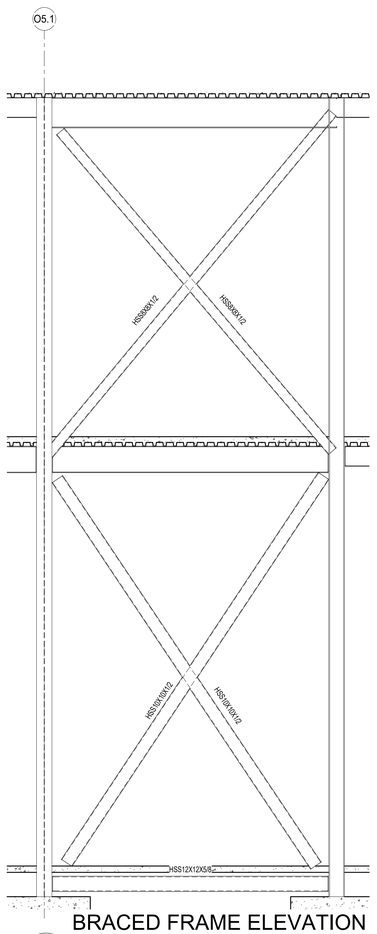
City of Aurora Building Division
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2021 INTERNATIONAL CODES & 2023 NEC



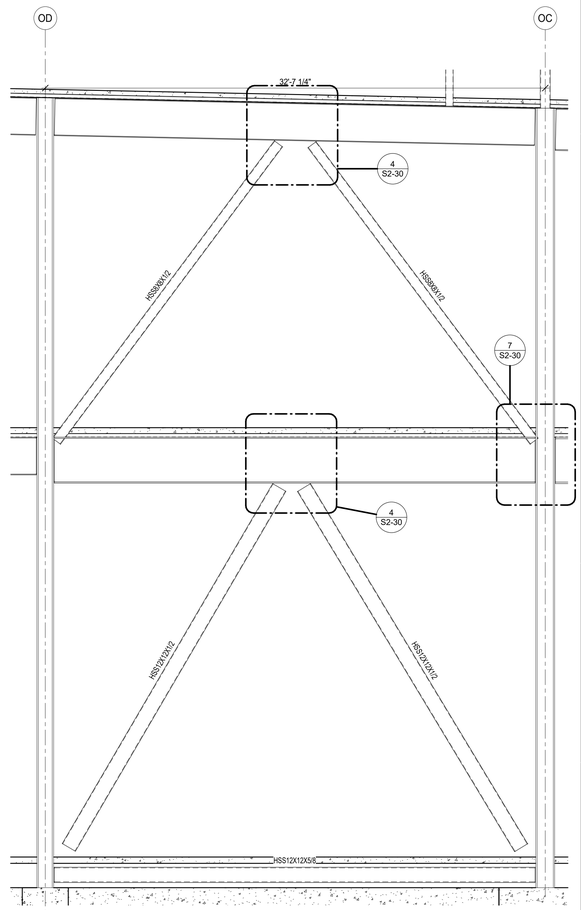
4 BRACED FRAME ELEVATION ALONG GRID OF
1/4" = 1'-0"



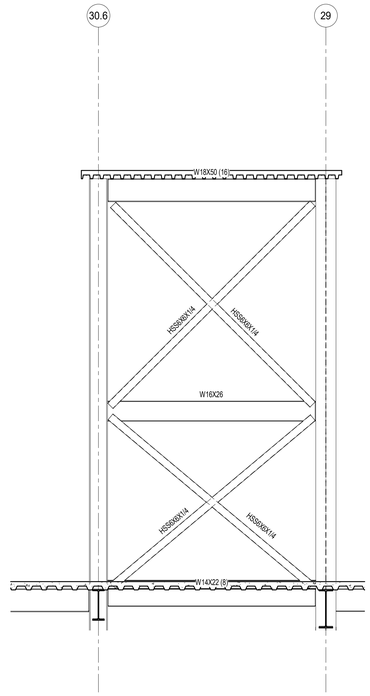
3 BRACED FRAME ELEVATION ALONG GRID OF
1/4" = 1'-0"



2 BRACED FRAME ELEVATION ALONG GRID OH
1/4" = 1'-0"



1 BRACE FRAME ELEVATION ALONG GRID O7
1/4" = 1'-0"



5 BRACE FRAME ELEVATION ALONG GRID D
1/4" = 1'-0"

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65236
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Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

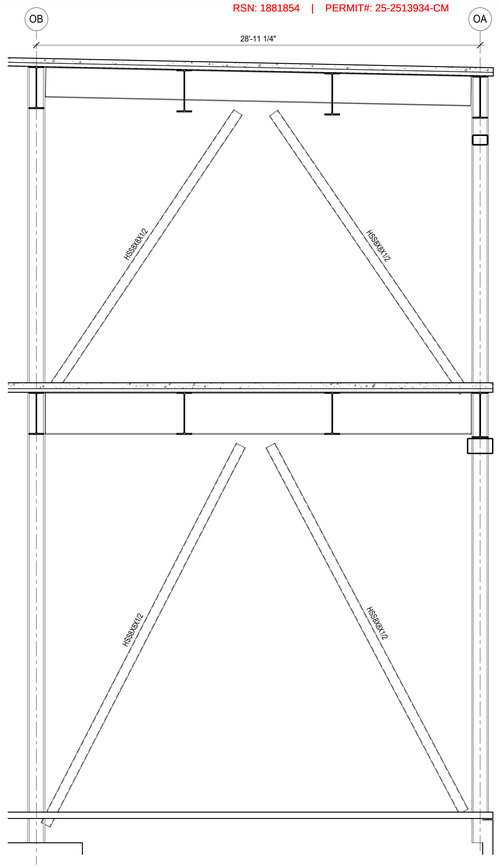
FRAME ELEVATIONS

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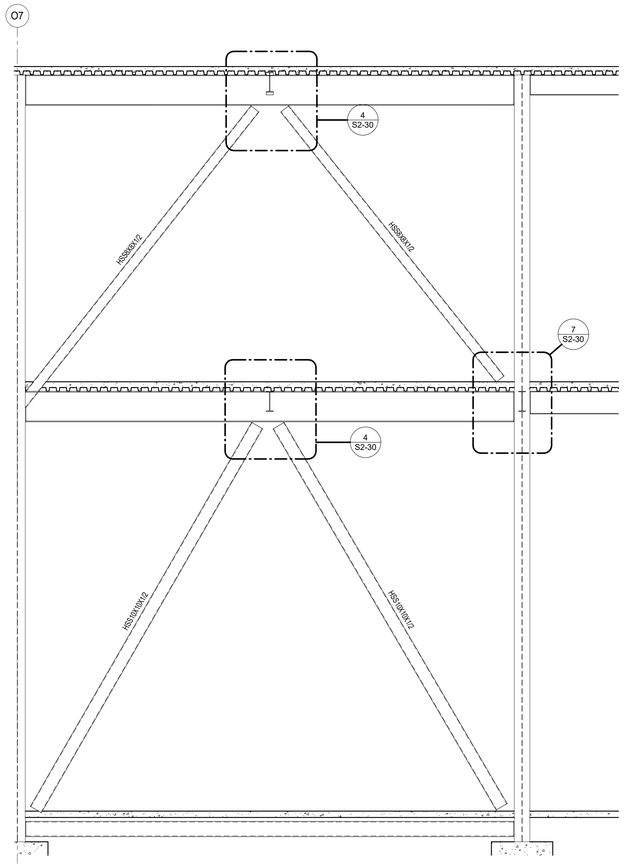
S2-10

2/4/2025 4:12:42 PM S2-10 FRAME ELEVATIONS

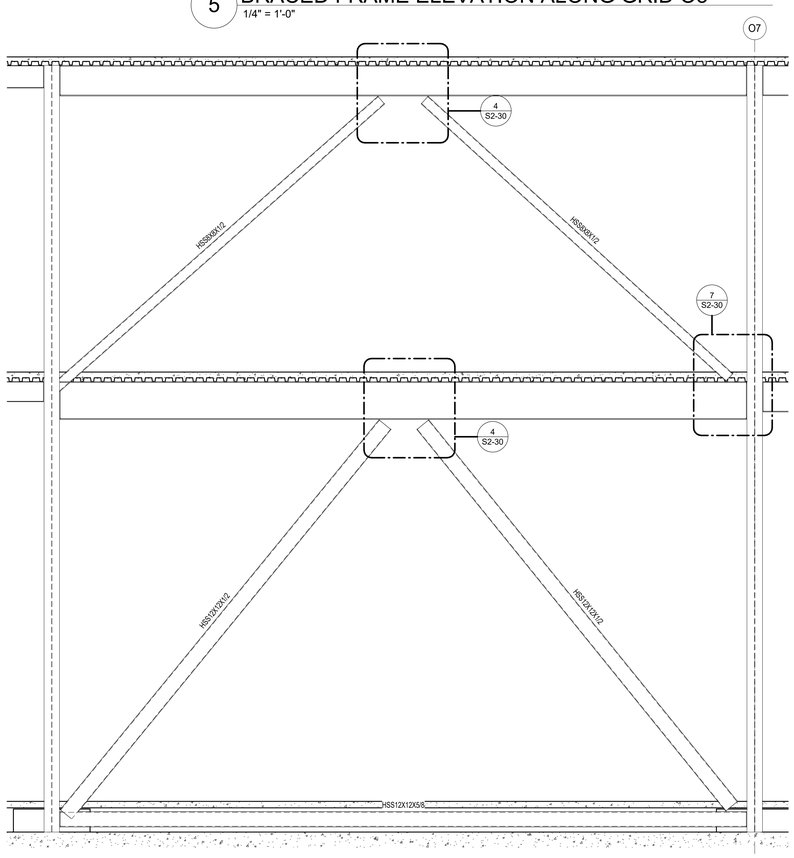
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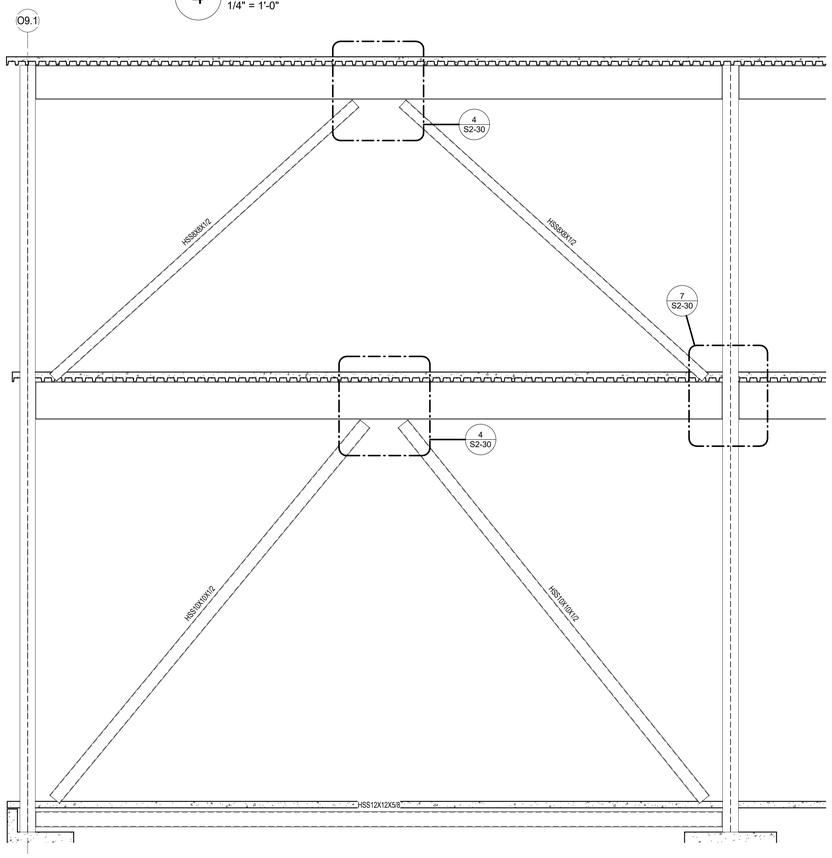
5 BRACED FRAME ELEVATION ALONG GRID O3
1/4" = 1'-0"



4 BRACED FRAME ELEVATION ALONG GRID OA
1/4" = 1'-0"



2 Elevation 2 - a
1/4" = 1'-0"



1 BRACED FRAME ELEVATION ALONG GRID OA
1/4" = 1'-0"

2/4/2025 4:12:47 PM S2-11 FRAME ELEVATIONS

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TLD DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
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AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

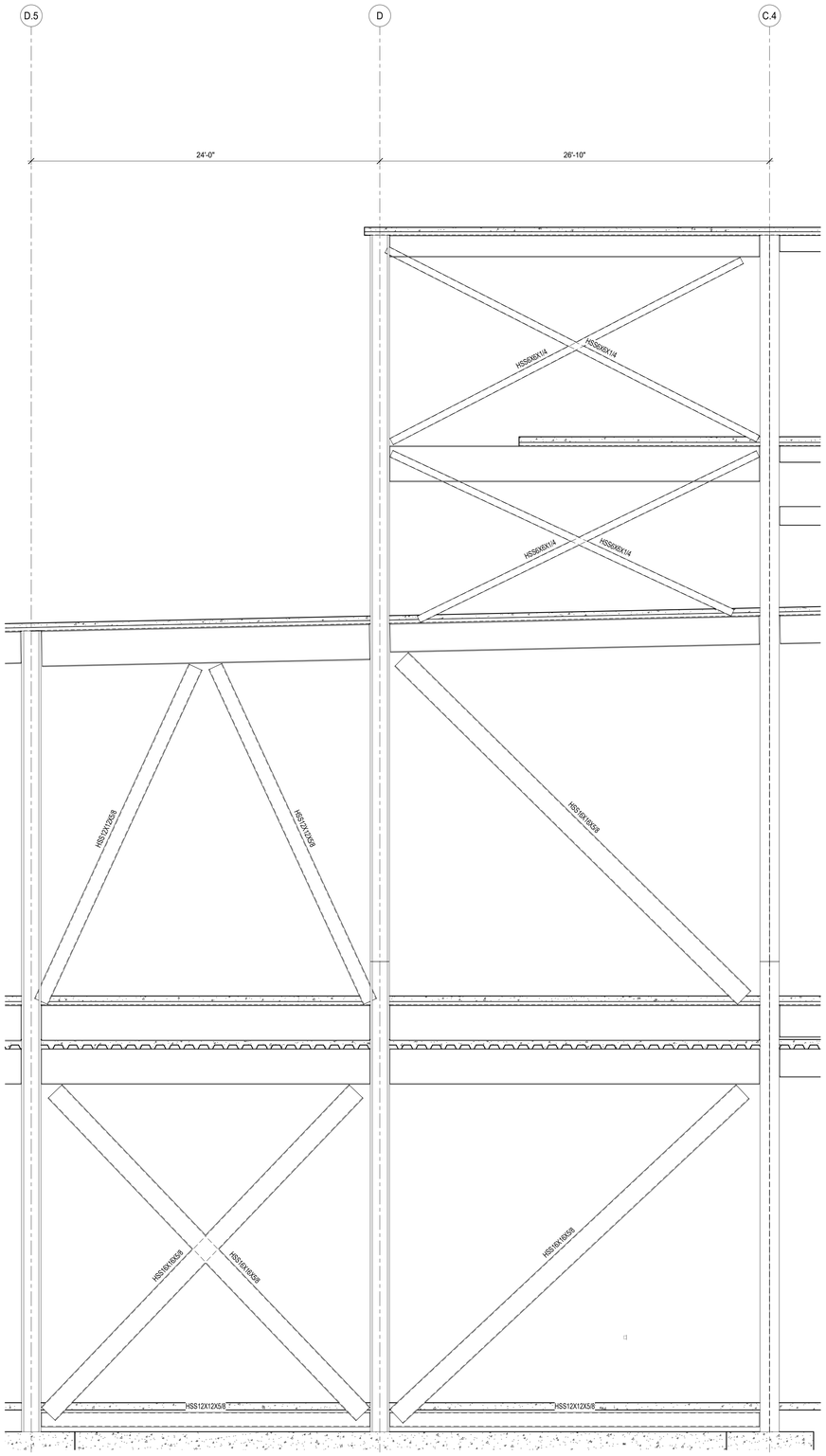
FRAME ELEVATIONS

JOB 24464.0000
DATE 01.31.2025
SHEET

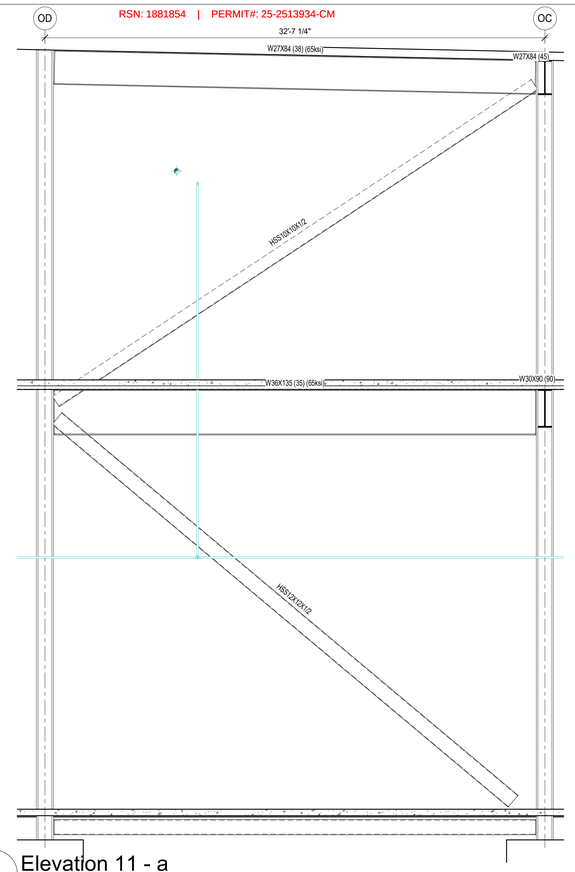
S2-11

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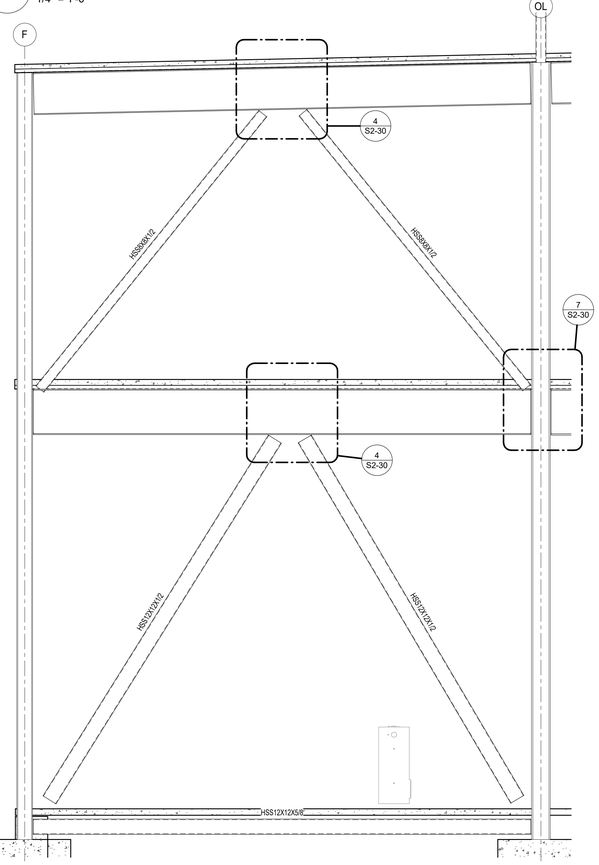
RSN: 1881854 | PERMIT#: 25-2513934-CM



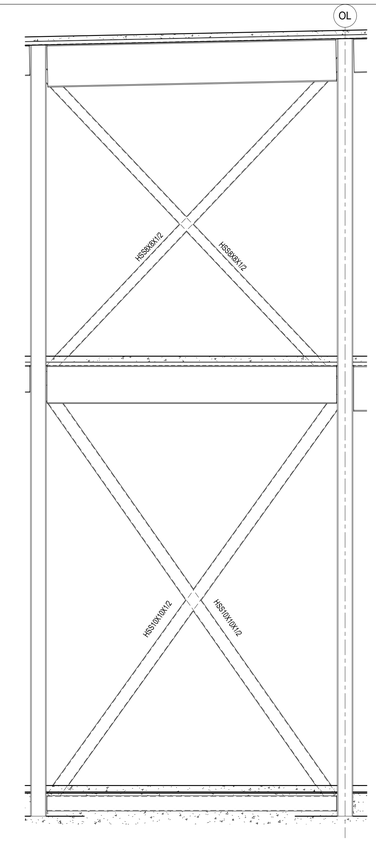
4 BRACED FRAME ELEVATION ALONG GRID 29
1/4" = 1'-0"



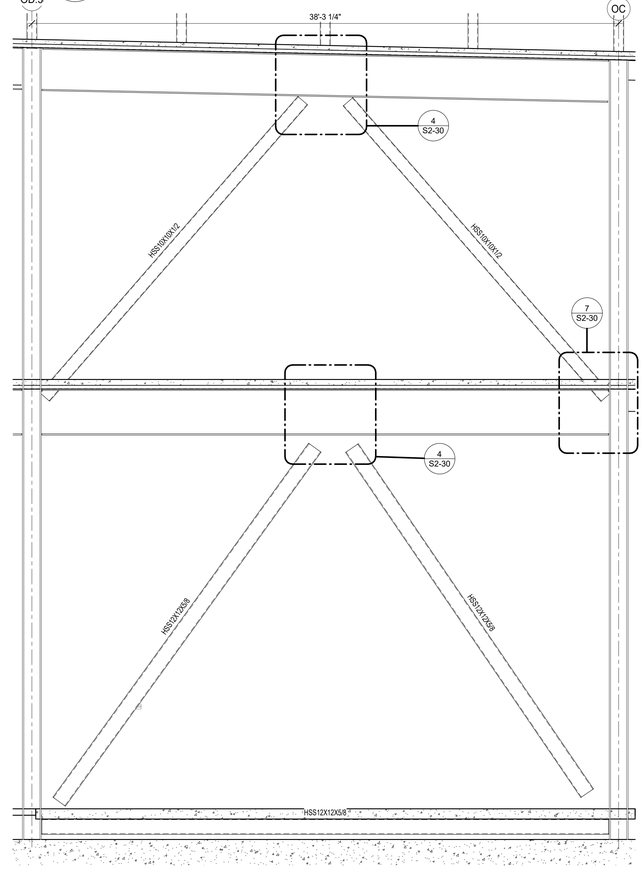
5 Elevation 11 - a
1/4" = 1'-0"



2 BRACED FRAME ELEVATION ALONG GRID O4
1/4" = 1'-0"



3 BRACED FRAME ELEVATION ALONG GRID O9.1
1/4" = 1'-0"



1 Elevation 5 - a
1/4" = 1'-0"

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Date of issue:
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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

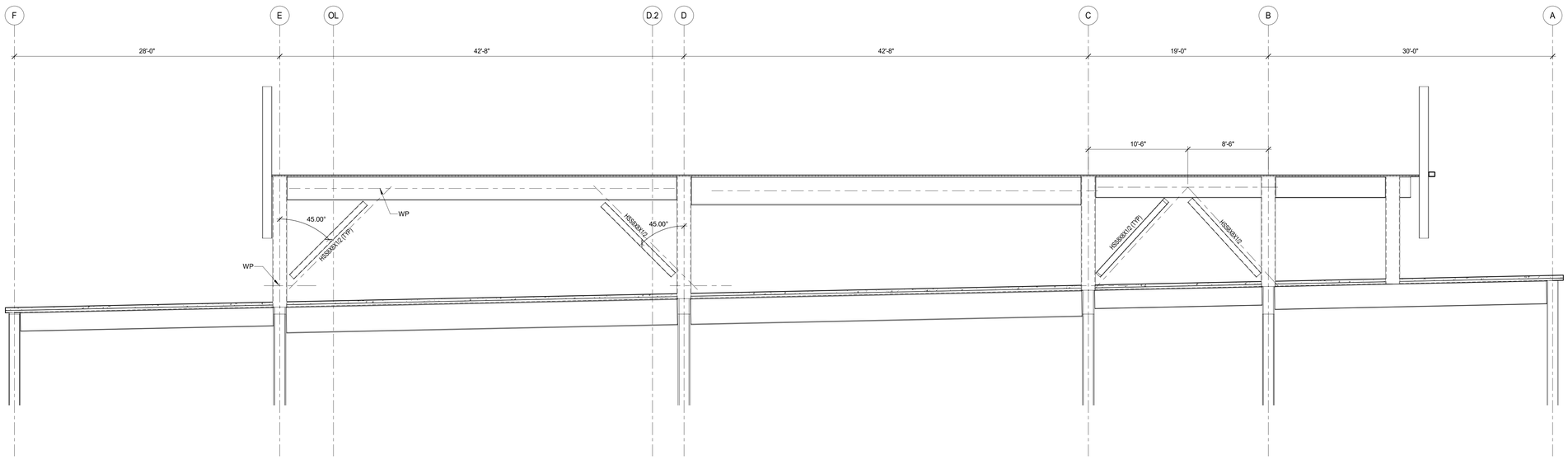
FRAME ELEVATIONS

JOB 24464.0000
DATE 01.31.2025
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S2-12

2/4/2025 4:12:48 PM S2-12 FRAME ELEVATIONS

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



1 BRACED FRAME ELEVATION ALONG GRID 1
3/16" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLC DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
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7		
8		
9		
10		

	REVISIONS	

COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

S	Q	N	L	J	G	E	C	A
T	R	P	M	K	H	F	D	B

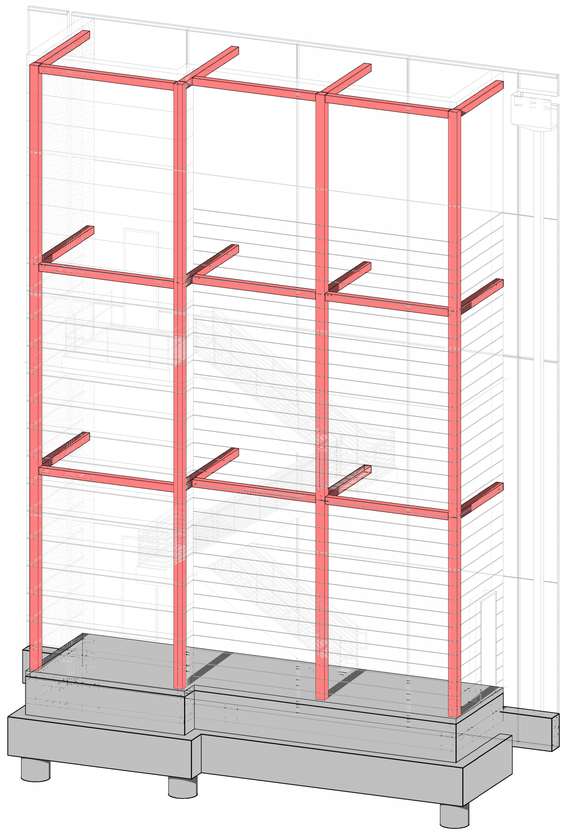
FRAME ELEVATIONS

JOB 24464.0000
DATE 01.31.2025
SHEET

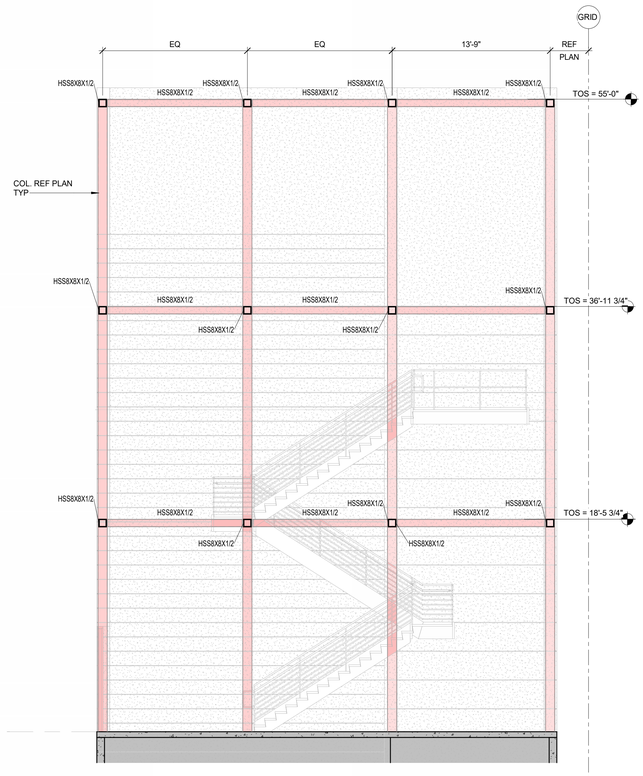
S2-13

2/4/2025 4:12:49 PM S2-13 FRAME ELEVATIONS

City of Aurora Building Division
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2021 INTERNATIONAL CODES & 2023 NEC



3 3D EXTERIOR STAIR



1 EXTERIOR STAIR ELEVATION
3/16" = 1'-0"

2/4/2025 4:12:52 PM S2-20 EXT STAIR FRAMING ELEVATIONS

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLD DESIGN CONSULTING LLC

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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

EXT STAIR FRAMING ELEVATIONS

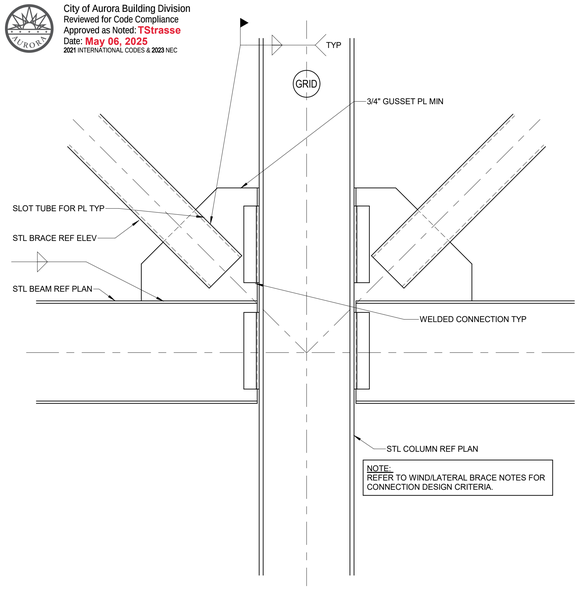
JOB 24464.0000
DATE 01.31.2025
SHEET

S2-20

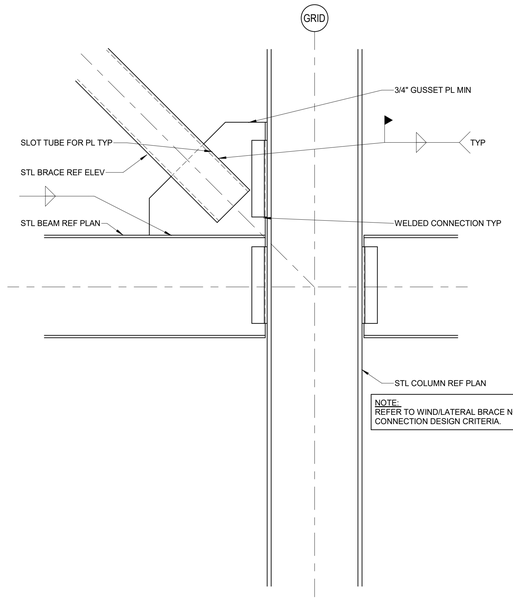
City of Aurora Building Division
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WIND/LATERAL BRACE NOTES

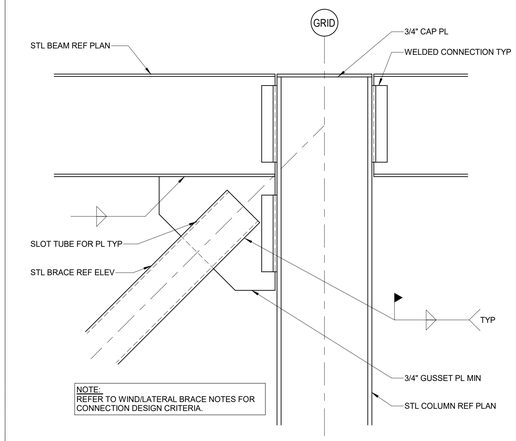
1. DESIGN CONNECTIONS FOR FORCES SHOWN ON BRACE ELEVATIONS. WHERE FORCES ARE NOT GIVEN, DESIGN FOR THE TENSILE CAPACITY OF THE DIAGONAL MEMBERS.
2. ALL WELDS AND GUSSET PLATES SHALL BE DESIGNED BY THE FABRICATOR FOR SHEAR, TENSION, AND ECCENTRICITIES OF FORCES. DESIGN CONNECTIONS USING THE UNIFORM FORCE METHOD PER AISC MANUAL, ASSUMING THE WORKING POINT (W.P.) IS LOCATED AT THE INTERSECTION OF COLUMN AND BEAM CENTERLINES. CHECK TENSION, FLEXURAL, AND RUPTURE CAPACITY OF GUSSET PLATES, AS A MINIMUM, WELDS OF GUSSET PLATES TO BASE PLATES TO BE DESIGNED FOR HORIZONTAL COMPONENT OF DIAGONAL BRACE FORCE. EXTEND BASE PLATE IF REQD TO MATCH WELD LENGTH.
3. ALL CALCULATIONS SHALL BE SUBMITTED WITH THE SHOP DRAWINGS, AND SHALL BE SEALED BY A REGISTERED ENGINEER VERIFYING THE CAPACITY OF EACH CONNECTION.
4. REF SPECIFIC BRACE ELEVATIONS FOR TYPE OF DIAGONAL MEMBERS.
5. ROD DIAGONALS TO HAVE SLEEVE NUTS TO ALLOW FOR TIGHTENING OF RODS.

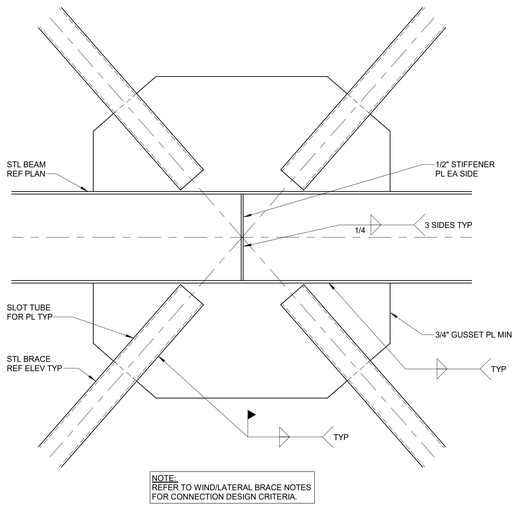


7 TYPICAL BRACE AT BEAM
3/4" = 1'-0"

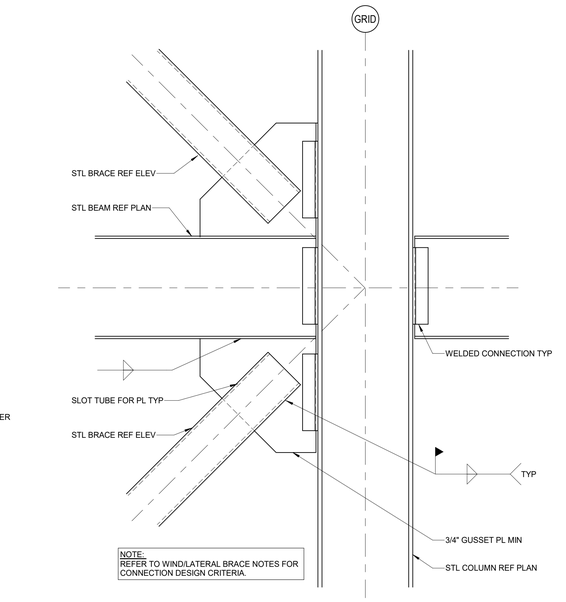


3 TYPICAL BRACE DETAIL
3/4" = 1'-0"

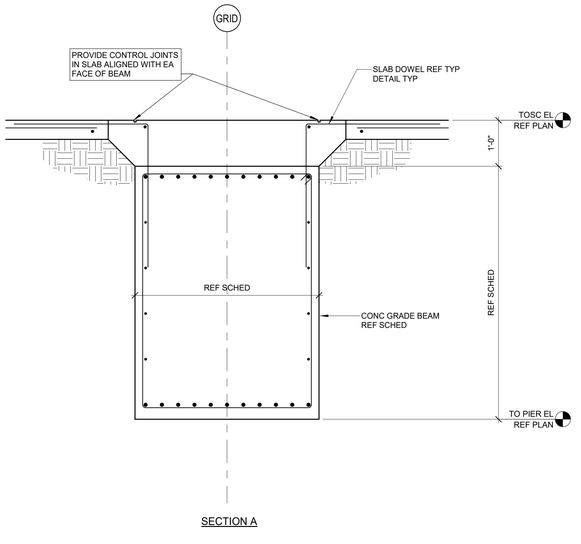




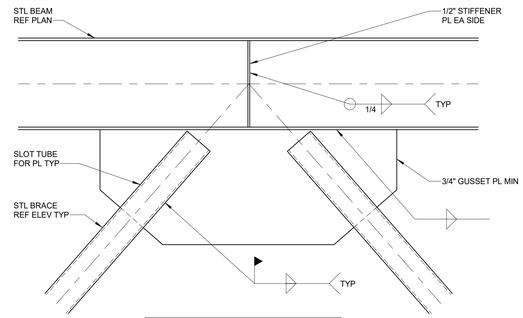
2 TYPICAL BRACE DETAIL
3/4" = 1'-0"



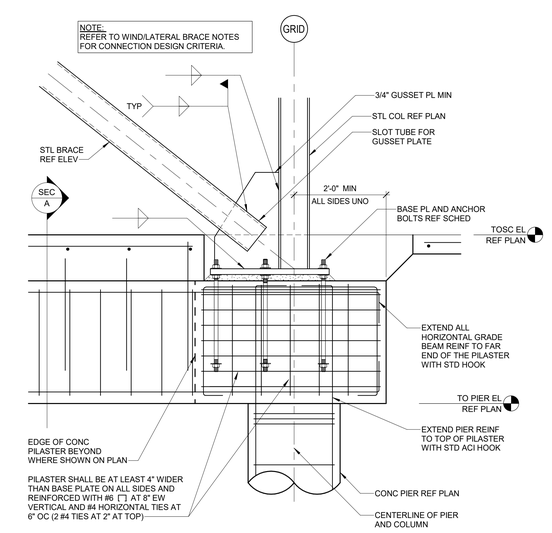
5 TYPICAL BRACE AT BEAM
3/4" = 1'-0"



1 TYPICAL BRACED FRAME AT STRAP BEAM
3/4" = 1'-0"



4 TYPICAL BRACE DETAIL
3/4" = 1'-0"



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T: 214.748.2000

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COLORADO LICENSED NICHOLAS W. [illegible] 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity F-8435

Date of issue: 01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

TYPICAL BRACING DETAILS

JOB 24464.0000
DATE 01.31.2025
SHEET S2-30

S2-30 TYPICAL BRACING DETAILS 2/4/2025 4:12:53 PM

RSN: 1881854 | PERMIT#: 25-2513934-CM

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 08, 2025
2021 INTERNATIONAL CODES & 2023 NEC

STEEL REINF CLASS B TENSION LAP SPLICE SCHEDULE L_{st}

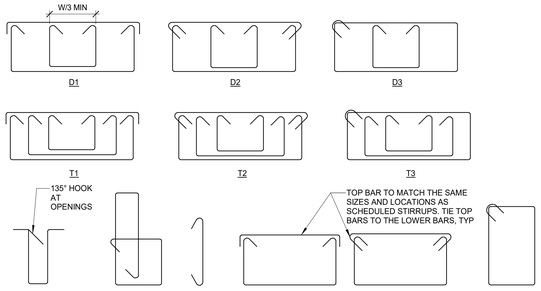
	3000 PSI CONC		4000 PSI CONC		5000 PSI CONC		6000 PSI CONC		7000 PSI CONC		8000 PSI CONC	
	TYP	OTHER	TYP	OTHER	TYP	OTHER	TYP	OTHER	TYP	OTHER	TYP	OTHER
#6 AND SMALLER BARS	74db	57db	64db	50db	58db	44db	53db	41db	49db	38db	46db	35db
#7 TO #11 BARS	93db	71db	81db	62db	72db	55db	66db	51db	61db	47db	57db	44db

NOTES:

1. THE CLASS B TENSION LAP SPLICE SCHEDULE SHOWN IS FOR NORMAL WEIGHT CONCRETE AND GRADE 60 NON EPOXY COATED REINFORCING.
2. TYPICAL IS FOR BEAM TOP AND INTERMEDIATE BARS, WALL TOP AND HORIZONTAL BARS AND SLAB/FOOTING TOP BARS FOR SLAB/FOOTING THICKNESS GREATER THAN 13".
3. FOR EPOXY COATED TYPICAL BARS, INCREASE SPLICE LENGTHS BY 31%. FOR EPOXY COATED OTHER BARS, INCREASE SPLICE LENGTHS BY 50%.
4. FOR LIGHTWEIGHT CONCRETE, INCREASE SPLICE LENGTHS BY 33%.
5. FOR GRADE 75 REBARS, INCREASE SPLICE LENGTHS BY 25%.
6. FOR #7 TO #11 SLAB OR WALL REINFORCING WITH CLEAR COVER LESS THAN 1 BAR DIAMETER, INCREASE SPLICE LENGTHS BY 50%.
7. SPLICE LENGTH FOR BARS OF DIFFERENT SIZE SHALL BE THE GREATER OF SPLICE LENGTH/1.3 OF THE LARGER BAR AND SPLICE LENGTH OF THE SMALLER BAR.
8. FOR CONCRETE STRENGTH IN BETWEEN THOSE SHOWN IN THE SCHEDULE, USE SPLICE LENGTHS OF LOWER CONCRETE STRENGTH.
9. THE SCHEDULED LAP SPLICE LENGTH WITH THE APPLICABLE MODIFACTION FACTORS SHALL NOT BE LESS THAN 12".

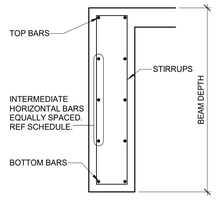
11 TYPICAL STEEL REINF CLASS B TENSION LAP SCHEDULE

3/4" = 1'-0"



10 STIRRUP TYPES AT GRADE BEAMS

3/4" = 1'-0"



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

NOTES:

1. ALTERNATE LAP SPLICE INTERMEDIATE BARS BETWEEN SUPPORT AND MIDSPAN. PROVIDE STANDARD ACI HOOK AT DISCONTINUOUS ENDS.
2. BEAMS WITH DEPTH OF 36" OR LESS, DO NOT NEED INTERMEDIATE BARS UNLESS REQUIRED BY BEAM SCHEDULE.
3. WHERE "EXTRA INTERMEDIATE BARS" ARE SCHEDULED, PROVIDE SCHEDULED BARS IN LIEU OF THOSE REQUIRED BY THIS DETAIL.

9 TYPICAL INTERMEDIATE BAR SCHEDULE

3/4" = 1'-0"

CONCRETE GRADE BEAM SCHEDULE

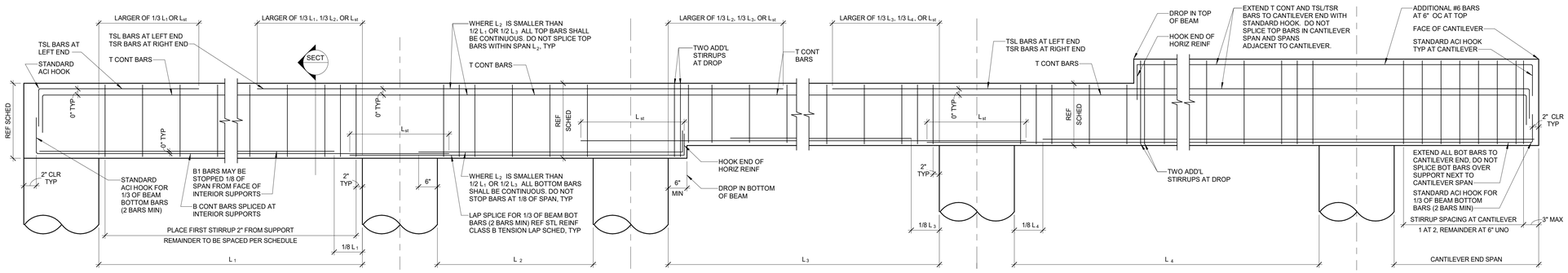
MARK	WIDTH	DEPTH	REINFORCEMENT			STIRRUPS		STIRRUP SPACING FROM EACH END
			TOP	BOTTOM	INTERMEDIATE EA FACE	SIZE	TYPE	
GB1	36"	36"	(6) #8	(6) #8	REF 9-S3-00	#4	S3	1@2", R@12", (R@9" AT CANT)
GB2	36"	42"	(6) #8	(6) #8	REF 9-S3-00	#4	S3	1@2", R@12", (R@9" AT CANT)
GB3	36"	60"	(7) #9	(7) #9	REF 9-S3-00	#4	S3	1@2", R@12", (R@9" AT CANT)
GB4	72"	66"	(15) #14	(15) #14	(10) #6	#5	T3	1@2", R@6", (R@6" AT CANT)
GB5	78"	48"	(16) #8	(16) #8	REF 9-S3-00	#4	S3	1@2", R@12", (R@9" AT CANT)
GB6	24"	24"	(6) #5	(6) #5	REF 9-S3-00	#4	S3	1@2", R@12", (R@9" AT CANT)
GB7	36"	66"	(8) #9	(8) #9	REF 9-S3-00	#4	S3	1@2", R@12", (R@9" AT CANT)

NOTES:

1. REF 7-S3-00 FOR ADDITIONAL INFORMATION.
2. FOR STIRRUP TYPE REF 10-S3-00.
3. REF TYPICAL STL REINF CLASS B TENSION LAP SPLICE SCHEDULE FOR ALL LAP REQUIREMENTS.

8 CONCRETE GRADE BEAM SCHEDULE

3/4" = 1'-0"



NOTES:

1. L_{st} = LAP SPLICE LENGTH - REF TYP STL REINF CLASS B TENSION LAP SCHED
2. SCHEDULED LEFT AND RIGHT END OF MEMBERS READ ON PLAN AS LEFT AND RIGHT OF THE SHEET OR BOTTOM AND TOP OF THE SHEET RESPECTIVELY AS SHOWN BELOW. SCHEDULED LEFT AND RIGHT END OF MEMBERS SHOWN DIAGONALLY ON PLAN READ AS LEFT AND RIGHT ON SHEET AS SHOWN BELOW:

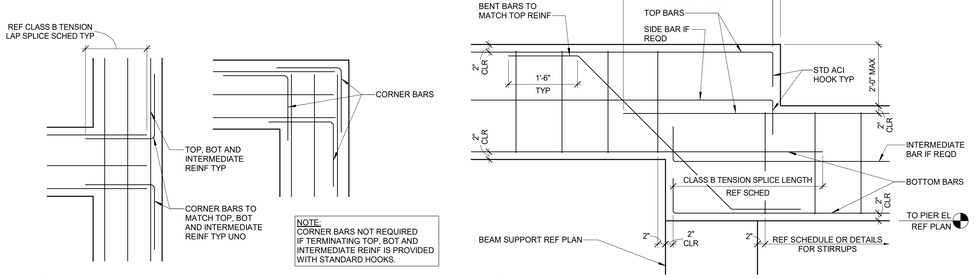


3. T CONT BARS MAY BE SPLICED AT MID-SPAN OF BEAM ONLY. EXCEPT AT CANTILEVER SPANS, SPANS ADJACENT TO CANTILEVER SPANS AND SPANS WITH LENGTH NOT GREATER THAN ONE HALF OF THE ADJACENT SPAN LENGTH.
4. ALL HOOKS SHOWN ARE STANDARD HOOKS (90° OR 180°).
5. SPLICES IN SCHEDULED BARS LESS THAN 60'-0" LENGTH ARE ONLY PERMITTED AT THE SPECIFIED LOCATIONS SHOWN. SPLICES IN SCHEDULED BARS MORE THAN 60'-0" LENGTH SHALL BE REFERRED TO ENGINEER FOR APPROVAL.

SECTION

7 TYPICAL CONCRETE GRADE BEAM BAR PLACING DIAGRAM

3/4" = 1'-0"

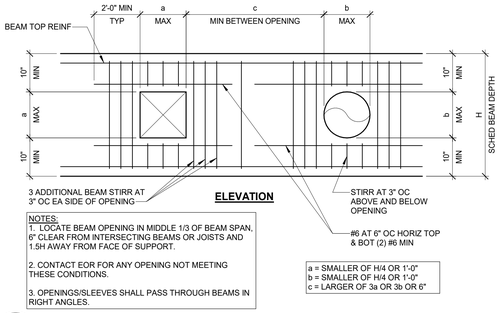


6 TYPICAL CORNER BAR REINFORCING

3/4" = 1'-0"

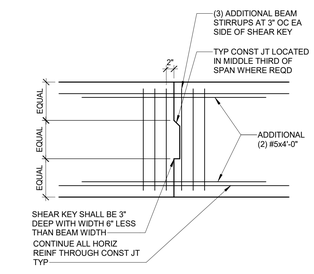
5 TYPICAL BEAM STEP

3/4" = 1'-0"



4 TYPICAL HORIZONTAL OPENING IN BEAM

3/4" = 1'-0"



3 TYPICAL BEAM CONST JT

3/4" = 1'-0"

PIER SCHEDULE

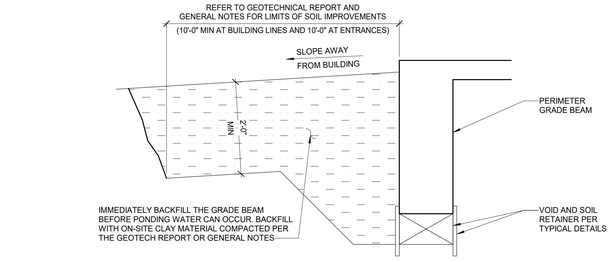
MARK	PIER DIAMETER	PENTR	VERT REINF	HOOP TIES
P24	24"	30'-0"	(10) #8	#3 AT 12" OC
P30	30"	30'-0"	(12) #8	#4 AT 12" OC
P36	36"	35'-0"	(14) #8	#3 AT 12" OC
P42	42"	35'-0"	(14) #9	#4 AT 12" OC
P48	48"	40'-0"	(20) #9	#4 AT 12" OC
P54	54"	40'-0"	(20) #10	#4 AT 12" OC
P60	60"	45'-0"	(24) #10	#4 AT 12" OC
P66	66"	50'-0"	(22) #11	#4 AT 12" OC
P72	72"	55'-0"	(26) #11	#4 AT 12" OC
P72A	72"	65'-0"	(36) #14	#4 AT 12" OC

NOTE(S):

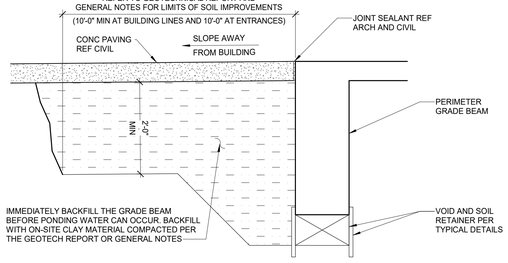
1. DEPTH OF BEARING STRATUM IS INDICATED FOR INFORMATION ONLY. ACTUAL DEPTH MAY VARY. REFER TO THE GEOTECHNICAL REPORT AND THE GRADING PLAN FOR DEPTH OF BEARING STRATUM BELOW FINISH FLOOR, AND ADJUST DEPTHS AS REQD. CONTRACTOR TO PROVIDE AN ALLOWANCE OF 65 LINEAR FOOT PIERS FOR ADD AND DEDUCT. ALL PIERS SHALL EXTEND A MINIMUM OF 35FT BELOW TOP OF PIER ELEVATION, REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION
2. SPLICE VERTICAL REINFORCING IN PIERS WITH CLASS B TENSION LAP SPLICE. NO MORE THAN 50% OF THE BARS SHALL BE LAP SPLICED AT ONE LOCATION.
3. FOR PIERS LOCATED WITHIN TWO SHAFT DIAMETERS CLEAR SPACING, THE SECOND PIER SHALL BE DRILLED A MIN OF 48 HOURS AFTER THE FIRST.
4. REFER TO THE GEOTECHNICAL REPORT FOR PIER CASING REQUIREMENTS. IF CASING IS REQUIRED, CASING SHALL BE SIZED TO MAINTAIN THE PIER DIAMETER INDICATED IN SCHEDULE.
5. USE TYPE "A" TIES, TYP, UNO. USE TYPE "B" TIES FOR PIERS ABOVE GRADE (INCLUDING PIERS ABOVE GRADE IN CRAWL SPACE), IN SEISMIC DESIGN CATEGORY D, E, & F AND WHERE SPECIFIED IN SCHEDULE.
6. PROVIDE 3" HIGH x 3" DEEP SHEAR RINGS AT 16" OC AT BOTTOM 15' OF ALL PIERS.

1 TYPICAL PIER REINFORCING DIAGRAM AND SCHEDULE

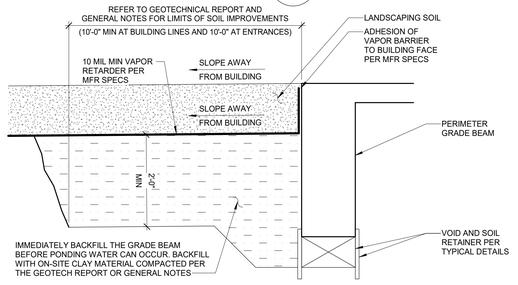
3/4" = 1'-0"



WITHOUT ADJACENT CONCRETE PAVING OR LANDSCAPING / IRRIGATION



WITH ADJACENT PERMANENT CONCRETE PAVING



WITH ADJACENT LANDSCAPING

2 TYPICAL BACKFILL DETAILS AT BUILDING PERIMETER

3/4" = 1'-0"

NOTES:

1. IF SELECT FILL OR ENGINEERED FILL IS UTILIZED BELOW SLAB, THE DEPTH OF GRADE BEAM OR PANEL MUST BE AT LEAST 6" BELOW THE BOT OF SUCH FILL.
2. THE DETAILS OF THE SOIL IMPROVEMENT PROCESS SUCH AS MOISTURE CONDITIONING OR WATER INJECTION ARE PRESENTED IN THE GEOTECHNICAL REPORT. USE OF IMPORTED SOIL IN THIS ZONE IS PROHIBITED.
3. ALL TREES SHALL BE PLANTED WITH PERMANENT ROOT BARRIERS.

5/8/2025 10:27:40 AM S3-00 PIER, GRADE BEAM SCHEDULE AND TYPICAL FOUNDATION DETAILS

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000
AG/E
SYSKA HENNESSY GROUP
DESIGN CONSULTING LLC

ISSUES

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REVISIONS

B	05.05.25	COA - PERMIT COMMENTS R2

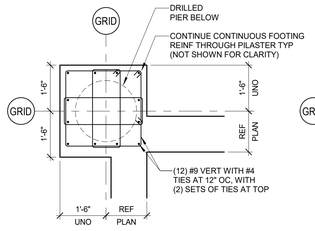
COLORADO LICENSED NICHOLAS W. REVID 65236 PROFESSIONAL ENGINEER
AG&E Structural Engenuity F-8435

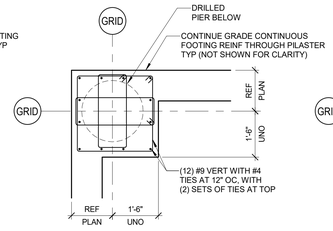
Date of issue: 05.05.2025

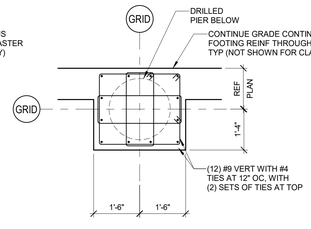
QTS DEN1 DC2
1140 N. GUN CLUB ROAD
QTS
12851 Foster St
Overland Park, KS 66213
(866) 239-0000

PIER, GRADE BEAM SCHEDULE AND TYPICAL FOUNDATION DETAILS

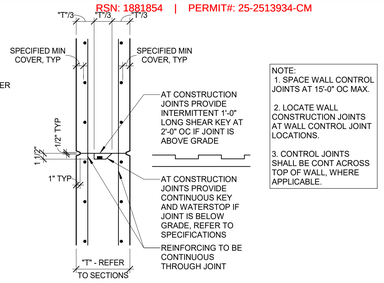
JOB 24464.0000
DATE 05.05.2025
SHEET S3-00



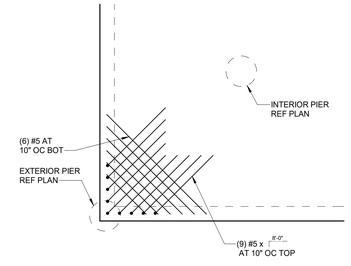




20 TYPICAL PILASTER DETAILS
1/2" = 1'-0"

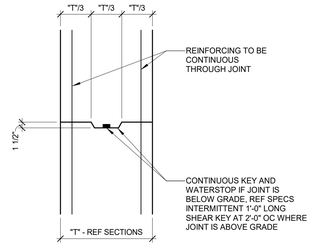


18 TYPICAL VERTICAL CONTROL/ CONSTRUCTION JOINT IN WALL
3/4" = 1'-0"

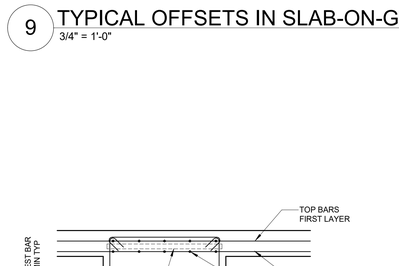


PLAN

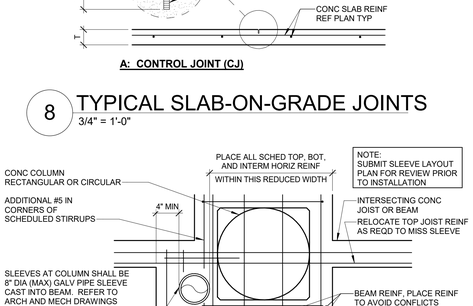
17 CORNER REINFORCING
NTS



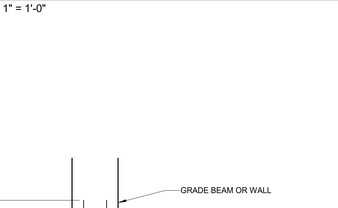
16 TYPICAL HORIZONTAL CONSTRUCTION JOINT IN WALL OR BEAM
3/4" = 1'-0"



15 TYPICAL MTL STAIR AT SLAB-ON-GRADE
3/4" = 1'-0"



14 TYP COLUMN BLOCKOUT (SLAB-ON-GRADE ONLY)
3/4" = 1'-0"



13 TYPICAL HOUSEKEEPING PAD OR TOPPING SLAB
3/4" = 1'-0"



12 TYPICAL SLAB SHEAR KEY TO BEAM OR WALL
3/4" = 1'-0"

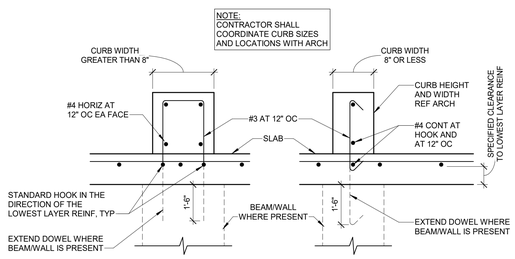
3" OR LESS OFFSET

3" TO 18" OFFSET

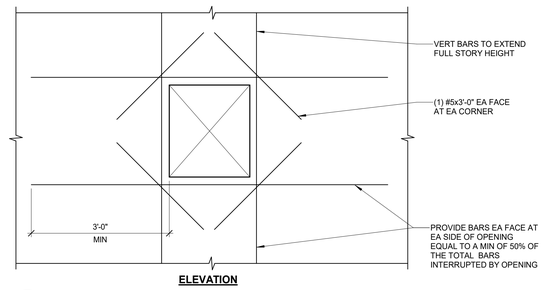
18" TO 36" OFFSET

9 TYPICAL OFFSETS IN SLAB-ON-GRADE
3/4" = 1'-0"

8 TYPICAL SLAB-ON-GRADE JOINTS
3/4" = 1'-0"

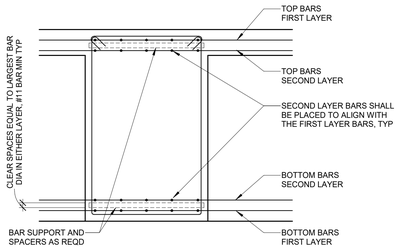


7 TYPICAL CONCRETE CURB
1" = 1'-0"



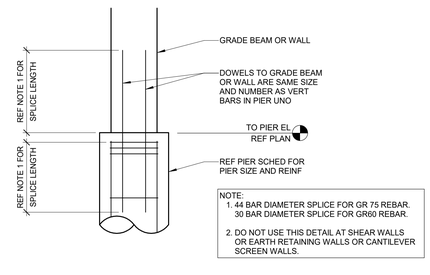
ELEVATION

6 TYPICAL OPENING IN CONCRETE WALL
3/4" = 1'-0"

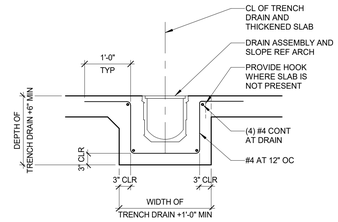


5 TYPICAL DETAIL OF MULTIPLE LAYERS OF BEAM REINFORCING
3/4" = 1'-0"

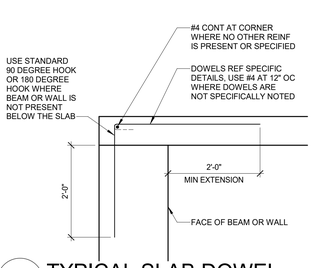
4 TYPICAL VERTICAL SLEEVES IN CONCRETE BEAMS
3/4" = 1'-0"



3 TYPICAL DOWELS TO PIER AT CONCRETE WALL OR GRADE BEAM
3/4" = 1'-0"



2 TYPICAL TRENCH DRAIN AT SLAB-ON-GRADE
3/4" = 1'-0"



1 TYPICAL SLAB DOWEL
3/4" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000
AG/E
SYSKA HENNESSY GROUP
DESIGN CONSULTING LLC

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

ISSUES		
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
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REVISIONS		

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity F-8435

Date of issue: 01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

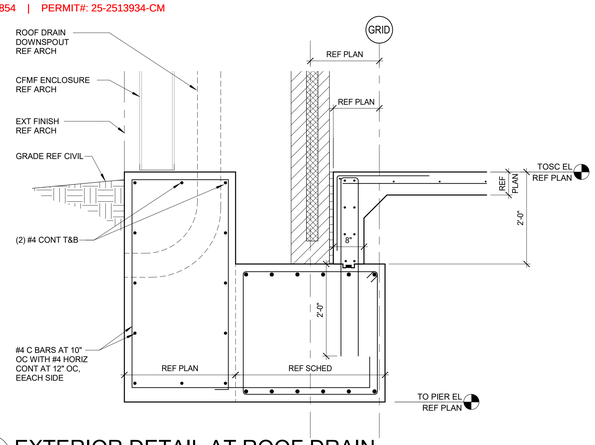
TYPICAL FOUNDATION DETAILS

JOB 24464.0000
DATE 01.31.2025
SHEET

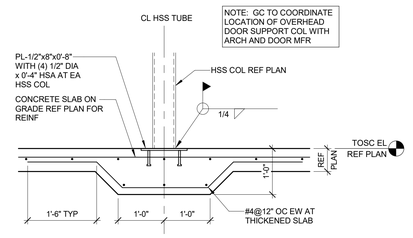
S3-01

2/4/2025 4:12:55 PM S3-01 TYPICAL FOUNDATION DETAILS

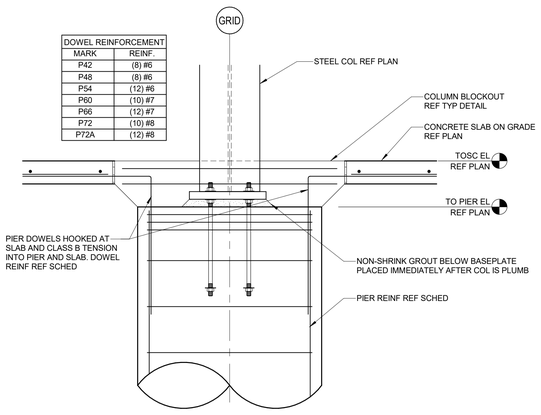
City of Aurora Building Division
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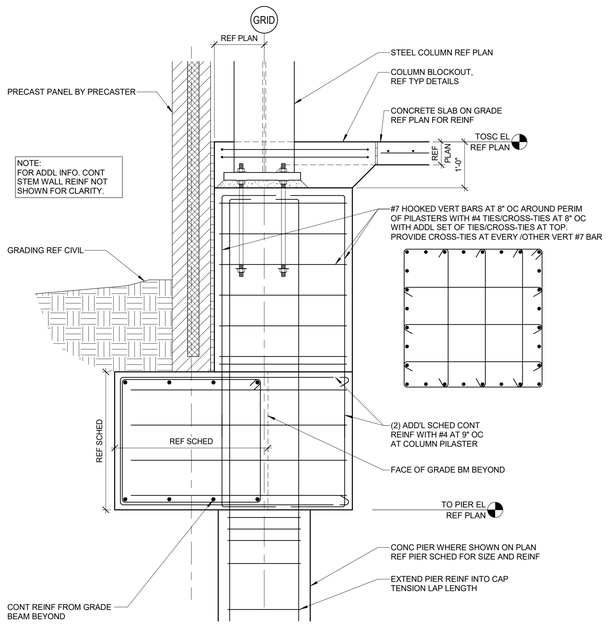
10 EXTERIOR DETAIL AT ROOF DRAIN
3/4" = 1'-0"



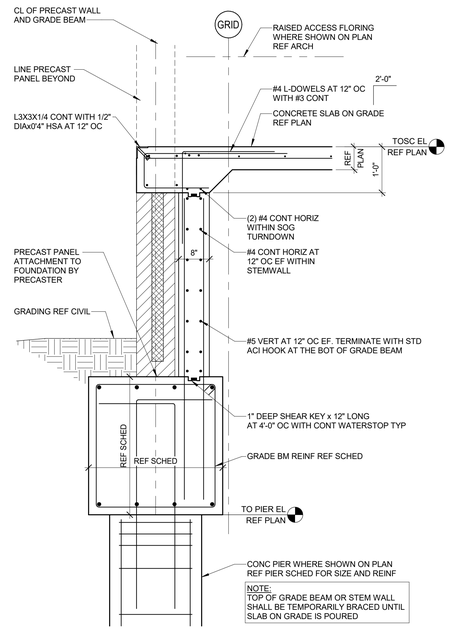
9 OVERHEAD DOOR SUPPORT AT FLOOR
3/4" = 1'-0"



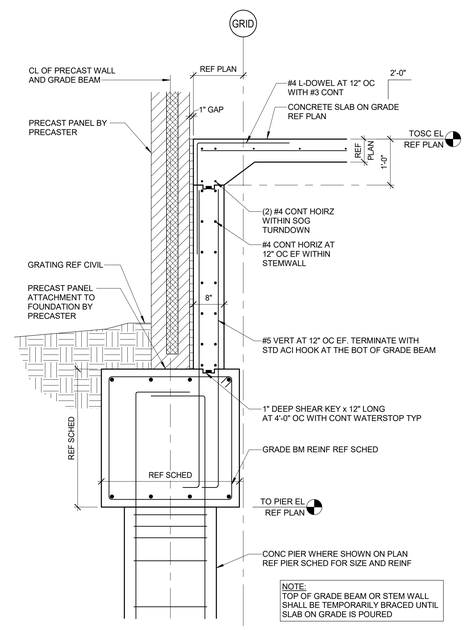
8 TYPICAL INTERIOR DETAIL AT COLUMN
3/4" = 1'-0"



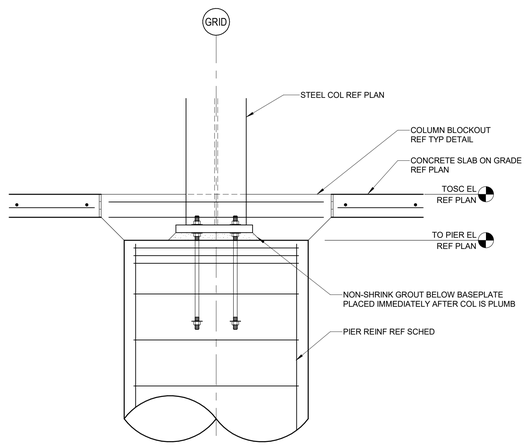
7 TYPICAL RECESSED EXTERIOR DETAIL COLUMN
3/4" = 1'-0"



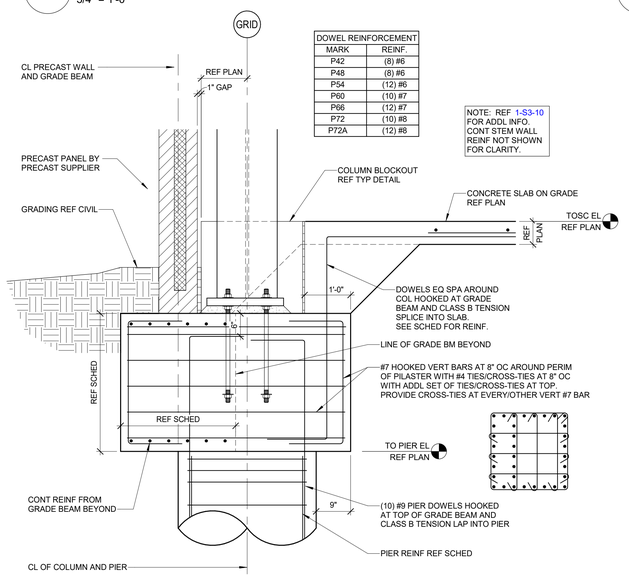
6 TYPICAL RECESSED EXTERIOR DETAIL AT PIER
3/4" = 1'-0"



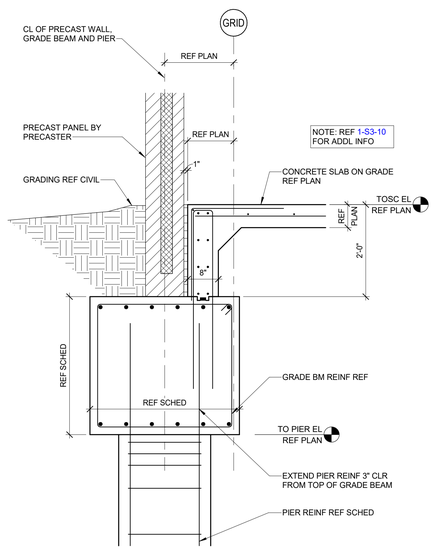
5 TYPICAL RECESSED EXTERIOR DETAIL
3/4" = 1'-0"



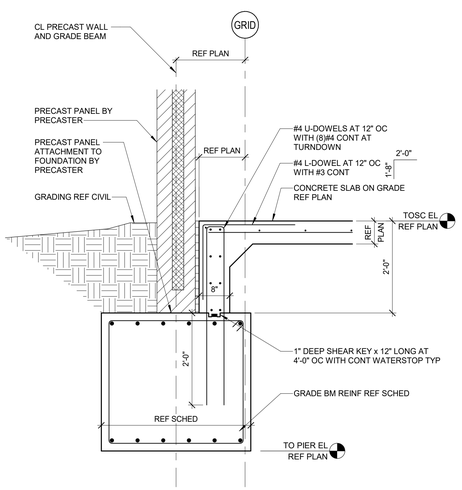
4 TYPICAL INTERIOR DETAIL AT COLUMN
3/4" = 1'-0"



3 TYPICAL EXTERIOR DETAIL AT COLUMN
3/4" = 1'-0"



2 TYPICAL EXTERIOR DETAIL AT PIER
3/4" = 1'-0"



1 TYPICAL EXTERIOR DETAIL
3/4" = 1'-0"

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401 N. Houston Street Dallas, TX 75202
T: 214.748.2000

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	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
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	REVISIONS	

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

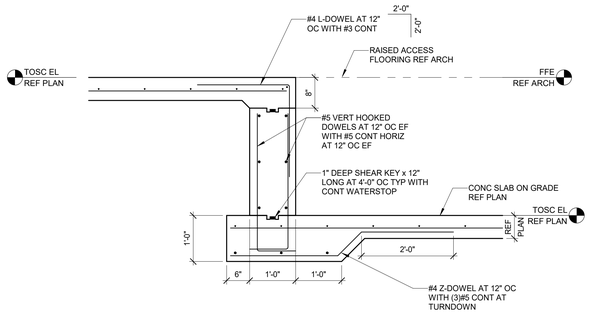
FOUNDATION DETAILS

JOB 24464.0000
DATE 01.31.2025
SHEET

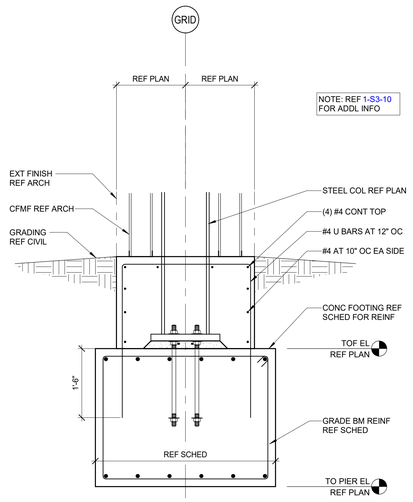
S3-10

2/4/2025 4:12:57 PM S3-10 FOUNDATION DETAILS

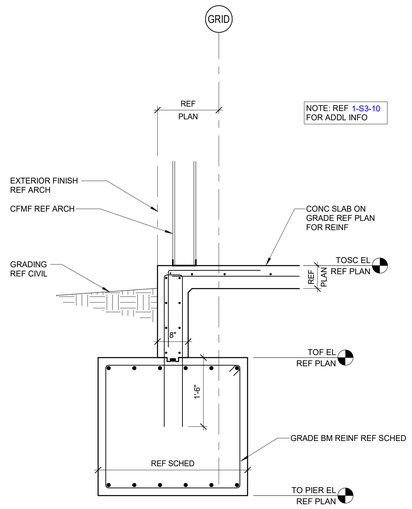
City of Aurora Building Division
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2021 INTERNATIONAL CODES & 2023 NEC



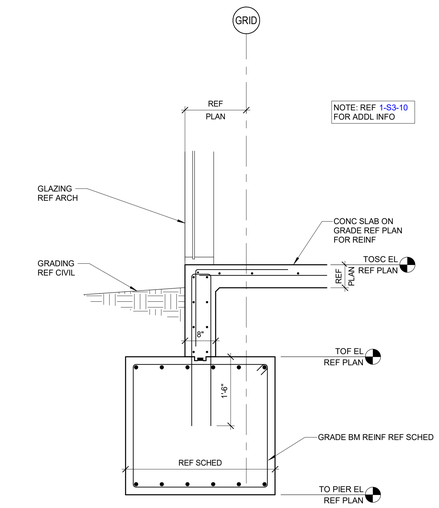
7 DETAIL12
3/4" = 1'-0"



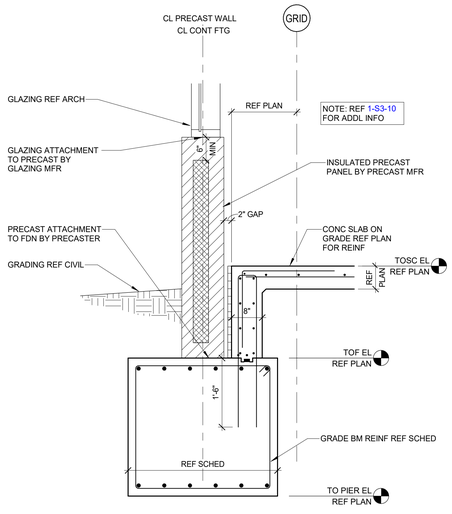
6 SOG AT EXTERIOR
3/4" = 1'-0"



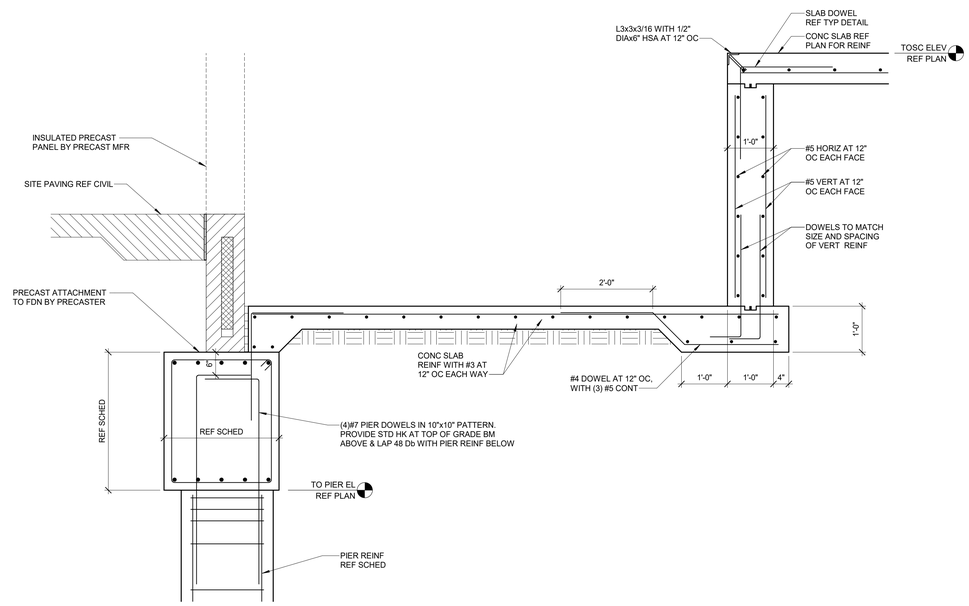
5 SOG AT EXTERIOR
3/4" = 1'-0"



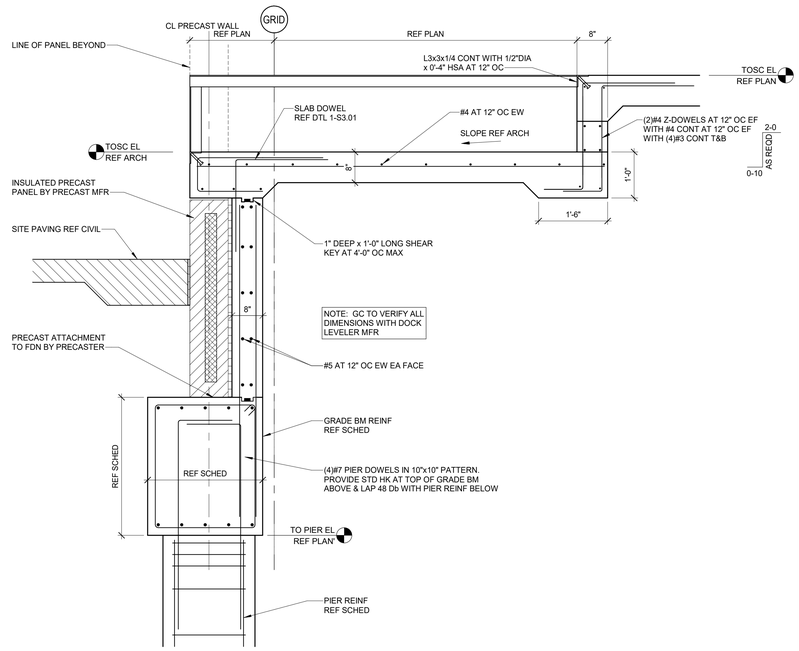
4 SOG AT EXTERIOR
3/4" = 1'-0"



3 SOG AT PERIMETER OF BUILDING
3/4" = 1'-0"



2 DETAIL AT DOCK LIFT
3/4" = 1'-0"



1 DETAIL AT DOCK LEVELER
3/4" = 1'-0"

2/4/2025 4:12:57 PM S3-11 FOUNDATION DETAILS

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401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

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TCD DESIGN CONSULTING LLC

ISSUES

1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
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REVISIONS

COLORADO LICENSED NICHOLAS W. HAND 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

FOUNDATION DETAILS

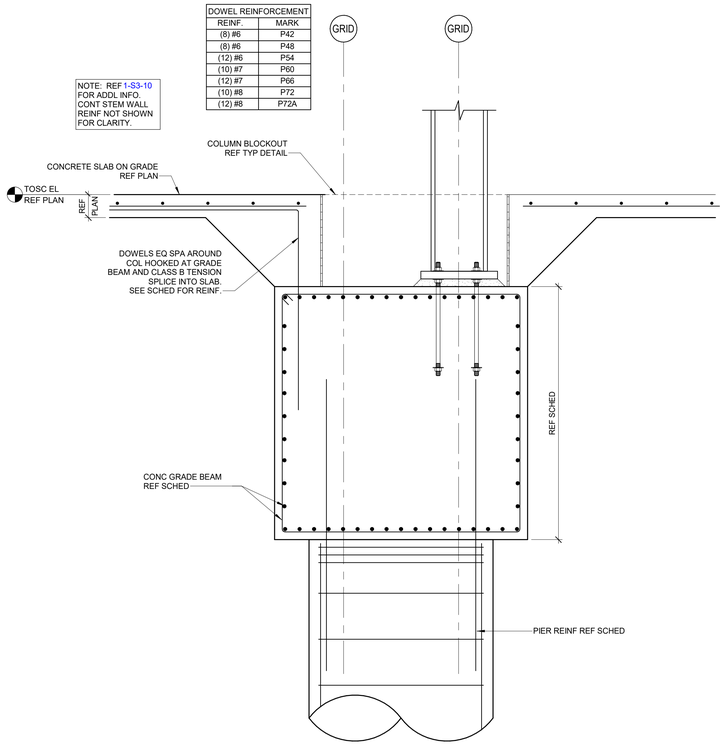
JOB 24464.0000
DATE 01.31.2025
SHEET

S3-11

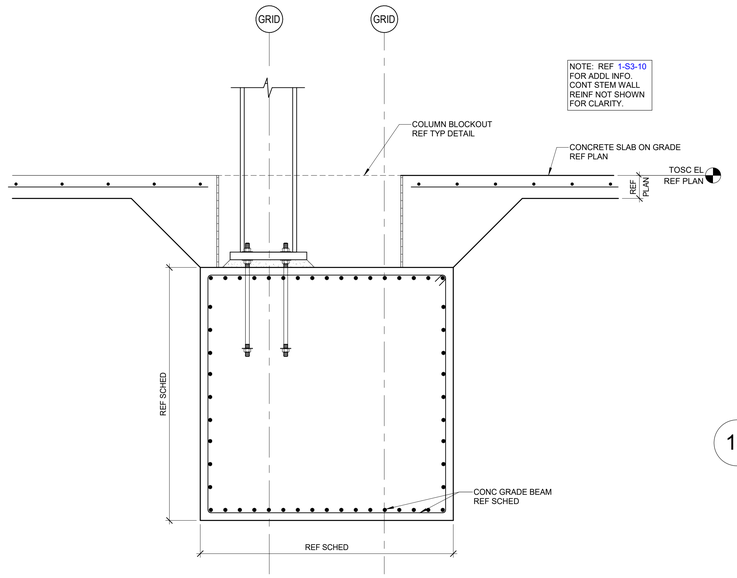
City of Aurora Building Division
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Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

BUILDING PERMIT#: 25-2513934-CM

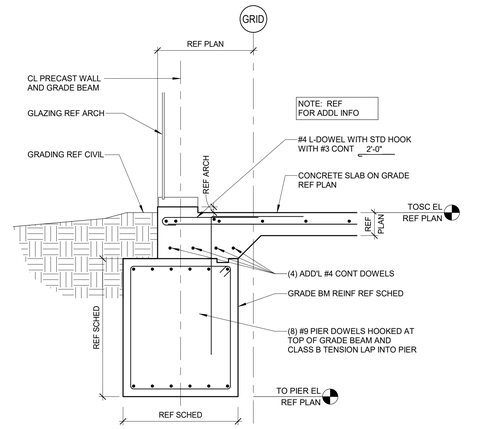
DOWEL REINFORCEMENT	
REINF.	MARK
(8) #6	P42
(8) #6	P48
(12) #6	P54
(10) #7	P60
(12) #7	P66
(10) #8	P72
(12) #8	P72A



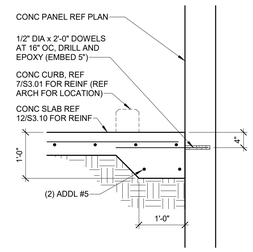
12 DETAIL AT COLUMN/PIER
3/4" = 1'-0"



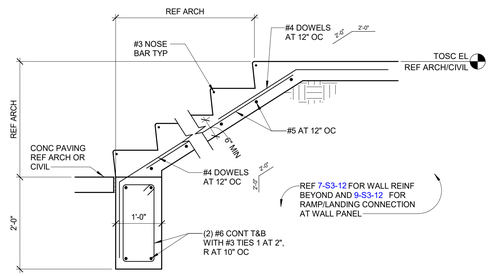
11 DETAIL AT COLUMN
3/4" = 1'-0"



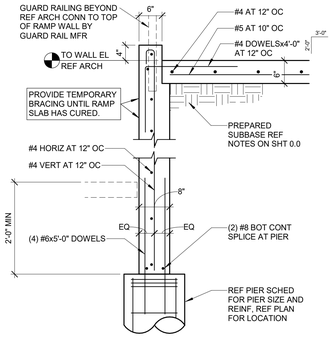
10 DETAIL
3/4" = 1'-0"



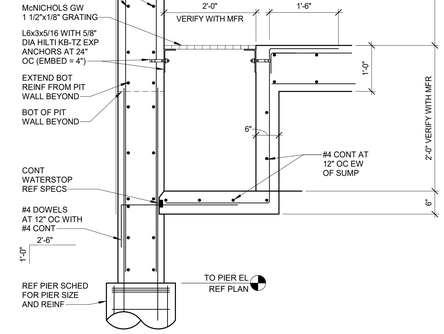
9 RAMP/LANDING AT PANEL
3/4" = 1'-0"



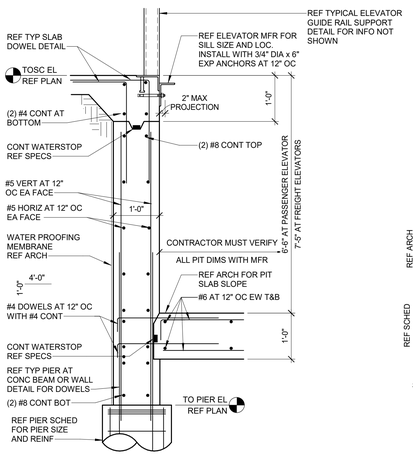
8 CONCRETE STAIR DETAIL
3/4" = 1'-0"



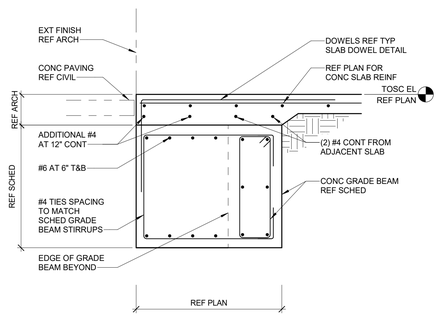
7 RAMP/LANDING AT PIER
3/4" = 1'-0"



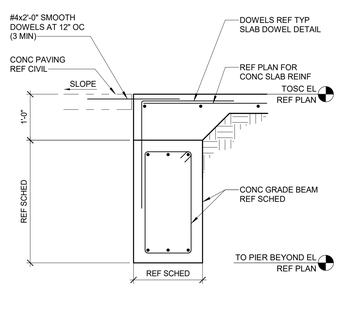
6 ELEVATOR SUMP PIT
3/4" = 1'-0"



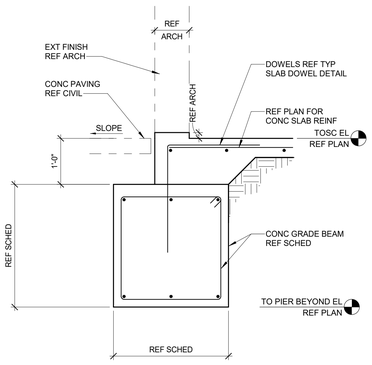
5 ELEVATOR PIT
3/4" = 1'-0"



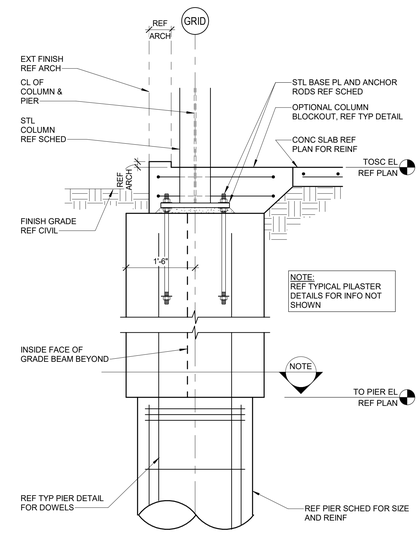
4 WIDENED GRADE BEAM
3/4" = 1'-0"



3 GRADE BEAM AT DOOR OPENING
3/4" = 1'-0"



2 EXTERIOR AT GRADE BEAM
3/4" = 1'-0"



1 COLUMN AT PILASTER
3/4" = 1'-0"

CORGAN
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SYSKA HENNESSY GROUP
DESIGN CONSULTING LLC

ISSUES		
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
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REVISIONS

COLORADO LICENSED NICHOLAS W. [illegible] 65236 PROFESSIONAL ENGINEER
AG&E Structural Engenuity F-6435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

FOUNDATION DETAILS

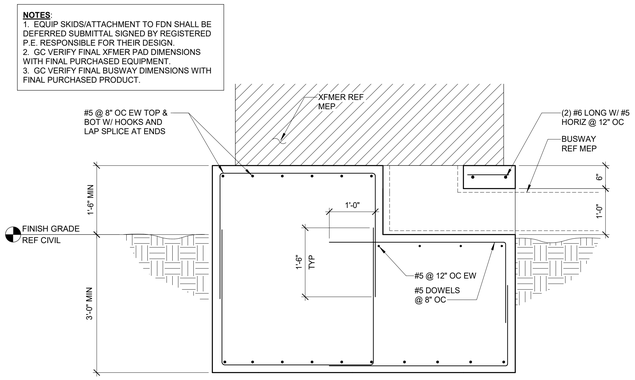
JOB 24464.0000
DATE 01.31.2025
SHEET

S3-12

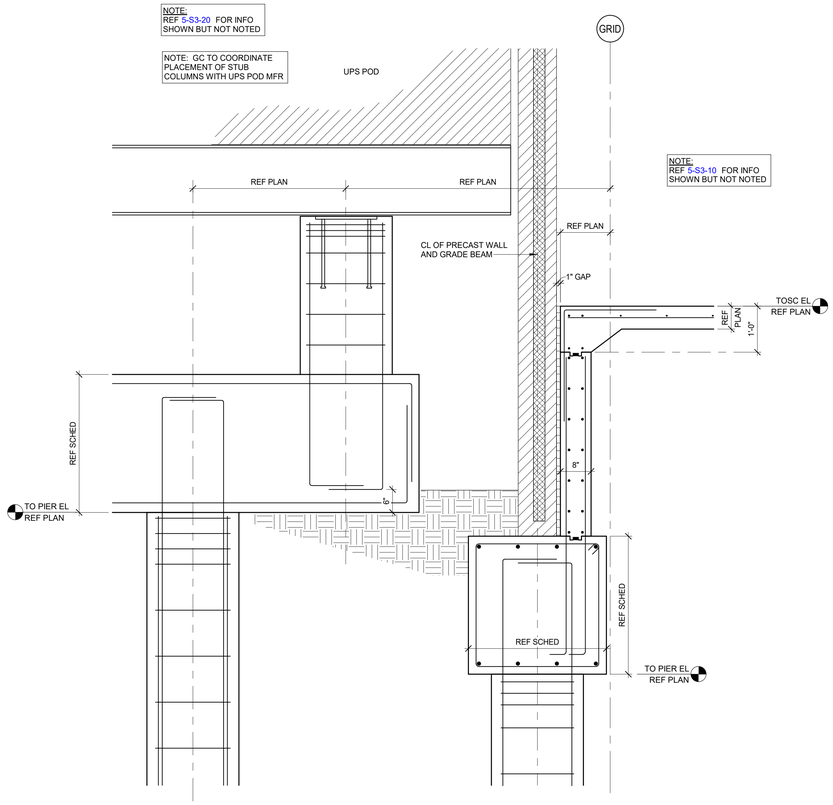
2/4/2025 4:12:58 PM S3-12 FOUNDATION DETAILS

RSN: 1881854 | PERMIT#: 25-2513934-CM

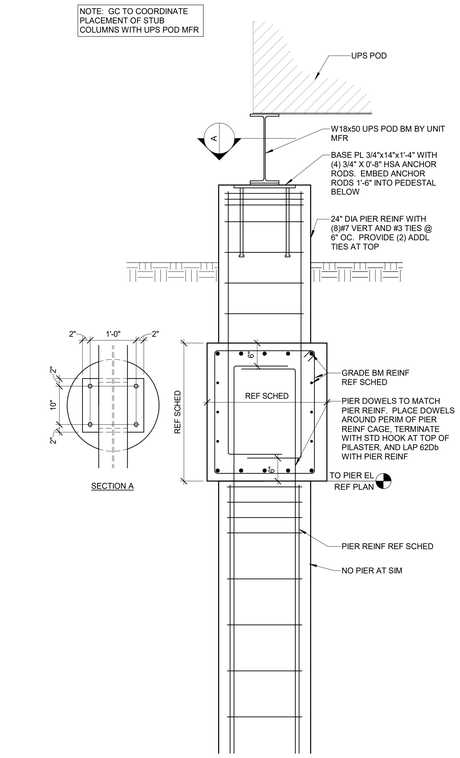
City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



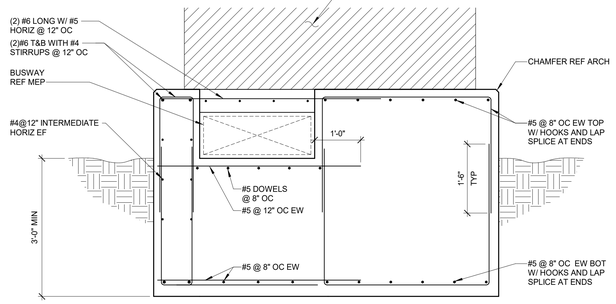
7 TRANSFORMER PAD DETAIL
3/4" = 1'-0"



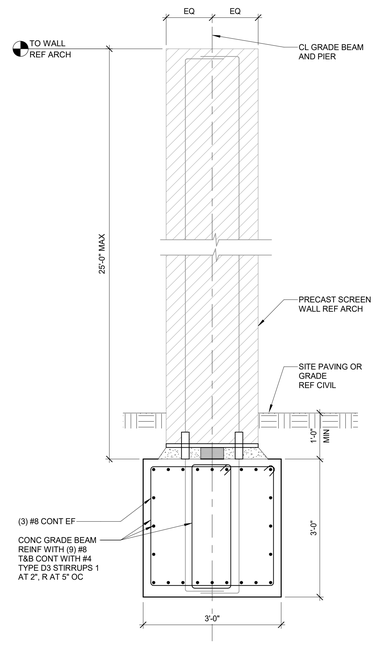
6 UPS POD PILASTER AT GRADE RECESSED EXTERIOR
3/4" = 1'-0"



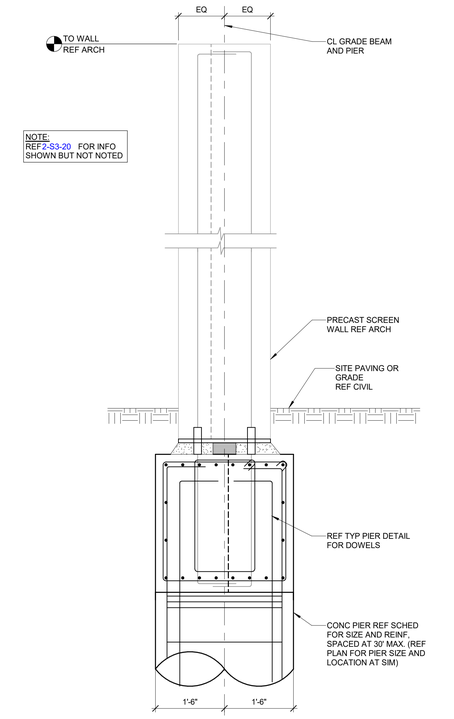
5 UPS POD PILASTER AT GRADE
3/4" = 1'-0"



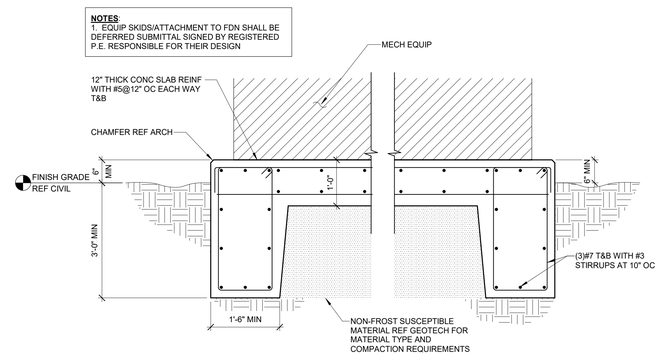
4 TRANSFORMER PAD DETAIL
3/4" = 1'-0"



2 PRECAST SCREENWALL AT GRADE BEAM
3/4" = 1'-0"



1 PRECAST SCREENWALL AT PIER
3/4" = 1'-0"



3 GENERATOR PAD DETAIL
3/4" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000
AG/E
SYSKA HENNESSY GROUP
DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
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	REVISIONS	

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER
AG&E Structural Engenuity F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

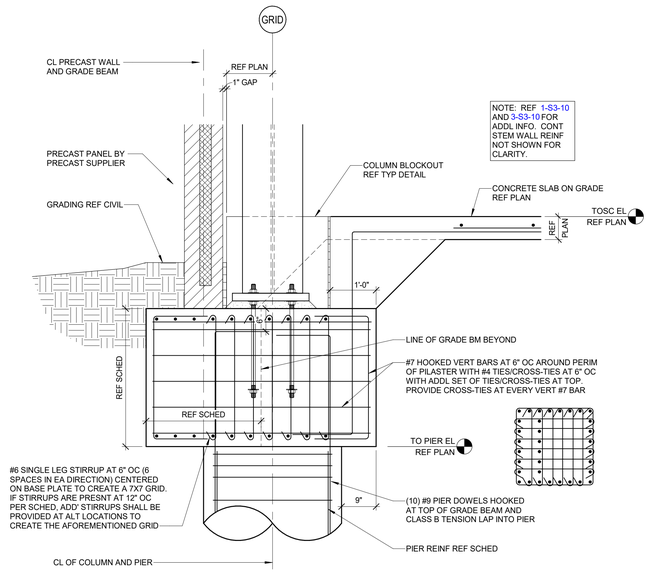
FOUNDATION DETAILS

JOB 24464.0000
DATE 01.31.2025
SHEET

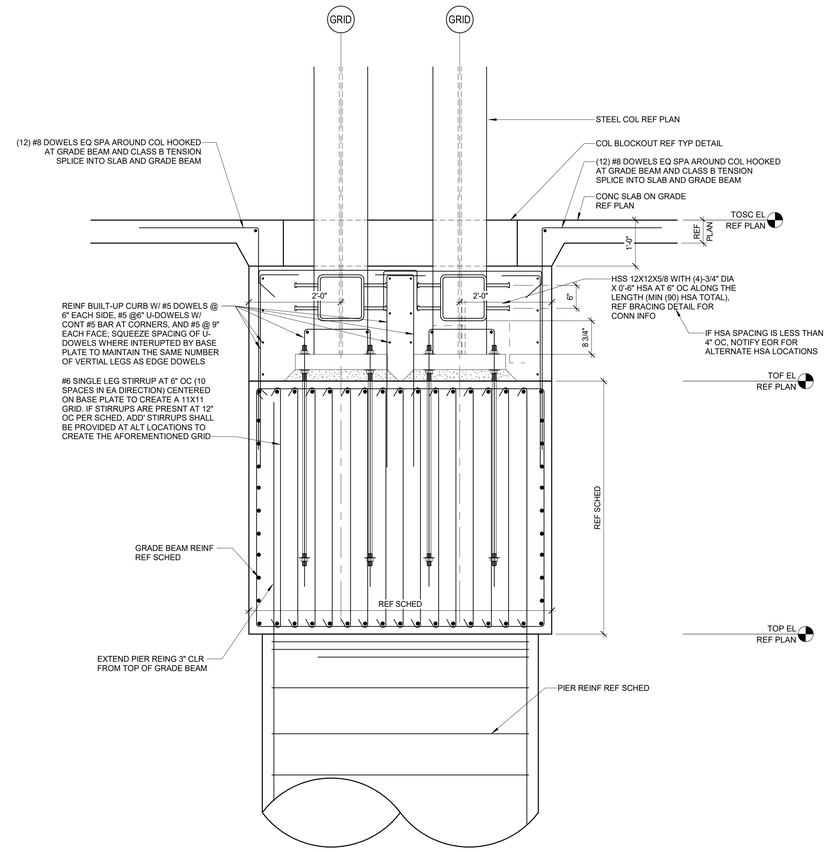
S3-20

2/4/2025 4:12:59 PM S3-20 FOUNDATION DETAILS

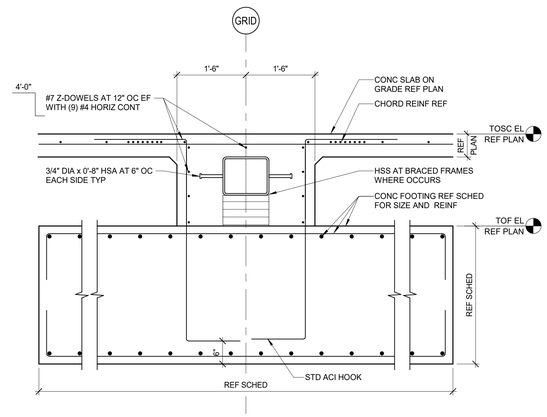
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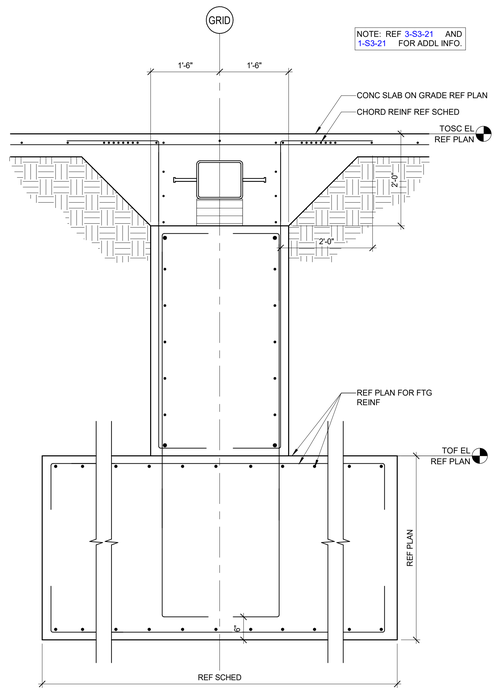
5 EXTERIOR DETAIL AT BRACE FRAME COL ALONG GRID F
3/4" = 1'-0"



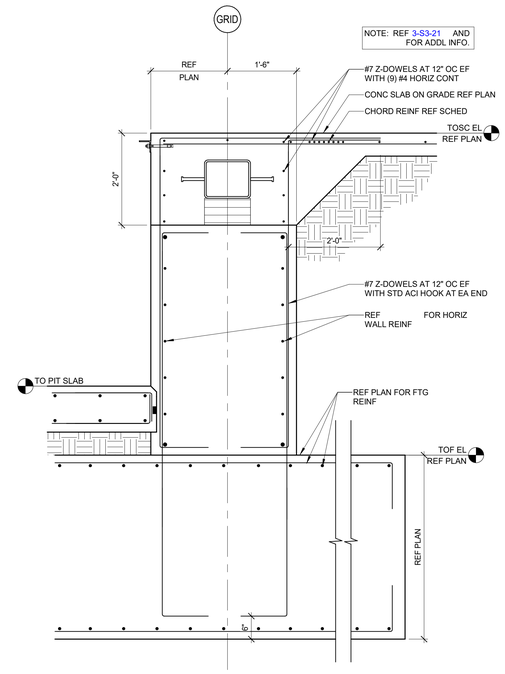
4 TYPICAL INTERIOR DETAIL AT COLUMN
3/4" = 1'-0"



3 DETAIL
3/4" = 1'-0"



2 DETAIL
3/4" = 1'-0"



1 DETAIL
3/4" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

DESIGN CONSULTING LLC

ISSUES

1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
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REVISIONS

1	Date 1	Revision 1

COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

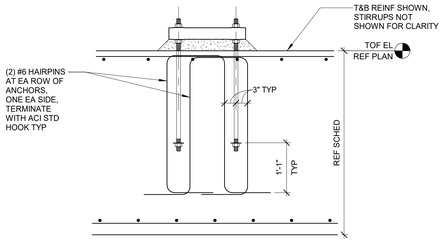
S	Q	N	L	J	G	E	C	A
T	R	P	M	K	H	F	D	B

FOUNDATION DETAILS

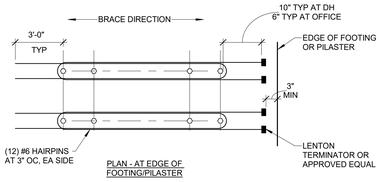
JOB 24464.0000
DATE 01.31.2025
SHEET S3-21

2/4/2025 4:13:00 PM S3-21 FOUNDATION DETAILS

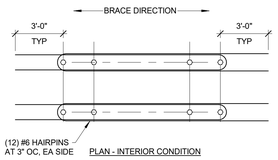
City of Aurora Building Division
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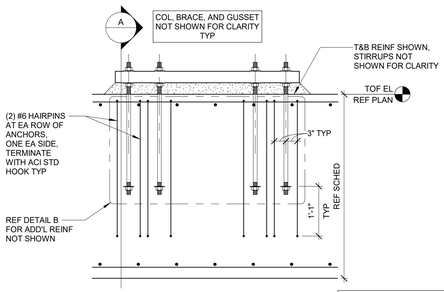
DETAIL A

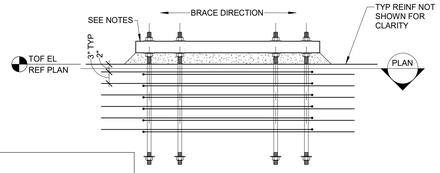


PLAN - AT EDGE OF FOOTING/PILASTER



PLAN - INTERIOR CONDITION

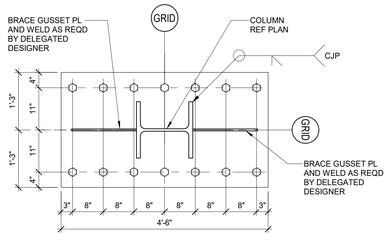




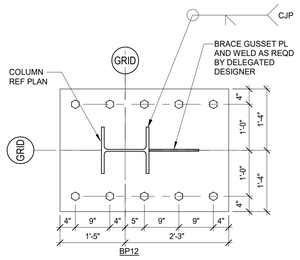
DETAIL B

NOTE:
1. PROVIDE:
•OVERSIZE HOLES IN BASE PLATE
•STANDARD HOLES IN WASHERS
2. PLATE WASHERS MUST BE WELDED TO THE BASE PLATE.
3. SEE "ANCHOR ROD DETAIL" ON 1-S5-00 FOR WELD SIZE.

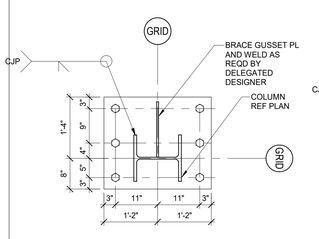
5 ANCHOR ROD REINFORCING
3/4" = 1'-0"



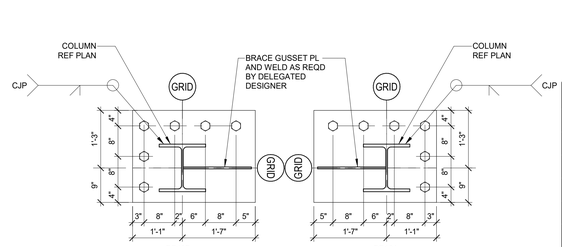
BP11



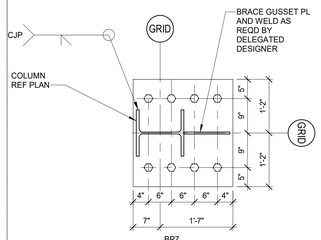
BP12



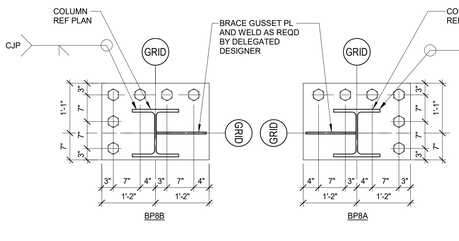
BP9



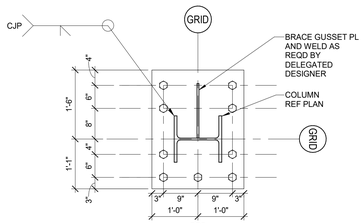
BP10B BP10A



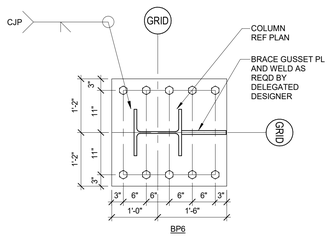
BP7



BP8B BP8A



BP5



BP6

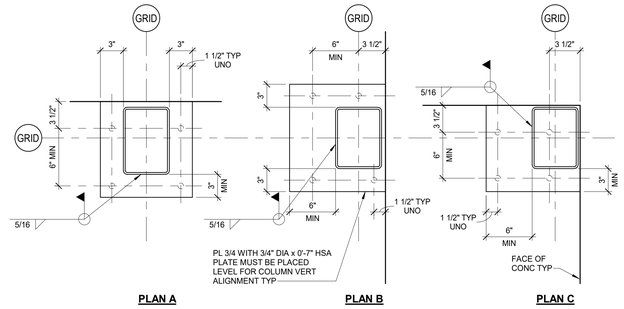
2 COLUMN BASE PLATE AND ANCHOR ROD DETAILS
3/4" = 1'-0"

BASE PLATE AND ANCHOR ROD SCHEDULE AND DETAILS

BASE PLATE TYPE	SIZE	(L)	(W)	(T)	(X)	(Y)	BASE PLATE TYPE	ANCHORS RODS	ANCHOR ROD GRADE	COMMENTS
BP-1	W12X106/120 (PERIMETER) W14X90/99/109 (PERIMETER)	18"	18"	1 1/4"	3"	4"	BP3	(4) 3/4" DIA x 1'-6"	GR 36	-
BP-2	W12X79/136/152 (PERIMETER)	18"	18"	1 1/2"	3"	4"	BP3	(4) 7/8" DIA x 1'-6"	GR 36	-
BP-3	W14X132/145 (PERIMETER)	18"	18"	1 3/4"	3"	4"	BP3	(4) 3/4" DIA x 1'-6"	GR 36	-
BP-4	W12X72/79/106 (INTERIOR) W14X90/99 (INTERIOR)	24"	24"	1 1/2"	9"	9"	BP2	(4) 3/4" DIA x 1'-6"	GR 36	-
BP-5	W12X136/152 (INTERIOR) W14X132 (INTERIOR)	24"	24"	1 3/4"	9"	9"	BP2	(4) 3/4" DIA x 1'-6"	GR 36	-
BP-6	W14X145/159/176/193 (INTERIOR)	24"	24"	2 1/4"	9"	9"	BP2	(4) 3/4" DIA x 1'-6"	GR 36	-
BP-7	W14X211/233 (INTERIOR)	28"	28"	2 1/2"	10"	10"	BP2	(4) 3/4" x 1'-6"	GR 36	-
BP-8	W14X257/311 (INTERIOR)	36"	36"	3"	12"	12"	BP2	(4) 3/4" x 1'-6"	GR 36	-
BP-9	W12X79 (ELEVATOR)	14"	18"	1 1/4"	3"	4"	BP3	(4) 3/4" x 1'-6"	GR 36	-
BP-10	W14X90 (ELEVATOR)	16"	18"	1 1/4"	3 1/2"	4"	BP3	(4) 3/4" x 1'-6"	GR 36	-
BP-11	W12X136 (PERIMETER)	28"	18"	1 3/4"	11"	4"	BP2	(4) 1" x 2'-0"	GR 36	-
BP-12	W14X233 (INTERIOR)	34"	32"	3 3/4"	13"	8"	BP4	(8) 2" x 2'-6"	GR 105	REF NOTE 5 & 5/S5.00
BP-13	HSS6X6X1/2	12"	12"	1"	4"	4"	BP1	(4) 3/4" x 1'-6"	GR 36	-
BP-14	HSS10X10X1/2	18"	18"	1"	7"	7"	BP1	(4) 3/4" x 1'-6"	GR 36	-
BF-1	WF12(BF) WF14(BF)	REF 2-S5-00		2 1/2"	REF 2-S5-00		BP5	(9) 1" x 2'-0"	GR 105	REF 5/S5.00
BF-2	WF12(BF) WF14(BF)	REF 2-S5-00		2 1/4"	REF 2-S5-00		BP6	(10) 1" x 2'-0"	GR 105	REF 5/S5.00
BF-3	WF12(BF)	REF 2-S5-00		2 1/4"	REF 2-S5-00		BP7	(8) 1" x 2'-0"	GR 105	-
BF-4	WF12(BF)	REF 2-S5-00		3"	REF 2-S5-00		BP8A&B	(6) 1 3/4" x 2'-0"	GR 105	REF NOTE 5 & 5/S3-21
BF-5	WF14(BF)	REF 2-S5-00		2 3/4"	REF 2-S5-00		BP9	(6) 1" x 2'-0"	GR 105	-
BF-6	WF14(BF)	REF 2-S5-00		3"	REF 2-S5-00		BP10A&B	(6) 1 1/2" x 2'-0"	GR 105	REF NOTE 5 & 5/S3-21
BF-7	WF14(BF)	REF 2-S5-00		3"	REF 2-S5-00		BP11	(14) 1" x 2'-0"	GR 105	REF 5/S5.00
BF-8	WF14(BF)	REF 2-S5-00		3 3/4"	REF 2-S5-00		BP12	(8) 2 1/2" x 4'-0"	GR 105	REF NOTE 5 & 4/S3-21

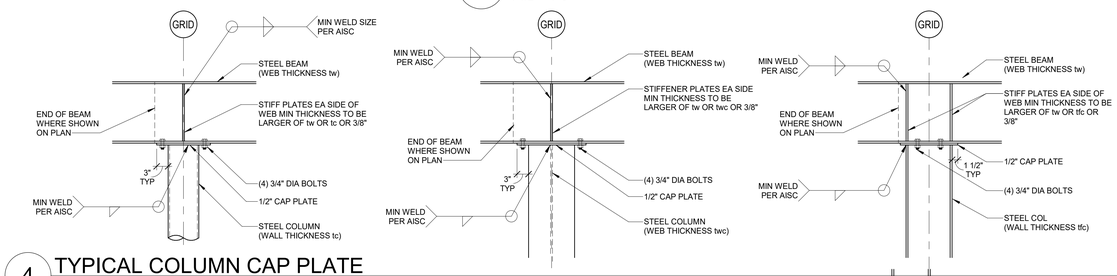
NOTES:
1. BASE PLATE SIZES ARE BASED ON COLUMN SIZES UNLESS DENOTED BY A SPECIFIC "BPX" IN THE COLUMN SCHEDULE OR ON THE PLAN.
2. ALL BASE PLATES SHALL BE ASTM A572 GR 50, UNLESS NOTED OTHERWISE.
3. ALL ANCHOR RODS SHALL BE ASTM F1554 GRADE AS NOTED.
4. SIZE WELDS PER AISC MINIMUM FILLET REQUIREMENTS, 5/16" MINIMUM.
5. ADDITIONAL WASHERS PER SCHEDULE TO BE PLACED AT EMBEDED END OF ANCHOR RODS.
6. BF = BRACE FRAME

1 COLUMN BASE PLATE AND ANCHOR RODS SCHEDULE AND DETAILS
1 1/2" = 1'-0"

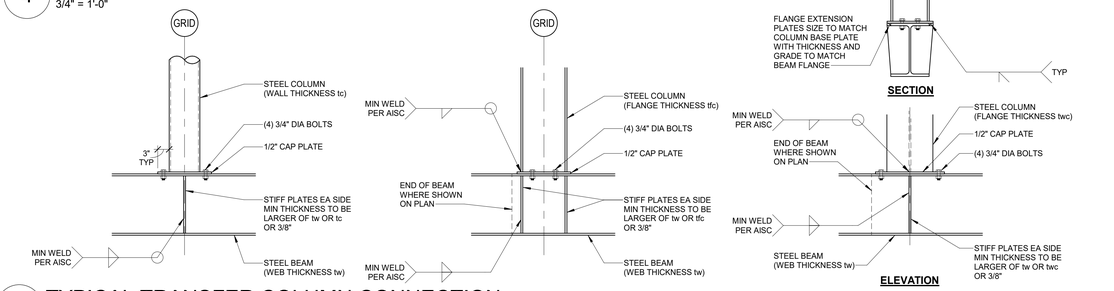


PLAN A PLAN B PLAN C

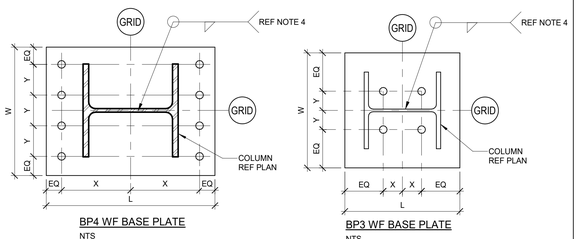
6 TYPICAL COLUMN BASE PLATE AT EDGE OF CONCRETE
1 1/2" = 1'-0"



4 TYPICAL COLUMN CAP PLATE
3/4" = 1'-0"

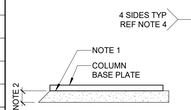


3 TYPICAL TRANSFER COLUMN CONNECTION
3/4" = 1'-0"



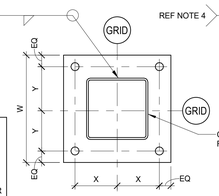
BP4 WF BASE PLATE NTS

BP3 WF BASE PLATE NTS

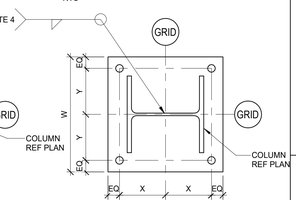


NOTES:
1. GROUT MAY BE BEVELED OR FORMED BUT SHALL EXTEND A MIN OF 1 1/2" BEYOND FACE OF BASE PLATE.
2. GROUT THICKNESS SHALL BE 2" FOR COLUMN WITH UP TO 1 1/4" DIA ANCHOR RODS. FOR COLUMNS WITH ANCHOR RODS GREATER THAN 1 1/4" DIA, USE 3" GROUT THICKNESS.

GROUT PLACEMENT NTS



BP1 HSS BASE PLATE NTS

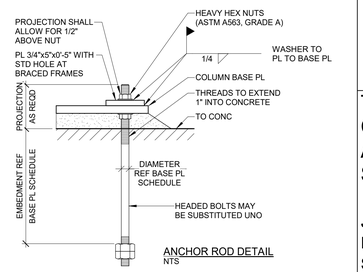


BP2 WF BASE PLATE NTS

ANCHOR ROD HOLE & WASHER SCHEDULE

ANCHOR ROD DIAMETER	MAX HOLE DIAMETER	MIN WASHER SIZE	MIN WASHER THICKNESS
3/4"	1 1/4"	2"	1/4"
7/8"	1 1/2"	2 1/2"	5/16"
1"	1 3/4"	3"	3/8"
1 1/4"	2"	3"	1/2"
1 1/2"	2 1/4"	3 1/2"	1/2"
1 3/4"	2 1/2"	4"	5/8"
2"	3 1/4"	5"	3/4"
2 1/2"	3 3/4"	5 1/2"	7/8"

NOTE(S):
1. CIRCULAR OR SQUARE WASHERS MEETING THE SIZE SHOWN ARE ACCEPTABLE.



ANCHOR ROD DETAIL NTS

2/4/2025 4:13:02 PM S5-00 TYPICAL STEEL COLUMN DETAILS AND BASE PLATE SCHEDULE

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000
AG/E
SYSKA HENNESSY GROUP
DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
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REVISIONS

COLORADO LICENSED NICHOLAS W. HAND 65236 PROFESSIONAL ENGINEER
AG&E Structural Engenuity F-8435

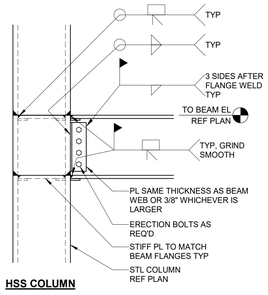
Date of issue: 01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD
QTS

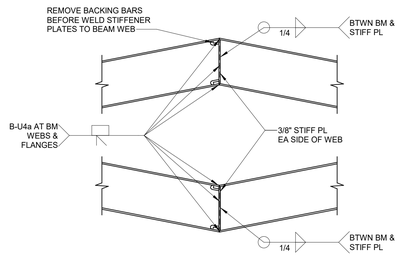
TYPICAL STEEL COLUMN DETAILS AND BASE PLATE SCHEDULE

JOB 24464.0000
DATE 01.31.2025
SHEET S5-00

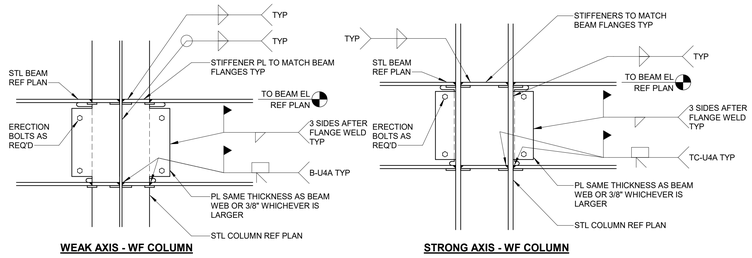
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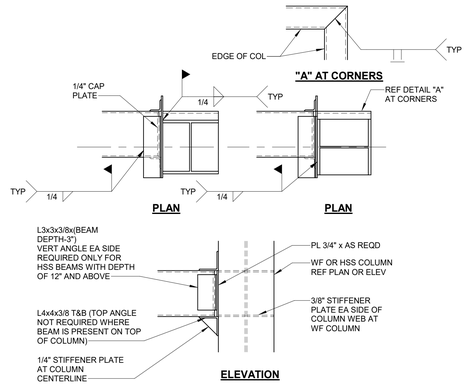
HSS COLUMN



3 TYPICAL BEAM SLOPE CHANGE
3/4" = 1'-0"



2 TYPICAL BEAM TO COLUMN MOMENT CONNECTION
3/4" = 1'-0"



1 TYPICAL HSS BEAM TO COL CONN
3/4" = 1'-0"

2/4/2025 4:13:02 PM S5-01 TYPICAL CONNECTION DETAILS

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	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
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COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

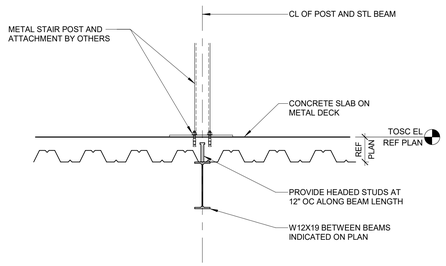
QTS

TYPICAL CONNECTION DETAILS

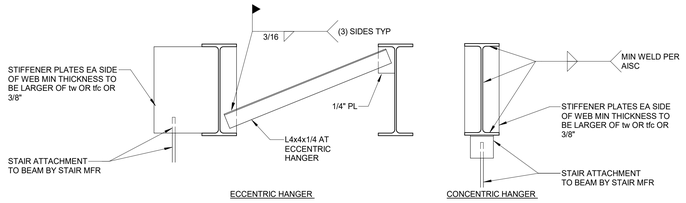
JOB 24464.0000
DATE 01.31.2025
SHEET

S5-01

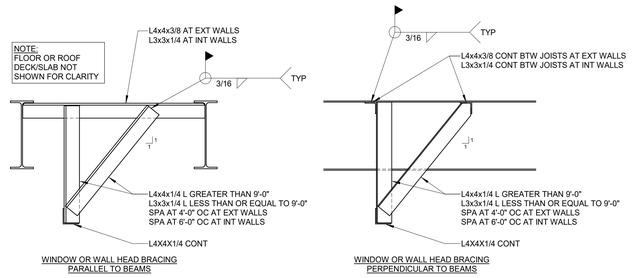
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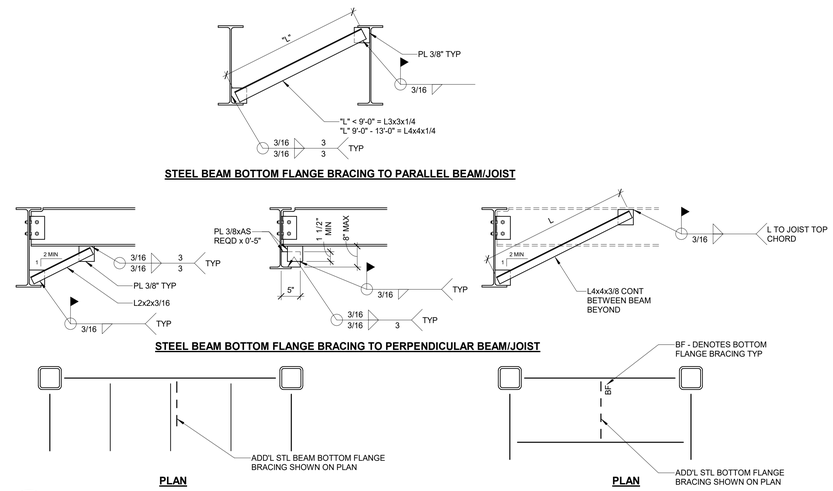
4 TYPICAL STAIR POST SUPPORT
3/4" = 1'-0"



3 TYPICAL STAIR HANGER ATTACHMENT TO BEAMS
3/4" = 1'-0"



2 TYPICAL WINDOW OR WALL HEAD BRACING AT BEAMS
3/4" = 1'-0"



1 TYPICAL STEEL BEAM BOTTOM FLANGE BRACING
3/4" = 1'-0"

2/4/2025 4:13:03 PM S5-02 TYPICAL STEEL FRAMING SECTIONS AND DETAILS

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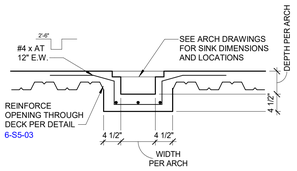
QTS DEN1 DC2
1140 N. GUN CLUB ROAD

TYPICAL STEEL FRAMING SECTIONS AND DETAILS

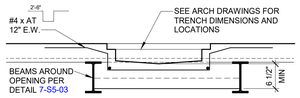
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S5-02

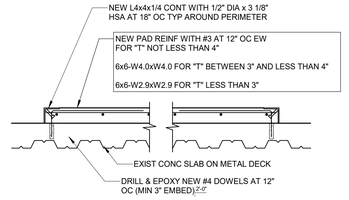
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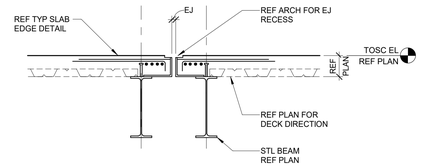
14 TYPICAL DETAIL TRENCH DRAIN AT COMPOSITE FLOOR
3/4" = 1'-0"



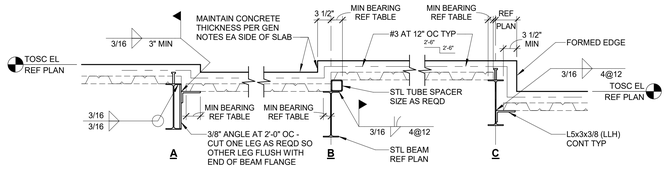
13 TYPICAL DETAIL TRENCH DRAIN AT COMPOSITE FLOOR
3/4" = 1'-0"



12 TYPICAL HOUSEKEPING PAD AT CONC SLAB ON METAL DECK
3/4" = 1'-0"



11 TYPICAL SLAB EXPANSION JOINT
3/4" = 1'-0"

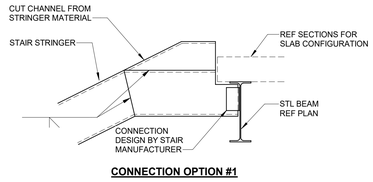


NORMAL WEIGHT CONCRETE

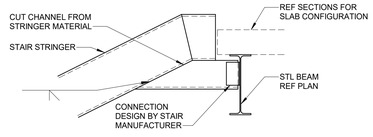
MINIMUM BEARING LENGTH REQUIRED				
	SLAB DEPTH ABOVE FLUTES			
DECK TYPE	2 1/2	3	3 1/2	4 1/2
2 VLI 18	1 1/2	1 1/2	1 1/2	2

NOTE:
MINIMUM BEARING FOR ALL DECK TYPES AND SLAB THICKNESSES IS 1 1/2" UNLESS LISTED IN THE TABLE ABOVE.

10 TYPICAL FLOOR DECK SUPPORTS AT SLAB OFFSETS
3/4" = 1'-0"



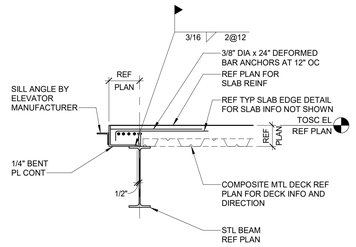
CONNECTION OPTION #1



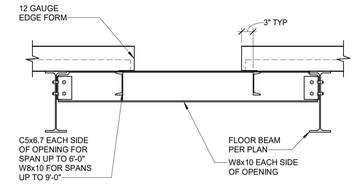
CONNECTION OPTION #2

THE DESIGN OF THE STAIR CONNECTIONS TO THE STRUCTURE IS THE RESPONSIBILITY OF THE STAIR SUPPLIER. OTHER OPTIONS MAY BE ACCEPTABLE, HOWEVER THE LOAD MUST BE DELIVERED TO THE STRUCTURAL STEEL AND NOT THE SLAB EDGE.

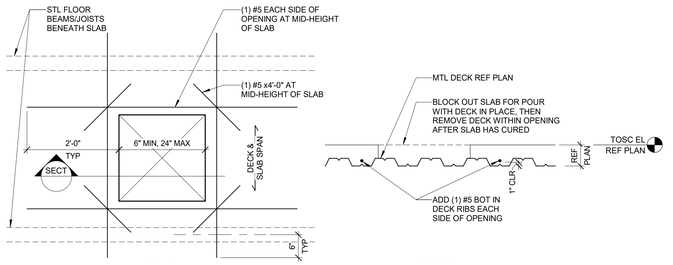
9 TYPICAL CONNECTION OPTIONS FOR STAIR STRINGER TO STRUCTURAL STEEL
3/4" = 1'-0"



8 TYPICAL SLAB EDGE AT ELEVATOR SILL, STAIR STRINGER AND HANDRAILS
3/4" = 1'-0"

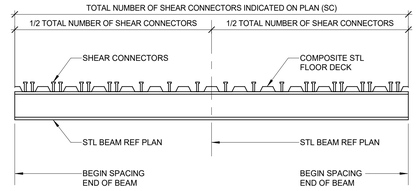


7 TYPICAL SLAB OPENING WIDTH OVER 2'-0" PERPENDICULAR TO DECK SPAN
3/4" = 1'-0"

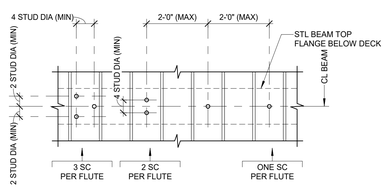


PLAN **SECTION**

6 TYPICAL SLAB OPENING WIDTH FROM 6" WIDE TO 24" WIDE
3/4" = 1'-0"



ELEVATION

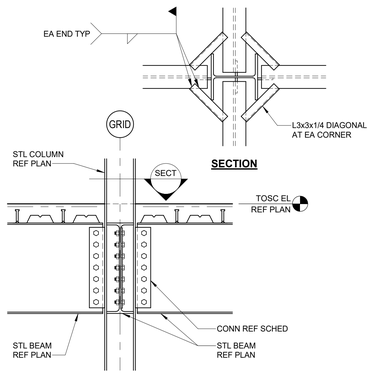


PLAN-DECK PERPENDICULAR TO BEAM

NOTES FOR TYPICAL SHEAR CONNECTOR PLACING DETAILS

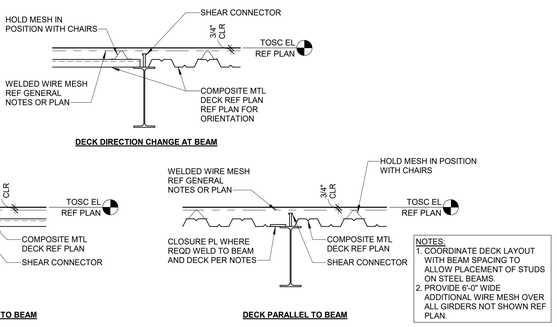
1. REF GENERAL NOTES FOR SHEAR CONNECTOR SIZE AND TYPE
2. SPACE ONE-HALF OF TOTAL NUMBER OF SHEAR CONNECTORS EVENLY BETWEEN END OF BEAM AND MIDSPAN, UNLESS NOTED OTHERWISE.
3. WHERE DECK FLUTES ARE PARALLEL TO BEAM SPAN, MINIMUM SPACING SHALL BE 6 STUD DIAMETERS ALONG LONGITUDINAL AXIS OF BEAM AND 4 STUD DIAMETERS TRANSVERSE TO LONGITUDINAL AXIS OF BEAM.
4. WHERE DECK FLUTES ARE PERPENDICULAR TO BEAM SPAN, PLACE CONNECTORS AS FOLLOWS:
   A. IF THERE ARE MORE SHEAR CONNECTORS THAN DECK FLUTES, BEGIN PLACING CONNECTORS AT END SPANS OF BEAM AND PLACE ONE CONNECTOR IN EACH DECK FLUTE UNTIL REACHING MIDSPAN. PLACE REMAINING CONNECTORS (IN EXCESS OF ONE) TWO PER FLUTE, STARTING AGAIN AT ENDS OF BEAM UNTIL TOTAL NUMBER OF SHEAR CONNECTORS HAVE BEEN PLACED. FOR EXAMPLE, IF THERE ARE 30 CONNECTORS AND 24 FLUTES, PLACE TWO CONNECTORS PER FLUTE IN THREE FLUTES AT EACH END AND ONE PER FLUTE IN THE MIDDLE 18 FLUTES.
   B. IF THERE ARE MORE DECK FLUTES THAN CONNECTORS, BEGIN PLACING AT END OF BEAM AND PLACE ONE CONNECTOR IN EVERY OTHER FLUTE UNTIL REACHING MIDSPAN. PLACE REMAINING CONNECTORS IN EMPTY FLUTES, BEGINNING AT ENDS OF BEAM, UNTIL NUMBER OF CONNECTORS HAVE BEEN PLACED.
   C. WHERE TWO OR MORE CONNECTORS OCCUPY THE SAME FLUTE, PLACE CONNECTORS AS INDICATED IN PLAN VIEW.
5. DETERMINE WHERE CONNECTORS ARE TO BE LOCATED PRIOR TO ATTACHMENT.
6. REMOVE CERAMIC FERRULES FROM CONNECTORS AND DECK BEFORE PLACING CONCRETE.
7. MAXIMUM SPACING OF SHEAR CONNECTORS ON BEAMS (OTHER THAN CANTILEVER BEAMS AND BEAMS WITHOUT CONCRETE ON TOP) SHALL BE 24" ON CENTER. PROVIDE ADDITIONAL SHEAR CONNECTORS AS REQUIRED TO COMPLY WITH THE MAXIMUM SPACING WHERE SHEAR CONNECTORS HAVE NOT BEEN SPECIFIED ON PLAN OR THE NUMBER OF SHEAR CONNECTORS SPECIFIED ON PLAN IS LESS THAN REQUIRED TO MEET THE MAXIMUM SPACING.

5 TYPICAL SHEAR CONNECTOR PLACEMENT DETAIL
3/4" = 1'-0"



SECTION

4 TYPICAL COLUMN DETAIL
3/4" = 1'-0"

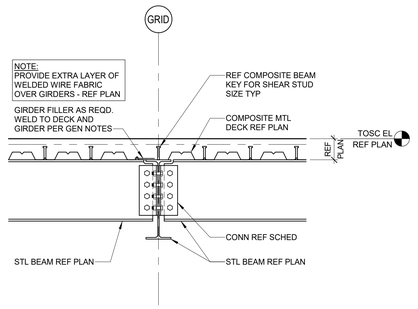


DECK DIRECTION CHANGE AT BEAM

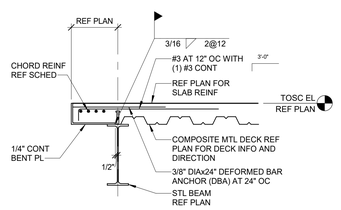
DECK PERPENDICULAR TO BEAM **DECK PARALLEL TO BEAM**

NOTES:
1. COORDINATE DECK LAYOUT WITH BEAM SPACING TO ALLOW PLACEMENT OF STUDS ON STEEL BEAMS.
2. PROVIDE 6'-0" WIDE ADDITIONAL WIRE MESH OVER ALL GIRDERS NOT SHOWN REF PLAN.

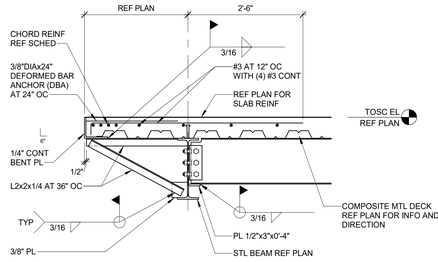
3 TYPICAL DECK AT BEAM
3/4" = 1'-0"



2 TYPICAL BEAM TO BEAM CONNECTION
3/4" = 1'-0"



SLAB CANTILEVER 12" OR LESS



SLAB CANTILEVER >12" AND <30"

1 TYPICAL SLAB EDGE DETAIL
3/4" = 1'-0"

2/4/2025 4:13:04 PM S5-03 TYPICAL STEEL FRAMING SECTIONS AND DETAILS

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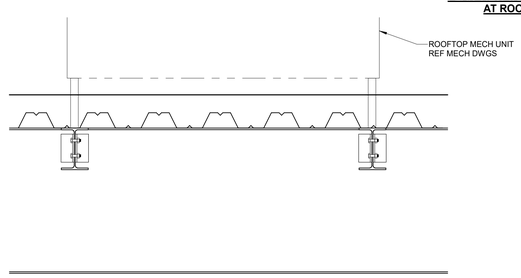
TYPICAL STEEL FRAMING SECTIONS AND DETAILS

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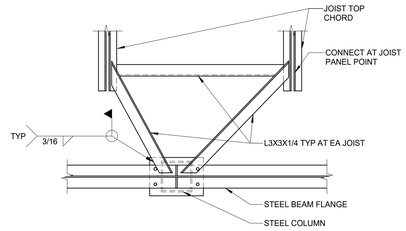
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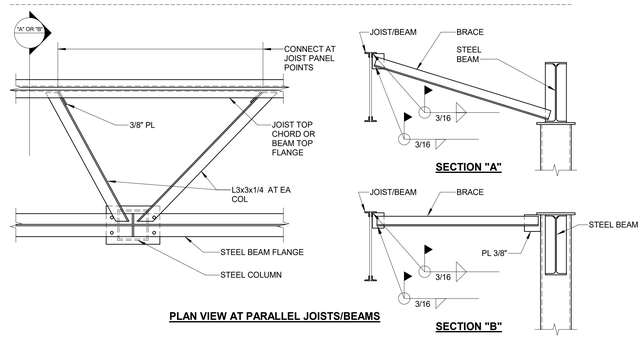
PARALLEL TO FRAMING **PARALLEL TO FRAMING** **PERPENDICULAR TO FRAMING**
PLAN VIEW SCHEMATIC FRAMING AT ROOFTOP UNITS



2 TYPICAL FRAMING AT ROOFTOP UNITS
1" = 1'-0"



PLAN VIEW AT PERPENDICULAR JOISTS/BEAMS



PLAN VIEW AT PARALLEL JOISTS/BEAMS

1 TYPICAL COLUMN BRACE AT JOISTS/BEAMS
3/4" = 1'-0"

2/4/2025 4:13:05 PM S5-04 TYPICAL STEEL FRAMING SECTIONS AND DETAILS

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TYPICAL STEEL FRAMING SECTIONS AND DETAILS

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RSN: 1881854 | PERMIT#: 25-2513934-CM

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TABLE 1 - SSP1 - 3/4" DIA GR A325N BOLTS

SINGLE PLATE SHEAR CONNECTION — VER 1.1 — 12/22/2023

	NUMBER OF BOLTS		2			3			4			5			6			7			8			9			10			11			12		
	PLATE THICKNESS (in)		1/4			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16		
	MIN PLATE DEPTH (in)		6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)		3/16			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4		
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
39	W44X230 TO W44X335	3																109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	15 0	15 0	180/0 135/119	15 0	15 0	195/0 146/133	15 0	15 0
38	W40X503 TO W40X655	4 7/8																109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	15 0	15 0	180/0 135/119	-- --	-- --			
37	W40X324 TO W40X431	3 5/8																109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	15 0	15 0	180/0 135/119	-- --	-- --			
36	W40X199 TO W40X297	3																109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	15 0	15 0	180/0 135/119	-- --	-- --			
35	W40X264 TO W40X392	3 7/8																109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	15 0	15 0	180/0 135/119	-- --	-- --			
34	W40X149 TO W40X235	3																109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	15 0	15 0	180/0 135/119	-- --	-- --			
33	W36X487 TO W36X652	4 7/8													91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	-- --	-- --						
32	W36X302 TO W36X441	3 3/4													91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	-- --	-- --						
31	W36X231 TO W36X282	2 7/8													91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	15 0	15 0						
30	W36X232 TO W36X256	3													91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	15 0	15 0						
29	W36X135 TO W36X210	2 3/8													91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0	165/0 124/104	15 0	15 0						
28	W33X201 TO W33X318	3													91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0									
27	W33X118 TO W33X169	2 7/8													91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0	147/0 110/92	15 0	15 0									
26	W30X173 TO W30X261	3										82/0 62/52	15 0	15 0	91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0												
25	W30X90 TO W30X148	2 5/8										82/0 62/52	15 0	15 0	91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0	128/0 96/81	15 0	15 0												
24	W27X146 TO W27X194	3										82/0 62/52	15 0	15 0	91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0															
23	W27X84 TO W27X129	2 7/8										82/0 62/52	15 0	15 0	91/0 68/57	15 0	15 0	109/0 82/69	15 0	15 0															
22	W24X104 TO W24X176	3							64/0 48/40	15 0	14 0	82/0 62/52	15 0	15 0	91/0 68/57	15 0	15 0																		
21	W24X68 TO W24X103	2 3/4							64/0 48/22	15 0	11 1/4 0	82/0 62/52	15 0	13 0	91/0 68/57	15 0	15 0																		
20	W24X55 TO W24X62	3							64/0 48/40	15 0	10 1/2 0	82/0 62/52	15 0	12 1/4 0	91/0 68/57	15 0	15 0																		
19	W21X101 TO W21X147	2 1/2							64/0 48/40	15 0	14 0	82/0 62/52	15 0	15 0																					
18	W21X48 TO W21X93	2							64/0 48/40	15 0	9 0	82/0 62/52	13 3/4 0	10 1/2 0																					
17	W21X44 TO W21X57	2							64/0 48/40	15 0	9 0	82/0 62/52	13 1/2 0	10 1/2 0																					
16	W18X76 TO W18X130	2							64/0 48/40	15 0	11 3/4 0	82/0 62/52	-- 0	-- 0																					
15	W18X50 TO W18X71	2							64/0 48/40	15 0	9 1/4 0	82/0 62/52	-- 0	-- 0																					
14	W18X35 TO W18X46	2							64/0 48/40	11 0	7 1/4 0	82/0 62/52	-- 0	-- 0																					
13	W16X67 TO W16X100	1 3/4							64/0 48/40	15 0	10 1/4 0																								
12	W16X36 TO W16X57	1 3/4				45/0 34/28	13 1/4 0	6 0	64/0 48/40	10 1/2 0	7 0																								
11	W16X26 TO W16X31	1 5/8				45/0 34/28	9 1/2 0	4 1/2 0	64/0 48/40	7 1/2 0	5 0																								
10	W14X61 TO W14X82	2				45/0 34/28	15 0	8 1/2 0																											
9	W14X43 TO W14X53	2				45/0 34/28	12 3/4 0	6 1/4 0																											
8	W14X30 TO W14X38	2				45/0 34/28	10 0	5 0																											
7	W14X22 TO W14X26	2				45/0 34/27	7 1/4 0	3 3/4 0																											
6	W12X40 TO W12X58	--				45/0 34/27	-- 0	-- 0																											
5	W12X26 TO W12X35	1 1/8				45/0 34/27	7 1/2 0	3 3/4 0																											
4	W12X14 TO W12X22	1	25/0 19/15	8 0	3 0	43/0 34/27	5 1/2 0	3 0																											
3	W10X33 TO W10X45	1 5/8	25/0 19/16	13 0	5 1/4 0																														
2	W10X22 TO W10X30	2	25/0 19/16	9 1/2 0	4 0																														
1	W10X12 TO W10X19	2	24/0 18/14	5 3/4 0	3 0																														
			A			B			C			D			E			F			G			H			I			J			K		

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TABLE 2 - SSP2 - 7/8" DIA GR A325N BOLTS

SINGLE PLATE SHEAR CONNECTION — VER 1.1 — 12/22/2023

	NUMBER OF BOLTS		2			3			4			5			6			7			8			9			10			11			12		
	PLATE THICKNESS (in)		1/4			5/16			5/16			5/16			3/8			3/8			3/8			3/8			3/8			3/8			3/8		
	MIN PLATE DEPTH (in)		6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)		3/16			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4		
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
39	W44X230 TO W44X335	3																148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	15 0	15 0	241/0 181/165	15 0	15 0	263/0 197/183	15 0	15 0
38	W40X503 TO W40X655	4 7/8																148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	15 0	15 0	241/0 181/165	-- 0	-- 0			
37	W40X324 TO W40X431	3 5/8																148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	15 0	15 0	241/0 181/165	-- 0	-- 0			
36	W40X199 TO W40X297	3																148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	15 0	15 0	241/0 181/165	-- 0	-- 0			
35	W40X264 TO W40X392	3 7/8																148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	15 0	15 0	241/0 181/165	-- 0	-- 0			
34	W40X149 TO W40X235	3																148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	15 0	15 0	241/0 181/165	-- 0	-- 0			
33	W36X487 TO W36X652	4 7/8													122/0 92/79	15 0	15 0	148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	-- --	-- --						
32	W36X302 TO W36X441	3 3/4													122/0 92/79	15 0	15 0	148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	-- --	-- --						
31	W36X231 TO W36X282	2 7/8													122/0 92/79	15 0	15 0	148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	15 0	15 0						
30	W36X232 TO W36X256	3													122/0 92/79	15 0	15 0	148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	15 0	15 0						
29	W36X135 TO W36X210	2 3/8													122/0 92/79	15 0	15 0	148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0	219/0 164/147	15 0	15 0						
28	W33X201 TO W33X318	3													122/0 92/79	15 0	15 0	148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0									
27	W33X118 TO W33X169	2 7/8													122/0 92/79	15 0	15 0	148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0	197/0 148/128	15 0	15 0									
26	W30X173 TO W30X261	3										91/0 68/86	15 0	15 0	122/0 92/79	15 0	15 0	148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0												
25	W30X90 TO W30X148	2 5/8										91/0 68/86	15 0	13 1/2 0	122/0 92/79	15 0	14 0	148/0 111/95	15 0	15 0	173/0 130/111	15 0	15 0												
24	W27X146 TO W27X194	3										91/0 68/86	15 0	15 0	122/0 92/79	15 0	15 0	148/0 111/95	15 0	15 0															
23	W27X84 TO W27X129	2 7/8										91/0 68/86	15 0	13 1/4 0	122/0 92/79	15 0	13 3/4 0	148/0 111/95	15 0	15 0															
22	W24X104 TO W24X176	3							73/0 55/62	15 0	12 0	91/0 68/86	15 0	15 0	122/0 92/79	15 0	15 0																		
21	W24X68 TO W24X103	2 3/4							73/0 55/62	15 0	9 1/2 0	91/0 68/86	15 0	11 1/2 0	122/0 92/79	15 0	12 0																		
20	W24X55 TO W24X62	3							73/0 55/62	15 0	8 3/4 0	91/0 68/86	15 0	11 0	122/0 92/79	13 1/2 0	11 0																		
19	W21X101 TO W21X147	2 1/2							73/0 55/62	15 0	12 1/4 0	91/0 68/86	15 0	15 0																					
18	W21X48 TO W21X93	2							73/0 55/62	14 3/4 0	7 1/2 0	91/0 68/86	12 3/4 0	9 1/4 0																					
17	W21X44 TO W21X57	2							73/0 55/62	14 1/2 0	7 1/2 0	91/0 68/86	12 3/4 0	9 1/4 0																					
16	W18X76 TO W18X130	2							73/0 55/62	15 0	9 3/4 0	91/0 68/86	-- 0	-- 0																					
15	W18X50 TO W18X71	2							73/0 55/62	14 1/4 0	7 3/4 0	91/0 68/86	-- 0	-- 0																					
14	W18X35 TO W18X46	2							73/0 55/62	10 1/4 0	5 3/4 0	91/0 68/86	-- 0	-- 0																					
13	W16X67 TO W16X100	1 3/4							73/0 55/62	15 0	8 3/4 0																								
12	W16X36 TO W16X57	1 3/4				54/0 41/36	11 3/4 0	4 1/2 0	73/0 55/62	9 1/2 0	5 1/2 0																								
11	W16X26 TO W16X31	1 5/8				50/0 38/47	8 3/4 0	3 1/2 0	65/0 49/70	7 1/2 0	5 0																								
10	W14X61 TO W14X82	2				54/0 41/36	15 0	6 1/2 0																											
9	W14X43 TO W14X53	2				54/0 41/35	10 3/4 0	4 3/4 0																											
8	W14X30 TO W14X38	2				47/0 41/34	9 3/4 0	4 3/4 0																											
7	W14X22 TO W14X26	2				46/0 35/47	7 0	3 1/2 0																											
6	W12X40 TO W12X58	--				54/0 41/35	-- 0	-- 0																											
5	W12X26 TO W12X35	1 1/8				46/0 35/47	7 1/4 0	3 1/2 0																											
4	W12X14 TO W12X22	1	26/0 18/5	7 3/4 0	2 3/4 0	41/0 31/40	5 1/2 0	3 1/2 0																											
3	W10X33 TO W10X45	1 5/8	26/0 18/5	12 3/4 0	5 0																														
2	W10X22 TO W10X30	2	26/0 18/3	9 0	3 3/4 0																														
1	W10X12 TO W10X19	2	26/0 18/5	5 1/4 0	2 1/2 0																														
			A			B			C			D			E			F			G			H			I			J			K		

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TABLE 3 - SSP3 - 1" DIA GR A490N BOLTS

SINGLE PLATE SHEAR CONNECTION — VER 1.1 — 12/22/2023

	NUMBER OF BOLTS		2			3			4			5			6			7			8			9			10			11			12		
	PLATE THICKNESS (in)		5/16			3/8			3/8			3/8			7/16			7/16			7/16			7/16			7/16			7/16			7/16		
	MIN PLATE DEPTH (in)		6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)		1/4			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16		
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V/P (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
39	W44X230 TO W44X335	3																162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	15 0	15 0	255/0 191/303	15 0	15 0	278/0 208/329	15 0	15 0
38	W40X503 TO W40X655	4 7/8																162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	15 0	15 0	255/0 191/303	-- 0	-- 0			
37	W40X324 TO W40X431	3 5/8																162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	15 0	15 0	255/0 191/303	-- 0	-- 0			
36	W40X199 TO W40X297	3																162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	15 0	15 0	255/0 191/303	-- 0	-- 0			
35	W40X264 TO W40X392	3 7/8																162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	15 0	15 0	255/0 191/303	-- 0	-- 0			
34	W40X149 TO W40X235	3																162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	15 0	15 0	255/0 191/303	-- 0	-- 0			
33	W36X487 TO W36X652	4 7/8													124/0 93/131	15 0	15 0	162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	-- 0	-- 0						
32	W36X302 TO W36X441	3 3/4													124/0 93/131	15 0	15 0	162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	-- 0	-- 0						
31	W36X231 TO W36X282	2 7/8													124/0 93/131	15 0	15 0	162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	15 0	15 0						
30	W36X232 TO W36X256	3													124/0 93/131	15 0	15 0	162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	15 0	15 0						
29	W36X135 TO W36X210	2 3/8													124/0 93/131	15 0	15 0	162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0	231/0 173/278	15 0	15 0						
28	W33X201 TO W33X318	3													124/0 93/131	15 0	15 0	162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0									
27	W33X118 TO W33X169	2 7/8													124/0 93/131	15 0	15 0	162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0	208/0 156/246	15 0	15 0									
26	W30X173 TO W30X261	3										99/0 74/99	15 0	15 0	124/0 93/131	15 0	15 0	162/0 122/179	15 0	15 0	185/0 139/212	15 0	15 0												
25	W30X90 TO W30X148	2 5/8										99/0 74/99	15 0	12 1/4 0	124/0 93/131	15 0	13 3/4 0	162/0 122/179	15 0	13 3/4 0	185/0 139/212	15 0	15 0												
24	W27X146 TO W27X194	3										99/0 74/99	15 0	15 0	124/0 93/131	15 0	15 0	162/0 122/179	15 0	15 0															
23	W27X84 TO W27X129	2 7/8										99/0 74/99	15 0	12 0	124/0 93/131	15 0	13 1/4 0	162/0 122/179	15 0	13 1/4 0															
22	W24X104 TO W24X176	3							79/0 59/70	15 0	10 3/4 0	99/0 74/99	15 0	13 1/4 0	124/0 93/131	15 0	15 0																		
21	W24X68 TO W24X103	2 3/4							79/0 59/70	15 0	8 1/2 0	99/0 74/99	15 0	10 1/2 0	124/0 93/131	15 0	11 1/2 0																		
20	W24X55 TO W24X62	3							79/0 59/70	15 0	8 0	99/0 74/99	15 0	9 3/4 0	124/0 93/131	13 1/4 0	10 3/4 0																		
19	W21X101 TO W21X147	2 1/2							79/0 59/70	15 0	11 0	99/0 74/99	15 0	13 1/4 0																					
18	W21X48 TO W21X93	2							79/0 59/70	14 0	6 1/2 0	99/0 74/99	12 1/4 0	8 0																					
17	W21X44 TO W21X57	2							79/0 59/70	13 3/4 0	6 1/2 0	99/0 74/99	12 0	8 0																					
16	W18X76 TO W18X130	2							79/0 59/70	15 0	8 3/4 0	99/0 74/99	-- 0	-- 0																					
15	W18X50 TO W18X71	2							79/0 59/70	13 1/2 0	6 3/4 0	99/0 74/99	-- 0	-- 0																					
14	W18X35 TO W18X46	2							71/0 53/86	10 1/4 0	6 0	99/0 74/99	-- 0	-- 0																					
13	W16X67 TO W16X100	1 3/4							79/0 59/70	15 0	7 3/4 0																								
12	W16X36 TO W16X57	1 3/4				51/0 38/61	12 1/4 0	5 0	71/0 53/87	9 3/4 0	6 0																								
11	W16X26 TO W16X31	1 5/8				43/0 32/52	9 3/4 0	5 0	59/0 44/75	8 0	6 0																								
10	W14X61 TO W14X82	2				59/0 44/42	15 0	5 3/4 0																											
9	W14X43 TO W14X53	2				53/0 40/56	11 0	5 0																											
8	W14X30 TO W14X38	2				46/0 35/56	9 3/4 0	5 0																											
7	W14X22 TO W14X26	2				39/0 29/9	8 0	5 0																											
6	W12X40 TO W12X58	--				59/0 44/41	-- 0	-- 0																											
5	W12X26 TO W12X35	1 1/8				39/0 29/49	8 1/4 0	5 0																											
4	W12X14 TO W12X22	1	25/0 19/18	8 0	3 0	34/0 26/41	6 1/2 0	5 0																											
3	W10X33 TO W10X45	1 5/8	33/0 22/14	10 1/4 0	3 1/2 0																														
2	W10X22 TO W10X30	2	30/0 22/14	7 3/4 0	3 0																														
1	W10X12 TO W10X19	2	24/0 18/18	5 3/4 0	3 0																														
			A			B			C			D			E			F			G			H			I			J			K		

NOTES:

1. THESE TABLES ARE BASED ON THE AISC MANUAL 15th EDITION.

2. USE THESE TYPICAL CONNECTION DETAILS UNLESS A SPECIFIC CONNECTION DETAIL IS NOTED OTHERWISE.

3. USE THE APPROPRIATE SCHEDULE (TABLE 1, TABLE 2, OR TABLE 3) FOR THE SELECTED BOLT DIAMETER AND GRADE.
CONTRACTOR TO COORDINATE BOLT DIAMETER AND GRADE BETWEEN STEEL FABRICATOR AND STEEL ERECTOR.

4. "V" IN THE SCHEDULE DENOTES SHEAR AT THE END OF THE BEAM (KIPS)
"P" IN THE SCHEDULE DENOTES AXIAL FORCE AT THE END OF THE BEAM (KIPS)

ENTER THE SCHEDULE FOR A GIVEN BEAM SIZE. THE SCHEDULE IDENTIFIES THE MAXIMUM COMBINATION OF SHEAR
AND AXIAL LOAD (V AND P) THAT THE BEAM CAN RESIST. NEITHER THE REQUIRED V OR P MAY EXCEED THE
CORRESPONDING VALUE IN THE V/P COMBINATION IN THE SCHEDULE.

SCHEDULE VALUES OF V AND P ARE ULTIMATE CAPACITIES (LRFD)

5. SEE PLAN FOR BEAM REACTIONS (V AND P). THOSE ARE THE MINIMUM REQUIRED CAPACITES. BEAM REACTIONS ARE
ULTIMATE VALUES (LRFD).

6. SEE SCHEDULE FOR MAXIMUM LENGTH OF COPES (TOP AND BOTTOM) FOR THE SCHEDULED CONNECTION CAPACITIES.

7. SEE SCHEDULE FOR NUMBER OF BOLTS, SHEAR PLATE THICKNESS, MINIMUM SHEAR PLATE DEPTH, AND FILLET WELD
SIZE FOR THE SCHEDULE CONNECTION CAPACITES.

8. USE NO LESS THAN THE NUMBER OF BOLTS THAT ARE SCHEDULED FOR THE GIVEN BEAM SIZE.

9. SCHEDULED CAPACITIES ARE BASED ON A BEARING TYPE CONNECTION WITH BOLT THREADS INCLUDED IN THE SHEAR
PLANE.

10. PROVIDE STANDARD HOLES (STD) IN BEAM WEB AND SHEAR PLATE. AT CONTRACTOR'S OPTION, HOLES IN SHEAR PLATE
MAY BE STANDARD SHORT-SLOTTED HOLES WITH THE SLOT ORIENTED HORIZONTALLY FOR CONNECTIONS THAT DO NOT
RESIST AN AXIAL LOAD (P=0). DO NOT USE SLOTTED HOLES IN THE BEAM WEB.

11. BOLTS MAY BE SNUG TIGHT. AT CONTRACTOR'S OPTION, FULLY PRETENESIONED BOLTS MAY BE INSTALLED.

12. SCHEDULED CAPACITIES WERE DEVELOPED ASSUMING A MAXIMUM DEPTH OF TOP COPE AS SCHEDULED.
ACTUAL DEPTH OF TOP COPE MAY BE LESS THAN THOSE ASSUMED VALUES.

13. DEPTH OF BOTTOM COPE IS NOT LIMITED, BUT SHALL COMPLY WITH CRITERIA IN THE TYPICAL DETAILS AND THE
SCHEDULE MINIMUM DEPTH OF SHEAR PLATE.

14. SHEAR PLATE SHALL CONFORM WITH ASTM A572-50.

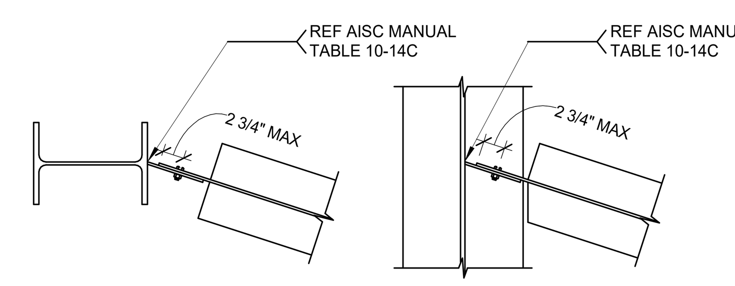
15. SCHEDULED CONNECTION INFORMATION IS FOR BEAMS CONFORMING TO ASTM A992, GR 50.

16. NOTIFY STRUCTURAL ENGINEER FOR CONNECTIONS THAT DO NOT CONFORM WITH THE SPECIFIED LIMITS.

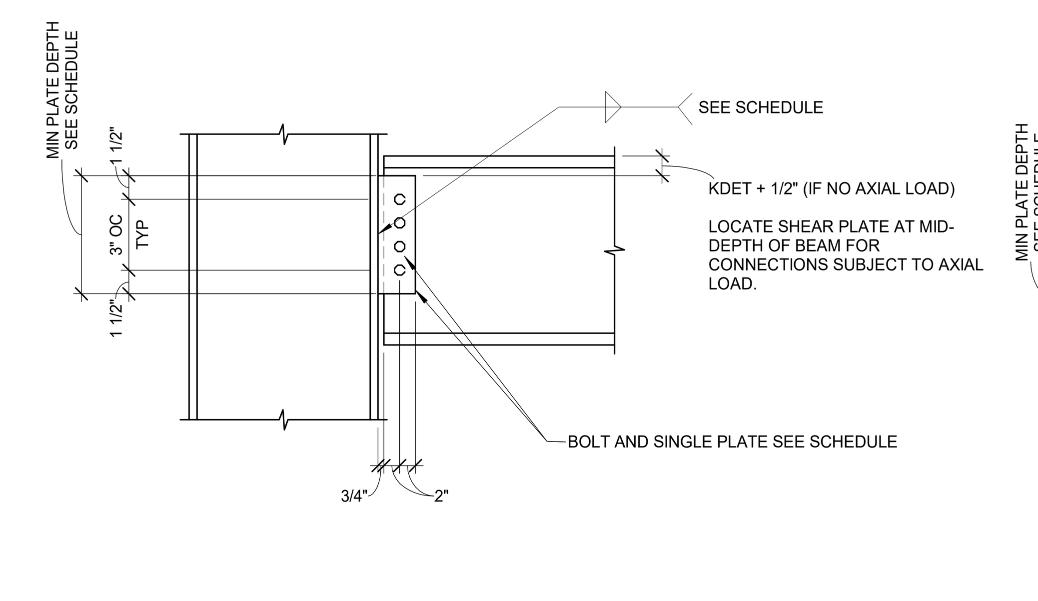
17. CONTRACTOR MAY SUBMIT ALTERNATIVE DETAILS ALONG WITH SUPPORTING CALCULATIONS FOR STRUCTURAL
ENGINEER'S CONSIDERATION. SUBMITTED CALCULATIONS SHALL BE SIGNED AND SEALED BY A STRUCTURAL
ENGINEER LICENSED IN THE STATE OF JURISDICTION.

18. CONTRACTOR SHALL IDENTIFY CELL DESIGNATION THAT WAS SELECTED FROM TABLE FOR EACH CONNECTION ON PLAN
OR PIECEMARK SHEETS. EXAMPLE CELL DESIGNATION IS AS FOLLOWS:

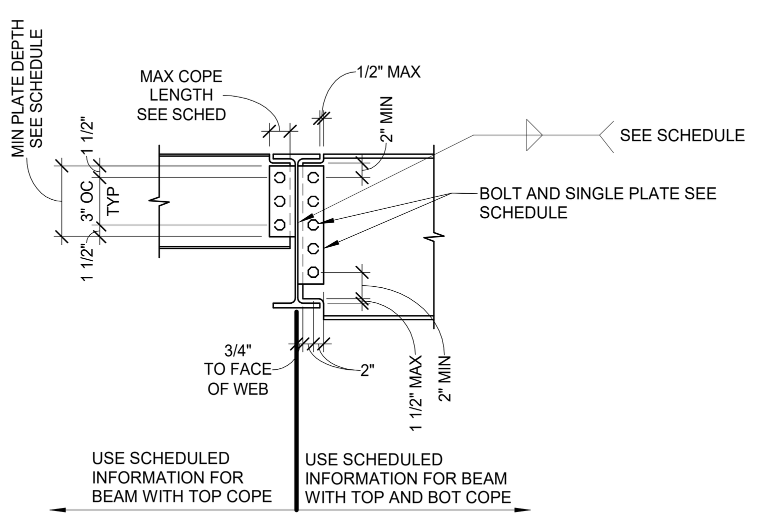
SSP1 - 1 A
TABLE
BEAM GROUP
CONNECTION



DETAIL AT SKEWED BEAMS



BEAM TO COLUMN FLANGE



BEAM TO BEAM

1 STANDARD SHEAR PLATE CONNECTION
1/2" = 1'-0"

2/4/2025 4:13:07 PM S5-05 STANDARD SHEAR PLATE CONNECTIONS

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000

SYSKA HENNESSY GROUP

DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

REVISIONS

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

STANDARD SHEAR PLATE CONNECTIONS

JOB 24464.0000
DATE 01.31.2025
SHEET
S5-05

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 1 - DABB1 - 3/4" DIA GR A325N BOLTS

VER 1.1

DOUBLE ANGLE SHEAR CONNECTION (BOLTED-BOLTED)

12/22/2023

	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
	NUMBER OF BOLTS PER ROW		2			3			4			5			6			7			8			9			10			11			12		
	ANGLE THICKNESS (in)		5/16			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8		
	MIN ANGLE LENGTH (in)		6			9			12			15			18			21			24			27			30			33			36		
39	W44X230 TO W44X335	3																250	15	13 1/2	286	15	15	322	15	15	357	15	15	393	15	15	429	15	15
38	W40X503 TO W40X655	4 7/8																250	15	15	286	15	15	322	15	15	357	15	15	393	--	--	K		
37	W40X324 TO W40X431	3 5/8																250	15	15	286	15	15	322	15	15	357	15	15	393	--	--			
36	W40X199 TO W40X297	3																250	15	12	286	15	13 1/2	322	15	15	357	15	15	393	--	--			
35	W40X264 TO W40X392	3 7/8																250	15	15	286	15	15	322	15	15	357	15	15	393	--	--			
34	W40X149 TO W40X235	3																250	15	11 1/4	286	15	12 3/4	322	15	14 1/4	353	15	15	393	--	--			
33	W36X487 TO W36X652	4 7/8													214	15	15	250	15	15	286	15	15	322	15	15	357	--	--	J					
32	W36X302 TO W36X441	3 3/4													214	15	15	250	15	15	286	15	15	322	15	15	357	15	15						
31	W36X231 TO W36X282	2 7/8													214	15	13	250	15	15	286	15	15	322	15	15	357	15	15						
30	W36X232 TO W36X256	3													214	15	15	250	15	15	286	15	15	322	15	15	357	15	15						
29	W36X135 TO W36X210	2 3/8													208	15	9 1/2	243	15	11	283	15	12	311	15	14	338	15	15						
28	W33X201 TO W33X318	3													214	15	12	250	15	13 3/4	286	15	15	322	15	15	I								
27	W33X118 TO W33X169	2 7/8													194	15	9 1/2	223	15	11	260	15	12	286	15	14									
26	W30X173 TO W30X261	3										178	15	8 3/4	214	15	10 1/4	250	15	12	286	15	13	H											
25	W30X90 TO W30X148	2 5/8										139	15	7 3/4	164	15	9 1/2	190	15	11	222	15	12												
24	W27X146 TO W27X194	3										178	15	7 3/4	211	15	9 1/2	245	15	11	G														
23	W27X84 TO W27X129	2 7/8										136	15	7 3/4	159	15	9 1/2	185	15	11															
22	W24X104 TO W24X176	3							122	15	6	148	15	7 3/4	174	15	9 1/2	F																	
21	W24X68 TO W24X103	2 3/4							101	15	6	122	15	7 3/4	144	14	9 1/2																		
20	W24X55 TO W24X62	3							96	15	6	117	14	7 3/4	137	12 1/2	9 1/2																		
19	W21X101 TO W21X147	2 1/2							123	15	6	149	15	7 3/4	E																				
18	W21X48 TO W21X93	2							85	13 1/2	6	103	12	7 3/4																					
17	W21X44 TO W21X57	2							86	13 1/4	6	104	11 3/4	7 3/4																					
16	W18X76 TO W18X130	2							103	15	6	178	--	--																					
15	W18X50 TO W18X71	2							87	12 3/4	6	155	--	--																					
14	W18X35 TO W18X46	2							73	10 1/4	6	131	--	--																					
13	W16X67 TO W16X100	1 3/4							96	13 1/2	6	D																							
12	W16X36 TO W16X57	1 3/4				56	11 3/4	4 1/2	72	9 3/4	6																								
11	W16X26 TO W16X31	1 5/8				46	9 1/2	4 1/2	61	7 3/4	6																								
10	W14X61 TO W14X82	2				71	12 3/4	4 1/2	C																										
9	W14X43 TO W14X53	2				57	10 1/2	4 1/2																											
8	W14X30 TO W14X38	2				50	9 1/2	4 1/2																											
7	W14X22 TO W14X26	2				44	7 1/2	4 1/4																											
6	W12X40 TO W12X58	--				77	--	--																											
5	W12X26 TO W12X35	1 1/8				44	7 3/4	4 1/4																											
4	W12X14 TO W12X22	1	26	7 3/4	3	38	6	4 1/2																											
3	W10X33 TO W10X45	1 5/8	38	9	3	B																													
2	W10X22 TO W10X30	2	28	8 1/2	3																														
1	W10X12 TO W10X19	2	25	5 3/4	3																														
			A																																

THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 2 - DABB2 - 7/8" DIA GR A325N BOLTS

VER 1.1

DOUBLE ANGLE SHEAR CONNECTION (BOLTED-BOLTED)

12/22/2023

	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
	NUMBER OF BOLTS PER ROW		2			3			4			5			6			7			8			9			10			11			12		
	ANGLE THICKNESS (in)		3/8			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2		
	MIN ANGLE LENGTH (in)		6			9			12			15			18			21			24			27			30			33			36		
39	W44X230 TO W44X335	3																274	15	12	314	15	13 1/2	350	15	15	387	15	15	424	15	15	460	15	15
38	W40X503 TO W40X655	4 7/8																340	15	15	389	15	15	438	15	15	487	15	15	535	--	--	K		
37	W40X324 TO W40X431	3 5/8																340	15	14 1/4	389	15	15	438	15	15	487	15	15	535	--	--			
36	W40X199 TO W40X297	3																250	15	12	287	15	13 1/2	320	15	15	354	15	15	535	--	--			
35	W40X264 TO W40X392	3 7/8																340	15	13 1/2	389	15	15	438	15	15	487	15	15	535	--	--			
34	W40X149 TO W40X235	3																241	15	12	277	15	13 1/2	310	15	15	342	15	15	535	--	--			
33	W36X487 TO W36X652	4 7/8													292	15	15	340	15	15	389	15	15	438	15	15	487	--	--	J					
32	W36X302 TO W36X441	3 3/4													292	15	11 1/4	340	15	13	389	15	14 3/4	438	15	15	487	--	--						
31	W36X231 TO W36X282	2 7/8													257	15	10	292	15	12	335	15	13 1/2	375	15	15	414	15	15						
30	W36X232 TO W36X256	3													257	15	10	334	15	12	383	15	13 1/2	428	15	15	473	15	15						
29	W36X135 TO W36X210	2 3/8													202	15	10	230	15	12	264	15	13 1/2	295	15	15	326	15	15						
28	W33X201 TO W33X318	3													242	15	10	275	15	12	313	15	13 1/2	353	15	15	I								
27	W33X118 TO W33X169	2 7/8													186	15	10	212	15	12	243	15	13 1/2	271	15	15									
26	W30X173 TO W30X261	3										182	15	8 1/2	219	15	10	250	15	12	287	15	13 1/2	H											
25	W30X90 TO W30X148	2 5/8										132	15	8 1/2	159	15	10	181	15	12	207	15	13 1/2												
24	W27X146 TO W27X194	3										171	15	8 1/2	205	15	10	233	15	12	G														
23	W27X84 TO W27X129	2 7/8										129	15	8 1/2	155	15	10	176	15	12															
22	W24X104 TO W24X176	3							117	15	6 1/2	140	15	8 1/2	168	15	10	F																	
21	W24X68 TO W24X103	2 3/4							97	15	6 1/2	116	15	8 1/2	139	14 1/4	10																		
20	W24X55 TO W24X62	3							92	15	6 1/2	111	14 1/2	8 1/2	133	12 3/4	10																		
19	W21X101 TO W21X147	2 1/2							118	15	6 1/2	141	15	8 1/2	E																				
18	W21X48 TO W21X93	2							82	14	6 1/2	98	12 1/2	8 1/2																					
17	W21X44 TO W21X57	2							82	13 3/4	6 1/2	98	12 1/4	8 1/2																					
16	W18X76 TO W18X130	2							99	15	6 1/2	217	--	--																					
15	W18X50 TO W18X71	2							83	13 1/4	6 1/2	181	--	--																					
14	W18X35 TO W18X46	2							70	10 1/2	6 1/2	153	--	--																					
13	W16X67 TO W16X100	1 3/4							92	14	6 1/2	D																							
12	W16X36 TO W16X57	1 3/4				52	12 1/4	5	69	10	6 1/2																								
11	W16X26 TO W16X31	1 5/8				44	9 3/4	5	58	8	6 1/2																								
10	W14X61 TO W14X82	2				67	13 1/2	5	C																										
9	W14X43 TO W14X53	2				54	11	5																											
8	W14X30 TO W14X38	2				47	9 3/4	5																											
7	W14X22 TO W14X26	2				40	8	5																											
6	W12X40 TO W12X58	--				90	--	--																											
5	W12X26 TO W12X35	1 1/8				40	8 1/4	5																											
4	W12X14 TO W12X22	1	26	7 3/4	3	35	6 1/2	5																											
3	W10X33 TO W10X45	1 5/8	38	9	3	B																													
2	W10X22 TO W10X30	2	31	7 3/4	3																														
1	W10X12 TO W10X19	2	25	5 3/4	3																														
			A																																

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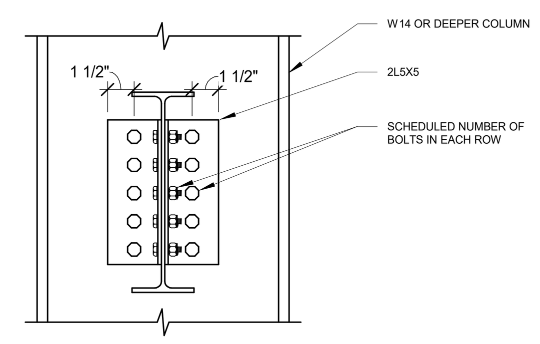
TABLE 3 - DABB3 - 1" DIA GR A490N BOLTS

VER 1.1

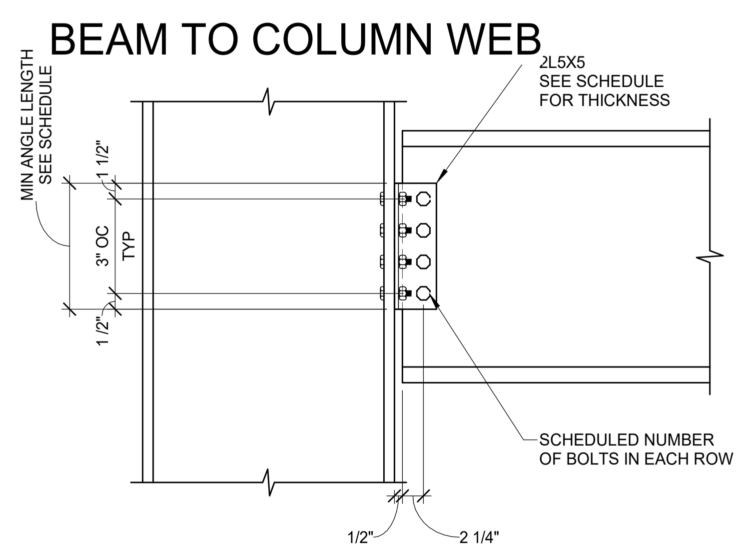
DOUBLE ANGLE SHEAR CONNECTION (BOLTED-BOLTED)

12/22/2023

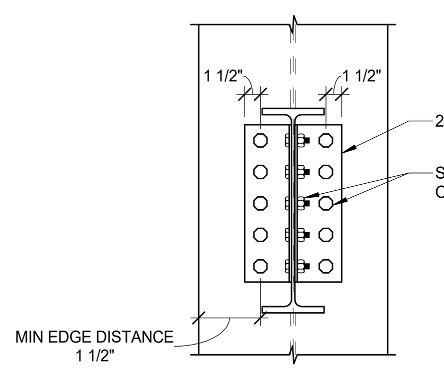
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
	NUMBER OF BOLTS PER ROW		2			3			4			5			6			7			8			9			10			11			12		
	ANGLE THICKNESS (in)		1/2			5/8			5/8			5/8			5/8			5/8			5/8			5/8			5/8			5/8			5/8		
	MIN ANGLE LENGTH (in)		6			9			12			15			18			21			24			27			30			33			36		
39	W44X230 TO W44X335	3																275	15	13	293	15	15	326	15	15	359	15	15	392	15	15	439	15	15
38	W40X503 TO W40X655	4 7/8																413	15	15	461	15	15	532	15	15	591	15	15	650	--	--	K		
37	W40X324 TO W40X431	3 5/8																365	15	13	412	15	15	459	15	15	506	15	15	650	--	--			
36	W40X199 TO W40X297	3																237	15	13	268	15	15	298	15	15	329	15	15	650	--	--			
35	W40X264 TO W40X392	3 7/8																350	15	13	395	15	15	440	15	15	485	15	15	650	--	--			
34	W40X149 TO W40X235	3																229	15	13	258	15	15	288	15	15	342	15	15	649	--	--			
33	W36X487 TO W36X652	4 7/8													354	15	15	413	15	15	473	15	15	532	15	15	591	--	--	J					
32	W36X302 TO W36X441	3 3/4													299	15	11	343	15	13	387	15	15	431	15	15	591	--	--						
31	W36X231 TO W36X282	2 7/8													242	15	11	277	15	13	313	15	15	348	15	15	384	15	15						
30	W36X232 TO W36X256	3													276	15	11	317	15	13	358	15	15	398	15	15	439	15	15						
29	W36X135 TO W36X210	2 3/8													190	15	11	218	15	13	246	15	15	275	15	15	303	15	15						
28	W33X201 TO W33X318	3													228	15	11	261	15	13	295	15	15	328	15	15	I								
27	W33X118 TO W33X169	2 7/8													175	15	11	201	15	13	229	15	15	252	15	15									
26	W30X173 TO W30X261	3										173	15	9 1/4	206	15	11	237	15	13	268	15	15	H											
25	W30X90 TO W30X148	2 5/8										125	15	9 1/4	149	15	11	171	15	13	193	15	15												
24	W27X146 TO W27X194	3										162	15	9 1/4	193	15	11	221	15	13	G														
23	W27X84 TO W27X129	2 7/8										122	15	9 1/4	145	15	11	167	15	13															
22	W24X104 TO W24X176	3							112	15	7	133	15	9 1/4	159	15	11	F																	
21	W24X68 TO W24X103	2 3/4							92	15	7	107	15	9 1/4	131	15	11																		
20	W24X55 TO W24X62	3							88	15	7	105	15	9 1/4	125	13 1/4	11																		
19	W21X101 TO W21X147	2 1/2							113	15	7	133	15	9 1/4	E																				
18	W21X48 TO W21X93	2							78	14 1/4	7	93	12 3/4	9 1/4																					
17	W21X44 TO W21X57	2							78	14	7	93	12 1/2	9 1/4																					
16	W18X76 TO W18X130	2							95	15	7	225	--	--																					
15	W18X50 TO W18X71	2							79	13 3/4	7	188	--	--																					
14	W18X35 TO W18X46	2							67	10 3/4	7	159	--	--																					
13	W16X67 TO W16X100	1 3/4							88	14 1/4	7	D																							
12	W16X36 TO W16X57	1 3/4				52	12 1/4	5	66	10 1/4	7 1/2																								
11	W16X26 TO W16X31	1 5/8				44	9 3/4	5	55	8 1/2	7																								
10	W14X61 TO W14X82	2				67	13 1/2	5	C																										
9	W14X43 TO W14X53	2				54	11	5																											
8	W14X30 TO W14X38	2				47	9 3/4	5																											
7	W14X22 TO W14X26	2				40	8	5																											
6	W12X40 TO W12X58	--				93	--	--																											
5	W12X26 TO W12X35	1 1/8				40	8 1/4	5																											
4	W12X14 TO W12X22	1	26	7 3/4	3	35	6 1/2	5																											
3	W10X33 TO W10X45	1 5/8	38	9	3	B																													
2	W10X22 TO W10X30	2	31	7 3/4	3																														
1	W10X12 TO W10X19	2	25	5 3/4	3																														
			A																																



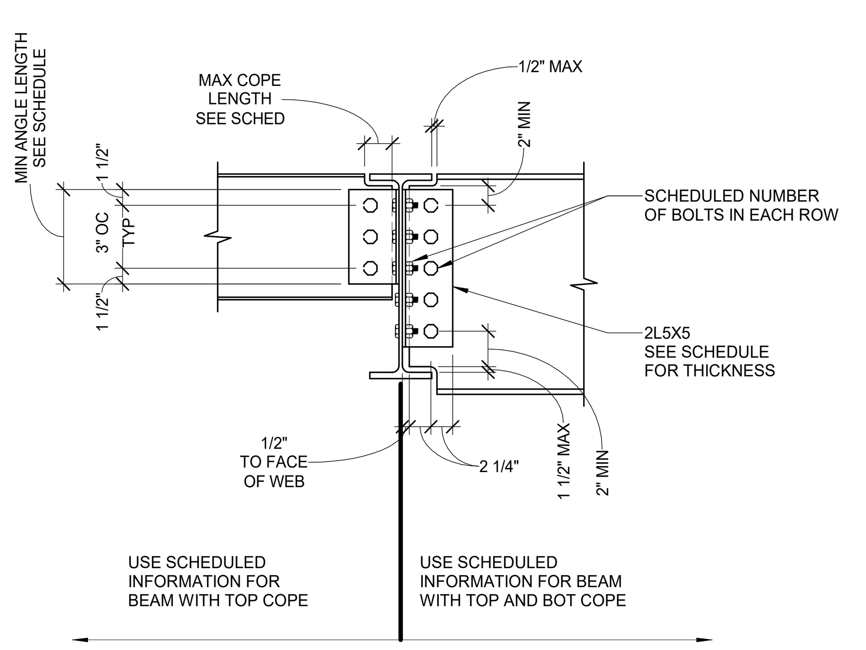
BEAM TO COLUMN WEB



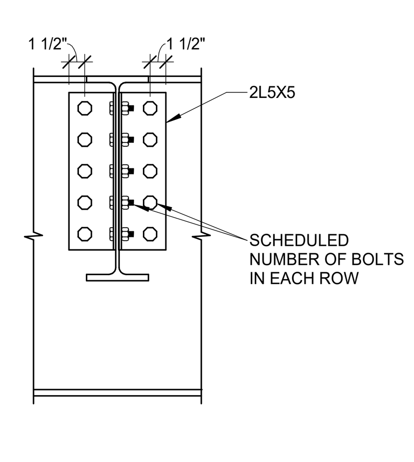
BEAM TO COLUMN FLANGE



BEAM TO COLUMN FLANGE



BEAM TO BEAM



BEAM TO BEAM

1 DOUBLE ANGLE BOLTED-BOLTED CONNECTION

1/2" = 1'-0"

NOTES:

1. THESE TABLES ARE BASED ON THE AISC MANUAL 15th EDITION.
2. USE THESE TYPICAL CONNECTION DETAILS UNLESS A SPECIFIC CONNECTION DETAIL IS NOTED OTHERWISE.
3. USE THE APPROPRIATE SCHEDULE (TABLE 1, TABLE 2, OR TABLE 3) FOR THE SELECTED BOLT DIAMETER AND GRADE. CONTRACTOR TO COORDINATE BOLT DIAMETER AND GRADE BETWEEN STEEL FABRICATOR AND STEEL ERECTOR.
4. SEE PLAN FOR BEAM REACTIONS (V). THOSE ARE THE MINIMUM REQUIRED CAPACITIES. BEAM REACTIONS ARE ULTIMATE VALUES (LRFD)
5. "V" IN THE SCHEDULE DENOTES SHEAR AT THE END OF THE BEAM (KIPS)

   ENTER THE SCHEDULE FOR A GIVEN BEAM SIZE. THE SCHEDULE IDENTIFIES THE MAXIMUM SHEAR (V) THAT THE BEAM CAN RESIST. THE REQUIRED V MAY NOT EXCEED THE CORRESPONDING VALUE IN THE SCHEDULE.

   SCHEDULED VALUES OF V ARE ULTIMATE CAPACITIES (LRFD)
6. THE MINIMUM THICKNESS OF THE SUPPORTING BEAM WEB OR, COLUMN FLANGE TO WHICH THE LEG OF THE DOUBLE ANGLES ATTACHES IS AS FOLLOWS:

ANGLE LEG BOLTED	
BOLT	MIN SUPPORT THICKNESS
3/4" A325	0.257"
7/8" A325	0.300"
1" A490	0.450"

   WHEN TWO DOUBLE ANGLE CONNECTIONS ALIGN ON OPPOSITE SIDES OF A BEAM WEB, THE MINIMUM THICKNESS OF THE BEAM WEB SHALL BE THE SUM OF THE THICKNESSES REQUIRED FOR EACH CONNECTION. WHEN LESS THAN THE MINIMUM THICKNESS IS PRESENT, THE SCHEDULED CAPACITIES MUST BE REDUCED USING THE RATIO OF THE THICKNESS PROVIDED TO THE THICKNESS REQUIRED.
7. SEE SCHEDULE FOR MAXIMUM LENGTH OF COPES (TOP AND BOTTOM) FOR THE SCHEDULED CONNECTION CAPACITIES.
8. SEE SCHEDULE FOR NUMBER OF BOLTS, ANGLE THICKNESS, MINIMUM ANGLE LENGTH, AND FILLET WELD SIZE FOR THE SCHEDULED CONNECTION CAPACITIES.
9. USE NO LESS THAN THE NUMBER OF BOLTS THAT ARE SCHEDULED FOR THE GIVEN BEAM SIZE.
10. SCHEDULED CAPACITIES ARE BASED ON A BEARING TYPE CONNECTION.
11. PROVIDE STANDARD HOLES (STD) IN BEAM WEB AND DOUBLE ANGLES. AT CONTRACTOR'S OPTION, HOLES IN EITHER LEG OF THE DOUBLE ANGLES MAY BE STANDARD SHORT-SLOTTED HOLES WITH THE SLOT ORIENTED HORIZONTALLY. DO NOT PROVIDE SHORT SLOTTED HOLES IN THE BEAM WEB, OR COLUMN FLANGE.
12. BOLTS MAY BE SNUG TIGHT. AT CONTRACTOR'S OPTION, FULLY PRETENSIONED BOLTS MAY BE INSTALLED.
13. SCHEDULED CAPACITIES WERE DEVELOPED ASSUMING A MAXIMUM DEPTH OF TOP COPE AS SCHEDULED. ACTUAL DEPTH OF TOP COPE MAY BE LESS THAN THOSE ASSUMED VALUES.
14. DEPTH OF BOTTOM COPE IS NOT LIMITED, BUT SHALL COMPLY WITH CRITERIA IN THESE TYPICAL DETAILS AND THE SCHEDULED MINIMUM LENGTH OF ANGLE.
15. SCHEDULED CONNECTION INFORMATION IS FOR ANGLES CONFORMING TO A36, GR. 36. USE OF HIGHER GRADE ANGLES IS ALSO ACCEPTABLE.
16. SCHEDULED CONNECTION INFORMATION IS FOR BEAMS CONFORMING TO ASTM A992, GR 50.
17. AT CONTRACTOR'S OPTION, ONE OF THE ANGLES MAY BE FIELD WELDED AND THE OTHER SHOP WELDED.
18. TOLERANCE FOR THE RETURN WELD SHALL BE +1/4 INCH AND -0 INCH.
19. NOTIFY STRUCTURAL ENGINEER FOR CONNECTIONS THAT DO NOT CONFORM WITH THE SPECIFIED LIMITS.
20. CONTRACTOR MAY SUBMIT ALTERNATIVE DETAILS ALONG WITH SUPPORTING CALCULATIONS FOR STRUCTURAL ENGINEER'S CONSIDERATION. SUBMITTED CALCULATIONS SHALL BE SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF JURISDICTION.
21. CONTRACTOR SHALL IDENTIFY CELL DESIGNATION TAT WAS SELECTED FROM TABLE FOR EACH CONNECTION ON PLAN OR PIECEMARK SHEETS. EXAMPLE CELL DESIGNATION IS AS FOLLOWS:

    DABB1 - 1 A
    TABLE — DABB1; BEAM GROUP — 1; CONNECTION — A

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLD DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

REVISIONS

COLORADO LICENSED PROFESSIONAL ENGINEER NICHOLAS W. DAVID 65236

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

S	Q	N	L	J	G	E	C	A
T	R	P	M	K	H	F	D	B

DOUBLE ANGLE BOLTED-BOLTED CONNECTION

JOB 24464.0000
DATE 01.31.2025
SHEET
S5-06

2/4/2025 4:13:09 PM S5-06 DOUBLE ANGLE BOLTED-BOLTED CONNECTION

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

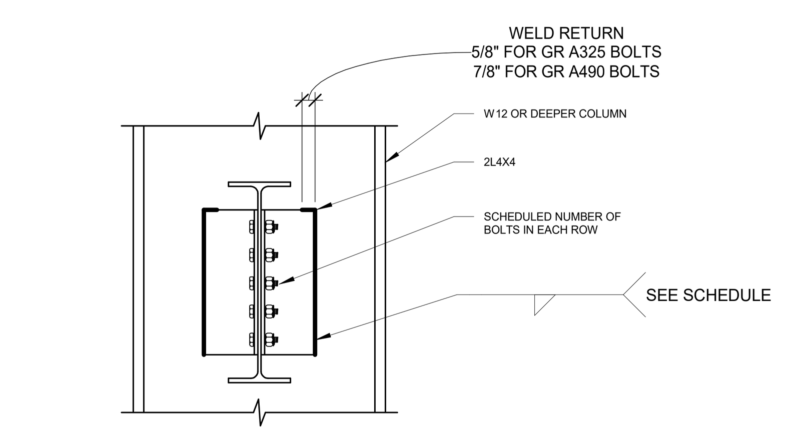
THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 1 - DABW1 - 3/4" DIA GR A325N BOLTS

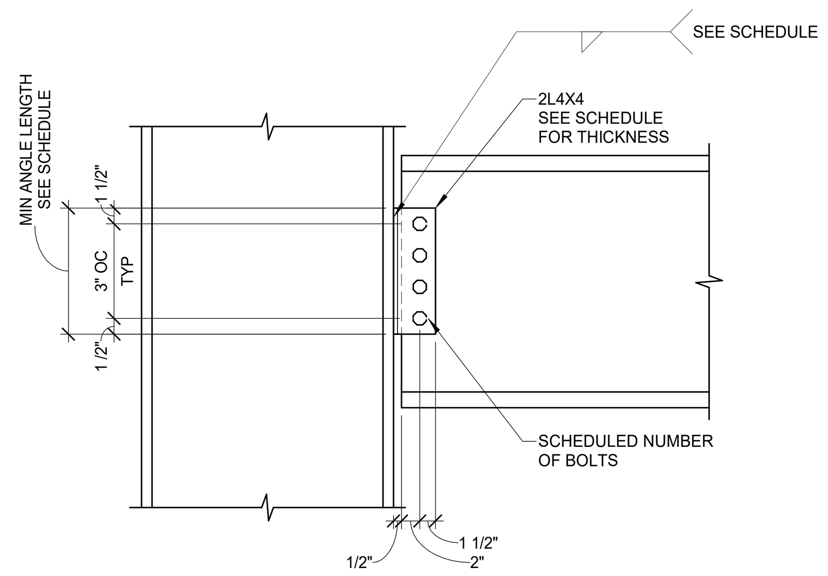
VER 1.1

DOUBLE ANGLE SHEAR CONNECTION (BOLTED-WELDED) 12/22/2023

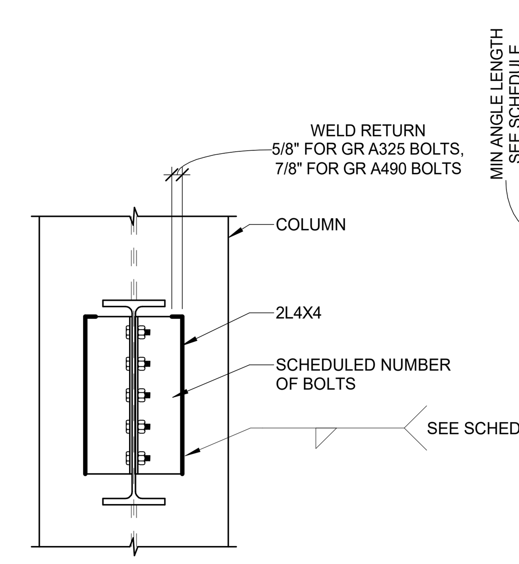
	NUMBER OF BOLTS PER ROW		2			3			4			5			6			7			8			9			10			11			12		
	ANGLE THICKNESS (in)		5/16			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8		
	MIN ANGLE LENGTH (in)		6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)		1/4			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16		
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
39	W44X230 TO W44X335	3																241	15	14 1/4	286	15	15	322	15	15	357	15	15	393	15	15	429	15	15
38	W40X503 TO W40X655	4 7/8																241	15	15	286	15	15	322	15	15	357	15	15	393	--	--			
37	W40X324 TO W40X431	3 5/8																241	15	15	286	15	15	322	15	15	357	15	15	393	--	--			
36	W40X199 TO W40X297	3																241	15	12 1/2	286	15	13 1/2	322	15	15	357	15	15	393	--	--			
35	W40X264 TO W40X392	3 7/8																241	15	15	286	15	15	322	15	15	357	15	15	393	--	--			
34	W40X149 TO W40X235	3																241	15	12	286	15	12 3/4	322	15	14 1/2	348	15	15	393	--	--			
33	W36X487 TO W36X652	4 7/8													195	15	15	241	15	15	286	15	15	322	15	15	357	--	--						
32	W36X302 TO W36X441	3 3/4													195	15	15	241	15	15	286	15	15	322	15	15	357	--	--						
31	W36X231 TO W36X282	2 7/8													195	15	14 1/2	241	15	15	286	15	15	322	15	15	357	15	15						
30	W36X232 TO W36X256	3													195	15	15	241	15	15	286	15	15	322	15	15	357	15	15						
29	W36X135 TO W36X210	2 3/8													195	15	10 1/2	218	15	13	277	15	12 1/2	304	15	14 1/2	332	15	15						
28	W33X201 TO W33X318	3													195	15	13 1/2	229	15	15	286	15	15	322	15	15									
27	W33X118 TO W33X169	2 7/8													192	15	9 1/2	215	15	11 3/4	254	15	12 1/2	280	15	14 1/2									
26	W30X173 TO W30X261	3									150	15	11 1/4	195	15	11 3/4	225	15	14	286	15	13 1/2												
25	W30X90 TO W30X148	2 5/8									137	15	8	164	15	9 1/2	190	15	11	217	15	12 1/2												
24	W27X146 TO W27X194	3									150	15	10 1/4	195	15	10 3/4	221	15	13															
23	W27X84 TO W27X129	2 7/8									133	15	8	159	15	9 1/2	183	15	11 1/4															
22	W24X104 TO W24X176	3						106	15	7 1/2	145	15	8	174	15	9 1/2																		
21	W24X68 TO W24X103	2 3/4						97	15	6 1/2	120	15	8	144	14	9 1/2																		
20	W24X55 TO W24X62	3						92	15	6 1/2	115	14	8	137	12 1/2	9 1/2																		
19	W21X101 TO W21X147	2 1/2						106	15	7 1/2	146	15	8																					
18	W21X48 TO W21X93	2						82	14	6 1/2	102	12 1/4	8																					
17	W21X44 TO W21X57	2						82	13 3/4	6 1/2	102	12	8																					
16	W18X76 TO W18X130	2						99	15	6 1/2	150	--	--																					
15	W18X50 TO W18X71	2						83	13 1/4	6 1/2	150	--	--																					
14	W18X35 TO W18X46	2						70	10 1/2	6 1/2	131	--	--																					
13	W16X67 TO W16X100	1 3/4						92	14	6 1/2																								
12	W16X36 TO W16X57	1 3/4				56	11 3/4	4 1/2	69	10	6 1/2																							
11	W16X26 TO W16X31	1 5/8				46	9 1/2	4 1/2	58	8	6 1/2																							
10	W14X61 TO W14X82	2				66	13 3/4	5																										
9	W14X43 TO W14X53	2				57	10 1/2	4 1/2																										
8	W14X30 TO W14X38	2				50	9 1/2	4 1/2																										
7	W14X22 TO W14X26	2				43	7 1/2	4 1/2																										
6	W12X40 TO W12X58	--				66	--	--																										
5	W12X26 TO W12X35	1 1/8				43	8	4 1/2																										
4	W12X14 TO W12X22	1	25	8	3 1/4	40	6	4																										
3	W10X33 TO W10X45	1 5/8	25	13 1/4	5 1/2																													
2	W10X22 TO W10X30	2	25	9 3/4	4 1/4																													
1	W10X12 TO W10X19	2	25	5 3/4	3																													
			A			B			C			D			E			F			G			H			I			J			K		



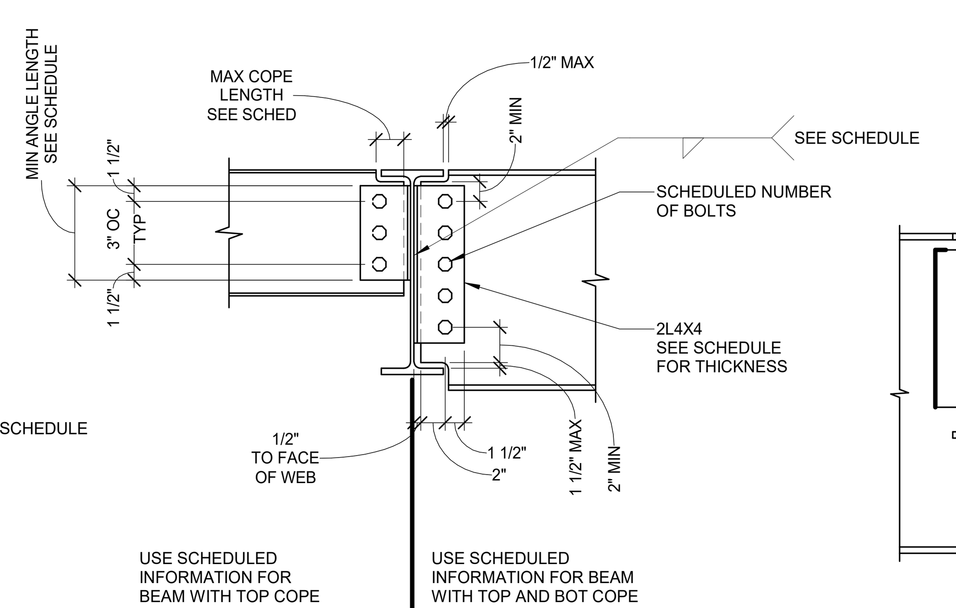
BEAM TO COLUMN WEB



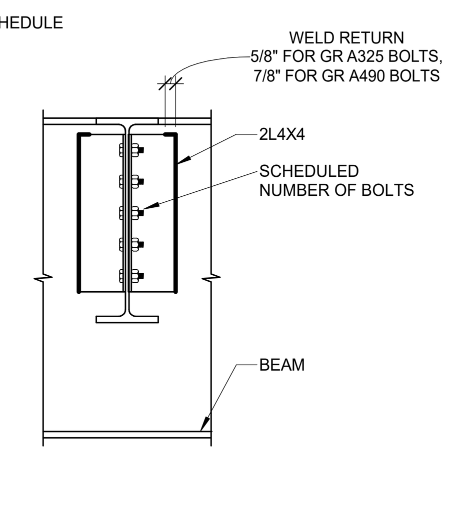
BEAM TO COLUMN FLANGE



BEAM TO COLUMN FLANGE



BEAM TO BEAM



BEAM TO BEAM

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TABLE 2 - DABW2 - 7/8" DIA GR A325N BOLTS

VER 1.1

DOUBLE ANGLE SHEAR CONNECTION (BOLTED-WELDED) 12/22/2023

	NUMBER OF BOLTS PER ROW		2			3			4			5			6			7			8			9			10			11			12		
	MIN ANGLE THICKNESS (in)		3/8			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2		
	MIN ANGLE LENGTH (in)		6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)		5/16			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8		
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
39	W44X230 TO W44X335	3																281	15	11 1/2	314	15	13 1/2	354	15	15	387	15	15	427	15	15	467	15	15
38	W40X503 TO W40X655	4 7/8																289	15	15	343	15	15	397	15	15	451	15	15	505	--	--			
37	W40X324 TO W40X431	3 5/8																289	15	15	343	15	15	397	15	15	451	15	15	505	--	--			
36	W40X199 TO W40X297	3																257	15	11 1/2	287	15	13 1/2	324	15	15	354	15	15	505	--	--			
35	W40X264 TO W40X392	3 7/8																289	15	15	343	15	15	397	15	15	451	15	15	505	--	--			
34	W40X149 TO W40X235	3																248	15	11 1/2	277	15	13 1/2	313	15	15	342	15	15	505	--	--			
33	W36X487 TO W36X652	4 7/8													234	15	15	289	15	15	343	15	15	397	15	15	451	--	--						
32	W36X302 TO W36X441	3 3/4													234	15	15	289	15	15	343	15	15	397	15	15	451	--	--						
31	W36X231 TO W36X282	2 7/8													234	15	11 1/2	289	15	12	335	15	13 1/2	378	15	15	414	15	15						
30	W36X232 TO W36X256	3													234	15	13 3/4	289	15	14 3/4	343	15	15	397	15	15	451	15	15						
29	W36X135 TO W36X210	2 3/8													202	15	10	236	15	11 1/2	264	15	13 1/2	298	15	15	326	15	15						
28	W33X201 TO W33X318	3													234	15	10 1/2	282	15	11 1/2	316	15	13 1/2	356	15	15									
27	W33X118 TO W33X169	2 7/8													186	15	10	217	15	11 1/2	243	15	13 1/2	274	15	15									
26	W30X173 TO W30X261	3									180	15	8 1/2	219	15	10	257	15	11 1/2	287	15	13 1/2												
25	W30X90 TO W30X148	2 5/8									137	15	8	159	15	10	185	15	11 1/2	207	15	13 1/2												
24	W27X146 TO W27X194	3									177	15	8	205	15	10	239	15	11 1/2															
23	W27X84 TO W27X129	2 7/8									133	15	8	155	15	10	181	15	11 1/2															
22	W24X104 TO W24X176	3						117	15	6 1/2	145	15	8	168	15	10																		
21	W24X68 TO W24X103	2 3/4						97	15	6 1/2	120	15	8	139	14 1/4	10																		
20	W24X55 TO W24X62	3						92	15	6 1/2	115	14	8	133	12 3/4	10																		
19	W21X101 TO W21X147	2 1/2						118	15	6 1/2	146	15	8																					
18	W21X48 TO W21X93	2						82	14	6 1/2	102	12 1/4	8																					
17	W21X44 TO W21X57	2						82	13 3/4	6 1/2	102	12	8																					
16	W18X76 TO W18X130	2						99	15	6 1/2	180	--	--																					
15	W18X50 TO W18X71	2						83	13 1/4	6 1/2	180	--	--																					
14	W18X35 TO W18X46	2						70	10 1/2	6 1/2	153	--	--																					
13	W16X67 TO W16X100	1 3/4						92	14	6 1/2																								
12	W16X36 TO W16X57	1 3/4				52	12 1/4	5	69	10	6 1/2																							
11	W16X26 TO W16X31	1 5/8				44	9 3/4	5	58	8	6 1/2																							
10	W14X61 TO W14X82	2				67	13 1/2	5																										
9	W14X43 TO W14X53	2				54	11	5																										
8	W14X30 TO W14X38	2				47	9 3/4	5																										
7	W14X22 TO W14X26	2				40	8	5																										
6	W12X40 TO W12X58	--				79	--	--																										
5	W12X26 TO W12X35	1 1/8				40	8 1/4	5																										
4	W12X14 TO W12X22	1	26	7 3/4	3	35	6 1/2	5																										
3	W10X33 TO W10X45	1 5/8	32	10 3/4	4																													
2	W10X22 TO W10X30	2	31	7 1/2	3																													
1	W10X12 TO W10X19	2	25	5 3/4	3																													
			A			B			C			D			E			F			G			H			I			J			K		

THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 3 - DABW3 - 1" DIA GR A490N BOLTS

VER 1.1

DOUBLE ANGLE SHEAR CONNECTION (BOLTED-WELDED) 12/22/2023

	NUMBER OF BOLTS PER ROW		2			3			4			5			6			7			8			9			10			11			12		
	ANGLE THICKNESS (in)		1/2			5/8			5/8			5/8			5/8			5/8			5/8			5/8			5/8			5/8			5/8		
	MIN ANGLE LENGTH (in)		6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)		3/8			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2		
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
39	W44X230 TO W44X335	3																281	15	11 1/2	314	15	13 1/2	354	15	15	387	15	15	427	15	15	467	15	15
38	W40X503 TO W40X655	4 7/8																385	15	15	458	15	15	530	15	15	591	15	15	650	--	--			
37	W40X324 TO W40X431	3 5/8																385	15	12	442	15	13 1/2	498	15	15	545	15	15	650	--	--			
36	W40X199 TO W40X297	3																257	15	11 1/2	287	15	13 1/2	324	15	15	354	15	15	650	--	--			
35	W40X264 TO W40X392	3 7/8																379	15	11 1/2	424	15	13 1/2	478	15	15	523	15	15	650	--	--			
34	W40X149 TO W40X235	3																248	15	11 1/2	277	15	13 1/2	313	15	15	342	15	15	649	--	--			
33	W36X487 TO W36X652	4 7/8													313	15	15	385	15	15	458	15	15	530	15	15	591	--	--						
32	W36X302 TO W36X441	3 3/4													313	15	10 1/4	371	15	11 1/2	415	15	13 1/2	469	15	15	591	--	--						
31	W36X231 TO W36X282	2 7/8													257	15	10	300	15	11 1/2	335	15	13 1/2	381	15	15	414	15	15						
30	W36X232 TO W36X256	3													293	15	10	343	15	11 1/2	383	15	13 1/2	433	15	15	473	15	15						
29	W36X135 TO W36X210	2 3/8													202	15	10	236	15	11 1/2	264	15	13 1/2	298	15	15	326	15	15						
28	W33X201 TO W33X318	3													242	15	10	282	15	11 1/2	316	15	13 1/2	356	15	15									
27	W33X118 TO W33X169	2 7/8													186	15	10	217	15	11 1/2	243	15	13 1/2	274	15	15									
26	W30X173 TO W30X261	3									189	15	8	219	15	10	257	15	11 1/2	287	15	13 1/2												
25	W30X90 TO W30X148	2 5/8									137	15	8	159	15	10	185	15	11 1/2	207	15	13 1/2												
24	W27X146 TO W27X194	3									177	15	8	205	15	10	239	15	11 1/2															
23	W27X84 TO W27X129	2 7/8									133	15	8	155	15	10	181	15	11 1/2															
22	W24X104 TO W24X176	3						117	15	6 1/2	145	15	8	168	15	10																		
21	W24X68 TO W24X103	2 3/4						97	15	6 1/2	120	15	8	139	14 1/4	10																		
20	W24X55 TO W24X62	3						92	15	6 1/2	115	14	8	133	12 3/4	10																		
19	W21X101 TO W21X147	2 1/2						118	15	6 1/2	146	15	8																					
18	W21X48 TO W21X93	2						82	14	6 1/2	102	12 1/4	8																					
17	W21X44 TO W21X57	2						82	13 3/4	6 1/2	102	12	8																					
16	W18X76 TO W18X130	2						99	15	6 1/2	225	--	--																					
15	W18X50 TO W18X71	2						83	13 1/4	6 1/2	188	--	--																					
14	W18X35 TO W18X46	2						70	10 1/2	6 1/2	159	--	--																					
13	W16X67 TO W16X100	1 3/4						92	14	6 1/2																								
12	W16X36 TO W16X57	1 3/4				52	12 1/4	5	69	10	6 1/2																							
11	W16X26 TO W16X31	1 5/8				44	9 3/4	5	58	8	6 1/2																							
10	W14X61 TO W14X82	2				67	13 1/2	5																										
9	W14X43 TO W14X53	2				54	11	5																										
8	W14X30 TO W14X38	2				47	9 3/4	5																										
7	W14X22 TO W14X26	2				40	8	5																										
6	W12X40 TO W12X58	--				93	--	--																										
5	W12X26 TO W12X35	1 1/8				40	8 1/4	5																										
4	W12X14 TO W12X22	1	26	7 3/4	3	35	6 1/2	5																										
3	W10X33 TO W10X45	1 5/8	38	9	3																													
2	W10X22 TO W10X30	2	32	7 1/2	3																													
1	W10X12 TO W10X19	2	25	5 3/4	3																													
			A			B			C			D			E			F			G			H			I			J			K		

NOTES:

1. THESE TABLES ARE BASED ON THE AISC MANUAL 15th EDITION.
2. USE THESE TYPICAL CONNECTION DETAILS UNLESS A SPECIFIC CONNECTION DETAIL IS NOTED OTHERWISE.
3. USE THE APPROPRIATE SCHEDULE (TABLE 1, TABLE 2, OR TABLE 3) FOR THE SELECTED BOLT DIAMETER AND GRADE. CONTRACTOR TO COORDINATE BOLT DIAMETER AND GRADE BETWEEN STEEL FABRICATOR AND STEEL ERECTOR.
4. SEE PLAN FOR BEAM REACTIONS (V). THOSE ARE THE MINIMUM REQUIRED CAPACITIES. BEAM REACTIONS ARE ULTIMATE VALUES (LRFD)
5. "V" IN THE SCHEDULE DENOTES SHEAR AT THE END OF THE BEAM (KIPS)

   ENTER THE SCHEDULE FOR A GIVEN BEAM SIZE. THE SCHEDULE IDENTIFIES THE MAXIMUM SHEAR (V) THAT THE BEAM CAN RESIST. THE REQUIRED V MAY NOT EXCEED THE CORRESPONDING VALUE IN THE SCHEDULE.

   SCHEDULED VALUES OF V ARE ULTIMATE CAPACITIES (LRFD)
6. THE MINIMUM THICKNESS OF THE SUPPORTING BEAM WEB OR, COLUMN FLANGE TO WHICH THE LEG OF THE DOUBLE ANGLES ATTACHES IS AS FOLLOWS:

ANGLE LEG WELDED		ANGLE LEG BOLTED	
WELD SIZE	MIN SUPPORT THICKNESS	BOLT	MIN SUPPORT THICKNESS
1/4"	0.190"	3/4" A325	0.257"
5/16"	0.238"	7/8" A325	0.300"
3/8"	0.286"	1" A490	0.450"

   WHEN TWO DOUBLE ANGLE CONNECTIONS ALIGN ON OPPOSITE SIDES OF A BEAM WEB, THE MINIMUM THICKNESS OF THE BEAM WEB OR SHALL BE THE SUM OF THE MINIMUM THICKNESSES REQUIRED FOR EACH CONNECTION. WHEN LESS THAN THE MINIMUM THICKNESS IS PRESENT, THE SCHEDULED CAPACITIES MUST BE REDUCED USING THE RATIO OF THE THICKNESS PROVIDED TO THE THICKNESS REQUIRED.
7. SEE SCHEDULE FOR MAXIMUM LENGTH OF COPES (TOP AND BOTTOM) FOR THE SCHEDULED CONNECTION CAPACITIES.
8. SEE SCHEDULE FOR NUMBER OF BOLTS, ANGLE THICKNESS, MINIMUM ANGLE LENGTH, AND FILLET WELD SIZE FOR THE SCHEDULED CONNECTION CAPACITIES.
9. USE NO LESS THAN THE NUMBER OF BOLTS THAT ARE SCHEDULED FOR THE GIVEN BEAM SIZE.
10. SCHEDULED CAPACITIES ARE BASED ON A BEARING TYPE CONNECTION.
11. PROVIDE STANDARD HOLES (STD) IN BEAM WEB AND DOUBLE ANGLES. AT CONTRACTOR'S OPTION, HOLES IN EITHER LEG OF THE DOUBLE ANGLES MAY BE STANDARD SHORT-SLOTTED HOLES WITH THE SLOT ORIENTED HORIZONTALLY. DO NOT PROVIDE SHORT SLOTTED HOLES IN THE BEAM WEB, OR COLUMN FLANGE.
12. BOLTS MAY BE SNUG TIGHT. AT CONTRACTOR'S OPTION, FULLY PRETENSIONED BOLTS MAY BE INSTALLED.
13. SCHEDULED CAPACITIES WERE DEVELOPED ASSUMING A MAXIMUM DEPTH OF TOP COPE AS SCHEDULED. ACTUAL DEPTH OF TOP COPE MAY BE LESS THAN THOSE ASSUMED VALUES.
14. DEPTH OF BOTTOM COPE IS NOT LIMITED, BUT SHALL COMPLY WITH CRITERIA IN THESE TYPICAL DETAILS AND THE SCHEDULED MINIMUM LENGTH OF ANGLE.
15. SCHEDULED CONNECTION INFORMATION IS FOR ANGLES CONFORMING TO A36, GR. 36. USE OF HIGHER GRADE ANGLES IS ALSO ACCEPTABLE.
16. SCHEDULED CONNECTION INFORMATION IS FOR BEAMS CONFORMING TO ASTM A992, GR 50.
17. AT CONTRACTOR'S OPTION, ONE OF THE ANGLES MAY BE FIELD WELDED AND THE OTHER SHOP WELDED.
18. TOLERANCE FOR THE RETURN WELD SHALL BE +1/4 INCH AND -0 INCH.
19. NOTIFY STRUCTURAL ENGINEER FOR CONNECTIONS THAT DO NOT CONFORM WITH THE SPECIFIED LIMITS.
20. CONTRACTOR MAY SUBMIT ALTERNATIVE DETAILS ALONG WITH SUPPORTING CALCULATIONS FOR STRUCTURAL ENGINEER'S CONSIDERATION. SUBMITTED CALCULATIONS SHALL BE SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF JURISDICTION.
21. CONTRACTOR SHALL IDENTIFY CELL DESIGNATION TAT WAS SELECTED FROM TABLE FOR EACH CONNECTION ON PLAN OR PIECEMARK SHEETS. EXAMPLE CELL DESIGNATION IS AS FOLLOWS:

DABW1 - 1 A
TABLE — BEAM GROUP — CONNECTION

1 DOUBLE ANGLE BOLTED-WELDED CONNECTION
1/2" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLD DESIGN CONSULTING LLC

ISSUES

1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

REVISIONS

COLORADO LICENSED PROFESSIONAL ENGINEER NICHOLAS W. DAVID 65236

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

KEYPLAN

S	Q	N	L	J	G	E	C	A
T	R	P	M	K	H	F	D	B

DOUBLE ANGLE BOLTED-WELDED CONNECTION

JOB 24464.0000
DATE 01.31.2025
SHEET
S5-07

2/4/2025 4:13:11 PM S5-07 DOUBLE ANGLE BOLTED-WELDED CONNECTION

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 1 - DAWB1 - 3/4" DIA GR A325N BOLTS

VER 1.1

DOUBLE ANGLE SHEAR CONNECTION (WELDED-BOLTED) 12/22/2023

	NUMBER OF BOLTS PER ROW		2			3			4			5			6			7			8			9			10			11			12		
	ANGLE THICKNESS (in)		5/16			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8		
	MIN ANGLE LENGTH (in)		6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)		1/4			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16		
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
39	W44X230 TO W44X335	3																240	15	14 1/2	273	15	15	307	15	15	337	15	15	370	15	15	413	15	15
38	W40X503 TO W40X655	4 7/8																250	15	15	286	15	15	322	15	15	357	15	15	393	--	--	K		
37	W40X324 TO W40X431	3 5/8																250	15	15	286	15	15	322	15	15	357	15	15	393	--	--			
36	W40X199 TO W40X297	3																234	15	13 1/4	268	15	15	298	15	15	332	15	15	393	--	--			
35	W40X264 TO W40X392	3 7/8																250	15	15	286	15	15	322	15	15	357	15	15	393	--	--			
34	W40X149 TO W40X235	3																232	15	12 3/4	264	15	14 1/2	297	15	15	326	15	15	393	--	--			
33	W36X487 TO W36X652	4 7/8													214	15	15	250	15	15	286	15	15	322	15	15	357	--	--	J					
32	W36X302 TO W36X441	3 3/4													214	15	15	248	15	15	282	15	15	322	15	15	357	--	--						
31	W36X231 TO W36X282	2 7/8													206	15	13 1/2	238	15	15	274	15	15	304	15	15	338	15	15						
30	W36X232 TO W36X256	3													212	15	15	246	15	15	280	15	15	314	15	15	357	15	15						
29	W36X135 TO W36X210	2 3/8													196	15	10 1/2	227	15	12 1/4	261	15	13 3/4	292	15	15	323	15	15						
28	W33X201 TO W33X318	3													205	15	12 3/4	238	15	14 3/4	271	15	15	305	15	15	I								
27	W33X118 TO W33X169	2 7/8													192	15	9 1/2	220	15	11 1/4	251	15	12 3/4	283	15	14 1/4									
26	W30X173 TO W30X261	3										169	15	9 1/2	197	15	11 3/4	234	15	13 1/4	268	15	15	H											
25	W30X90 TO W30X148	2 5/8										150	15	6 3/4	176	15	8 1/4	208	15	9 1/4	235	14 1/2	10 3/4												
24	W27X146 TO W27X194	3										164	15	9	196	15	10 3/4	229	15	12 1/4	G														
23	W27X84 TO W27X129	2 7/8										148	15	6 1/2	174	15	8	206	14 1/4	9															
22	W24X104 TO W24X176	3							122	15	6	150	15	7 1/2	182	15	8 3/4	F																	
21	W24X68 TO W24X103	2 3/4							110	15	5	138	14 1/2	6	167	12 1/2	7																		
20	W24X55 TO W24X62	3							107	14 1/2	4 3/4	134	12 3/4	5 3/4	163	11	6 1/2																		
19	W21X101 TO W21X147	2 1/2							120	15	6 1/4	151	15	7 1/2	E																				
18	W21X48 TO W21X93	2							103	12	3 3/4	121	10 3/4	5 1/2																					
17	W21X44 TO W21X57	2							104	11 3/4	3 3/4	119	10 3/4	5 3/4																					
16	W18X76 TO W18X130	2							113	14 3/4	5	178	--	--																					
15	W18X50 TO W18X71	2							105	11 1/4	3 3/4	178	--	--																					
14	W18X35 TO W18X46	2							88	9	3 3/4	159	--	--																					
13	W16X67 TO W16X100	1 3/4							107	12 1/4	4 3/4	D																							
12	W16X36 TO W16X57	1 3/4				64	10 1/2	3 1/4	87	8 1/2	3 3/4																								
11	W16X26 TO W16X31	1 5/8				53	8 1/2	3 1/4	73	7	3 3/4																								
10	W14X61 TO W14X82	2				79	11 1/2	3 1/2	C																										
9	W14X43 TO W14X53	2				66	9 1/2	3 1/4																											
8	W14X30 TO W14X38	2				58	8 1/2	3 1/4																											
7	W14X22 TO W14X26	2				49	7	3 1/4																											
6	W12X40 TO W12X58	--				100	--	--																											
5	W12X26 TO W12X35	1 1/8				49	7 1/4	3 1/4																											
4	W12X14 TO W12X22	1	26	7 3/4	3	40	5 3/4	3 3/4																											
3	W10X33 TO W10X45	1 5/8	38	9	3	B																													
2	W10X22 TO W10X30	2	31	7 3/4	3																														
1	W10X12 TO W10X19	2	25	5 3/4	3																														
			A																																

THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 2 - DAWB2 - 7/8" DIA GR A325N BOLTS

VER 1.1

DOUBLE ANGLE SHEAR CONNECTION (WELDED-BOLTED) 12/22/2023

	NUMBER OF BOLTS PER ROW		2			3			4			5			6			7			8			9			10			11			12		
	MIN ANGLE THICKNESS (in)		3/8			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2			1/2		
	MIN ANGLE LENGTH (in)		6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)		5/16			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8		
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
39	W44X230 TO W44X335	3																288	15	11	332	15	12 1/4	373	15	13 3/4	413	15	15	453	15	15	497	15	15
38	W40X503 TO W40X655	4 7/8																335	15	15	387	15	15	438	15	15	487	15	15	532	--	--	K		
37	W40X324 TO W40X431	3 5/8																325	15	15	371	15	15	418	15	15	465	15	15	532	--	--			
36	W40X199 TO W40X297	3																277	15	10	318	15	11 1/4	358	15	12 1/2	399	15	13 3/4	532	--	--			
35	W40X264 TO W40X392	3 7/8																323	15	14 1/2	369	15	15	413	15	15	458	15	15	532	--	--			
34	W40X149 TO W40X235	3																275	15	9 1/2	314	15	10 3/4	353	15	12	393	15	13 1/4	532	--	--			
33	W36X487 TO W36X652	4 7/8													283	15	15	335	15	15	387	15	15	438	15	15	487	15	--	J					
32	W36X302 TO W36X441	3 3/4													277	15	12 1/4	321	15	14 1/4	369	15	15	414	15	15	487	15	--						
31	W36X231 TO W36X282	2 7/8													261	15	9 3/4	304	15	11 1/4	347	15	12 3/4	386	15	14 1/2	429	15	15						
30	W36X232 TO W36X256	3													263	15	11 3/4	308	15	13 1/2	353	15	15	402	15	15	443	15	15						
29	W36X135 TO W36X210	2 3/8													228	15	8	269	15	9	306	15	10 1/4	344	15	11 1/2	381	15	12 3/4						
28	W33X201 TO W33X318	3													246	15	9 3/4	282	15	11	330	15	12 1/2	371	15	14	I								
27	W33X118 TO W33X169	2 7/8													238	15	5 3/4	266	15	7 1/2	300	15	8 3/4	335	15	10									
26	W30X173 TO W30X261	3										196	15	7 1/2	237	15	8 3/4	277	15	10	318	15	11 1/4	H											
25	W30X90 TO W30X148	2 5/8										163	15	5 1/2	192	15	6 3/4	224	15	7 3/4	254	13 3/4	9												
24	W27X146 TO W27X194	3										190	15	7	231	15	8	269	15	9 1/4	G														
23	W27X84 TO W27X129	2 7/8										164	15	5	193	15	6 1/4	221	13 1/2	7 1/2															
22	W24X104 TO W24X176	3							136	15	4 3/4	176	15	5 1/4	204	15	6 3/4	F																	
21	W24X68 TO W24X103	2 3/4							117	15	4 1/4	143	14	5 1/2	169	12 1/2	6 3/4																		
20	W24X55 TO W24X62	3							112	14 1/4	4 1/4	137	12 1/2	5 1/2	161	11 1/4	6 3/4																		
19	W21X101 TO W21X147	2 1/2							137	15	4 3/4	171	15	5 3/4	E																				
18	W21X48 TO W21X93	2							103	12	3 3/4	121	10 3/4	5 1/2																					
17	W21X44 TO W21X57	2							104	11 3/4	3 3/4	119	10 3/4	5 3/4																					
16	W18X76 TO W18X130	2							125	13 1/2	3 3/4	230	--	--																					
15	W18X50 TO W18X71	2							105	11 1/4	3 3/4	191	--	--																					
14	W18X35 TO W18X46	2							88	9	3 3/4	159	--	--																					
13	W16X67 TO W16X100	1 3/4							116	11 1/2	3 3/4	D																							
12	W16X36 TO W16X57	1 3/4				64	10 1/2	3 1/4	87	8 1/2	3 3/4																								
11	W16X26 TO W16X31	1 5/8				53	8 1/2	3 1/4	73	7	3 3/4																								
10	W14X61 TO W14X82	2				79	11 1/2	3 1/2	C																										
9	W14X43 TO W14X53	2				66	9 1/2	3 1/4																											
8	W14X30 TO W14X38	2				58	8 1/2	3 1/4																											
7	W14X22 TO W14X26	2				49	7	3 1/4																											
6	W12X40 TO W12X58	--				105	--	--																											
5	W12X26 TO W12X35	1 1/8				49	7 1/4	3 1/4																											
4	W12X14 TO W12X22	1	26	7 3/4	3	40	5 3/4	3 3/4																											
3	W10X33 TO W10X45	1 5/8	38	9	3	B																													
2	W10X22 TO W10X30	2	31	7 3/4	3																														
1	W10X12 TO W10X19	2	25	5 3/4	3																														
			A																																

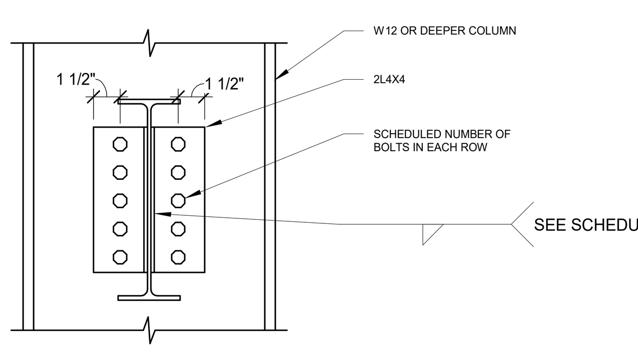
THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 3 - DAWB3 - 1" DIA GR A490N BOLTS

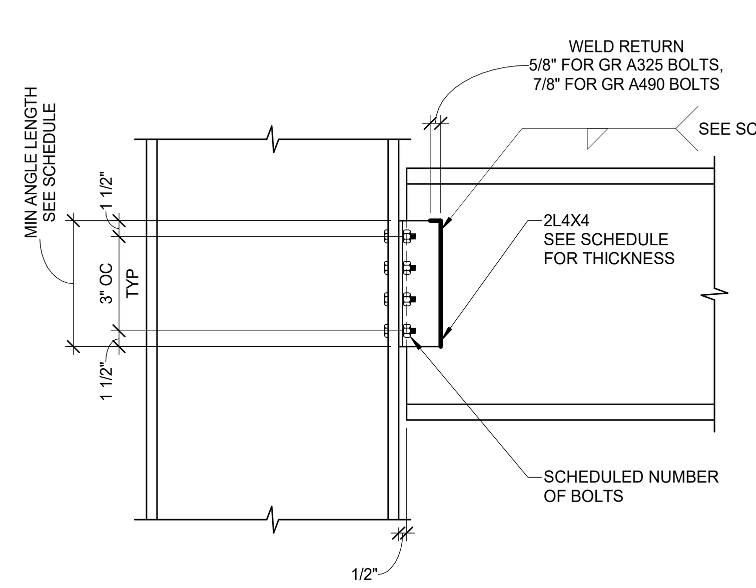
VER 1.1

DOUBLE ANGLE SHEAR CONNECTION (WELDED-BOLTED) 12/22/2023

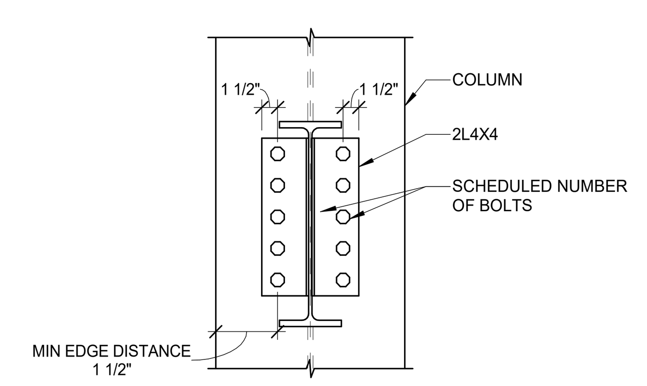
	NUMBER OF BOLTS PER ROW		2			3			4			5			6			7			8			9			10			11			12		
	ANGLE THICKNESS (in)		1/2			5/8			5/8			5/8			5/8			5/8			5/8			5/8			5/8			5/8			5/8		
	MIN ANGLE LENGTH (in)		6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)		5/16			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8			3/8		
	BEAM SIZE	MAX DEPTH OF TOP COPE (in)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)	MAX REACTION V (kips)	MAX COPE LENGTH (in) (TOP COPE ONLY)	MAX COPE LENGTH (in) (TOP & BOT COPE)
39	W44X230 TO W44X335	3																311	15	9 1/2	356	15	10 3/4	400	15	12	436	15	13 3/4	488	15	14 1/2	537	15	15
38	W40X503 TO W40X655	4 7/8																371	15	15	414	15	15	451	15	15	493	15	15	532	--	--	K		
37	W40X324 TO W40X431	3 5/8																351	15	13 3/4	403	15	15	451	15	15	493	15	15	532	--	--			
36	W40X199 TO W40X297	3																296	15	8 3/4	340	15	9 3/4	380	15	11	425	15	12	532	--	--			
35	W40X264 TO W40X392	3 7/8																345	15	13 1/4	399	15	14 3/4	449	15	15	493	15	15	532	--	--			
34	W40X149 TO W40X235	3																293	15	8 1/4	332	15	9 1/2	375	15	10 1/2	410	15	12	532	--	--			
33	W36X487 TO W36X652	4 7/8													320	15	15	371	15	15	414	15	15	451	15	15	493	--	--	J					
32	W36X302 TO W36X441	3 3/4													294	15	11 1/4	347	15	12 3/4	396	15	14 1/2	449	15	15	493	--	--						
31	W36X231 TO W36X282	2 7/8													273	15	9	320	15	10 1/4	367	15	11 1/2	415	15	12 3/4	462	15	14						
30	W36X232 TO W36X256	3													285	15	10 1/2	338	15	11 3/4	387	15	13 1/4	437	15	14 3/4	486	15	15						
29	W36X135 TO W36X210	2 7/8													242	15	7	282	15	8	323	15	9	357	15	10 1/2	462	15	12						
28	W33X201 TO W33X318	3													265	15	8 1/2	313	15	9 1/2	358	15	10 3/4	402	15	12	I								
27	W33X118 TO W33X169	2 7/8													233	15	6 3/4	261	15	7 3/4	292	15	9 1/4	326	15	10 1/2									
26	W30X173 TO W30X261	3										210	15	6 1/2	255	15	7 1/2	296	15	8 3/4	340	15	9 3/4	H											
25	W30X90 TO W30X148	2 5/8										163	15	5 1/2	192	15	6 3/4	222	15	8	254	13 3/4	9												
24	W27X146 TO W27X194	3										210	15	5 1/2	248	15	6 3/4	289	15	7 3/4	G														
23	W27X84 TO W27X129	2 7/8										164	15	5	193	15	6 1/4	221	13 1/2	7 1/2															
22	W24X104 TO W24X176	3							139	15	4 1/2	173	15	5 1/2	204	15	6 3/4	F																	
21	W24X68 TO W24X103	2 3/4							117	15	4 1/4	143	14	5 1/2	169	12 1/2	6 3/4																		
20	W24X55 TO W24X62	3							112	14 1/4	4 1/4	137	12 1/2	5 1/2	161	11 1/4	6 3/4																		
19	W21X101 TO W21X147	2 1/2							140	15	4 1/2	174	15	5 1/2	E																				
18	W21X48 TO W21X93	2							103	12	3 3/4	121	10 3/4	5 1/2																					
17	W21X44 TO W21X57	2							104	12	3 3/4	119	10 3/4	5 3/4																					
16	W18X76 TO W18X130	2							125	13 3/4	3 3/4	232	--	--																					
15	W18X50 TO W18X71	2							105	11 1/4	3 3/4	191	--	--																					
14	W18X35 TO W18X46	2							88	9	3 3/4	159	--	--																					
13	W16X67 TO W16X100	1 3/4							116	11 1/2	3 3/4	D																							
12	W16X36 TO W16X57	1 3/4				64	10 1/2	3 1/4	87	8 1/2	3 3/4																								
11	W16X26 TO W16X31	1 5/8				53	8 1/2	3 1/4	73	7	3 3/4																								
10	W14X61 TO W14X82	2				79	11 1/2	3 1/2	C																										
9	W14X43 TO W14X53	2				66	9 1/2	3 1/4																											
8	W14X30 TO W14X38	2				58	8 1/2	3 1/4																											
7	W14X22 TO W14X26	2				49	7	3 1/4																											
6	W12X40 TO W12X58	--				105	--	--																											
5	W12X26 TO W12X35	1 1/8				49	7 1/4	3 1/4																											
4	W12X14 TO W12X22	1	26	7 3/4	3	41	5 3/4	3 3/4																											
3	W10X33 TO W10X45	1 5/8	38	9	3	B																													
2	W10X22 TO W10X30	2	31	7 3/4	3																														
1	W10X12 TO W10X19	2	25	5 3/4	3																														
			A																																



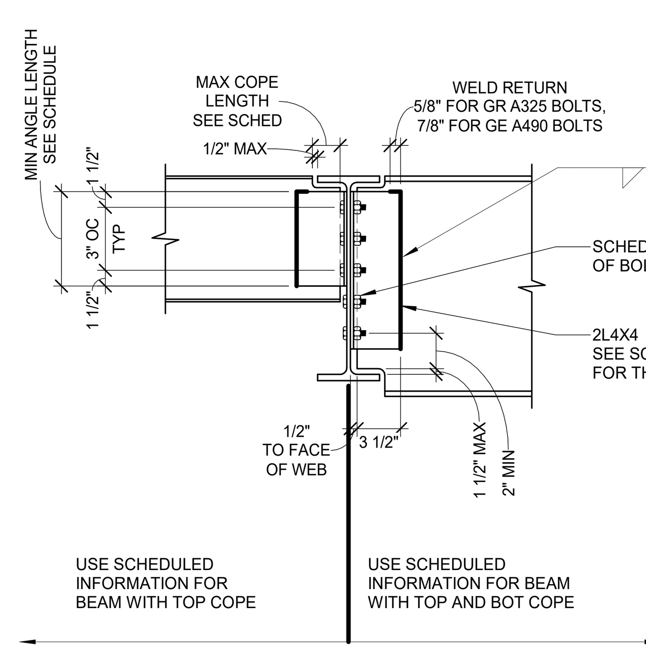
BEAM TO COLUMN WEB



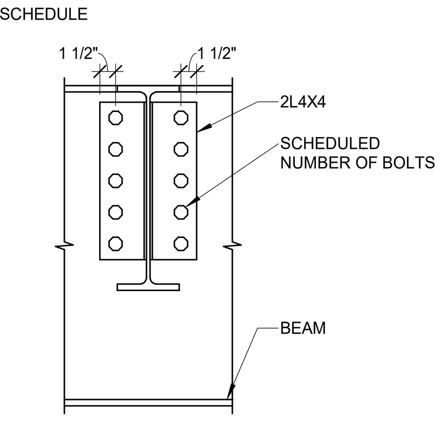
BEAM TO COLUMN FLANGE



BEAM TO COLUMN FLANGE



BEAM TO BEAM



BEAM TO BEAM

1 DOUBLE ANGLE WELDED-BOLTED CONNECTION

1/2" = 1'-0"

NOTES:

1. THESE TABLES ARE BASED ON THE AISC MANUAL 15th EDITION.

2. USE THESE TYPICAL CONNECTION DETAILS UNLESS A SPECIFIC CONNECTION DETAIL IS NOTED OTHERWISE.

3. USE THE APPROPRIATE SCHEDULE (TABLE 1, TABLE 2, OR TABLE 3) FOR THE SELECTED BOLT DIAMETER AND GRADE.
CONTRACTOR TO COORDINATE BOLT DIAMETER AND GRADE BETWEEN STEEL FABRICATOR AND STEEL ERECTOR.

4. SEE PLAN FOR BEAM REACTIONS (V). THOSE ARE THE MINIMUM REQUIRED CAPACITIES. BEAM REACTIONS ARE ULTIMATE VALUES (LRFD)

5. "V" IN THE SCHEDULE DENOTES SHEAR AT THE END OF THE BEAM (KIPS)

ENTER THE SCHEDULE FOR A GIVEN BEAM SIZE. THE SCHEDULE IDENTIFIES THE MAXIMUM SHEAR (V) THAT THE BEAM CAN RESIST. THE REQUIRED V MAY NOT EXCEED THE CORRESPONDING VALUE IN THE SCHEDULE.

SCHEDULED VALUES OF V ARE ULTIMATE CAPACITIES (LRFD)

6. THE MINIMUM THICKNESS OF THE SUPPORTING BEAM WEB, OR TO WHICH THE LEG OF THE DOUBLE ANGLES ATTACHES IS AS FOLLOWS:

ANGLE LEG WELDED		ANGLE LEG BOLTED	
WELD SIZE	MIN SUPPORT THICKNESS	BOLT	MIN SUPPORT THICKNESS
1/4"	0.190"	3/4" A325	0.257"
5/16"	0.238"	7/8" A325	0.300"
3/8"	0.286"	1" A490	0.450"

WHEN TWO DOUBLE ANGLE CONNECTIONS ALIGN ON OPPOSITE SIDES OF A BEAM WEB THE MINIMUM THICKNESS OF THE BEAM WEB SHALL BE THE SUM OF THE MINIMUM THICKNESSES REQUIRED FOR EACH CONNECTION. WHEN LESS THAN THE MINIMUM THICKNESS IS PRESENT, THE SCHEDULED CAPACITIES MUST BE REDUCED USING THE RATIO OF THE THICKNESS PROVIDED TO THE THICKNESS REQUIRED.

7. SEE SCHEDULE FOR MAXIMUM LENGTH OF COPES (TOP AND BOTTOM) FOR THE SCHEDULED CONNECTION CAPACITIES.

8. SEE SCHEDULE FOR NUMBER OF BOLTS, ANGLE THICKNESS, MINIMUM ANGLE LENGTH, AND FILLET WELD SIZE FOR THE SCHEDULED CONNECTION CAPACITIES.

9. USE NO LESS THAN THE NUMBER OF BOLTS THAT ARE SCHEDULED FOR THE GIVEN BEAM SIZE.

10. SCHEDULED CAPACITIES ARE BASED ON A BEARING TYPE CONNECTION.

11. PROVIDE STANDARD HOLES (STD) IN BEAM WEB AND DOUBLE ANGLES. AT CONTRACTOR'S OPTION, HOLES IN EITHER LEG OF THE DOUBLE ANGLES MAY BE STANDARD SHORT-SLOTTED HOLES WITH THE SLOT ORIENTED HORIZONTALLY. DO NOT PROVIDE SHORT SLOTTED HOLES IN THE BEAM WEB, OR COLUMN FLANGE.

12. BOLTS MAY BE SNUG TIGHT. AT CONTRACTOR'S OPTION, FULLY PRETENSIONED BOLTS MAY BE INSTALLED.

13. SCHEDULED CAPACITIES WERE DEVELOPED ASSUMING A MAXIMUM DEPTH OF TOP COPE AS SCHEDULED. ACTUAL DEPTH OF TOP COPE MAY BE LESS THAN THOSE ASSUMED VALUES.

14. DEPTH OF BOTTOM COPE IS NOT LIMITED, BUT SHALL COMPLY WITH CRITERIA IN THESE TYPICAL DETAILS AND THE SCHEDULED MINIMUM LENGTH OF ANGLE.

15. SCHEDULED CONNECTION INFORMATION IS FOR ANGLES CONFORMING TO A36, GR. 36. USE OF HIGHER GRADE ANGLES IS ALSO ACCEPTABLE.

16. SCHEDULED CONNECTION INFORMATION IS FOR BEAMS CONFORMING TO ASTM A992, GR 50.

17. AT CONTRACTOR'S OPTION, ONE OF THE ANGLES MAY BE FIELD WELDED AND THE OTHER SHOP WELDED.

18. TOLERANCE FOR THE RETURN WELD SHALL BE +1/4 INCH AND -0 INCH.

19. NOTIFY STRUCTURAL ENGINEER FOR CONNECTIONS THAT DO NOT CONFORM WITH THE SPECIFIED LIMITS.

20. CONTRACTOR MAY SUBMIT ALTERNATIVE DETAILS ALONG WITH SUPPORTING CALCULATIONS FOR STRUCTURAL ENGINEER'S CONSIDERATION. SUBMITTED CALCULATIONS SHALL BE SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF JURISDICTION.

21. CONTRACTOR SHALL IDENTIFY CELL DESIGNATION THAT WAS SELECTED FROM TABLE FOR EACH CONNECTION ON PLAN OR PIECEMARK SHEETS. EXAMPLE CELL DESIGNATION IS AS FOLLOWS:

DAWB1 - 1 A
TABLE
BEAM GROUP
CONNECTION

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLD DESIGN CONSULTING LLC

ISSUES

1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

REVISIONS

COLORADO LICENSED PROFESSIONAL ENGINEER NICHOLAS W. DAVID 65236
AG&E Structural Engenuity F-8435

Date of issue: 01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

DOUBLE ANGLE WELDED-BOLTED CONNECTIONS

JOB 24464.0000
DATE 01.31.2025
SHEET S5-08

RSN: 1881854 | PERMIT#: 25-2513934-CM

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC

THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 1 - ESP1 - 3/4" DIA GR A325N BOLTS

EXTENDED SINGLE PLATE SHEAR CONNECTION — VER 1.0 — 05/07/2024

	NUMBER OF BOLTS	2			3			4			5			6			7			8			9			10			11			12		
	EXTENDED PLATE THICKNESS (in)	1/4			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16		
	MIN PLATE DEPTH (in)	6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)	3/16			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4		
		MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)		
	BEAM SIZE	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")
78	W44X230 TO W44X335																	N/A	64		N/A	81		N/A	99		N/A	117		N/A	137		N/A	N/A
77																	109	N/A	53	128	N/A	68	147	N/A	84	165	N/A	100	180	N/A	120	195	N/A	139
76	W40X503 TO W40X655																	N/A	64		N/A	81		N/A	99		N/A	117		N/A	137
75																	109	N/A	53	128	N/A	68	147	N/A	84	165	N/A	100	180	N/A	120
74	W40X324 TO W40X431																	N/A	64		N/A	81		N/A	99		N/A	117		N/A	137
73																	109	N/A	53	128	N/A	68	147	N/A	84	165	N/A	100	180	N/A	120
72	W40X199 TO W40X297																	N/A	64		N/A	81		N/A	99		N/A	117		N/A	137
71																	109	N/A	53	128	N/A	68	147	N/A	84	165	N/A	100	180	N/A	120
70	W40X264 TO W40X392																	N/A	64		N/A	81		N/A	99		N/A	117		N/A	137
69																	109	N/A	53	128	N/A	68	147	N/A	84	165	N/A	100	180	N/A	120
68	W40X149 TO W40X235																	N/A	64		N/A	81		N/A	99		N/A	117		N/A	137
67																	109	N/A	53	128	N/A	68	147	N/A	84	165	N/A	100	180	N/A	120
66	W36X487 TO W36X652														N/A	48		N/A	64		N/A	81		N/A	99		N/A	117
65														91	52	40	109	68	53	128	86	68	147	N/A	84	165	N/A	100
64	W36X302 TO W36X441														N/A	48		N/A	64		N/A	81		N/A	99		N/A	117
63														91	52	40	109	68	53	128	86	68	147	N/A	84	165	N/A	100
62	W36X231 TO W36X282														N/A	48		N/A	64		N/A	81		N/A	99		N/A	117
61														91	52	40	109	68	53	128	86	68	147	N/A	84	165	N/A	100
60	W36X232 TO W36X256														N/A	48		N/A	64		N/A	81		N/A	99		N/A	117
59														91	52	40	109	68	53	128	86	68	147	N/A	84	165	N/A	100
58	W36X135 TO W36X210														N/A	48		N/A	64		N/A	81		N/A	99		N/A	117
57														91	52	40	109	68	53	128	86	68	147	N/A	84	165	N/A	100
56	W33X201 TO W33X318											N/A	34		N/A	48		N/A	64		N/A	81		N/A	99
55											72	37	28	91	52	40	109	68	53	128	86	68	147	N/A	84
54	W33X118 TO W33X169											N/A	34		N/A	48		N/A	64		N/A	81		N/A	99
53											72	37	28	91	52	40	109	68	53	128	86	68	147	N/A	84
52	W30X173 TO W30X261											45	34		62	48		N/A	64		N/A	81
51											72	37	28	91	52	40	109	68	53	128	86	68
50	W30X90 TO W30X148											45	34		62	48		N/A	64		N/A	81
49											72	37	28	91	52	40	109	68	53	128	86	68
48	W27X146 TO W27X194											42	33		62	48		N/A	64
47											72	37	28	91	52	40	109	68	53
46	W27X84 TO W27X129											42	33		62	48		N/A	64
45											72	37	28	91	52	40	109	68	53
44	W24X104 TO W24X176								28	22		42	33		62	48
43								52	24	18	72	37	28	91	52	40
42	W24X68 TO W24X103								28	22		42	33		62	48
41								52	24	18	72	37	28	91	52	40
40	W24X55 TO W24X62								28	22		42	33		62	48
39								52	24	18	72	37	28	91	52	40
38	W21X101 TO W21X147								28	22		42	33
37								52	24	18	72	37	28
36	W21X48 TO W21X93								28	22		42	33
35								52	24	18	72	37	28
34	W21X44 TO W21X57								28	22		42	33
33								52	24	18	72	37	28
32	W18X76 TO W18X130								28	22		42	33
31								52	24	18	72	37	28
30	W18X50 TO W18X71								28	22		42	33
29								52	24	18	72	37	28
28	W18X35 TO W18X46								28	22		42	33
27								52	24	18	72	37	28
26	W16X67 TO W16X100								28	22
25								52	24	18
24	W16X36 TO W16X57					15	12		28	22
23					33	13	9	52	24	18
22	W16X26 TO W16X31					15	12		28	22
21					33	13	9	52	24	18
20	W14X61 TO W14X82					15	12
19					33	13	9
18	W14X43 TO W14X53					15	12
17					33	13	9
16	W14X30 TO W14X38					15	12
15					33	13	9
14	W14X22 TO W14X26					15	12
13					33	13	9
12	W12X40 TO W12X58					15	12
11					33	13	9
10	W12X26 TO W12X35					15	12
9					33	13	9
8	W12X14 TO W12X22		7	5		15	11
7		16	6	4	32	13	9
6	W10X33 TO W10X45		7	6
5		16	6	4
4	W10X22 TO W10X30		7	6
3		16	6	4
2	W10X12 TO W10X19		7	5
1		15	6	4
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG

MIN STABILIZER PLATE THICKNESS (in)

	MIN COLUMN SIZE		NUMBER OF 3/4" DIA BOLTS: 2	3	4	5	6	7	8	9	10	11	12
17	W8	x24	3/8	3/8	3/8	3/8	3/8	N/A	N/A	N/A	N/A	N/A	N/A
16		x31	3/8	3/8	3/8	3/8	3/8	N/A	N/A	N/A	N/A	N/A	N/A
15	W10	x33	3/8	3/8	3/8	3/8	3/8	3/8	N/A	N/A	N/A	N/A	N/A
14		x49	3/8	3/8	3/8	3/8	3/8	3/8	N/A	N/A	N/A	N/A	N/A
13	W12	x53	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
12		x65	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
11	W14	x61	3/8	3/8	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	1/2
10		x90	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
9		x145	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
8	W16	x77	3/8	3/8	3/8	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
7	W18	x86	3/8	3/8	1/2	1/2	1/2	1/2	1/2	5/8	5/8	5/8	5/8
6	W21	x111	3/8	3/8	1/2	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8
5	W24	x131	3/8	1/2	1/2	5/8	5/8	5/8	5/8	3/4	3/4	3/4	3/4
4	W27	x178	3/8	1/2	1/2	5/8	5/8	5/8	5/8	3/4	3/4	3/4	3/4
3	W30	x211	3/8	1/2	1/2	5/8	5/8	5/8	5/8	3/4	3/4	3/4	3/4
2	W30	x263	3/8	1/2	1/2	5/8	5/8	5/8	5/8	5/8	3/4	3/4	5/8
1	W36	x302	3/8	1/2	1/2	5/8	5/8	5/8	3/4	3/4	3/4	3/4	3/4

THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 2 - ESP2 - 7/8" DIA GR A325N BOLTS

EXTENDED SINGLE PLATE SHEAR CONNECTION — VER 1.0 — 05/07/2024

	NUMBER OF BOLTS	2			3			4			5			6			7			8			9			10			11			12		
	EXTENDED PLATE THICKNESS (in)	1/4			5/16			5/16			5/16			3/8			3/8			3/8			3/8			3/8			3/8			3/8		
	MIN PLATE DEPTH (in)	6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)	3/16			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4			1/4		
		MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)		
	BEAM SIZE	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")
78	W44X230 TO W44X335																	N/A	87		N/A	110		N/A	134		N/A	159		N/A	187		N/A	N/A
77																	141	N/A	72	163	N/A	92	185	N/A	114	206	N/A	137	220	N/A	164	220	N/A	189
76	W40X503 TO W40X655																	N/A	87		N/A	110		N/A	134		N/A	159		N/A	187
75																	141	N/A	72	163	N/A	92	185	N/A	114	206	N/A	137	215	N/A	164
74	W40X324 TO W40X431																	N/A	87		N/A	110		N/A	134		N/A	159		N/A	187
73																	141	N/A	72	163	N/A	92	185	N/A	114	205	N/A	137	205	N/A	164
72	W40X199 TO W40X297																	N/A	87		N/A	110		N/A	134		N/A	159		N/A	187
71																	141	N/A	72	163	N/A	92	185	N/A	114	197	N/A	137	197	N/A	164
70	W40X264 TO W40X392																	N/A	87		N/A	110		N/A	134		N/A	159		N/A	187
69																	141	N/A	72	163	N/A	92	185	N/A	114	205	N/A	137	205	N/A	164
68	W40X149 TO W40X235																	N/A	87		N/A	110		N/A	134		N/A	159		N/A	187
67																	141	N/A	72	163	N/A	92	185	N/A	114	195	N/A	137	195	N/A	164
66	W36X487 TO W36X652														N/A	66		N/A	87		N/A	110		N/A	134		N/A	159
65														119	71	54	141	93	72	163	117	92	185	N/A	114	201	N/A	137
64	W36X302 TO W36X441														N/A	66		N/A	87		N/A	110		N/A	134		N/A	159
63														119	71	54	141	93	72	163	117	92	185	N/A	114	191	N/A	137
62	W36X231 TO W36X282														N/A	66		N/A	87		N/A	110		N/A	134		N/A	159
61														119	71	54	141	93	72	163	117	92	185	N/A	114	186	N/A	137
60	W36X232 TO W36X256														N/A	66		N/A	87		N/A	110		N/A	134		N/A	159
59														119	71	54	141	93	72	163	117	92	185	N/A	114	189	N/A	137
58	W36X135 TO W36X210														N/A	66		N/A	87		N/A	110		N/A	134		N/A	159
57														119	71	54	141	93	72	163	117	92	181	N/A	114	181	N/A	137
56	W33X201 TO W33X318											N/A	47		N/A	66		N/A	87		N/A	110		N/A	134
55											80	50	38	119	71	54	141	93	72	163	117	92	171	N/A	114
54	W33X118 TO W33X169											N/A	47		N/A	66		N/A	87		N/A	110		N/A	134
53											80	50	38	119	71	54	141	93	72	163	117	92	167	N/A	114
52	W30X173 TO W30X261											62	47		85	66		N/A	87		N/A	110
51											80	50	38	119	71	54	141	93	72	154	117	92
50	W30X90 TO W30X148											62	47		85	66		N/A	87		N/A	110
49											80	50	38	119	71	54	141	93	72	149	117	92
48	W27X146 TO W27X194											57	46		85	66		N/A	87
47											80	50	38	119	71	54	137	93	72
46	W27X84 TO W27X129											57	46		85	66		N/A	87
45											80	50	38	119	71	54	134	93	72
44	W24X104 TO W24X176								38	30		57	46		85	66
43								62	33	25	80	50	38	119	71	54
42	W24X68 TO W24X103								38	30		57	46		85	66
41								62	33	25	80	50	38	118	71	54
40	W24X55 TO W24X62								38	30		57	46		85	66
39								62	33	25	80	50	38	117	71	54
38	W21X101 TO W21X147								38	30		57	46
37								62	33	25	80	50	38
36	W21X48 TO W21X93								38	30		57	46
35								62	33	25	80	50	38
34	W21X44 TO W21X57								38	30		57	46
33								62	33	25	80	50	38
32	W18X76 TO W18X130								38	30		57	46
31								62	33	25	80	50	38
30	W18X50 TO W18X71								38	30		57	46
29								62	33	25	80	50	38
28	W18X35 TO W18X46								38	30		57	46
27								62	33	25	80	50	38
26	W16X67 TO W16X100								38	30
25								62	33	25
24	W16X36 TO W16X57					21	16		38	30
23					44	18	13	62	33	25
22	W16X26 TO W16X31					21	16		38	29
21					44	18	13	62	33	24
20	W14X61 TO W14X82					21	16
19					44	18	13
18	W14X43 TO W14X53					21	16
17					44	18	13
16	W14X30 TO W14X38					21	16
15					44	18	13
14	W14X22 TO W14X26					19	15
13					43	16	12
12	W12X40 TO W12X58					21	16
11					44	18	13
10	W12X26 TO W12X35					19	15
9					43	16	12
8	W12X14 TO W12X22		7	5		17	13
7		18	6	4	38	14	10
6	W10X33 TO W10X45		10	8
5		20	9	6
4	W10X22 TO W10X30		9	7
3		20	8	5
2	W10X12 TO W10X19		7	5
1		17	6	4
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG

MIN STABILIZER PLATE THICKNESS (in)

	MIN COLUMN SIZE		NUMBER OF 7/8" DIA BOLTS: 2	3	4	5	6	7	8	9	10	11	12
17	W8	x24	3/8	3/8	1/2	1/2	1/2	N/A	N/A	N/A	N/A	N/A	N/A
16		x31	3/8	3/8	3/8	3/8	3/8	N/A	N/A	N/A	N/A	N/A	N/A
15	W10	x33	3/8	3/8	1/2	1/2	1/2	1/2	N/A	N/A	N/A	N/A	N/A
14		x49	3/8	3/8	3/8	3/8	3/8	3/8	N/A	N/A	N/A	N/A	N/A
13	W12	x53	3/8	3/8	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
12		x65	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
11	W14	x61	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	1/2	1/2
10		x90	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
9		x145	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
8	W16	x77	3/8	1/2	1/2	5/8	5/8	5/8	3/4	3/4	3/4	3/4	3/4
7	W18	x86	3/8	1/2	5/8	5/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4
6	W21	x111	3/8	5/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
5	W24	x131	3/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
4	W27	x178	3/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
3	W30	x211	3/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
2	W30	x263	3/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
1	W36	x302	3/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4

THESE TABLES HAVE BEEN DEVELOPED BY AG&E EXCLUSIVELY FOR USE ON AG&E PROJECTS AND ARE THE INTELLECTUAL PROPERTY OF AG&E.

TABLE 3 - ESP3 - 1" DIA GR A490N BOLTS

EXTENDED SINGLE PLATE SHEAR CONNECTION — VER 1.0 — 05/07/2024

	NUMBER OF BOLTS	2			3			4			5			6			7			8			9			10			11			12		
	EXTENDED PLATE THICKNESS (in)	5/16			3/8			3/8			3/8			7/16			7/16			7/16			7/16			7/16			7/16			7/16		
	MIN PLATE DEPTH (in)	6			9			12			15			18			21			24			27			30			33			36		
	FILLET WELD SIZE (in)	3/16			1/4			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16			5/16		
		MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)			MAX REACTION (kips) @ MAX ECCENTRICITY (e)		
	BEAM SIZE	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")	V @ BM TO COL CONN	V @ BM TO BM CONN (e = 6.75") / (e = 7.75")	V @ BM TO BM CONN (e = 8.75") / (e = 10.75")
78	W44X230 TO W44X335																	N/A	119		N/A	142		N/A	166		N/A	189		N/A	213		N/A	N/A
77																	149	N/A	108	172	N/A	131	195	N/A	154	218	N/A	178	242	N/A	203	255	N/A	226
76	W40X503 TO W40X655																	N/A	119		N/A	142		N/A	166		N/A	189		N/A	213
75																	149	N/A	108	172	N/A	131	195	N/A	154	218	N/A	178	242	N/A	203
74	W40X324 TO W40X431																	N/A	119		N/A	142		N/A	166		N/A	189		N/A	213
73																	149	N/A	108	172	N/A	131	195	N/A	154	218	N/A	178	238	N/A	203
72	W40X199 TO W40X297																	N/A	119		N/A	142		N/A	166		N/A	189		N/A	213
71																	149	N/A	108	172	N/A	131	195	N/A	154	218	N/A	178	229	N/A	203
70	W40X264 TO W40X392																	N/A	119		N/A	142		N/A	166		N/A	189		N/A	213
69																	149	N/A	108	172	N/A	131	195	N/A	154	218	N/A	178	237	N/A	203
68	W40X149 TO W40X235																	N/A	119		N/A	142		N/A	166		N/A	189		N/A	213
67																	149	N/A	108	172	N/A	131	195	N/A	154	218	N/A	178	227	N/A	203
66	W36X487 TO W36X652														N/A	95		N/A	119		N/A	142		N/A	166		N/A	189
65														125	99	84	149	123	108	172	146	131	195	N/A	154	218	N/A	178
64	W36X302 TO W36X441														N/A	95		N/A	119		N/A	142		N/A	166		N/A	189
63														125	99	84	149	123	108	172	146	131	195	N/A	154	218	N/A	178
62	W36X231 TO W36X282														N/A	95		N/A	119		N/A	142		N/A	166		N/A	189
61														125	99	84	149	123	108	172	146	131	195	N/A	154	216	N/A	178
60	W36X232 TO W36X256														N/A	95		N/A	119		N/A	142		N/A	166		N/A	189
59														125	99	84	149	123	108	172	146	131	195	N/A	154	218	N/A	178
58	W36X135 TO W36X210														N/A	95		N/A	119		N/A	142		N/A	166		N/A	189
57														125	99	84	149	123	108	172	146	131	195	N/A	154	209	N/A	178
56	W33X201 TO W33X318											N/A	62		N/A	95		N/A	119		N/A	142		N/A	166
55											88	65	54	125	99	84	149	123	108	172	146	131	195	N/A	154
54	W33X118 TO W33X169											N/A	62		N/A	95		N/A	119		N/A	142		N/A	166
53											88	65	54	125	99	84	149	123	108	172	146	131	193	N/A	154
52	W30X173 TO W30X261											73	62		108	95		N/A	119		N/A	142
51											88	65	54	125	99	84	149	123	108	172	146	131
50	W30X90 TO W30X148											73	62		108	95		N/A	119		N/A	142
49											88	65	54	125	99	84	149	123	108	172	146	131
48	W27X146 TO W27X194											73	61		108	95		N/A	119
47											88	65	54	125	99	84	149	123	108
46	W27X84 TO W27X129											73	61		108	95		N/A	119
45											88	65	54	125	99	84	149	123	108
44	W24X104 TO W24X176								50	42		70	61		108	95
43								67	45	35	88	65	54	125	99	84
42	W24X68 TO W24X103								50	42		70	61		108	95
41								67	45	35	88	65	54	125	99	84
40	W24X55 TO W24X62								50	42		70	61		108	95
39								67	45	35	88	65	54	125	99	84
38	W21X101 TO W21X147								50	42		70	61
37								67	45	35	88	65	54
36	W21X48 TO W21X93								50	39		70	60
35								67	44	31	88	65	49
34	W21X44 TO W21X57								50	39		70	60
33								67	44	31	88	65	49
32	W18X76 TO W18X130								50	42		70	61
31								67	45	35	88	65	54
30	W18X50 TO W18X71								50	39		70	61
29								67	45	31	88	65	49
28	W18X35 TO W18X46								45	33		67	51
27								67	38	27	88	58	42
26	W16X67 TO W16X100								50	42
25								67	45	35
24	W16X36 TO W16X57					23	18		44	33
23					48	20	14	67	37	26
22	W16X26 TO W16X31					19	15		37	28
21					45	17	12	67	31	22
20	W14X61 TO W14X82					29	22
19					48	25	18
18	W14X43 TO W14X53					24	18
17					48	20	15
16	W14X30 TO W14X38					21	16
15					48	18	13
14	W14X22 TO W14X26					18	14
13					42	15	11
12	W12X40 TO W12X58					23	18
11					48	20	14
10	W12X26 TO W12X35					18	14
9					42	15	11
8	W12X14 TO W12X22		7	5		15	12
7		17	6	4	36	13	9
6	W10X33 TO W10X45		10	8
5		23	9	6
4	W10X22 TO W10X30		8	6
3		21	7	5
2	W10X12 TO W10X19		6	5
1		16	5	4
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG

MIN STABILIZER PLATE THICKNESS (in)

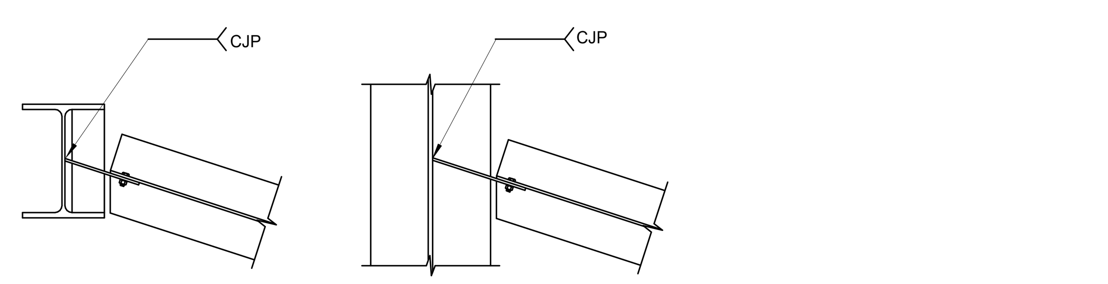
	MIN COLUMN SIZE		NUMBER OF 1" DIA BOLTS: 2	3	4	5	6	7	8	9	10	11	12
17	W8	x24	3/8	3/8	1/2	1/2	1/2	N/A	N/A	N/A	N/A	N/A	N/A
16		x31	3/8	3/8	3/8	3/8	3/8	N/A	N/A	N/A	N/A	N/A	N/A
15	W10	x33	3/8	3/8	1/2	1/2	5/8	5/8	N/A	N/A	N/A	N/A	N/A
14		x49	3/8	3/8	3/8	3/8	3/8	3/8	N/A	N/A	N/A	N/A	N/A
13	W12	x53	3/8	3/8	1/2	1/2	1/2	1/2	1/2	1/2	1/2	5/8	1/2
12		x65	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	1/2	3/8
11	W14	x61	3/8	3/8	1/2	1/2	5/8	5/8	5/8	5/8	5/8	5/8	5/8
10		x90	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	1/2	1/2	1/2
9		x145	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	1/2	3/8
8	W16	x77	3/8	1/2	5/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4	3/4
7	W18	x86	3/8	1/2	5/8	3/4	3/4	3/4	3/4	3/4	3/4	7/8	3/4
6	W21	x111	3/8	5/8	3/4	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8
5	W24	x131	3/8	5/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8
4	W27	x178	3/8	5/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8
3	W30	x211	3/8	5/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8
2	W30	x263	3/8	5/8	3/4	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8
1	W36	x302	3/8	5/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8

NOTES:

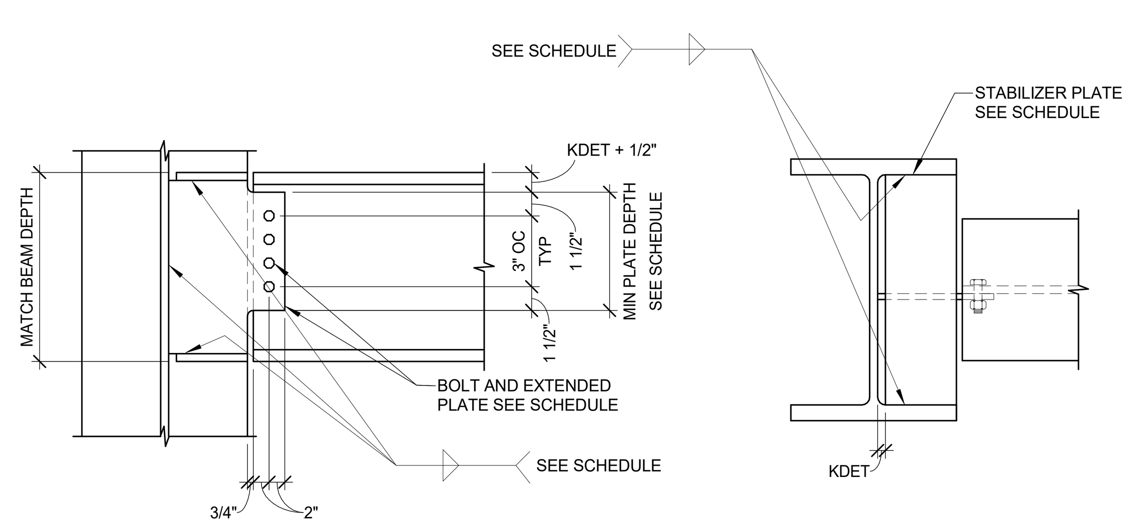
1. THESE TABLES ARE BASED ON THE AISC MANUAL 15th EDITION.
2. USE THESE TYPICAL CONNECTION DETAILS UNLESS A SPECIFIC CONNECTION DETAIL IS NOTED OTHERWISE.
3. USE THE APPROPRIATE SCHEDULE (TABLE 1, TABLE 2, OR TABLE 3) FOR THE SELECTED BOLT DIAMETER AND GRADE. CONTRACTOR TO COORDINATE BOLT DIAMETER AND GRADE BETWEEN STEEL FABRICATOR AND STEEL ERECTOR.
4. "V" IN THE SCHEDULE DENOTES SHEAR AT THE END OF THE BEAM (KIPS)

   SCHEDULED VALUES ARE ULTIMATE CAPACITIES (LRFD)
5. SEE PLAN FOR BEAM REACTIONS. THOSE ARE THE MINIMUM REQUIRED CAPACITES. BEAM REACTIONS ARE ULTIMATE VALUES (LRFD).
6. SEE SCHEDULE FOR NUMBER OF BOLTS, SHEAR PLATE THICKNESS, MINIMUM SHEAR PLATE DEPTH, AND FILLET WELD SIZE FOR THE SCHEDULED CONNECTION CAPACITES.
7. USE NO LESS THAN THE NUMBER OF BOLTS THAT ARE SCHEDULED FOR THE GIVEN BEAM SIZE.
8. SCHEDULED CAPACITIES ARE BASED ON A BEARING TYPE CONNECTION WITH BOLT THREADS INCLUDED IN THE SHEAR PLANE.
9. PROVIDE STANDARD HOLES (STD) IN BEAM WEB AND SHEAR PLATE. AT CONTRACTOR'S OPTION, HOLES IN SHEAR PLATE MAY BE STANDARD SHORT-SLOTTED HOLES WITH THE SLOT ORIENTED HORIZONTALLY. DO NOT USE SLOTTED HOLES IN THE BEAM WEB.
10. BOLTS MAY BE SNUG TIGHT. AT CONTRACTOR'S OPTION, FULLY PRETENESIONED BOLTS MAY BE INSTALLED.
11. SHEAR PLATE AND STABILIZER PLATES SHALL CONFORM WITH ASTM A572-50.
12. SCHEDULED CONNECTION INFORMATON IS FOR BEAMS CONFORMING TO ASTM A992, GR 50.
13. NOTIFY STRUCTURAL ENGINEER FOR CONNECTIONS THAT DO NOT CONFORM WITH THE SPECIFIED LIMITS.
14. CONTRACTOR MAY SUBMIT ALTERNATIVE DETAILS ALONG WITH SUPPORTING CALCULATIONS FOR STRUCTURAL ENGINEER'S CONSIDERATION. SUBMITTED CALCULATIONS SHALL BE SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF JURISDICTION.
15. THE TABLES ARE BASED ON LIMITING THE DEPTH OF THE SUPPORTED MEMBER TO NOT MORE THAN TWO NOMINAL DEPTHS DEEPER THAN THE SUPPORTING MEMBER FOR BEAM-GIRDER CONNECTIONS. NOTIFY STRUCTURAL ENGINEER OF ANY SITUATIONS THAT CONFLICT WITH THIS LIMITATION.
16. CONTRACTOR SHALL IDENTIFY CELL DESIGNATION TAT WAS SELECTED FROM TABLE FOR EACH CONNECTION ON PLAN OR PIECEMARK SHEETS. EXAMPLE CELL DESIGNATION IS AS FOLLOWS:

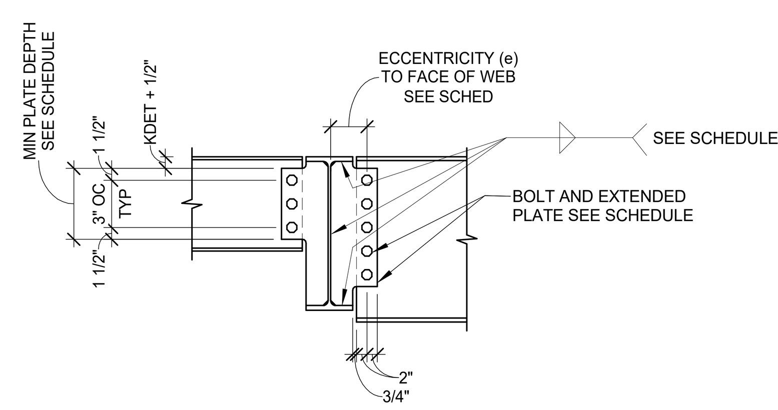
ESP1 - 1 A - SP 1
TABLE
BEAM GROUP
CONNECTION
STABILIZER PLATE INFO (BM-COL CONNECTIONS ONLY)
COLUMN GROUP



DETAIL AT SKEWED BEAMS



BEAM TO COLUMN CONN



BEAM TO BEAM CONN

1 EXTENDED SHEAR PLATE CONNECTION
1/2" = 1'-0"

2/4/2025 4:13:16 PM S5-09 EXTENDED SHEAR PLATE

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

TLD DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

REVISIONS

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

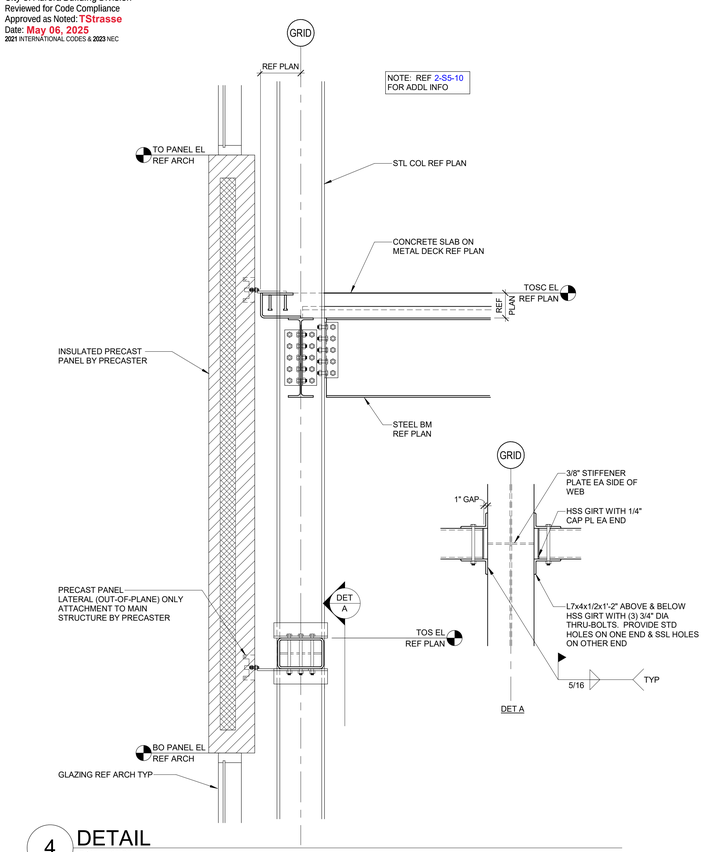
KEYPLAN

S	Q	N	L	J	G	E	C	A
T	R	P	M	K	H	F	D	B

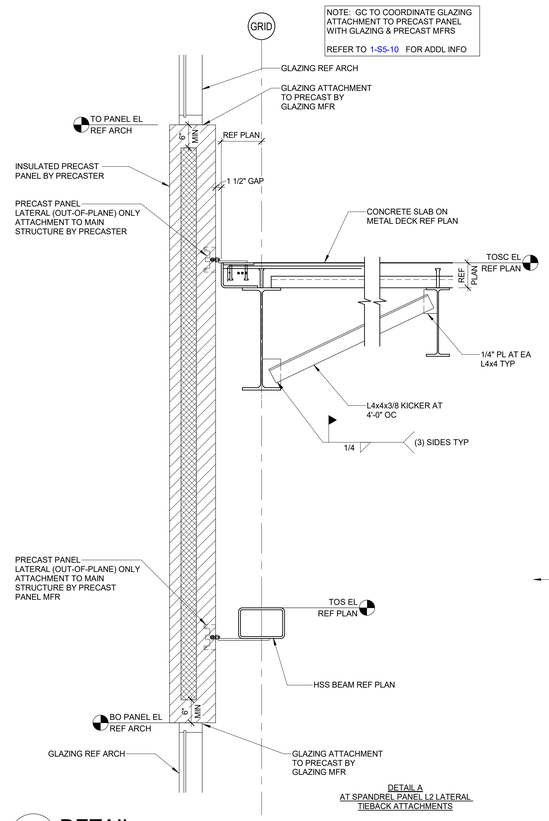
EXTENDED SHEAR PLATE

JOB 24464.0000
DATE 01.31.2025
SHEET
S5-09

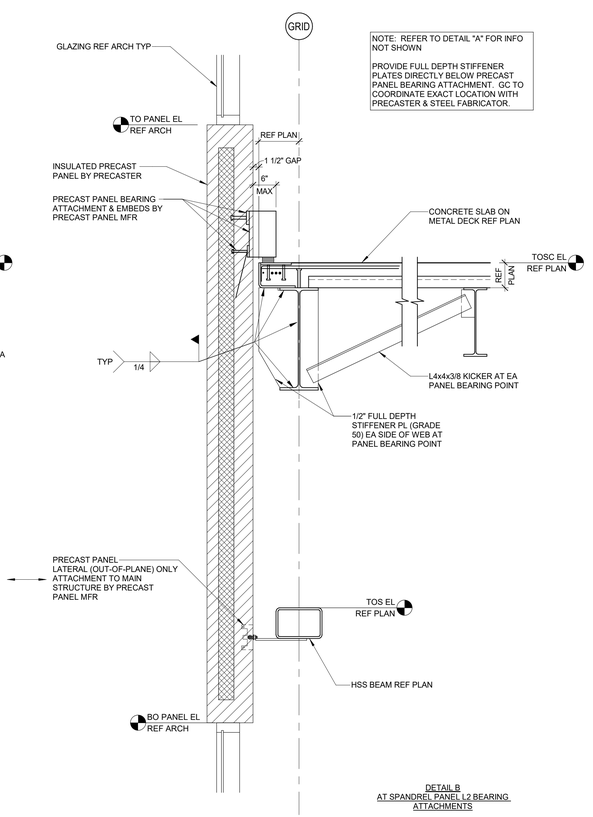
City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



4 DETAIL
3/4" = 1'-0"

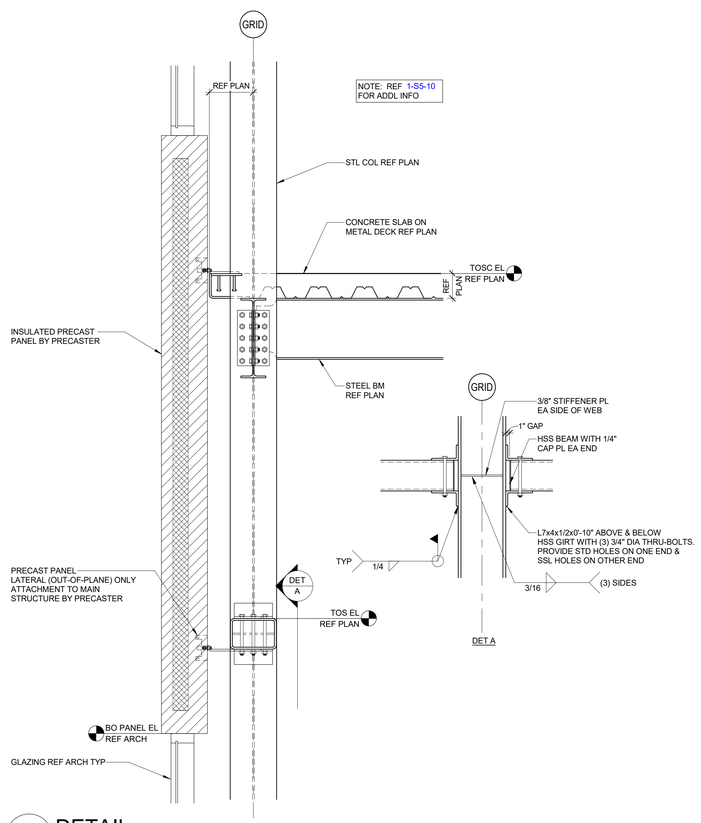


DETAIL A
AT SPANDREL PANEL L2 LATERAL TIEBACK ATTACHMENTS

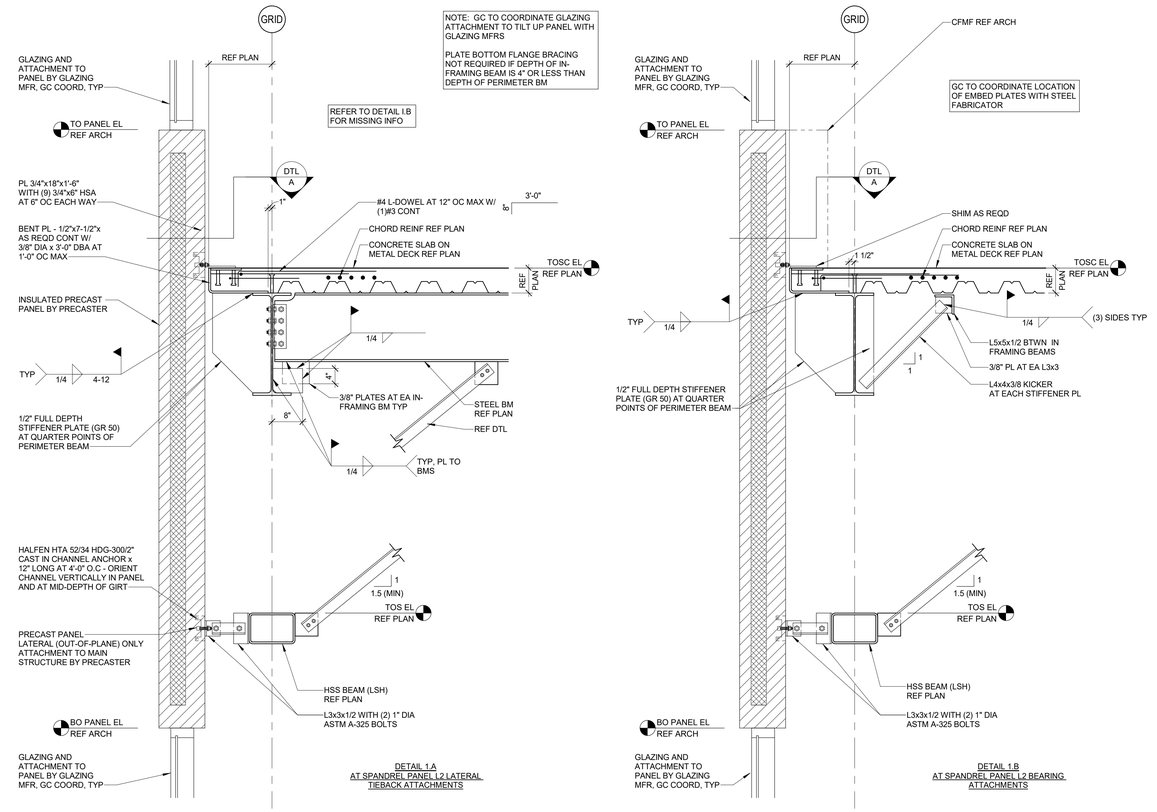


DETAIL B
AT SPANDREL PANEL L2 BEARING ATTACHMENTS

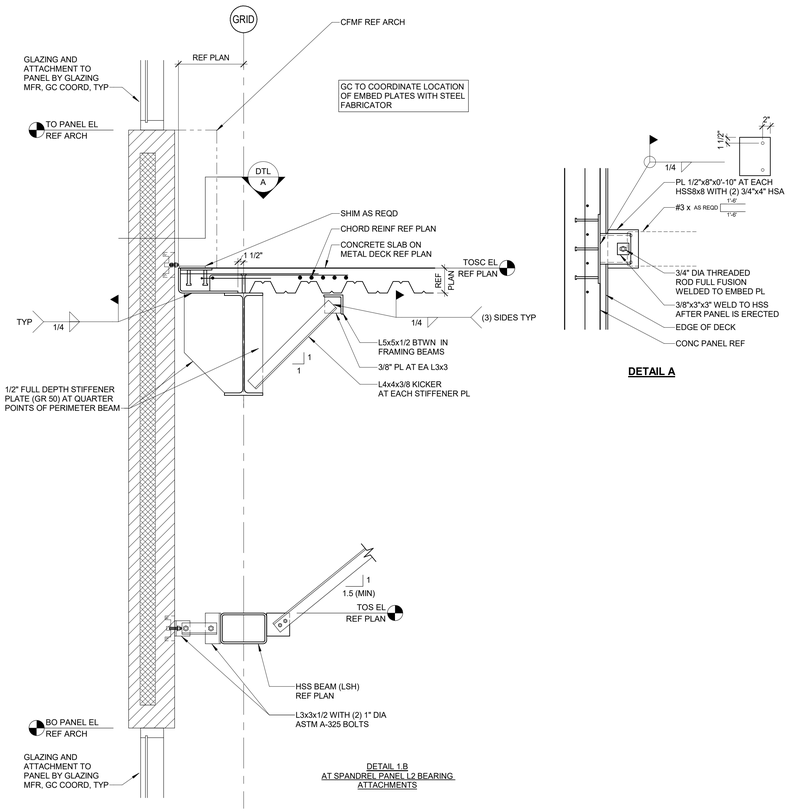
3 DETAIL
3/4" = 1'-0"



2 DETAIL
3/4" = 1'-0"



DETAIL 1.A
AT SPANDREL PANEL L2 LATERAL TIEBACK ATTACHMENTS



DETAIL 1.B
AT SPANDREL PANEL L2 BEARING ATTACHMENTS

DETAIL A

1 SPANDREL TO FLOOR CONNECTION AT OFFICE WITH GLAZING
3/4" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX 75202
T: 214.748.2000
AG/E
SYSKA HENNESSY GROUP
DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

	REVISIONS	

COLORADO LICENSED NICHOLAS W. [illegible] 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity F-8435

Date of issue: 01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD
QTS

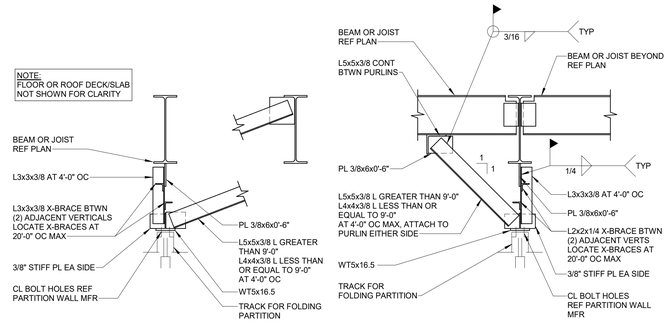
STEEL FLOOR FRAMING DETAILS

JOB 24464.0000
DATE 01.31.2025
SHEET

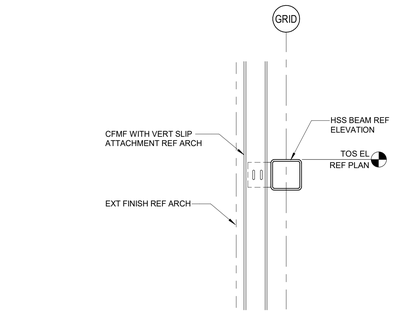
S5-10

2/4/2025 4:13:17 PM S5-10 STEEL FLOOR FRAMING DETAILS

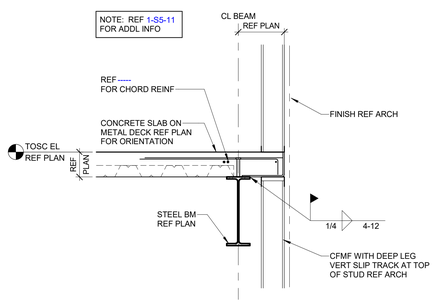
City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: TStrasse
Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



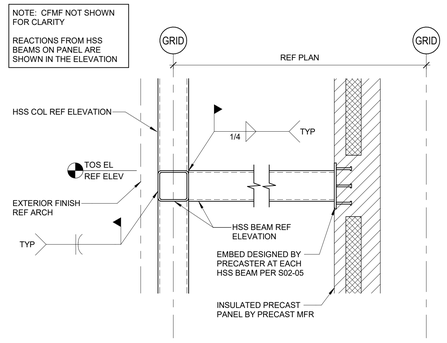
9 FOLDING PARTITION SUPPORT
3/4" = 1'-0"



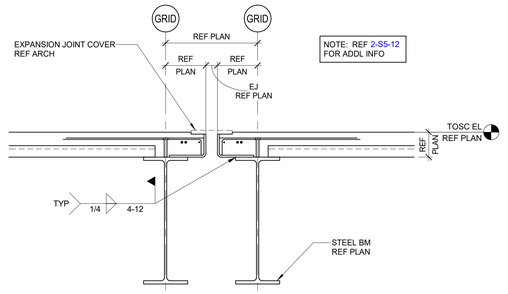
8 DETAIL
3/4" = 1'-0"



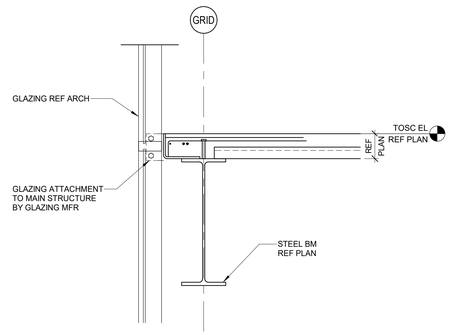
7 DETAIL
3/4" = 1'-0"



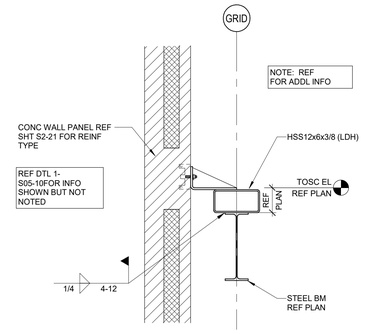
6 DETAIL
3/4" = 1'-0"



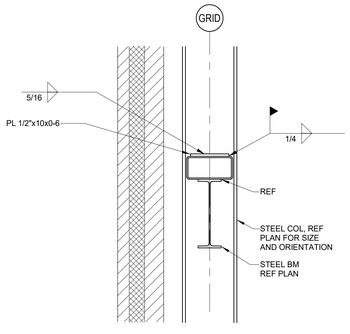
5 EXPANSION JOINT AT SECOND FLOOR
3/4" = 1'-0"



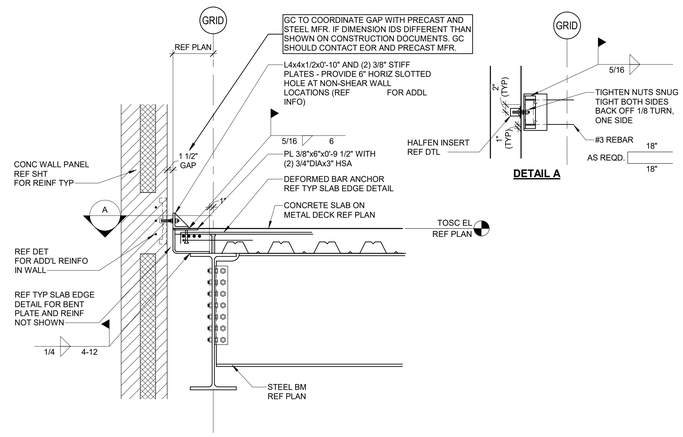
4 DETAIL
3/4" = 1'-0"



3 DETAIL
3/4" = 1'-0"



2 HSS CONNECTION TO COLUMN DETAIL
3/4" = 1'-0"



1 SECTION AT TYPICAL EXTERIOR CONCRETE WALL PANEL
3/4" = 1'-0"

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ISSUES		
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
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REVISIONS		

COLORADO LICENSED
NICHOLAS W. HAND
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

QTS

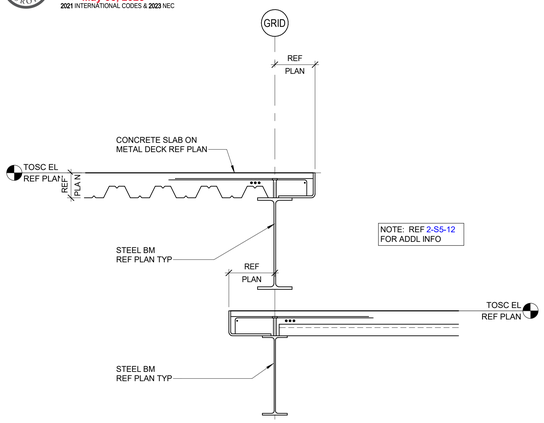
STEEL FLOOR FRAMING DETAILS

JOB 24464.0000
DATE 01.31.2025
SHEET

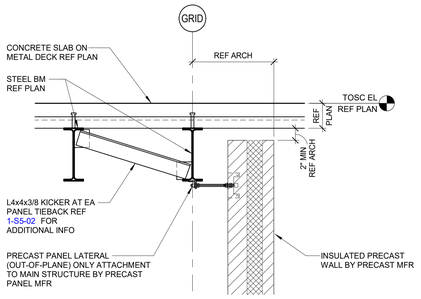
S5-11

2/4/2025 4:13:18 PM S5-11 STEEL FLOOR FRAMING DETAILS

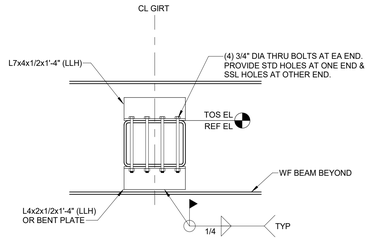
City of Aurora Building Division
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2021 INTERNATIONAL CODES & 2023 NEC



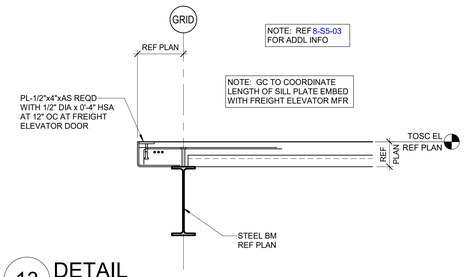
16 DETAIL
3/4" = 1'-0"



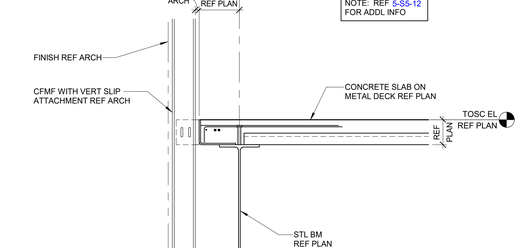
15 DETAIL
3/4" = 1'-0"



14 DETAIL
3/4" = 1'-0"



13 DETAIL
3/4" = 1'-0"

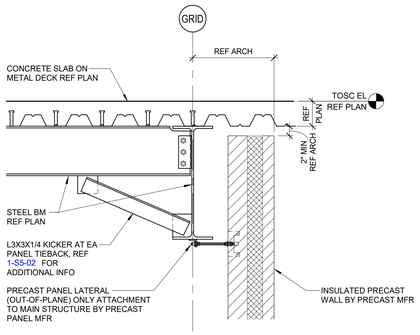


12 DETAIL
3/4" = 1'-0"

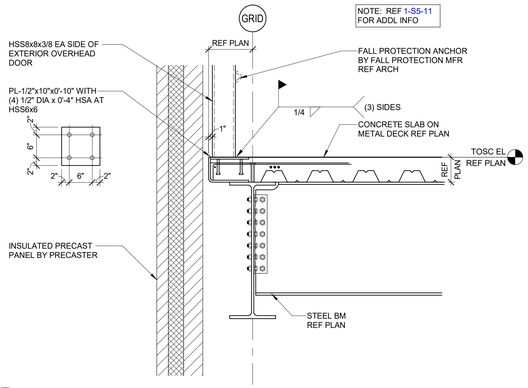
11 DETAIL
3/4" = 1'-0"

10 DETAIL
3/4" = 1'-0"

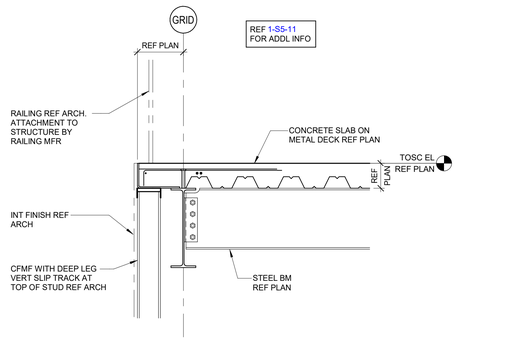
9 DETAIL
3/4" = 1'-0"



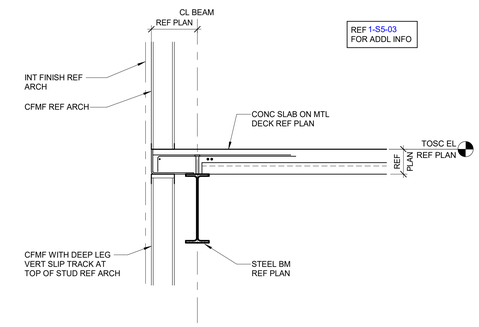
8 DETAIL
3/4" = 1'-0"



7 DETAIL
3/4" = 1'-0"

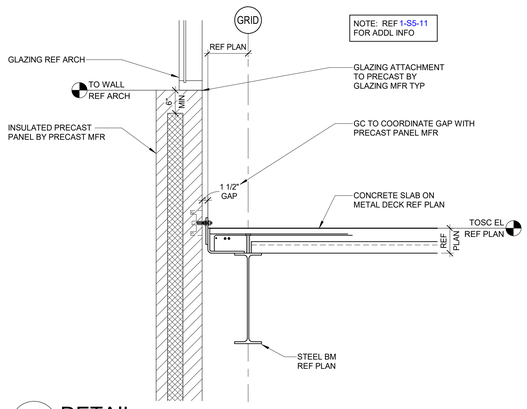


6 DETAIL
3/4" = 1'-0"

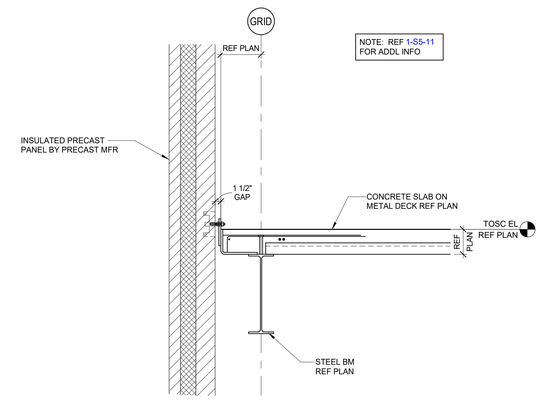


5 DETAIL
3/4" = 1'-0"

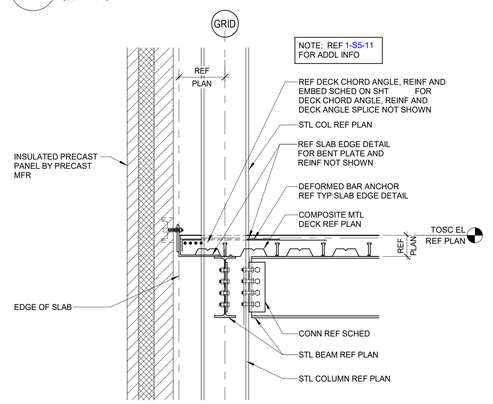
4 DETAIL
3/4" = 1'-0"



3 DETAIL
3/4" = 1'-0"



2 DETAIL
3/4" = 1'-0"



1 DETAIL
3/4" = 1'-0"

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	REVISIONS	

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

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1140 N. GUN CLUB ROAD

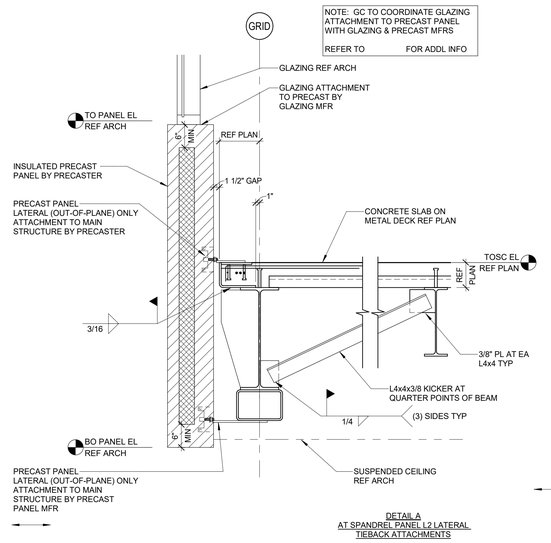
STEEL FLOOR FRAMING DETAILS

JOB 24464.0000
DATE 01.31.2025
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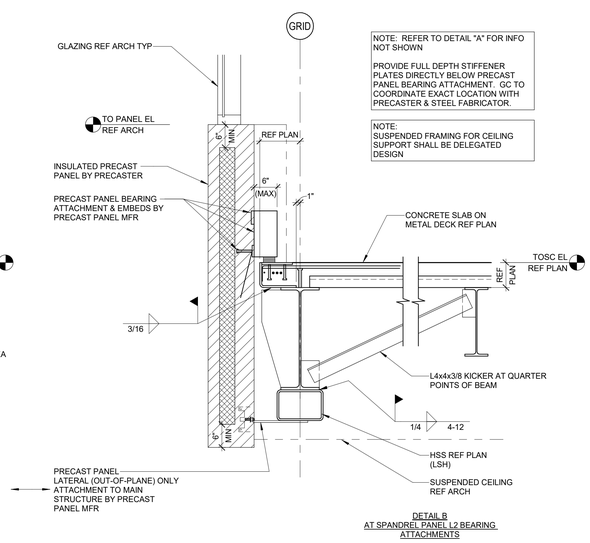
S5-12

2/4/2025 4:13:19 PM S5-12 STEEL FLOOR FRAMING DETAILS

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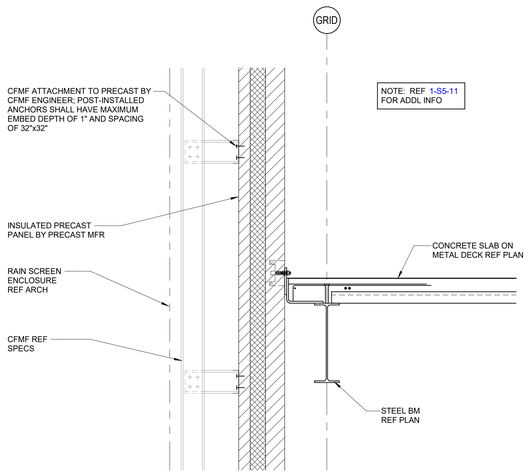


DETAIL A
AT SPANDREL PANEL L2 LATERAL TIEBACK ATTACHMENTS

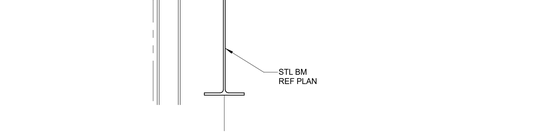


DETAIL B
AT SPANDREL PANEL L2 BEARING ATTACHMENTS

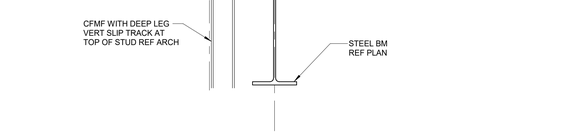
6 PRECAST SPANDREL PANEL CONNECTION SHALLOW SPANDREL
3/4" = 1'-0"



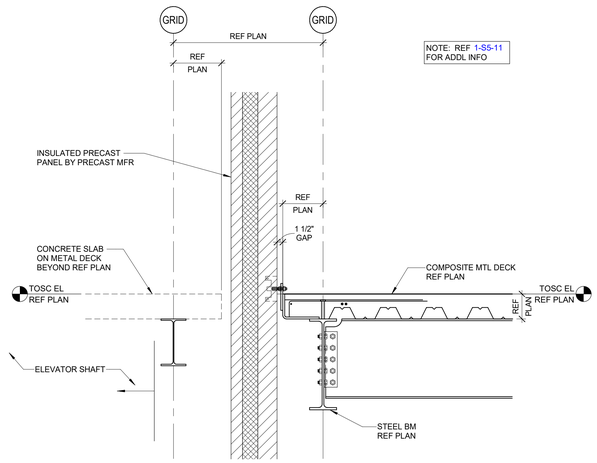
5 DETAIL
3/4" = 1'-0"



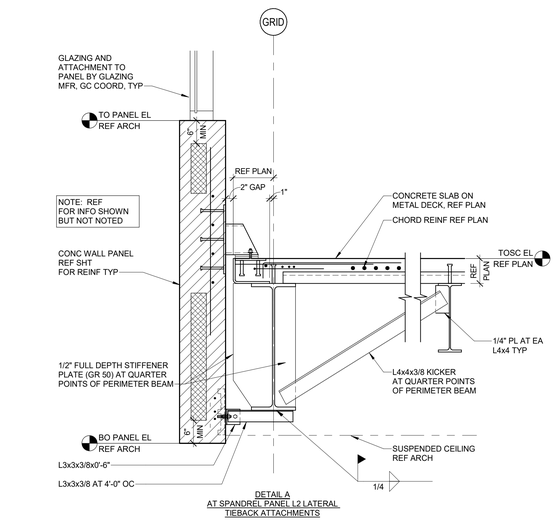
4 DETAIL
3/4" = 1'-0"



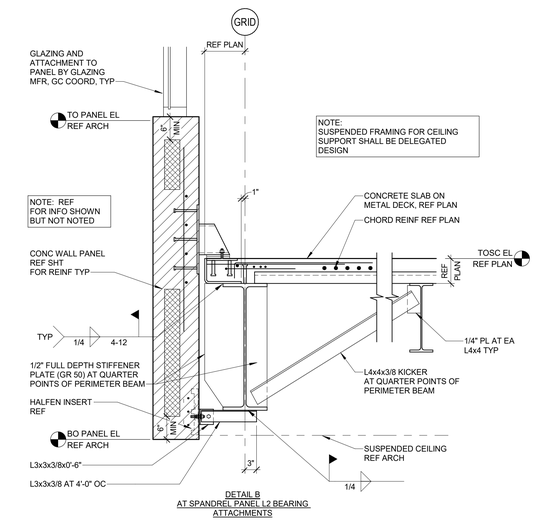
3 DETAIL
3/4" = 1'-0"



2 DETAIL
3/4" = 1'-0"



DETAIL A
AT SPANDREL PANEL L2 LATERAL TIEBACK ATTACHMENTS



DETAIL B
AT SPANDREL PANEL L2 BEARING ATTACHMENTS

1 DETAIL AT SPANDREL CONNECTION AT FLOOR
3/4" = 1'-0"

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	ISSUES	
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	REVISIONS	

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER
AG&E Structural Engenuity F-8435

Date of issue:
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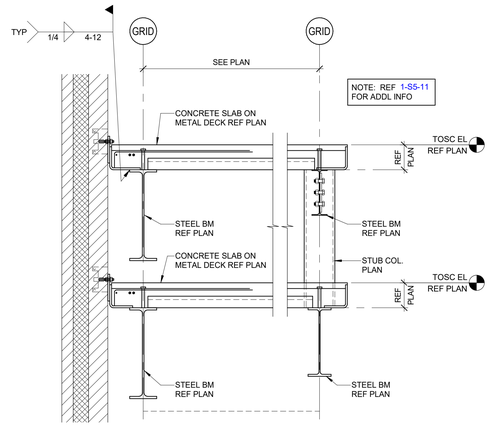
QTS DEN1 DC2
1140 N. GUN CLUB ROAD

STEEL FLOOR FRAMING DETAILS

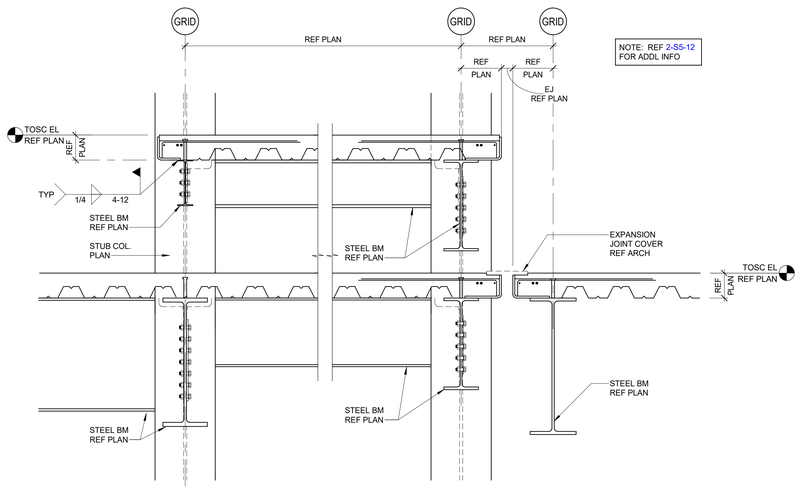
JOB 24464.0000
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S5-13

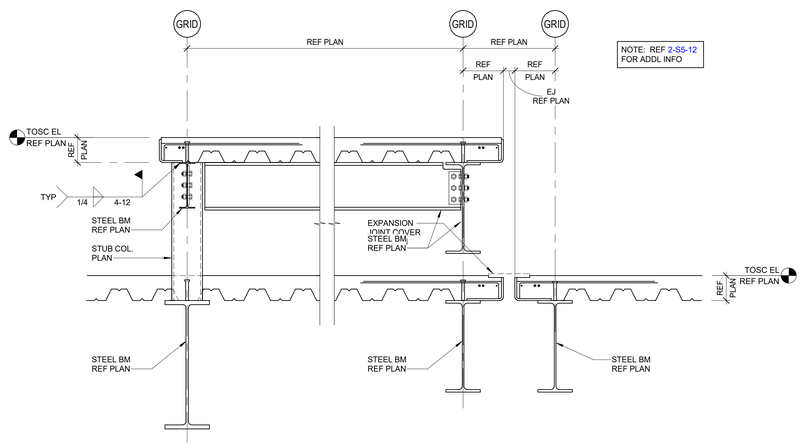
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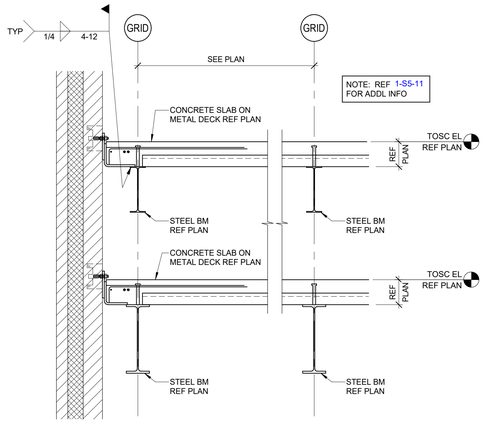
14 SECTION AT SECOND FLOOR
3/4" = 1'-0"



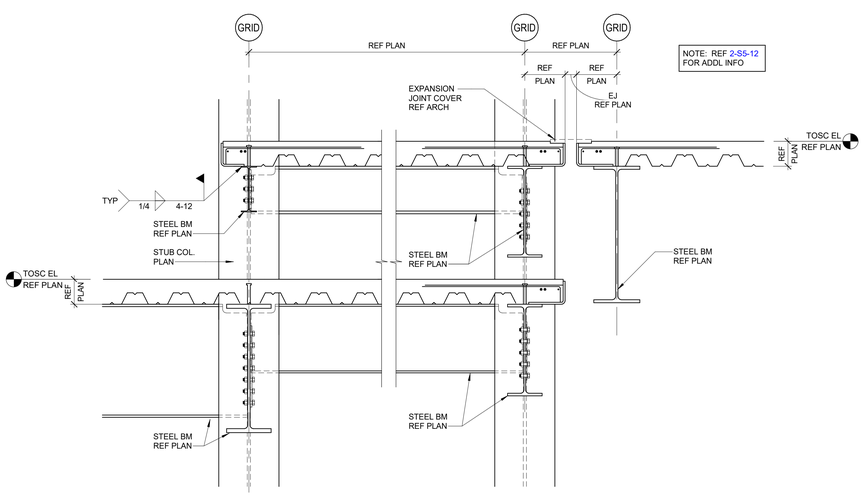
13 SECTION AT SECOND FLOOR
3/4" = 1'-0"



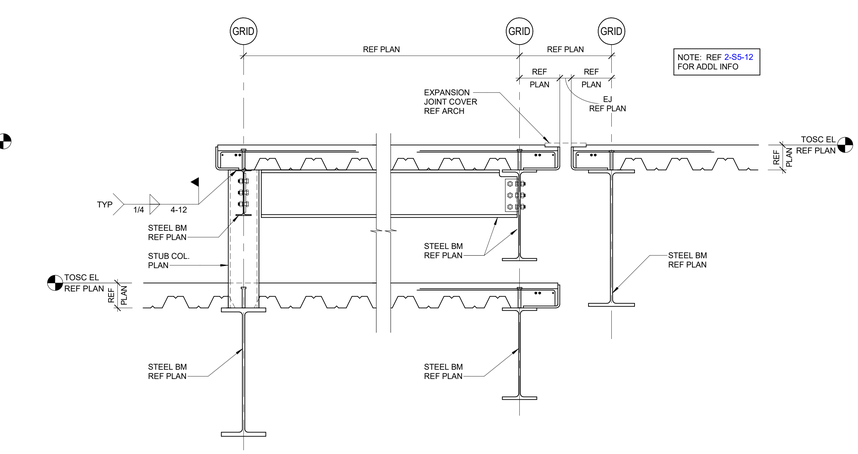
12 SECTION AT SECOND FLOOR
3/4" = 1'-0"



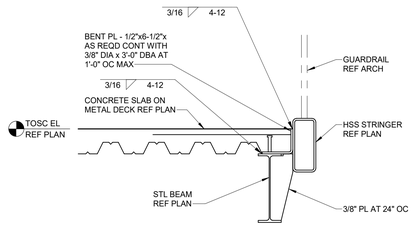
11 SECTION AT SECOND FLOOR
3/4" = 1'-0"



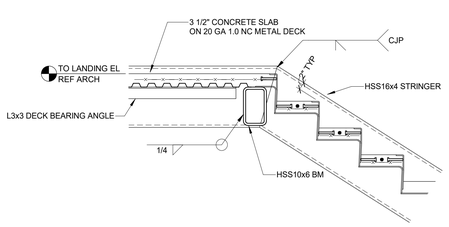
10 SECTION AT SECOND FLOOR
3/4" = 1'-0"



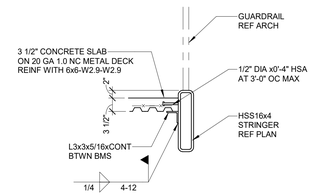
9 SECTION AT SECOND FLOOR
3/4" = 1'-0"



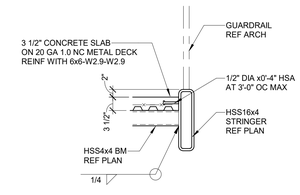
8 DETAIL
3/4" = 1'-0"



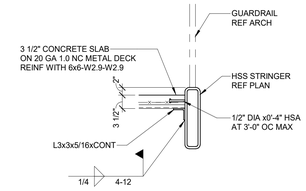
7 STAIR FRAMING SECTION
3/4" = 1'-0"



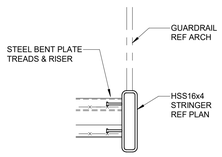
6 STAIR FRAMING SECTION
3/4" = 1'-0"



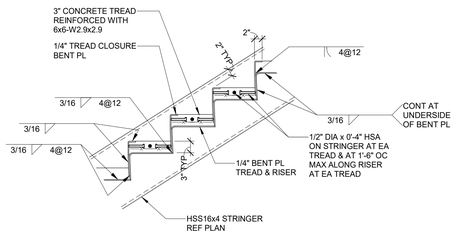
5 STAIR FRAMING SECTION
3/4" = 1'-0"



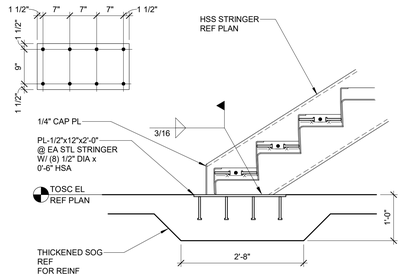
4 STAIR FRAMING SECTION
3/4" = 1'-0"



3 STAIR FRAMING SECTION
3/4" = 1'-0"



2 STAIR FRAMING SECTION
3/4" = 1'-0"



1 STAIR FRAMING SECTION
3/4" = 1'-0"

City of Aurora Building Division
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2/4/2025 4:13:22 PM S5-14 STEEL FLOOR FRAMING DETAILS

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TCD DESIGN CONSULTING LLC

ISSUES

1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
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REVISIONS

COLORADO LICENSED NICHOLAS W. DAVID 65236 PROFESSIONAL ENGINEER

AG&E Structural Engenuity F-8435

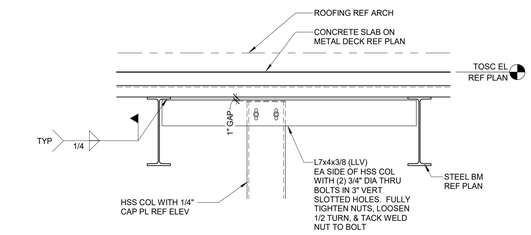
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QTS DEN1 DC2
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QTS

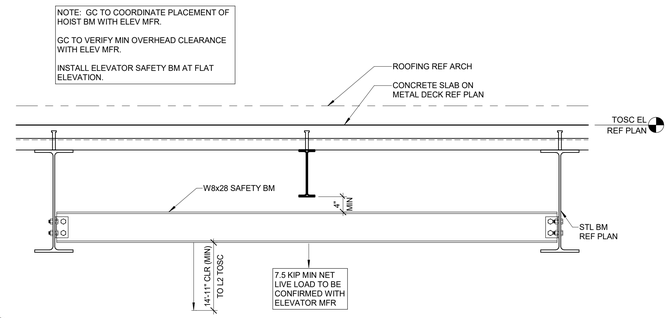
STEEL FLOOR FRAMING DETAILS

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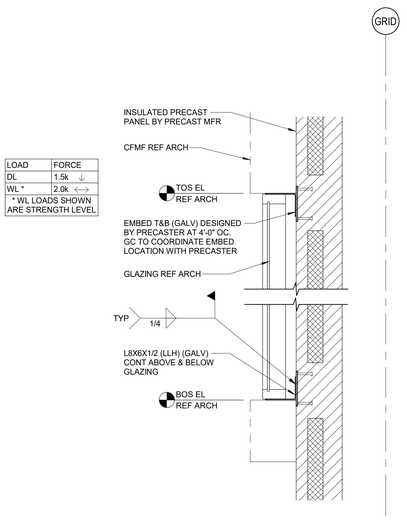
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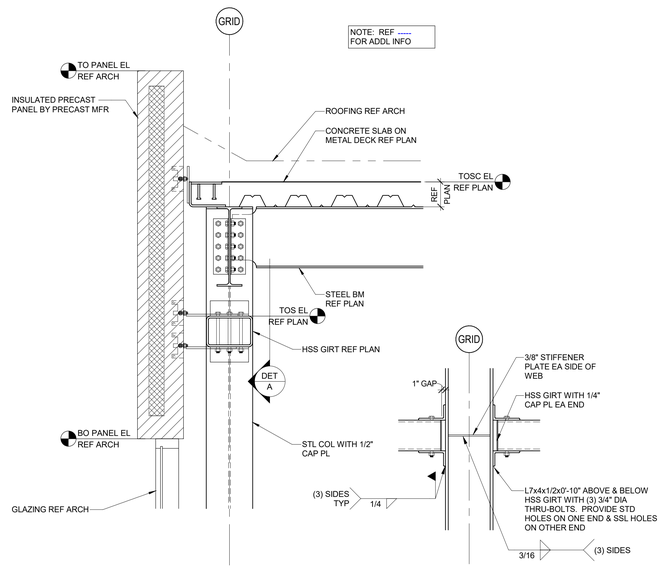
5 DETAIL
3/4" = 1'-0"



4 DETAIL
3/4" = 1'-0"

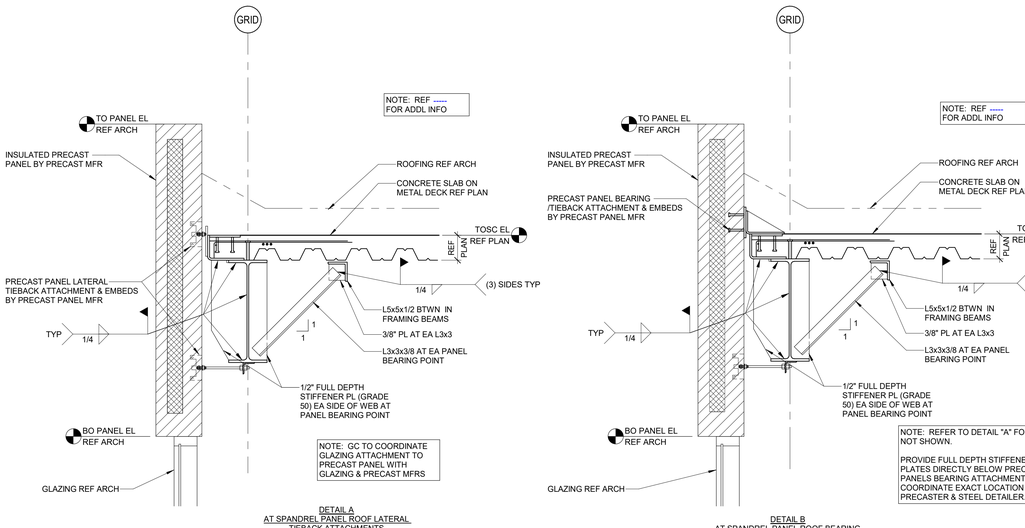


3 DETAIL
3/4" = 1'-0"



DETAIL A

2 DETAIL
3/4" = 1'-0"



DETAIL A
AT SPANDREL PANEL ROOF LATERAL TIEBACK ATTACHMENTS

DETAIL B
AT SPANDREL PANEL ROOF BEARING ATTACHMENTS

1 DETAIL
3/4" = 1'-0"

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ISSUES		
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2	01.31.25	ISSUE FOR PERMIT
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REVISIONS		

COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

STEEL ROOF FRAMING SECTIONS AND DETAILS

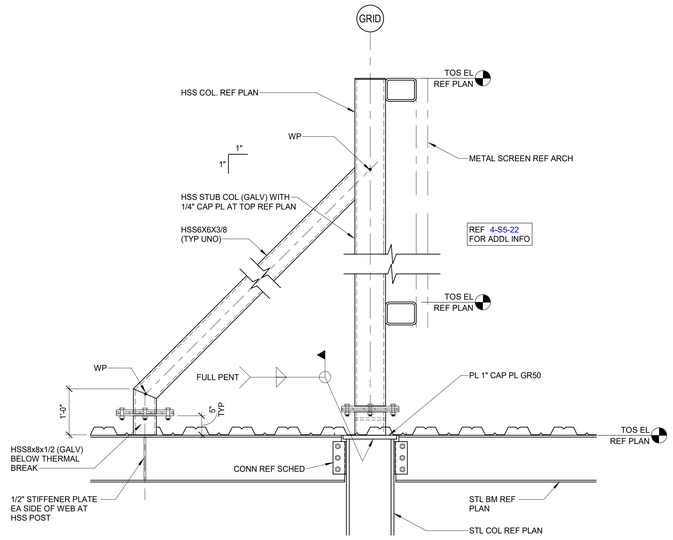
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S5-20

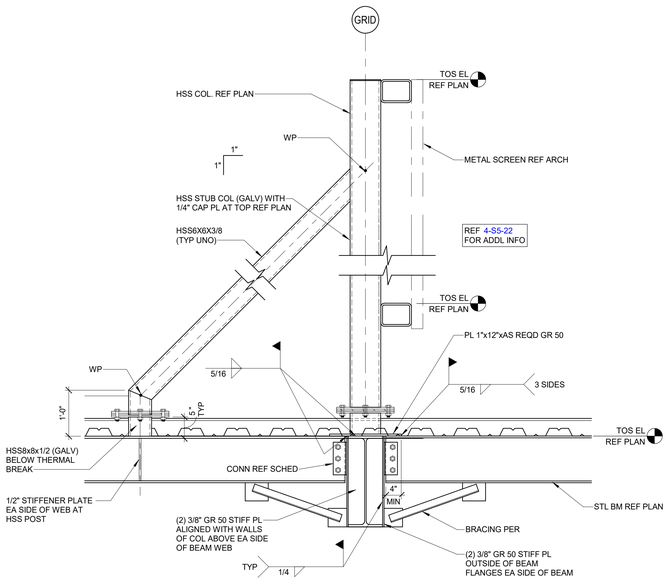
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RSN: 1881854 | PERMIT#: 25-2513934-CM

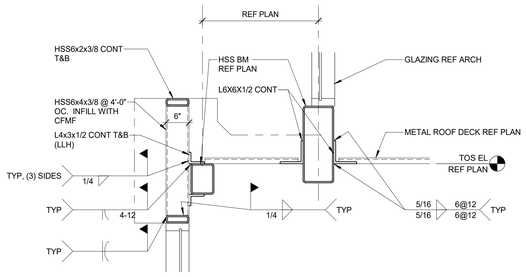
City of Aurora Building Division
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Date: May 06, 2025
2021 INTERNATIONAL CODES & 2023 NEC



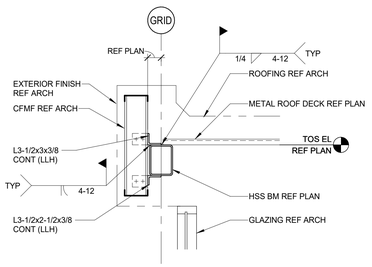
11 ROOFTOP SCREENWALL POST AT COLUMN
3/4" = 1'-0"



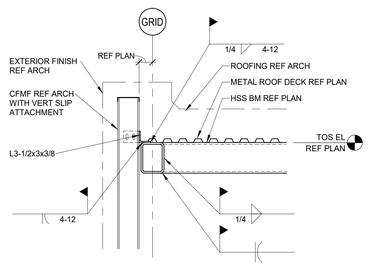
10 ROOFTOP SCREENWALL POST AT GIRDER
3/4" = 1'-0"



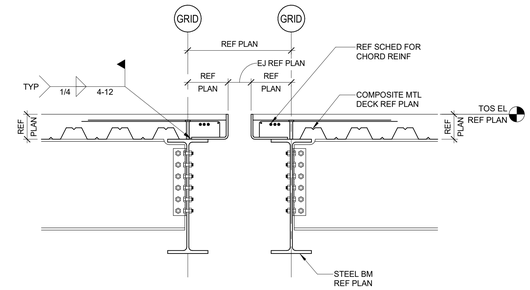
9 CFMF DETAIL AT VESTIBULE ROOF
3/4" = 1'-0"



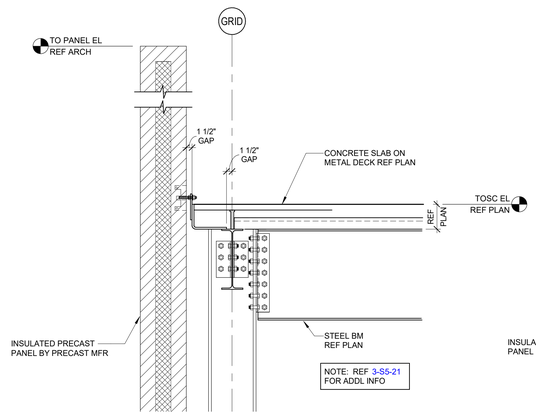
8 CFMF DETAIL AT VESTIBULE ROOF
3/4" = 1'-0"



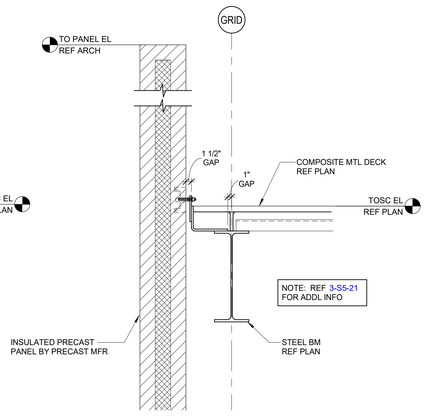
7 CFMF DETAIL AT VESTIBULE ROOF
3/4" = 1'-0"



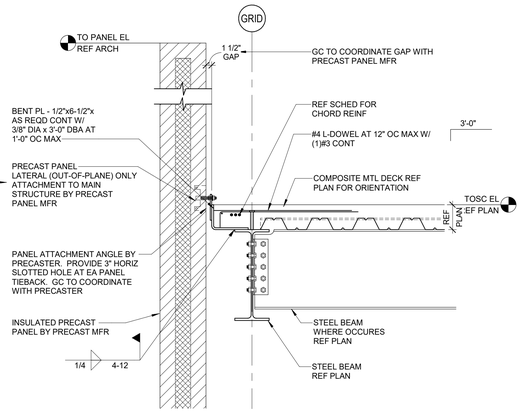
6 DETAIL
3/4" = 1'-0"



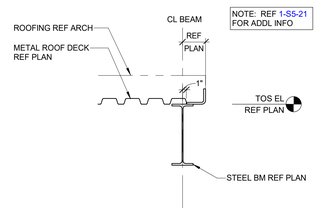
5 PRECAST CONN AT PARAPET
3/4" = 1'-0"



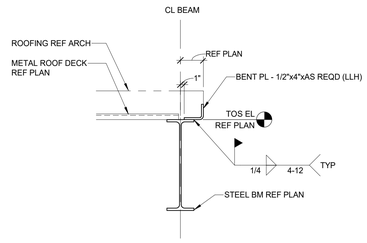
4 PRECAST CONN AT PARAPET
3/4" = 1'-0"



3 PRECAST CONN AT PARAPET
3/4" = 1'-0"



2 TYPICAL EDGE OF ROOF DECK
3/4" = 1'-0"



1 TYPICAL EDGE OF ROOF DECK
3/4" = 1'-0"

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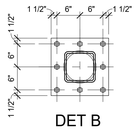
QTS DEN1 DC2
1140 N. GUN CLUB ROAD

STEEL ROOF FRAMING SECTIONS AND DETAILS

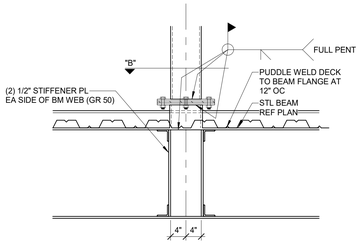
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2/4/2025 4:13:24 PM S5-21 STEEL ROOF FRAMING SECTIONS AND DETAILS

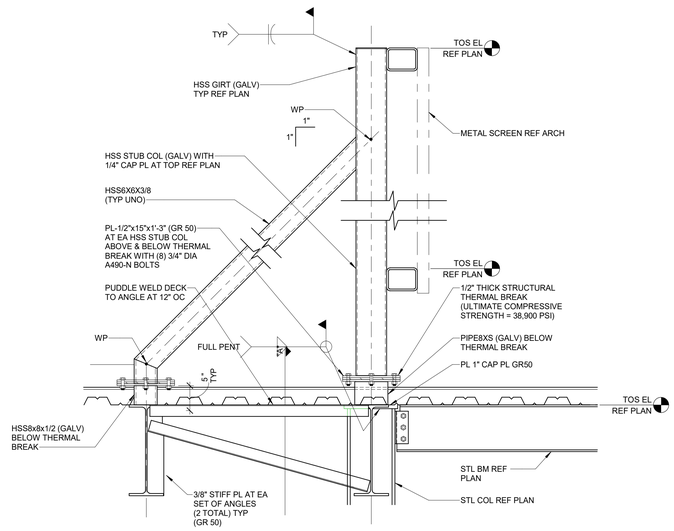
City of Aurora Building Division
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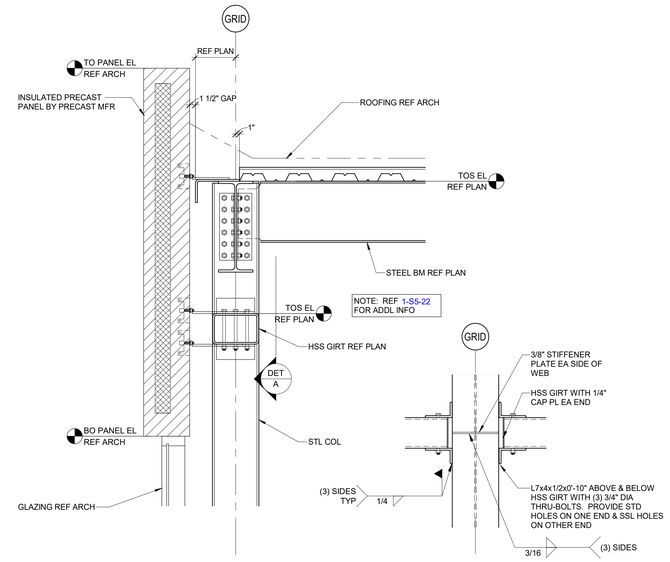


DET B



DET A

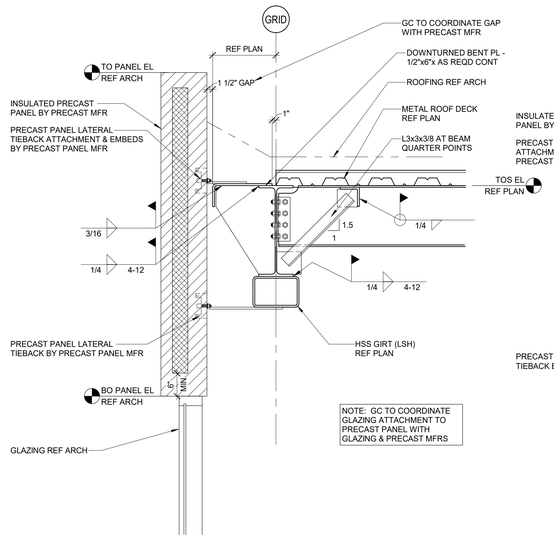




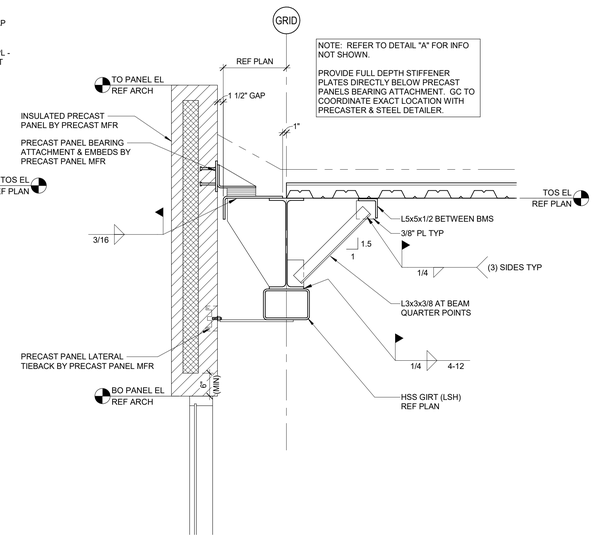
DET A

4 ROOFTOP SCREENWALL POST AT BEAM

3/4" = 1'-0"



DETAIL A
AT SPANDREL PANEL ROOF LATERAL TIEBACK ATTACHMENTS



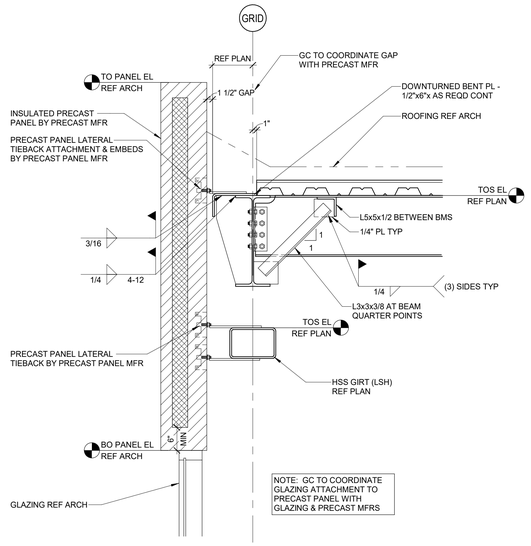
DETAIL B
AT SPANDREL PANEL ROOF BEARING ATTACHMENTS

2 PRECAST SPANDREL PANEL CONN AT FOH

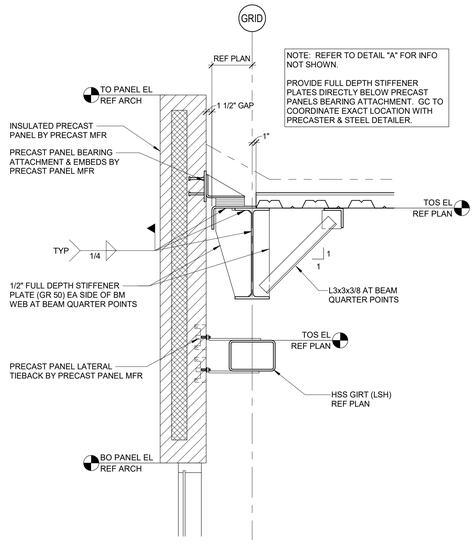
3/4" = 1'-0"

3 GIRT CONNECTION TO COLUMN AT PRECAST SPANDREL

3/4" = 1'-0"



DETAIL A
AT SPANDREL PANEL ROOF LATERAL TIEBACK ATTACHMENTS



DETAIL B
AT SPANDREL PANEL ROOF BEARING ATTACHMENTS

1 PRECAST SPANDREL PANEL CONN AT FOH

3/4" = 1'-0"

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REVISIONS		

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QTS DEN1 DC2
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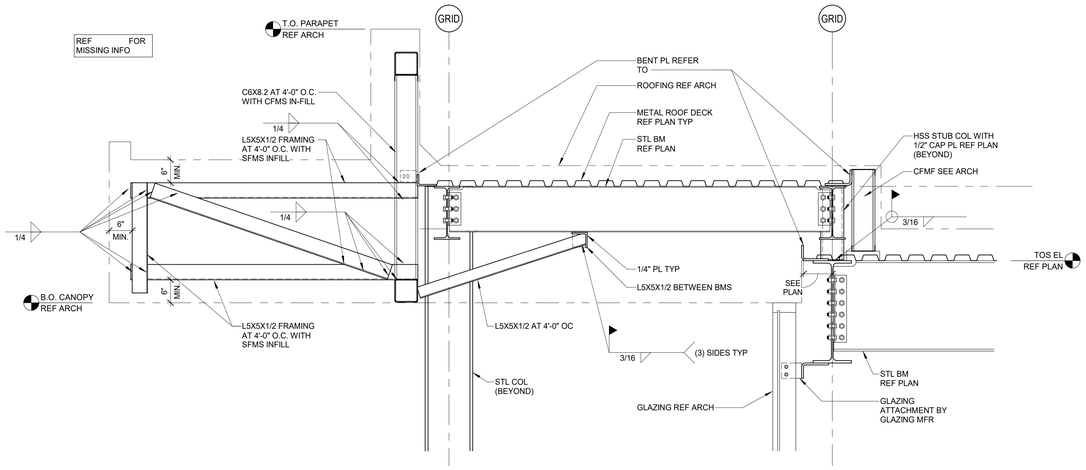
STEEL ROOF FRAMING SECTIONS AND DETAILS

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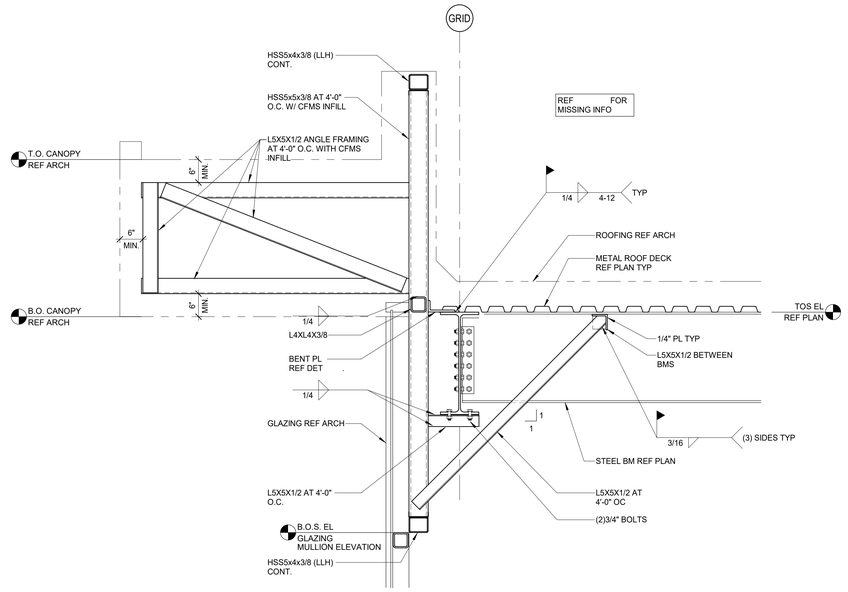
S5-22

2/4/2025 4:13:25 PM S5-22 STEEL ROOF FRAMING SECTIONS AND DETAILS

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2 TYPICAL DETAIL AT EYEBROW CANOPY
3/4" = 1'-0"



1 TYPICAL DETAIL AT EYEBROW CANOPY
3/4" = 1'-0"

2/4/2025 4:13:26 PM S5-23 STEEL ROOF FRAMING SECTIONS AND DETAILS

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QTS DEN1 DC2
1140 N. GUN CLUB ROAD

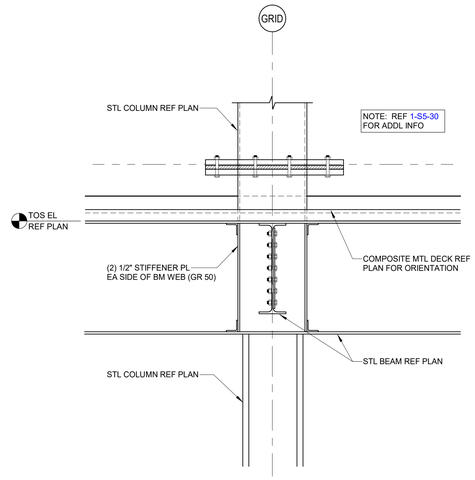
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STEEL ROOF FRAMING SECTIONS AND DETAILS

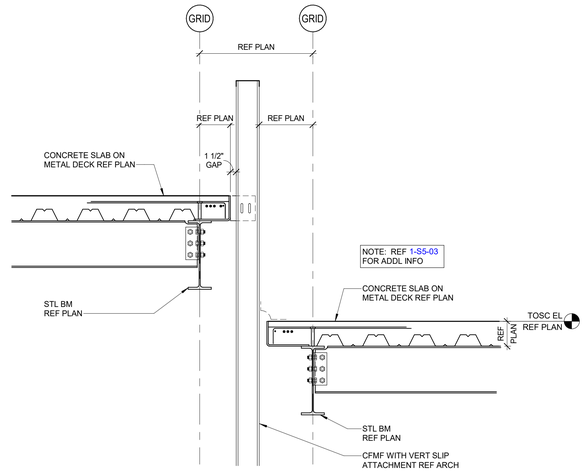
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2 ROOF FRAMING DETAIL
3/4" = 1'-0"



1 ROOF FRAMING DETAIL
3/4" = 1'-0"

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1140 N. GUN CLUB ROAD

QTS

STEEL ROOF FRAMING SECTIONS AND DETAILS

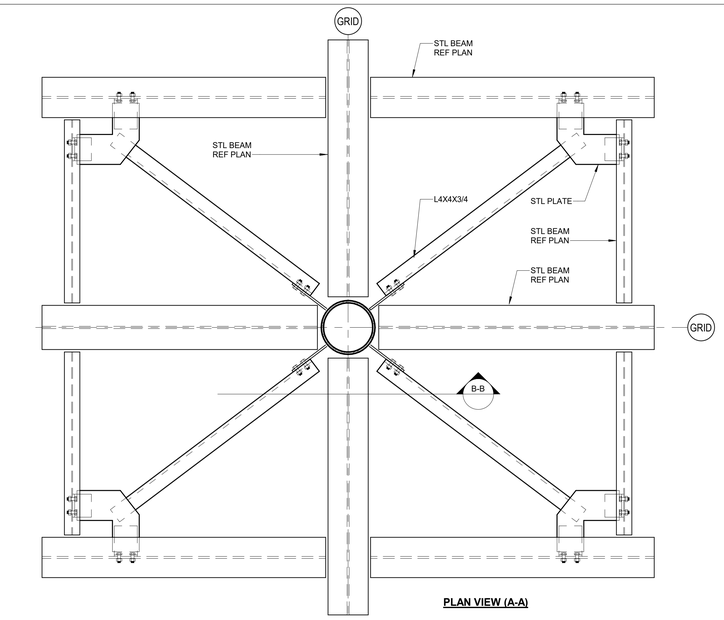
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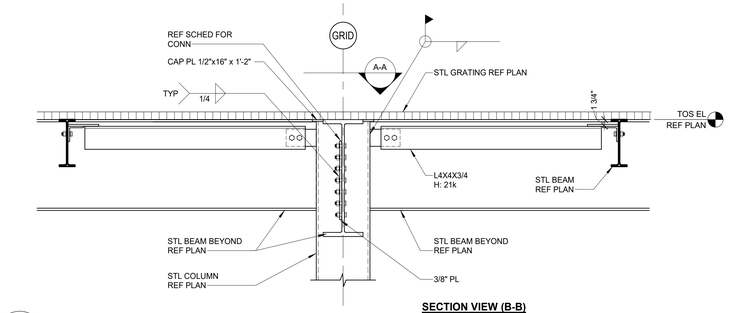
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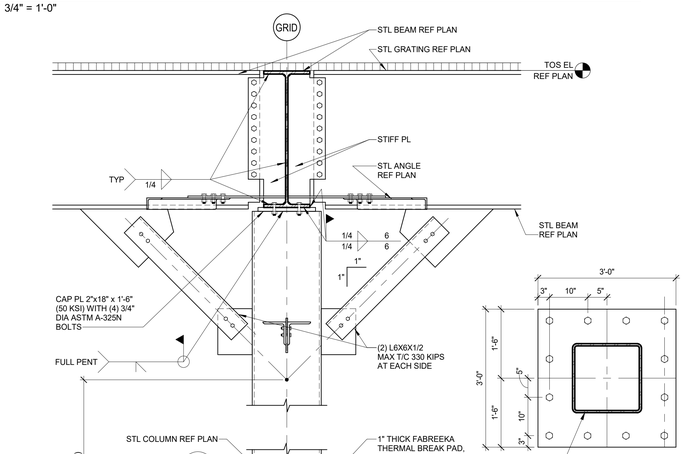


PLAN VIEW (A-A)

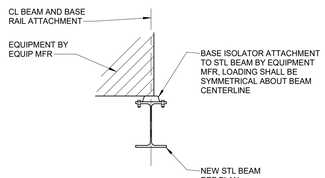


SECTION VIEW (B-B)

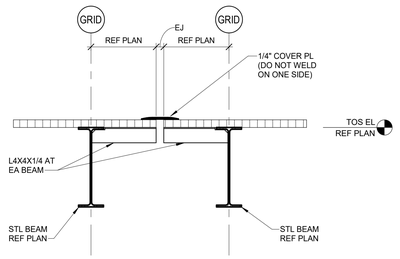
7 FRAMING DETAIL
3/4" = 1'-0"



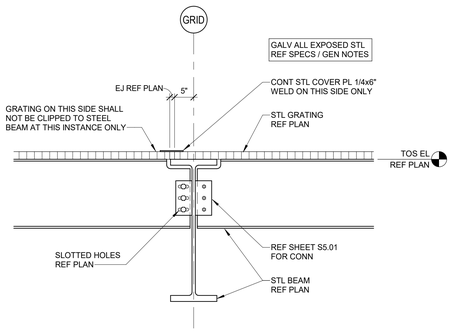
6 TYPICAL ACC ATTACHMENT AT STL BEAM
3/4" = 1'-0"



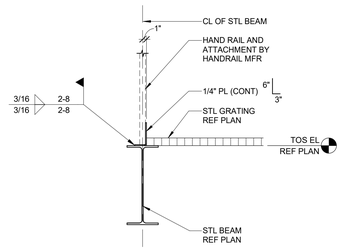
5 DETAIL
3/4" = 1'-0"



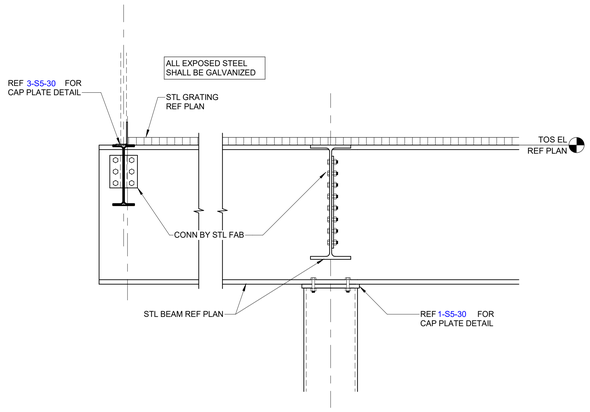
4 FRAMING DETAIL
3/4" = 1'-0"



3 TYPICAL HAND RAIL DETAIL
3/4" = 1'-0"



2 FRAMING DETAIL
3/4" = 1'-0"



1 STEEL COLUMN AT CHILLER PLATFORM/BRACE
3/4" = 1'-0"

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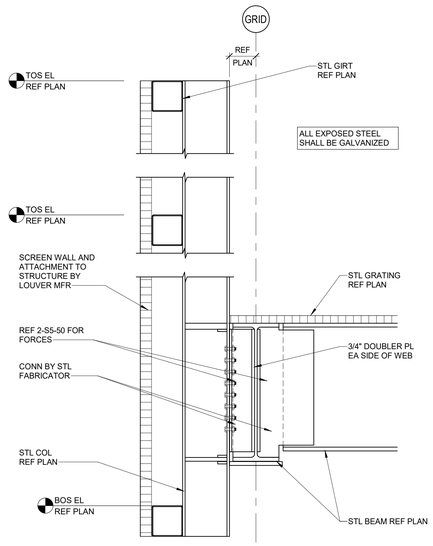
PLATFORM FRAMING SECTION AND DETAILS

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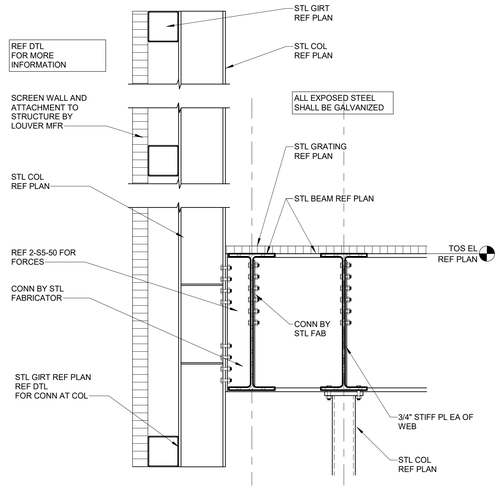
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2/4/2025 4:13:27 PM S5-30 PLATFORM FRAMING SECTION AND DETAILS

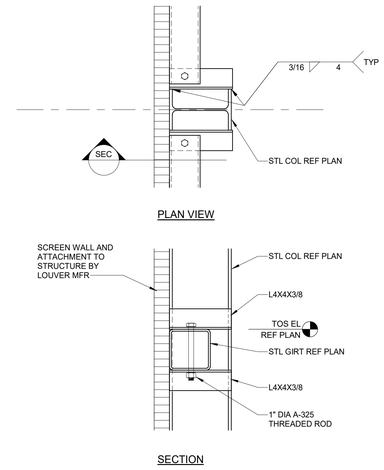
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6 SCREEN WALL VERTICAL MEMBER CONNECTION AT BEAM
3/4" = 1'-0"

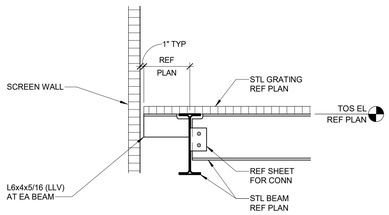


5 SCREEN WALL VERTICAL MEMBER CONNECTION AT BEAM
3/4" = 1'-0"

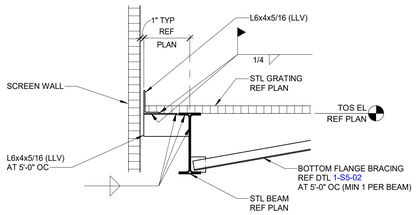


SECTION

4 FRAMING DETAIL
1" = 1'-0"

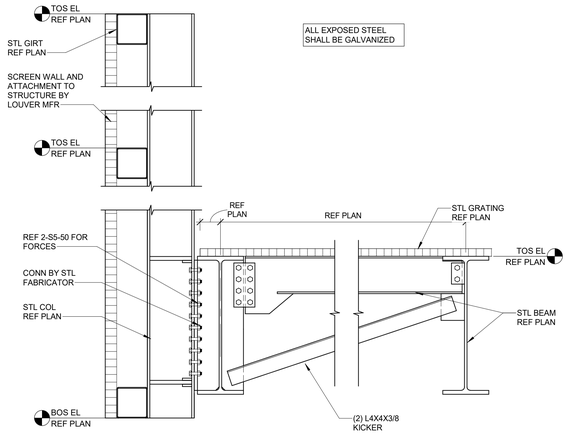


SECTION "A"

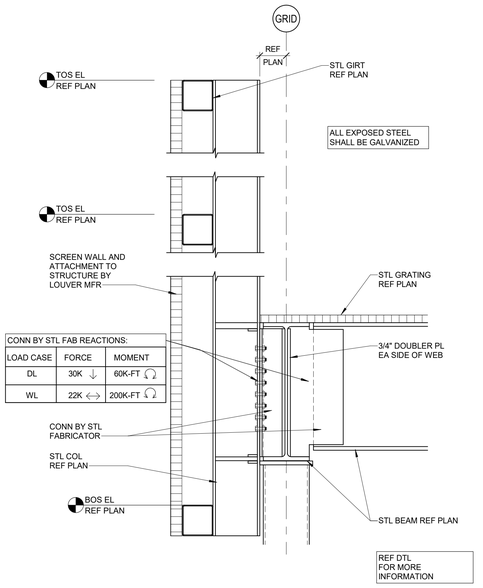


SECTION "B"

3 FRAMING DETAIL
3/4" = 1'-0"



2 SCREEN WALL VERTICAL MEMBER CONNECTION AT BEAM
3/4" = 1'-0"



1 SCREEN WALL VERTICAL MEMBER CONNECTION AT POST
3/4" = 1'-0"

CORGAN
401 N. Houston Street Dallas, TX
75202
T: 214.748.2000

AG/E

SYSKA HENNESSY GROUP

DESIGN CONSULTING LLC

	ISSUES	
1	12.20.24	DESIGN DEVELOPMENT
2	01.31.25	ISSUE FOR PERMIT
3		
4		
5		
6		
7		
8		
9		
10		

	REVISIONS	

COLORADO LICENSED
NICHOLAS W. DAVID
65236
PROFESSIONAL ENGINEER

AG&E Structural Engenuity
F-8435

Date of issue:
01.31.2025

QTS DEN1 DC2
1140 N. GUN CLUB ROAD

PLATFORM FRAMING SECTION AND DETAILS

JOB 24464.0000
DATE 01.31.2025
SHEET

S5-31

2/4/2025 4:13:28 PM S5-31 PLATFORM FRAMING SECTION AND DETAILS