SPECIAL INSPECTIONS AND TESTS (IBC 2021)

1. THE OWNER OR THE OWNER'S AUTHORIZED AGENT, OTHER THAN THE CONTRACTOR, SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PROVIDE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION ON THE TYPES OF WORK SPECIFIED BELOW AND IDENTIFY THE APPROVED AGENCIES TO THE BUILDING OFFICIAL.
2. THE APPROVED AGENCIES SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING THE COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION.
3. THE CONSTRUCTION OR WORK FOR WHICH SPECIAL INSPECTION OR TESTING IS REQUIRED SHALL REMAIN ACCESSIBLE AND EXPOSED FOR SPECIAL INSPECTION OR TESTING PURPOSES UNTIL COMPLETION OF THE REQUIRED SPECIAL INSPECTIONS OR TESTS.
4. APPROVED AGENCIES SHALL KEEP RECORDS OF SPECIAL INSPECTIONS AND TESTS. THE APPROVED AGENCY SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED. THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSTRUCTIONS 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.
5. REFER TO 2021 INTERNATIONAL BUILDING CODE FOR DEFINITION OF TERMS.

SOILS CONSTRUCTION (IBC 1705.6)

1. VERIFY SUBGRADE IS ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY	☐ CONTINUOUS	☒ PERIODIC	PRIOR TO PLACEMENT OF CONCRETE.
2. VERIFY EXCAVATIONS EXTEND TO PROPER DEPTH AND MATERIAL	☐ CONTINUOUS	☒ PERIODIC	PRIOR TO PLACEMENT OF COMPACTED FILL OR CONCRETE.
3. VERIFY THAT SUBGRADE HAS BEEN APPROPRIATELY PREPARED PRIOR TO PLACING COMPACTED FILL	☐ CONTINUOUS	☒ PERIODIC	PRIOR TO PLACEMENT OF COMPACTED FILL
4. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	☐ CONTINUOUS	☒ PERIODIC	ALL MATERIALS SHALL BE CHECKED AT EACH LIFT FOR PROPER CLASSIFICATIONS AND GRADATIONS NOT LESS THAN ONCE FOR EACH 10,000 FT² OF SURFACE AREA
5. VERIFY PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION.	☒ CONTINUOUS	☐ PERIODIC	

CAST-IN-PLACE DEEP FOUNDATIONS (1705.8)

1. OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE & ACCURATE RECORDS FOR EACH FOUNDATION ELEMENT	☒ CONTINUOUS	☐ PERIODIC	
2. VERIFY PLACEMENT LOCATIONS & PLUMBNESS, CONFIRM ELEMENTS DIAMETERS, LENGTHS, EMBEDMENT AND ADQUATE END - BEARING CAPACITY, RECORD CONCRETE OR GROUT VOLUMES.	☒ CONTINUOUS	☐ PERIODIC	
3. PERFORM ADDITIONAL INSPECTIONS AS REQUIRED FOR CONCRETE ELEMENTS.	☐ CONTINUOUS	☐ PERIODIC	CONCRETE PER IBC 1705.3.

CONCRETE CONSTRUCTION (IBC 1705.3 AND IBC CHAPTER 19)

1. REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS	☐ CONTINUOUS	☒ PERIODIC	VERIFY PRIOR TO PLACING CONCRETE THAT REINFORCING IS OF SPECIFIED TYPE, GRADE AND SIZE; THAT IT IS FREE OF OIL, DIRT AND RUST; THAT IT IS LOCATED AND SPACED PROPERLY; THAT HOOKS, BENDS, TIES, STIRRUPS AND SUPPLEMENTAL REINFORCEMENT ARE PLACED CORRECTLY; THAT LAP LENGTHS, STAGGER AND OFFSETS ARE PROVIDED; AND THAT ALL MECHANICAL CONNECTIONS ARE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS AND/OR EVALUATION REPORT. (REF. CHAPTER 20 AND SECTIONS 25.2, 25.3, & 26.6.1-26.6.3 OF ACI 318)
2. CAST-IN ANCHORS & EMBEDS	☐ CONTINUOUS	☒ PERIODIC	COMPLY WITH SECTIONS 1.9 & 17.8.2 OF ACI 318.
3A. POST-INSTALLED ANCHORS(ADHESIVE)	☒ CONTINUOUS	☐ PERIODIC	ALL POST-INSTALLED ANCHORS/DOWELS SHALL BE SPECIALLY INSPECTED AS REQUIRED BY THE APPROVED ICC-ES REPORT, AND SHALL COMPLY WITH SECTIONS 17.8.2, 28.7.2, AND 26.13.3.2&3 OF ACI 318.
3B. POST-INSTALLED ANCHORS (NON-ADHESIVE)	☐ CONTINUOUS	☒ PERIODIC	ALL POST-INSTALLED ANCHORS/DOWELS SHALL BE SPECIALLY INSPECTED AS REQUIRED BY THE APPROVED ICC-ES REPORT, AND SHALL COMPLY WITH SECTIONS 17.8.2, 28.7.2, AND 26.13.3.2&3 OF ACI 318.
4. USE OF REQUIRED MIX DESIGN	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT ALL MIXES USED COMPLY WITH THE APPROVED CONSTRUCTION DOCUMENTS AND CHAPTER 19 & SECTIONS 26.4.3&4 OF ACI 318.
5. CONCRETE SAMPLING FOR STRENGTH TESTS, SLUMP, AIR CONTENT, AND TEMPERATURE	☐ CONTINUOUS	☒ PERIODIC	COMPLY WITH SECTIONS 26.4 & 26.12 OF ACI 318.
6. CONCRETE & SHOTCRETE PLACEMENT	☒ CONTINUOUS	☐ PERIODIC	COMPLY WITH SECTION 26.5 OF ACI 318 AND SECTION 1908 OF IBC.
7. CURING TEMPERATURE AND TECHNIQUES	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT THE AMBIENT TEMPERATURE FOR CONCRETE IS KEPT AT > 50°F FOR AT LEAST 7 DAYS AFTER PLACEMENT. HIGH-EARLY-STRENGTH CONCRETE SHALL BE KEPT AT > 50°F FOR AT LEAST 3 DAYS. ACCELERATED CURING METHODS MAY BE USED. THE AMBIENT TEMPERATURE FOR SHOTCRETE SHALL BE > 40°F FOR THE SAME PERIOD OF TIME AS NOTED FOR CONCRETE. SHOTCRETE SHALL BE KEPT CONTINUOUSLY MOIST FOR AT LEAST 24 HOURS AFTER SHOTCRETING. ALL CONCRETE MATERIALS, REINFORCEMENT, FORMS, FILLERS, AND GROUND SHALL BE FREE FROM FROST. IN HOT WEATHER CONDITIONS ENSURE THAT APPROPRIATE MEASURES ARE TAKEN TO AVOID PLASTIC SHRINKAGE CRACKING AND THAT THE SPECIFIED WATER/CEMENT RATIO IS NOT EXCEEDED. (REF SECTIONS 26.5.3 THRU 26.5.5 OF ACI 318)
8. PRE-STRESSED CONCRETE	☒ CONTINUOUS	☐ PERIODIC	COMPLY WITH SECTION 26.10.2 OF ACI 318.
9. ERECTION OF PRECAST CONCRETE	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT ALL PRECAST ELEMENTS ARE LIFTED, ASSEMBLED AND BRACED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
10. STRENGTH VERIFICATION FOR REMOVAL OF SHORES/FORMS AND FOR POST-TENSIONED CONCRETE	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT ADEQUATE STRENGTH HAS BEEN ACHIEVED PRIOR TO THE REMOVAL OF SHORES AND FORMS OR THE STRESSING OF POST-TENSIONED TENDONS.
11. FORMWORK	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT THE FORMS ARE PLACED PLUMB AND CONFORM TO THE SHAPES, LINES, AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE APPROVED CONSTRUCTION DOCUMENTS.
12. VERIFICATION OF WELDABILITY OF REINFORCING STEEL	☐ CONTINUOUS	☒ PERIODIC	VERIFY WELDABILITY OF REINFORCING STEEL BASED UPON CARBON EQUIVALENT AND IN ACCORDANCE WITH AWS D1.4 & SECTION 26.6.4.1 OF ACI 318.

STRUCTURAL STEEL (IBC 1705.2.1, 1705.12.1 & 1705.13.1)

PRIOR TO WELDING (TABLE N5.4-1, AISC 360)			
1. VERIFY WELDING PROCEDURES (WPS) AND CONSUMABLE CERTIFICATES	☒ CONTINUOUS	☐ PERIODIC	
2. MATERIAL IDENTIFICATION	☐ CONTINUOUS	☒ PERIODIC	VERIFY TYPE AND GRADE OF MATERIAL
3. WELDER IDENTIFICATION	☐ CONTINUOUS	☒ PERIODIC	A SYSTEM SHALL BE MAINTAINED BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED
4. FIT-UP GROOVE WELDS	☐ CONTINUOUS	☒ PERIODIC	VERIFY JOINT PREPARATION, DIMENSIONS, CLEANLINESS, TACKING, AND BACKING.
5. ACCESS HOLES	☐ CONTINUOUS	☒ PERIODIC	VERIFY CONFIGURATION AND FINISH.
6. FIT-UP OF FILLET WELDS	☐ CONTINUOUS	☒ PERIODIC	VERIFY ALIGNMENT, GAPS AT ROOT, CLEANLINESS OF STEEL SURFACES, AND TACK WELD QUALITY AND LOCATION.
DURING WELDING (TABLE N5.4-2, AISC 360)			
1. USE OF QUALIFIED WELDERS	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT WELDERS ARE APPROPRIATELY QUALIFIED.
2. CONTROL AND HANDLING OF WELDING CONSUMABLES	☐ CONTINUOUS	☒ PERIODIC	VERIFY PACKAGING AND EXPOSURE CONTROL.
3. CRACKED TACK WELDS	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT WELDING DOES NOT OCCUR OVER CRACKED TACK WELDS.
4. ENVIRONMENTAL CONDITIONS	☐ CONTINUOUS	☒ PERIODIC	VERIFY WIND SPEED IS WITHIN LIMITS AS WELL AS PRECIPITATION AND TEMPERATURE
5. WPS FOLLOWED	☐ CONTINUOUS	☒ PERIODIC	VERIFY ITEMS SUCH AS SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED, AND PROPER POSITION.
6. WELDING TECHNIQUES	☐ CONTINUOUS	☒ PERIODIC	VERIFY INTERPASS AND FINAL CLEANING, EACH PASS IS WITHIN PROFILE LIMITATIONS, AND QUALITY OF EACH PASS.
AFTER WELDING (TABLE N5.4-3, AISC 360)			
1. WELDS CLEANED	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT WELDS HAVE BEEN PROPERLY CLEANED.
2. SIZE, LENGTH, AND LOCATION OF WELDS	☒ CONTINUOUS	☐ PERIODIC	
3. WELDS MEET VISUAL ACCEPTANCE CRITERIA	☒ CONTINUOUS	☐ PERIODIC	VERIFY CRACK PROHIBITION, WELD/BASE METAL FUSION, CRATER CROSS SECTION, WELD PROFILES, WELD SIZE, UNDERCUT, AND POROSITY ARE ALL ACCEPTABLE
4. ARC STRIKES	☒ CONTINUOUS	☐ PERIODIC	
5. K-AREA	☒ CONTINUOUS	☐ PERIODIC	
6. BACKING & WELD TABS REMOVED	☒ CONTINUOUS	☐ PERIODIC	
7. REPAIR ACTIVITIES	☒ CONTINUOUS	☐ PERIODIC	
8. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT/MEMBER	☒ CONTINUOUS	☐ PERIODIC	
NONDESTRUCTIVE TESTING (SECTION N5.5, AISC 360)			
1. CJP WELDS (RISK CAT. II)	☐ CONTINUOUS	☒ PERIODIC	ULTRASONIC TESTING SHALL BE PERFORMED ON 10% OF CJP GROOVE WELDS IN BUTT, T- AND CORNER JOINTS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING IN MATERIALS 5/16 INCH THICK OR GREATER. TESTING RATE MUST BE INCREASED IF > 5% OF WELDS TESTED HAVE UNACCEPTABLE DEFECTS PER SECTION N5.5F.
2. CJP WELDS (RISK CAT. III OR IV)	☒ CONTINUOUS	☐ PERIODIC	ULTRASONIC TESTING SHALL BE PERFORMED ON ALL CJP GROOVE WELDS IN BUTT, T- AND CORNER JOINTS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING IN MATERIALS 5/16 INCH THICK OR GREATER. A REDUCTION IN THE RATE OF ULTRASONIC TESTING IS ALLOWED PER SECTION N5.5E.
3. ACCESS HOLES (FLANGE > 2")	☒ CONTINUOUS	☐ PERIODIC	MAGNETIC PARTICLE TESTING OR PENETRANT TESTING SHALL BE PERFORMED. ANY CRACK SHALL BE DEEMED UNACCEPTABLE
4. WELDED JOINTS SUBJECT TO FATIGUE	☒ CONTINUOUS	☐ PERIODIC	REFER TO APPENDIX 3, TABLE A-3.1.
PRIOR TO BOLTING (TABLE N5.6-1, AISC 360)			
NOT REQUIRED IF ONLY SNUG-TIGHT JOINTS ARE SPECIFIED [PER SECTION N5.6(1) OF AISC 360].			
1. CERTIFICATIONS OF FASTENERS	☒ CONTINUOUS	☐ PERIODIC	
2. FASTENERS MARKED	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT FASTENERS HAVE BEEN MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS.
3. PROPER FASTENERS FOR JOINT	☐ CONTINUOUS	☒ PERIODIC	VERIFY GRADE, TYPE, AND BOLT LENGTH IF THREADS ARE EXCLUDED FROM THE SHEAR PLANE.
4. PROPER BOLTING PROCEDURE	☐ CONTINUOUS	☒ PERIODIC	VERIFY PROPER PROCEDURE IS USED FOR THE JOINT DETAIL.
5. CONNECTING ELEMENTS	☐ CONTINUOUS	☒ PERIODIC	VERIFY APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET REQUIREMENTS.
6. PRE-INSTALLATION VERIFICATION TESTING	☐ CONTINUOUS	☒ PERIODIC	OBSERVE AND DOCUMENT VERIFICATION TESTING BY INSTALLATION PERSONNEL FOR FASTENER ASSEMBLIES AND METHODS USED. COMPONENTS.
7. PROPER STORAGE	☐ CONTINUOUS	☒ PERIODIC	VERIFY PROPER STORAGE OF BOLTS, NUTS, WASHERS, AND OTHER FASTENER COMPONENTS.
DURING BOLTING (TABLE N5.6-2, AISC 360)			
NOT REQUIRED IF ONLY SNUG-TIGHT JOINTS ARE SPECIFIED [PER SECTION N5.6(1) OF AISC 360].			
NOT REQUIRED FOR PRETENSIONED JOINTS USING TURN-OF-THE-NUT METHOD WITH MATCH-MARKING, DIRECT-TENSION-INDICATORS,			
OR TWIST-OFF TYPE TENSION CONTROL METHOD [PER SECTION N5.6(2) OF AISC 360			
1. FASTENER ASSEMBLIES	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT FASTENER ASSEMBLIES ARE OF SUITABLE CONDITION, PLACED IN ALL HOLES, AND WASHERS ARE POSITIONED AS REQUIRED.
2. SNUG-TIGHT PRIOR TO PRETENSIONING	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT JOINTS ARE BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO PRETENSIONING OPERATION.
3. FASTENER COMPONENT	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT FASTENER COMPONENT IS NOT TURNED BY WRENCH PREVENTED FROM ROTATING.
4. PRETENSIONED FASTENERS	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES.
AFTER BOLTING (TABLE N5.6-3, AISC 360)			
1. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	☒ CONTINUOUS	☐ PERIODIC	
OTHER STEEL INSPECTIONS (SECTION N5.7, AISC 360; TABLES J8-1 & J10-1, AISC 341)			
1. STRUCTURAL STEEL DETAILS	☐ CONTINUOUS	☒ PERIODIC	ALL FABRICATED STEEL OR STEEL FRAMES SHALL BE INSPECTED TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN IN THE CONSTRUCTION DOCUMENTS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS, AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.
2. ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL	☐ CONTINUOUS	☒ PERIODIC	SHALL BE ON THE PREMISES DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS. VERIFY THE DIAMETER, GRADE, TYPE, AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT PRIOR TO PLACEMENT OF CONCRETE.
3. REDUCED BEAM SECTIONS (RBS)	☒ CONTINUOUS	☐ PERIODIC	VERIFY CONTOUR AND FINISH AS WELL AS DIMENSIONAL TOLERANCES (SEE TABLE J8-1 OF AISC 341).
4. PROTECTED ZONES	☒ CONTINUOUS	☐ PERIODIC	VERIFY THAT NO HOLES OR UNAPPROVED ATTACHMENTS ARE MADE WITHIN THE PROTECTED ZONE (SEE TABLE J8-1 OF AISC 341).
5. H-PILES	☒ CONTINUOUS	☐ PERIODIC	VERIFY THAT NO HOLES OR UNAPPROVED ATTACHMENTS OCCUR WITHIN THE PROTECTED ZONES OF PILING (SEE TABLE J10-1 OF AISC 341).
STEEL ELEMENTS OF COMPOSITE CONSTRUCTION (TABLE N8.1, AISC 360; TABLES J9-1 THRU J9-3, AISC 341)			
1. PLACEMENT AND INSTALLATION OF STEEL DECK	☒ CONTINUOUS	☐ PERIODIC	
2. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	☒ CONTINUOUS	☐ PERIODIC	
3. DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS	☒ CONTINUOUS	☐ PERIODIC	
4. REINFORCING STEEL	☐ CONTINUOUS	☒ PERIODIC	VERIFY APPROPRIATE REINFORCEMENT SIZE, SPACING, AND ORIENTATION; THAT IT HAS NOT BEEN RE-BENT IN FIELD; THAT IT IS CORRECTLY TIED AND SUPPORTED; AND THAT REQUIRED STEEL CLEARANCES HAVE BEEN PROVIDED.
5. COMPOSITE MEMBER SIZE	☐ CONTINUOUS	☒ PERIODIC	VERIFY THAT COMPOSITE MEMBER IS THE REQUIRED SIZE.

STEEL ROOF AND FLOOR DECKS (SDI/ANSI QA/QC STANDARD)

1. MATERIAL VERIFICATION OF STEEL DECK	☐ CONTINUOUS	☒ PERIODIC	CONFIRM THAT IDENTIFICATION MARKINGS ARE PROVIDED TO CONFORM TO ASTM STANDARDS SPECIFIED ON CONSTRUCTION DOCUMENTS.
2. FLOOR AND ROOF DECK WELDS	☐ CONTINUOUS	☒ PERIODIC	VISUAL INSPECTION IS REQUIRED TO CONFIRM THAT WELD MEETS ACCEPTANCE CRITERIA OF AWS D1.3. WELDER QUALIFICATIONS SHOULD ALSO BE VERIFIED.

TABLE 1705.13.7 REQUIRED INSPECTIONS OF STORAGE RACK SYSTEMS

1. MATERIALS USED TO VERIFY COMPLIANCE WITH ONE OR MORE OF THE MATERIAL TEST REPORTS IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS	☐ CONTINUOUS	☒ PERIODIC	-
2. FABRICATED STORAGE RACK ELEMENTS	☐ CONTINUOUS	☒ PERIODIC	SECTION 1704.2.5
3. STORAGE RACK ANCHORAGE INSTALLATION	☐ CONTINUOUS	☒ PERIODIC	ANSI/MH16.1, SECTION 7.3.2
4. COMPLETED STORAGE RACK SYSTEM TO INDICATE COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS	☐ CONTINUOUS	☒ PERIODIC	-

ABBREVIATIONS

ADDL	ADDITIONAL	LIN	LINEAR
ALT	ALTERNATE	LL	LIVE LOAD
ALUM	ALUMINUM	LLH	LONG LEG HORIZONTAL
APPROX	APPROXIMATE	LLV	LONG LEG VERTICAL
ARCH	ARCHITECT(URAL)	LSL	LONG SLOT
ASSY	ASSEMBLY	LVL	LAMINATED VENEER LUMBER
BI	BOTTOM OF	LW	LIGHT WEIGHT
BLDG	BUILDING	MAX	MAXIMUM
BM	BEAM	MECH	MECHANICAL
BOT	BOTTOM	MED	MEDIUM
BRDG	BRIDGING	MEP	MECHANICAL ELECTRICAL PLUMBING
BRG	BEARING		
BRKT	BRACKET	MEZZ	MEZZANINE
BW	BOTH WAYS	MFR	MANUFACTURER
C/C	CENTER TO CENTER	MIN	MINIMUM
CCD	CHICAGO CITY DATUM	MISC	MISCELLANEOUS
CFS	COLD FORM STEEL	MK	MARK
CIP	CAST IN PLACE	MO	MASONRY OPENING
CJ	CONSTRUCTION JOINT, CONTROL JOINT	MTL	METAL
		NIC	NOT IN CONTRACT
CJP	COMPLETE JOINT PENETRATION	NOM	NOMINAL
CL	CENTERLINE	NS	NEAR SIDE
CLR	CLEAR	NTS	NOT TO SCALE
CMU	CONCRETE MASONRY UNIT	NW	NORMAL WEIGHT
COL	COLUMN	OC	ON CENTER
CONC	CONCRETE	OD	OUTSIDE DIAMETER
CONN	CONNECTION	OPNG	OPENING
CONT	CONTINUOUS	OPP	OPPOSITE
COORD	COORDINATE, COORDINATION	OPP HD	OPPOSITE HAND
CTR	CENTER	PC	PRECAST CONCRETE
CU FT	CUBIC FOOT	PCF	POUNDS PER CUBIC FOOT
CU YD	CUBIC YARD	PERIM	PERIMETER
DBA	DEFORMED BAR ANCHOR	PERP	PERPENDICULAR
DEG	DEGREE	PL	PLATE
DEMO	DEMOLISH	PLF	POUNDS PER LINEAR FOOT
DIA	DIAMETER	PLUMB	PLUMBING
DIM	DIMENSION	PLYWD	PLYWOOD
DL	DEAD LOAD	PROJ	PROJECT
DWG	DRAWING	PSF	POUNDS PER SQUARE FOOT
DWGS	DRAWINGS	PSI	POUNDS PER SQUARE INCH
(E)	EXISTING	PSL	PARALLEL STRAND LUMBER
EA	EACH	PT	POST TENSIONED
EF	EACH FACE	QTY	QUANTITY
EL	ELEVATION	RAD	RADIUS
ELEC	ELECTRICAL	REBAR	REINFORCING BAR
EMBED	EMBEDDED	REF	REFER, REFERENCE
ENGR	ENGINEER	REINF	REINFORCE, REINFORCEMENT
EOD	EDGE OF DECK	REQD	REQUIRED
EOS	EDGE OF SLAB	REV	REVISION
EQ	EQUAL, EQUIVALENT	RO	ROUGH OPENING
EQUIP	EQUIPMENT	SC	SLIP CRITICAL
ERS	EARTH RETENTION SYSTEM	SCHED	SCHEDULE
EW	EACH WAY	SE	STRUCTURAL ENGINEER
EXIST	EXISTING	SECT	SECTION
EXP JT	EXPANSION JOINT	SF	SQUARE FOOT
EXT	EXTERIOR	SHT	SHEET
FDN	FOUNDATION	SIM	SIMILAR
FF	FINISHED FLOOR	SOG	SLAB ON GRADE
FIN	FINISH	SPECS	SPECIFICATIONS
FLR	FLOOR	SQ	SQUARE
FS	FAR SIDE	SQ FT	SQUARE FOOT (FEET)
FT	FOOT, FEET	SS	STAINLESS STEEL
FTG	FOOTING	SSL	SHORT SLOT
GA	GAUGE	STD	STANDARD
GALV	GALVANIZED	STIFF	STIFFENER
GB	GRADE BEAM	STL	STEEL
GC	GENERAL CONTRACTOR	STRUCT	STRUCTURAL
GYP	GYPSUM	SYM	SYMMETRICAL
GYP BD	GYPSUM BOARD	t	THICKNESS
HORIZ	HORIZONTAL	T&B	TOP & BOTTOM
ID	INSIDE DIAMETER	T/	TOP OF
IN	INCH(ES)	TEMP	TEMPORARY
INFO	INFORMATION	THRU	THROUGH
INSUL	INSULATION	TYP	TYPICAL
INT	INTERIOR	UNO	UNLESS NOTED OTHERWISE
JST	JOIST	VERT	VERTICAL
JT	JOINT	VIF	VERIFY IN FIELD
K	KIPS	W/	WITH
KSI	KIPS PER SQUARE INCH	W/O	WITHOUT
LAT	LATERAL	WF	WIDE FLANGE
LB	POUND	WP	WORK POINT
LFH	LONG FACE HORIZONTAL	WWF	WELDED WIRE FABRIC
LFV	LONG FACE VERTICAL	YD	YARD

MARK DESIGNATIONS

A/##	INDICATES AUGER CAST-IN-PLACE PILE. REFER TO AUGER CAST-IN-PLACE PILE SCHEDULE FOR ADDITIONAL INFORMATION.
B/#	INDICATES BEAM TYPE. REFER TO BEAM SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
BF/#	INDICATES BRACED FRAME TYPE. REFER TO BRACED FRAME ELEVATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
BP/#	INDICATES BASE PLATE TYPE. REFER TO BASE PLATE SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
C/#	INDICATES COLUMN TYPE. REFER TO COLUMN SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
CC/#	INDICATES CAISSON CAP TYPE. REFER TO CAISSON CAP SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
CS/#	INDICATES CAISSON TYPE. REFER TO CAISSON SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
D/##	INDICATES DRIVEN / DRILLED PILE TYPE. REFER TO DRIVEN / DRILLED PILE SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
F/#	INDICATES SPREAD FOOTING TYPE. REFER TO FOOTING SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
GB/#	INDICATES GRADE BEAM TYPE. REFER TO GRADE BEAM SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
J/#	INDICATES JOIST TYPE. REFER TO JOIST SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
L/#	INDICATES LINTEL TYPE. REFER TO LINTEL SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION
P/#	INDICATES PIER TYPE. REFER TO PIER DETAILS FOR ADDITIONAL INFORMATION.
PC/#	INDICATES PILE CAP TYPE. REFER TO PILE CAP DETAILS FOR ADDITIONAL INFORMATION.
PCB/#	INDICATES PRECAST BEAM TYPE BY PRECAST MANUFACTURER
PCP/#	INDICATES PRECAST PLANK TYPE BY PRECAST MANUFACTURER.
PTB/#	INDICATES POST TENSIONED BEAM TYPE. REFER TO POST TENSIONED BEAM SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
SW/#	INDICATES SHEAR WALL TYPE. REFER TO SHEAR WALL ELEVATIONS, SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
SWB/#	INDICATES SHEAR WALL BEAM TYPE. REFER TO SHEAR WALL BEAM SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
T/#	INDICATES TRUSS TYPE. REFER TO TRUSS SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.
WD/#	INDICATES WOOD DECK TYPE. REFER TO WOOD DECK SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.

HATCH PATTERNS

	EARTH / NATIVE SOIL
	GRAVEL
	GROUT / SAND
	CONCRETE
	STEEL
	WOOD
	CONCRETE MASONRY - PLAN
	CONCRETE MASONRY - ELEVATION
	BRICK
	GEOFOAM
	PRECAST - SOLID
	PRECAST - INSULATED
	SHEAR WALL
	DEMOLITION

GENERAL SYMBOLS

	REVISION
	REVISION CLOUD
NORTH	NORTH ARROW
	ELEVATION TARGET
	SLAB STEP
	RAMP SLOPE UP
	RAMP SLOPE DOWN
	SPAN DIRECTION OF ONE WAY SLAB, WOOD DECK OR METAL ROOF DECK
	SPAN DIRECTION OF TWO WAY SLAB

TYPICAL STEEL BEAM DESIGNATIONS

W9xX.X (X) <C=X"> [-X X/X"]	
(X)	INDICATES NUMBER OF 3/4" Ø x5" WELDED HEADED STUDS UNIFORMLY SPACED ALONG THE BEAM AND SLAB INTERFACE LENGTH. REFER TO DETAIL 1/S05-04 FOR ADDITIONAL INFORMATION.
<C=X">	INDICATES REQUIRED CAMBER UP FOR FLOOR FRAMING. INSTALL ALL BEAMS AND GIRDERS WITHOUT CAMBER SPECIFIED WITH NATURAL CAMBER UP.
[-X X/X"]	INDICATES ELEVATION DIFFERENCE BETWEEN TYPICAL TYSTEEL ELEVATION AND THIS MEMBER

STEEL FRAMING SYMBOLS

	MOMENT CONNECTION
	DRAG STRUT CONNECTION. REFER TO DETAIL 1/S05-03
	SLIP CRITICAL CONNECTION
	SLIDE BEARING CONNECTION
	KICKER/STIFFENER CONNECTION. REFER TO DETAIL 12/S05-02
	LONG SLOTTED CONNECTION
	BEAM OPENING. REFER TO BEAM OPENING SCHEDULE FOR ADDITIONAL INFORMATION.
	STAIR CONNECTION
	COLUMN SPLICE OR BEAM SPLICE
	COLUMN ABOVE
	ROOF DAVIT
	ROOF TIEBACK
	ROOF FALL ARREST
RTU# XXX LBS	ROOFTOP UNIT DESIGNATION

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CORGAN

TGRWA STRUCTURAL ENGINEERS

kW Mission Critical Engineering Member of WSP

EP ENGINEERING PLUS

Kimley»Horn

ISSUES		
1		
2	12/12/2025	SCHEMATIC DESIGN
3	12/17/2025	STEEL MILL ORDER
4	01/23/2026	DESIGN DEVELOPMENT
5		
6		
7		
8		
9		
10		
11		
12		
13		