DESIGN SPECIFICATION (IBC 2021)
BUILDING CODE:

DESIGN SPECIFICATION (IBC 2021)

BUILDING CODE:

- THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE 2021 (IBC 2021) WITH SACHESE AMENDMENTS TO THE 2021 INTERNATIONAL BUILDING CODE.
- ALL DESIGN, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE REFERENCED CODE ABOVE.
- ALL CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE FOLLOWING CODES, SPECIFICATIONS AND STANDARDS. ALL REFERENCES TO STANDARDS SHALL BE THE LATEST ACCEPTED STANDARDS REFERRED TO BY CODE NOTED ABOVE:

ACI - AMERICAN CONCRETE INSTITUTE:

- 216.1—14: CODE REQUIREMENTS FOR DETERMINING FIRE RESISTANCE OF CONCRETE AND MASONRY CONSTRUCTION ASSEMBLIES
- TABLE 721.1(2), 722.1 318—14: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE 722.2.4.3,1604.3.2, 1616.2.1, 1616.3.1, 1704.5, TABLE 1705.3, 1705.3.2, 1808.8.2, TABLE 1808.8.2, 1808.8.5, 1808.8.6, 1810.1.3, 1810.2.4.1, 1810.3.2.1.1, 1810.3.2.1.2, 1810.3.8.3.1, 1810.3.8.3.3, 1810.3.9.4.2.1, 1810.3.9.4.2.2, 1810.3.10.1, 1810.3.11.1, 1810.3.12, 1901.2, 1901.3, 1902.1, 1903.1, 1904.1, 1904.2, 1905.1, 1905.1.1, 1905.1.2, 1905.1.3, 1905.1.4, 1905.1.5, 1905.1.6, 1905.1.7, 1905.1.8, 1906.1, 2108.3, 2206.1

AISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION:

- ANSI/AISC 341—16: SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS 1705.12.1.1, 1705.12.1.2, 1705.13.1.1, 1705.13.1.2, 2205.2.1.1, 2205.2.1.2, 2205.2.2, 2206.2.1

AISI - AMERICAN IRON AND STEEL INSTITUTE:

- AISI S100—16: NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, 2016 1604.3.3, 1905.1.8, 2202.1, 2203.1, 2210.1, 2210.2
- AISI S202—15: CODE OF STANDARD PRACTICE FOR COLD-FORMED STEEL FRAMING, 2015 2211.1.3.1
- AISI S220—15: NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING—NONSTRUCTURAL MEMBERS, 2015 2202.1, 2203.1, 2211.2, TABLE 2506.2, TABLE 2507.2
- AISI S230—15: STANDARD FOR COLD-FORMED STEEL FRAMING—PRESCRIPTIVE METHOD FOR ONE- AND TWO-FAMILY DWELLINGS, 2015 1609.1.1, 1609.1.1.1, 2211.1.2
- AISI S240—15: NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL STRUCTURING FRAMING, 2015 1705.2.2.2, 2202.1, 2203.1, 2211.1, 2211.1.1.1, 2211.1.3.3, TABLE 2306.12.2, TABLE 2506.2, TABLE 2507.2, TABLE 2603.12.1
- AISI S400—15/S1—16: NORTH AMERICAN STANDARD FOR SEISMIC DESIGN OF COLD-FORMED STEEL STRUCTURAL SYSTEMS, 2015, WITH SUPPLEMENT 1, DATED 2016. 2210.2, 2211.1.1.1, 2211.1.1.2

ASCE/SEI - AMERICAN SOCIETY OF CIVIL ENGINEERS:

- 7—16: MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES 202, TABLE 1504.1.1, TABLE 1504.8, 1602.1, 1604.3, TABLE 1604.3, 1604.5, TABLE 1604.5, 1604.8.2, 1604.9, 1605.1, 1605.2.1, 1605.3.1, 1605.3.1.2, 1605.3.2, 1605.3.2.1, 1607.8.1, 1607.8.1.1, 1607.8.1.2, 1607.9, 1607.13.1, 1607.13.3.1, 1608.1, 1608.2, 1608.3, 1609.1.1, 1609.2, 1609.3, 1609.5.1, 1609.5.3, 1611.2, 1612.2, 1613.1, 1613.2.2, 1613.2.3, 1613.2.5, TABLE 1613.2.3(1), TABLE 1613.2.3(2), 1613.2.5.1, 1613.2.5.2, 1613.3, 1614.1, 1615.1, 1705.12, 1705.12.1.1, 1705.12.1.2, 1705.12.4, 1705.13.1.1, 1705.13.1.2, 1705.13.2, 1705.13.3, 1705.13.4, 1709.5, 1803.5.12, 1808.3.1, 1809.13, 1810.3.6.1, 1810.3.8.3.2, 1810.3.8.3.3, 1810.3.9.4, 1810.3.11.2, 1810.3.12, 1901.2, 1905.1.1, 1905.1.2, 1905.1.7, 1905.1.8, 2205.2.1.1, 2205.2.1.2, 2205.2.2, 2206.2.1, 2209.1, 2209.2, 2210.2, 2211.1.1.1, TABLE 2304.6.1, TABLE 2306.3(3), TABLE 2308.7.5, 2404.1, 2505.1, 2505.2, 2506.2.1
- 8—17: STANDARD SPECIFICATION FOR THE DESIGN OF COLD-FORMED STAINLESS STEEL STRUCTURAL MEMBERS
- 1604.3.3, 2210.1, 2210.2
- 19—16: STRUCTURAL APPLICATIONS OF STEEL CABLES FOR BUILDINGS 2208.1
- 24—14: FLOOD RESISTANT DESIGN AND CONSTRUCTION 1202.4.2, 1202.4.4, 1612.4, 1612.5, 2702.1.8, 3001.3
- 29—17: STANDARD CALCULATION METHODS FOR STRUCTURAL FIRE PROTECTION 722.1
- 32—17: DESIGN AND CONSTRUCTION OF FROST PROTECTED SHALLOW FOUNDATIONS 1809.5
- 49—07: WIND TUNNEL TESTING FOR BUILDINGS AND OTHER STRUCTURES 1609.1.1
- 55—16: TENSILE MEMBRANE STRUCTURES

AWS - AMERICAN WELDING SOCIETY:

- D1.4/D1.4M—2017: STRUCTURAL WELDING CODE—REINFORCING STEEL INCLUDING METAL INSERTS AND CONNECTIONS IN REINFORCED CONCRETE CONSTRUCTION 1704.5, TABLE 1705.3, 1705.3.1, 2107.3

PCI - PRECAST PRESTRESSED CONCRETE INSTITUTE:

- MNL 124—11: DESIGN FOR FIRE RESISTANCE OF PRECAST PRESTRESSED CONCRETE 722.2.3.1
- MNL 128—01: RECOMMENDED PRACTICE FOR GLASS FIBER REINFORCED CONCRETE PANELS 1903.3

PTI - POST-TENSIONING INSTITUTE:

- PTI DC—10.5-12: STANDARD REQUIREMENTS FOR DESIGN AND ANALYSIS OF SHALLOW CONCRETE FOUNDATIONS ON EXPANSIVE SOILS 1808.6.2

SDI - STEEL DECK INSTITUTE:

- SDI NC—2017: STANDARD FOR NONCOMPOSITE STEEL FLOOR DECK 2210.1.1.1
- SDI RD—2017: STANDARD FOR STEEL ROOF DECK
- 2210.1.1.2
- SDI-C—2017: STANDARD FOR COMPOSITE STEEL FLOOR DECK—SLABS
- 2210.1.1.3

SDI-QA/QC—2017: STANDARD FOR QUALI

SJI STEEL JOIST INSTITUTE:

- SJI 100—15: 44TH EDITION STANDARD SPECIFICATION LOAD TABLES AND WEIGHT TABLES FOR STEEL JOISTS AND JOIST GIRDERS K-SERIES, LH- SERIES, DHL-SERIES, JOIST GIRDERS 1604.3.3, 2203.2, 2207.1
- SJI 200—15: STANDARD SPECIFICATION FOR COMPOSITE STEEL JOISTS, CJ-SERIES 1604.3.3, 2203.2, 2207.1

DESIGN CRITERIA:

DEAD LOAD:

- THE DEAD LOADS ARE THOSE LOADS DEFINED AS FOLLOWS:
- THE WEIGHT OF MATERIALS OF CONSTRUCTION INCORPORATED INTO THE BUILDING, INCLUDING BUT NOT LIMITED TO WALLS, FLOORS, ROOFS, CEILINGS, STAIRWAYS, BUILT-IN PARTITIONS, FINISHES, CLADDING AND OTHER SIMILARLY INCORPORATED ARCHITECTURAL AND STRUCTURAL ITEMS, AND THE WEIGHT OF FIXED SERVICE EQUIPMENT, SUCH AS CRANES, PLUMBING STACKS AND RISERS, ELECTRICAL FEEDERS, HEATING, VENTILATING AND AIR-CONDITIONING SYSTEMS AND FIRE SPRINKLER SYSTEMS.
- FOR PURPOSES OF DESIGN, THE ACTUAL WEIGHTS OF MATERIALS OF CONSTRUCTION AND FIXED SERVICE EQUIPMENT SHALL BE USED. IN THE ABSENCE OF DEFINITE INFORMATION, VALUES USED SHALL BE SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL.
- DEAD LOADS SHALL BE CONSIDERED PERMANENT LOADS.

DEAD LOADS:

ROOF DEAD LOADS: SELF-WEIGHT + 5 PSF COLLATERAL

• DECK SELF WEIGHT	2.5 PSF
• ROOFING	2.5 PSF
• FRAMING SELF WEIGHT	5 PSF
• MEP	4 PSF
• CEILING	2 PSF
• MISCELLANEOUS	1 PSF
• INSULATIONS	3 PSF
• COLLATERAL	5 PSF
	TOTAL 25 PSF

LIVE LOAD:

- THOSE LOADS PRODUCED BY THE USE AND OCCUPANCY OF THE BUILDING OR OTHER STRUCTURE AND DO NOT INCLUDE CONSTRUCTION OR ENVIRONMENTAL LOADS SUCH AS WIND LOAD, SNOW LOAD, RAIN LOAD, EARTHQUAKE LOAD, FLOOD LOAD OR DEAD LOAD.
- LIVE LOADS (ROOF), THOSE LOADS PRODUCED (1) DURING MAINTENANCE BY WORKERS, EQUIPMENT AND MATERIALS; AND (2) DURING THE LIFE OF THE STRUCTURE BY MOVABLE OBJECTS SUCH AS PLANTERS AND BY PEOPLE.

THE DESIGN LIVE LOADS ARE AS FOLLOWS:

ROOF LIVE LOADS:

• ROOF	20 PSF
• MECHANICAL ROOF TOP EQUIPMENT	15 PSF (COLLATERAL)
• ATTICS (IF REQUIRED)	10 PSF

LIVE LOAD REDUCTION:

- LIVE LOAD REDUCTIONS FOR THE STRUCTURE ARE IN STRICT ACCORDANCE WITH THE AFOREMENTIONED CODE.

ROOF SNOW LOAD:

• GROUND SNOW LOAD	Pg= 5.0 PSF
• SNOW EXPOSURE FACTOR	Ce = 1.0
• SNOW IMPORTANCE FACTOR	I = 1.0
• THERMAL FACTOR	Ct = 1.0
• ROOF SLOPE FACTOR	Cs = 1.0
• FLAT ROOF SNOW LOAD	Pf =5.0 PSF
• SLOPED ROOF SNOW LOAD	Ps =5.0 PSF

WIND LOADING:

• ULTIMATE WIND SPEED (3-SEC GUST)	V = 105 MPH
• WIND IMPORTANCE FACTOR	Iw = 1.0
• OCCUPANCY CATEGORY	= II
• WIND LOAD EXPOSURE CATEGORY	= C
• INTERNAL PRESSURE COEFFICIENT	= +/- 0.18
• COMPONENT AND CLADDING	PER CODE REQUIREMENT BASED ON ABOVE
REFER S0.06 FOR MORE INFORMATION	
• ANALYSIS METHOD	METHOD 1 – SIMPLIFIED METHOD

SEISMIC LOADING:

• SEISMIC IMPORTANCE FACTOR	Ie= 1.0	
• OCCUPANCY CATEGORY	= II	
• SPECTRAL RESPONSE ACCELERATIONS	Ss= 0.108	S1=0.057
• SITE CLASS	= D	
• VALUES OF SITE COEFFICIENT	Fa=1.6	Fv=2.4
• SPECTRAL RESPONSE ACCELERATION	SMS= 0.172	SM1=0.137
• SPECTRAL RESPONSE COEFFICIENTS	Sds=0.137	Sd1=0.115
• SEISMIC DESIGN CATEGORY	= B	
• SEISMIC FORCE RESISTING SYSTEM	STEEL ORDINARY MOMENT FRAME	
• SEISMIC RESPONSE COEFFICIENT	Cs=0.01	
• DESIGN BASE SHEAR VS = Cs x W	Vs=0.01 X W	
• RESPONSE MODIFICATION FACTOR	R=3.5	
• OVER-STRENGTH FACTOR	OMEGA= 3.0	
• DEFLECTION AMPLIFICATION FACTOR	Cd= 3	
• ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE PROCEDURE	

STEEL STAIRS:

- ALL STAIRS AND RAILINGS TO BE DESIGNED PER THE REQUIREMENT OF INTERNATIONAL BUILDING CODE (IBC) – 2018, TABLES 1607.1 AND SECTIONS 1607.8.1, 1607.8.1.1, 1607.8.1.2, AND 1607.8.2. FABRICATOR SHALL SUBMIT SIGNED AND SEALED SHOP DRAWINGS BY PROFESSIONAL ENGINEER FOR ENGINEER OF RECORD REVIEW.

GENERAL CONDITION

- THE STANDARD OF CARE FOR ALL PROFESSIONAL ENGINEERING, AND RELATED SERVICES PERFORMED OR FURNISHED BY DLD ENGINEERING WILL BE THE CARE AND SKILL ORDINARILY USED BY MEMBERS OF THE SUBJECT PROFESSION PRACTICING UNDER SIMILAR CIRCUMSTANCES AT THE SAME TIME AND IN THE SAME LOCALITY. DLD ENGINEERING MAKES NO WARRANTIES, EXPRESS OR IMPLIED, OR OTHERWISE, IN CONNECTION WITH DLD ENGINEERING SERVICES. DLD ENGINEERING AND ITS CONSULTANTS MAY USE OR RELY UPON THE DESIGN SERVICES OF OTHERS, INCLUDING, BUT NOT LIMITED TO, ENGINEERS, ARCHITECTS, DESIGNERS, CONTRACTORS, MANUFACTURERS, AND SUPPLIERS.
- ALL DESIGN DOCUMENTS PREPARED OR FURNISHED BY DLD ENGINEERING ARE INSTRUMENTS OF SERVICE, AND DLD ENGINEERING RETAINS OWNERSHIP AND PROPERTY INTEREST (INCLUDING THE COPYRIGHT) IN SUCH DOCUMENTS, WHETHER OR NOT THE PROJECT IS COMPLETED. CLIENT SHALL NOT REUSE THE DOCUMENTS WITHOUT WRITTEN PERMISSION FROM DLD ENGINEERING.
- THE CONTRACTOR, NOT DLD ENGINEERING, IS RESPONSIBLE FOR THE CONSTRUCTION OF THE PROJECT, AND DLD ENGINEERING IS NOT RESPONSIBLE FOR THE ACTS OR OMISSIONS OF ANY CONTRACTOR, SUBCONTRACTOR OR MATERIAL SUPPLIER, FOR SAFETY PRECAUTIONS, PROGRAMS OR ENFORCEMENT, OR FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES EMPLOYED BY THE CONTRACTOR. DLD ENGINEERING SHALL NOT AT ANY TIME SUPERVISE, DIRECT, OR HAVE CONTROL OVER ANY CONTRACTORS WORK.
- DLD ENGINEERING NEITHER GUARANTEES THE PERFORMANCE OF ANY CONTRACTOR NOR ASSUMES RESPONSIBILITY FOR ANY CONTRACTOR'S FAILURE TO FURNISH AND PERFORM ITS WORK IN ACCORDANCE WITH THE CONTRACT BETWEEN CLIENT AND SUCH CONTRACTOR.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURE.
- THE BUILDING STRUCTURE SHALL NOT BE CONSIDERED LATERALLY STABLE OR ABLE TO RESIST WIND OR SEISMIC FORCES UNTIL THE ENTIRE BUILDING IS COMPLETE OR WRITTEN DOCUMENTATION IS PROVIDED BY THE ENGINEER OF RECORD.
- THE GENERAL SUBCONTRACTOR SHALL AT ALL TIMES MAINTAIN AT THE JOBSITE, A CURRENT APPROVED SET OF PROJECT DRAWINGS, SPECIFICATIONS, AND SHOP DRAWINGS.
- SUBCONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING HIS CONSTRUCTION DOCUMENTS WITH ANY REVISED DRAWINGS AND SPECIFICATIONS, FIELD ORDERS, CHANGE ORDERS AND CLARIFICATION SKETCHES ISSUED DURING THE COURSE OF CONSTRUCTION.
- THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES FOR PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERE TO (NOR SHALL OBSERVATION VISITS TO THE SITE INCLUDE INSPECTION OF THESE ITEMS).
- CONTRACTOR SHALL DETERMINE THE SCOPE OF WORK FROM THE CONTRACT DOCUMENTS TAKEN AS A WHOLE INCLUDING ARCHITECTURE, AND MECHANICAL DRAWINGS. THE STRUCTURAL DRAWINGS SHALL NOT BE CONSIDERED SEPARATELY FOR THE PURPOSES OF BIDDING THE STRUCTURAL WORK. CONTRACTOR SHALL REVIEW THE ENTIRE DRAWING PACKAGE IN ORDER TO DETERMINE THE SCOPE OF STRUCTURAL WORK INCLUDING NECESSARY COORDINATION SHOWN IN OTHER CONSULTANT DRAWINGS.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION BRACING AND SHORING OF ALL STRUCTURAL WORK AS REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONDITION WHICH, IN HIS OR HER OPINION, MIGHT ENDANGER THE STABILITY OF THE STRUCTURE OR CAUSE DISTRESS IN THE STRUCTURE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE BUILDING DURING CONSTRUCTION AND SHALL PROVIDE ADEQUATE SHORING AND BRACING DURING CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS.
- THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE WORKMEN AND OTHER PERSONS DURING CONSTRUCTION.
- CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.
- CONTRACTOR SHALL INSURE THAT CONSTRUCTION MATERIALS WHOSE WEIGHT EXCEEDS THE DESIGN LIVE LOADS INDICATED ON THE STRUCTURAL DRAWINGS ARE NOT STORED ON STRUCTURALLY SUPPORTED FLOOR OR ROOF FRAMING.
- LOADINGS FOR MECHANICAL EQUIPMENT ARE BASED ON THE UNIT(S) SHOWN ON THE STRUCTURAL DRAWINGS. ANY CHANGES IN TYPE, SIZE, WEIGHT OR NUMBER OF UNIT(S) SHALL BE REPORTED TO THE ARCHITECT PRIOR TO FABRICATION OR INSTALLATION OF STRUCTURAL MEMBERS OR MECHANICAL EQUIPMENT.
- WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDA.
- ESTABLISH AND VERIFY ALL OPENINGS, SLEEVES, CURBS, INSERTS, DEPRESSIONS, DROPS, OFFSETS AND BLOCK-OUTS FOR ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL WITH APPROPRIATE TRADES, DRAWINGS, AND SUBCONTRACTORS PRIOR TO PROJECT LAYOUT AND CONSTRUCTION.
- SLEEVE ALL PIPES THROUGH CONCRETE SLABS INDIVIDUALLY UNLESS APPROVED BY THE STRUCTURAL ENGINEER. WHERE PIPES OR DUCTS PENETRATE SLABS, A MAXIMUM OF TWO REINFORCING BARS EACH WAY MAY BE CUT PROVIDED THAT AN EQUIVALENT AREA OF STEEL IS REPLACED.
- EMBEDMENT OF PIPES AND CONDUITS IN CONCRETE SHALL COMPLY WITH THE REQUIREMENTS OF CHAPTER SIX (6), SECTION 6.3 OF ACI 318 - LATEST EDITION.
- VERIFY ALL EXISTING CONDITIONS AT THE JOB SITE, PROTECT AND MAINTAIN ALL EXISTING STRUCTURES, UTILITIES, FACILITIES, AND THEIR CONTENTS.
- REFER TO ARCHITECTURAL AND OTHER DRAWINGS FOR ANY DEMOLITION AND ADJUSTMENT/REMOVAL OF EXISTING STRUCTURES OR UNDERGROUND/OVERHEAD UTILITIES.
- IT IS THE GENERAL CONTACTORS RESPONSIBILITY TO COORDINATE WITH THE SUBCONTRACTORS AND EQUIPMENT SUPPLIERS. EQUIPMENT BEING SUPPORTED BY OR SUSPENDED FORM THE STRUCTURE SHALL BE COORDINATED WITH THE MANUFACTURER OF ANY PRE-ENGINEER FRAMING OR COMPONENTS.
- STRUCTURAL MEMBERS AND PRINCIPAL OPENINGS HAVE BEEN SHOWN ON STRUCTURAL DRAWINGS TO ACCOMMODATE REQUIREMENTS OF OTHER DISCIPLINES. ADDITIONAL OPENINGS THAT ARE REQUIRED BY SUBCONTRACTORS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. ADDITIONAL STRUCTURAL MEMBERS OR REINFORCEMENT MAY BE NECESSARY.
- NO STRUCTURAL MEMBERS SHALL BE CUT, NOTCHED OR OTHERWISE PENETRATED UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER IN ADVANCE OR AS SHOWN ON THESE DRAWINGS.
- ALL PRODUCT SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION. CONTRACTOR TO SUBMIT DOCUMENTATION TO DEMONSTRATE THAT THE PROPOSED SUBSTITUTION IS EQUAL TO THE SPECIFIED PRODUCT. PRODUCT SUBSTITUTIONS MAY BE USED PROVIDED THEY ARE APPROVED BY THE ENGINEER OF RECORD IN WRITING.
- OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. IF HE CHOOSES AN OPTION, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES AND SHALL COORDINATE ALL DETAILS.
- THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES.
- ALL WORK SHALL COMPLY WITH THE GENERAL NOTES, DRAWINGS, APPLICABLE BUILDING CODES, AND ALL LOCAL ORDINANCES, LAWS, REGULATIONS, AND PROTECTIVE COVENANTS GOVERNING THE SITE OF WORK.

- WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN.
- NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT.
- TYPICAL DETAILS SHALL APPLY UNLESS SHOWN OTHERWISE IN THE DRAWINGS.
- TYPICAL DETAILS MAY NOT NECESSARILY BE CUT ON PLANS BUT APPLY UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS AND CONDITIONS WITH THE ARCHITECTURAL AND FINISHED GRADE WITH CIVIL DRAWINGS PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE ARCHITECT OR CIVIL ENGINEER OF ANY DISCREPANCIES OR OMISSIONS NOTED ON THE DRAWINGS. ANY SUCH DISCREPANCIES, OMISSIONS, OR VARIATION NOT REPORTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- NOTED DIMENSIONS TAKE PRECEDENT OVER SCALED.
- ALL DIMENSIONS SHOWN (INCLUDING ELEVATIONS) ON STRUCTURAL DRAWINGS ARE TO ASSIST CONTRACTOR IN VERIFICATION. SCALING DIMENSIONS FROM DRAWINGS IS NOT PERMITTED. LOCATION OF ALL ITEMS SHALL BE DETERMINED BY DIMENSIONS OR NOTES ONLY; DO NOT USE GRAPHIC APPEARANCE TO ASSUME SPECIFIC LOCATIONS.
- THE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DETERMINATION OF QUANTITY, LENGTH OR FIT OF MATERIALS.
- CONTRACTOR SHALL COMPARE STRUCTURAL AND ARCHITECTURAL DRAWINGS AND REPORT ANY DISCREPANCY TO THE ARCHITECT PRIOR TO FABRICATION OR INSTALLATION OF STRUCTURAL MEMBERS.
- ENTIRE CONTRACT DOCUMENTS SHALL BE USED TO BUILD BUILDING. SOME CRITICAL ITEMS REQUIRED BY OTHER DISCIPLINES MAY NOT BE SHOWN ON STRUCTURAL DRAWING (i.e., WALL, FLOOR AND ROOF OPENING, ARCHITECTURAL, MECHANICAL AND PLUMBING LOADS, SUPPORT PLATES, ETC.)
- ITEMS SHOWN BY OTHER DISCIPLINES WITH REFERENCE TO STRUCTURAL DRAWING BUT NOT SHOWN ON THIS STRUCTURAL DOCUMENT SHALL BE CONSIDERED DESIGN BUILD ITEMS. CONTRACTOR SHALL SUBMIT DESIGN BY OTHERS FOR REVIEW.
- "BY OTHERS" WHERE SHOWN IN THE STRUCTURAL DRAWINGS DENOTES LABOR AND MATERIALS BY OTHERS. HOWEVER, THE SUBCONTRACTOR SHALL PROVIDE COORDINATION AND FREE ACCESS FOR THE WORK.
- ANY ENGINEERING DESIGN, PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF AN PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BUILD.
- N.I.C." WHERE SHOWN IN THE STRUCTURAL DRAWINGS DENOTES NOT IN CONTRACT, THE OWNER SHALL BE RESPONSIBLE FOR COORDINATING A TIME SCHEDULE OF THE BASE CONTRACT WITH THE "N.I.C." TRADES.
- SUPPLIER OF ENGINEERED STRUCTURAL COMPONENTS (i.e., STEEL JOISTS, STAIRS, PRECAST ITEMS) SHALL BE RESPONSIBLE FOR COMPLETE DESIGN AND SHALL USE ENTIRE CONTRACT DOCUMENTS TO INCLUDE ALL LOADS AND DETAIL REQUIREMENTS FROM ALL DISCIPLINES. SUPPLIER SHALL PROVIDE ADDITIONAL MATERIAL REQUIRED TO MEET ALL THEIR REQUIREMENTS FOR INSTALLATION (i.e., WIDER BEARING PLATES, SHIMS, ERECTION BOLTS ETC.).
- STRUCTURAL STEEL SUPPLIER SHALL FURNISH BOLTS FOR OSHA CONNECTIONS (SEE DRAWINGS FOR DETAILS).
- THE STEEL FABRICATOR SHALL BE CERTIFIED BY THE AISC QUALITY CERTIFICATION PROGRAM.
- ANCHOR BOLTS, DOWELS AND OTHER EMBEDDED ITEMS SHALL BE SECURELY TIED IN PLACE BEFORE CONCRETE IS POURED.
- REPRODUCTION OF THE STRUCTURAL DRAWINGS, EITHER IN PART OR WHOLE, FOR SUBMITTALS OR SHOP DRAWINGS, SIGNIFIES ACCEPTANCE OF INFORMATION SHOWN AS CORRECT AND OBLIGES THE USER TO ANY EXPENSE, REAL OR IMPLIED, ARISING FROM THEIR USE.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH AII NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.
- WALL SHORING SHALL BE INSTALLED PRIOR TO BACKFILLING BEHIND ALL BUILDING RETAINING WALLS UNLESS ALL RESTRAINING SLABS ARE INSTALLED. USE HAND TAPPING ONLY WHEN WITHIN 8'-0", OR WITHIN HALF THE WALL HEIGHT OF BACKFILLED WALL.
- CONTINUOUS FOUNDATION DRAIN PIPES (FRENCH DRAINS) OR WEEP HOLES SHALL BE PROVIDED BEHIND ALL RETAINING WALLS.
- BASEMENT WALLS AND ALL EXTERIOR RETAINING WALLS THAT RETAIN MORE THAN 3'-0" OF SOIL WEEP HOLES WHERE USED SHALL BE 2" IN DIAMETER AT 6'-0 O.C. MAXIMUM.
- THE PERFORMANCE OF THE FOUNDATION AS DESIGNED DEPENDS ON PROPER CONSTRUCTION OF THE DRAINAGE SYSTEMS AND MAINTENANCE OF THE DRAINAGE SYSTEMS AFTER CONSTRUCTION IS COMPLETE. ALL ROOF DRAINAGE SHOULD BE COLLECTED AND REMOVED INTO AN UNDERGROUND STORM DRAIN SYSTEM. LANDSCAPE IRRIGATION AND DRAINAGE AROUND THE FOUNDATION MUST BE CONSTRUCTED WITH POSITIVE DRAINAGE WELL AWAY FROM THE BUILDING PERIMETER ON ALL SIDES. UNDERGROUND STORM DRAINS SHOULD NOT BE PLACED BENEATH BUILDINGS, AND AIR CONDITIONING CONDENSATE SHOULD NOT BE DRAINED EITHER ADJACENT TO OR BENEATH THE FOUNDATION.
- SEE ARCHITECTURAL PLANS FOR WHEEL STOP LOCATIONS.

PLOT DATE: 12/22/2023 8:15:3 PM TEMPLATE VERSION:

STRUCTURAL STEEL

MATERIAL:

- ALL STRUCTURAL STEEL ROLLED SHAPES SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS AND GRADES:
- ASTM A992, GRADE 50 (FY=50 KSI): W- AND WT-SHAPES.
- ASTM A992, GRADE 50 (FY=50 KSI): W-SHAPE BEAMS.
- ASTM A992, GRADE 50 (FY=50 KSI): W-SHAPE COLUMNS.
- ASTM A992, GRADE 50 (FY=50 KSI): W-SHAPE TRUSSES.
- ASTM A36, GRADE 36 (FY=36 KSI): M AND S-SHAPES.
- ASTM A36, GRADE 36 (FY=36 KSI): C AND MC-SHAPES.
- ASTM A36, GRADE 36 (FY=36 KSI): C AND MC-SHAPE BEAMS.
- ASTM A36, GRADE 36 (FY=36 KSI): C-SHAPE GIRTS.
- ASTM A36, GRADE 36 (FY=36 KSI): L-SHAPES.
- ASTM A572, GRADE 50 (FY=50 KSI): L-SHAPES IN TRUSSES.
- ASTM A500, GRADE B (FY=42 KSI): ROUND HSS.
- ASTM A500, GRADE B (FY=46 KSI): RECTANGULAR HSS.
- ASTM A53 (TYPES E OR S), GRADE B. (FY=35 KSI): STEEL PIPES.
- ASTM A572, GRADE 50 (FY=50 KSI): BASE PLATES, MISCELLANEOUS STEEL PLATES, PLATES UP TO AND INCLUDING 4" THICK.
- ASTM A572, GRADE 42 (FY=42 KSI): PLATES OVER 4" THICK TO 6" THICK INCLUSIVE.
- ASTM A588, GRADE 42 (FY=42 KSI): PLATES OVER 6" THICK TO 8" THICK INCLUSIVE.
- ASTM A36, GRADE 36 (FY=36 KSI): PLATES OVER 8".
- ASTM A36, GRADE 36 (FY=36 KSI): EDGE ANGLES, BENT PLATES, ANGLE HANGERS, AND ANGLE KICKERS.
- ASTM A325 OR A490, HIGH STRENGTH BOLTS (SLIP CRITICAL JOINTS, IF SPECIFIED). DIAMETER RANGE OF 0.5 TO 1.5".
- ASTM A307, GRADE 42, CARBON STEEL BOLTS (60 KSI TENSILE STRENGTH). ALL OTHER ANCHOR BOLTS UNLESS NOTED OTHERWISE.
- ASTM A449 OR F1554, ANCHOR RODS HOOKED, HEADED, THREADED & NUTTED. (A449 -90,105 AND 120 KSI TENSILE STRENGTH OR F1554- GRADE 36, 55 AND 105 KSI). DIAMETER RANGE OF 0.25 TO 3".
- ASTM A36, GRADE 36 (FY=36 KSI); THREADED RODS.
- ASTM A563, STEEL NUTS.
- ASTM F436, STEEL WASHERS.
- ASTM F959, DIRECT-TENSION-INDICATOR STEEL WASHERS.
- ASTM A108, SHEAR STUD CONNECTOR (65 KSI TENSILE STRENGTH).
- ASTM A 588 (CORROSION RESISTANT). SEE DRAWINGS FOR LOCATIONS.
- OTHER STEEL: ANY OTHER STEEL NOT INDICATED OTHERWISE SHALL CONFORM TO ASTM A 992 OR ASTM A 572, GRADE 50, EXCEPT PLATES AND ANGLES THAT SHALL BE ASTM A 36.
- WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARD 01. LATEST EDITION. ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO ASTM A233, CLASS E70XX.
- GROUT BELOW STRUCTURAL STEEL BASE PLATES SHALL BE NON-METALLIC, NON-SHRINK GROUT WITH A MINIMUM STRENGTH OF 5,000 PSI WHEN BEARING ON 3,000 PSI CONCRETE OR LESS, A STRENGTH OF 6,000 PSI WHEN BEARING ON CONCRETE BETWEEN 3,000 AND 4,000 PSI, AND, UNLESS NOTED OTHERWISE ON THE DRAWINGS, A STRENGTH OF 8,000 PSI WHEN BEARING ON CONCRETE GREATER THAN 4,000 PSI.
- ALL CONNECTION MATERIAL, EXCEPT AS NOTED OTHERWISE HEREIN OR ON THE DRAWINGS, INCLUDING BEARING PLATES, GUSSET PLATES, STIFFENER PLATES, FILLER PLATES, ANGLES, ETC. SHALL CONFORM TO ASTM A 36 UNLESS A HIGHER GRADE OF STEEL IS REQUIRED BY STRENGTH AND PROVIDED THE RESULTING SIZES ARE COMPATIBLE WITH THE CONNECTED MEMBERS.
- HOT ROLLED STRUCTURAL MEMBERS: ALL HOT ROLLED STEEL PLATES, SHAPES, SHEET PILING, AND BARS SHALL BE NEW STEEL CONFORMING TO ASTM SPECIFICATION A 6.
- ASTM SPECIFICATION AND GRADE: CLEARLY MARK THE GRADE OF STEEL ON EACH PIECE, WITH A DISTINGUISHING MARK VISIBLE FROM FLOOR SURFACES, FOR THE PURPOSE OF FIELD INSPECTION OF PROPER GRADE OF STEEL.
- CONNECTION DETAILS NOT COMPLETELY DETAILED ON THE DRAWINGS INCLUDING MATERIAL GRADE AND SIZES, WELD SIZES, AND NUMBER OF BOLTS SHALL BE DESIGNED BY THE CONTRACTOR PER THE SPECIFICATIONS. CONCEPTUAL CONNECTION DETAILS WITH THE REQUIRED MEMBER DESIGN FORCES ARE SHOWN ON THE DRAWINGS AND ARE APPLICABLE TO ALL CONNECTIONS NOT DESIGNED AND FULLY DETAILED ON THE DRAWINGS. THE CONCEPTUAL DETAILS ARE PROVIDED ONLY TO INDICATE THE CONNECTION TYPE REQUIRED AND MAY NOT FULLY REPRESENT THE COMPLEXITY OF THE CONNECTION AS REQUIRED BY THE FINAL CONNECTION DESIGN FOR THE FORCES THEY MUST RESIST. ADDITIONAL CONNECTION ELEMENTS MAY NOT BE SPECIFICALLY SHOWN IN THE CONCEPTUAL DETAILS, BUT MAY BE REQUIRED BY THE FINAL CONNECTION DESIGN, SUCH AS STIFFENER PLATES, DOUBLE PLATES, SUPPLEMENT/REINFORCING PLATES OR OTHER CONNECTION MATERIAL. THE FABRICATOR IS RESPONSIBLE FOR ENGAGING THE SERVICES OF A CONNECTION SPECIALTY ENGINEER TO PREPARE A FINAL CONNECTION DESIGN FOR SUBMISSION THAT MEETS THE REQUIREMENTS OF THE CONCEPTUAL CONNECTION DETAILS AND RESISTS THE INDICATED DESIGN FORCES.
- STRUCTURAL STEEL CONNECTIONS NOT DETAILED ON THE CONTRACT DOCUMENTS SHALL BE DETAILED IN ACCORDANCE WITH THE A.I.S.C. "MANUAL OF STEEL CONSTRUCTION". BEAM REACTIONS ARE GIVEN ON THE CONTRACT DOCUMENTS AND FABRICATOR IS RESPONSIBLE FOR ENGAGING THE SERVICES OF A CONNECTION SPECIALTY ENGINEER TO PREPARE A FINAL CONNECTION DESIGN.
- UNLESS OTHERWISE NOTED OR SHOWN ON PLANS, CONNECTION AT BEAM/ COLUMN AND BEAM/ WALL SHALL BE DESIGNED FOR 2/3 THE ALLOWABLE LOAD ON THE MEMBER, AS DEFINED IN THE AISC TABLE FOR ALLOWABLE LOADS ON BEAMS.
- REACTIONS NOTED ON THE PLANS ARE BASED ON UNFACTORED LOADS.
- PRIOR TO DETAILING CONNECTIONS FOR STRUCTURAL STEEL, THE STEEL FABRICATOR SHALL SUBMIT FOR APPROVAL REPRESENTATIVE DETAILS AND CALCULATIONS FOR EACH TYPE OF STRUCTURAL STEEL CONNECTION TO BE UTILIZED. AFTER APPROVAL THE CONNECTIONS MAY BE INCORPORATED INTO THE SHOP DRAWINGS ALONG WITH A TABLE OF DESIGN CAPACITIES FOR THE RANGE OF CONNECTIONS TO BE USED.
- ANY STEEL CONNECTION ENGINEERING, PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF AN PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BUILD.
- ANY AND ALL MIS FABRICATION OF STRUCTURAL STEEL SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER BEFORE ERECTION OF SAME.
- SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW IN COMPLIANCE WITH DOCUMENTS SHOWING COMPLETE DETAILS OF THE STRUCTURAL STEEL WORK BASED UPON THE CONTRACT DRAWINGS AND DETAILS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF THE SHOP DRAWINGS AND FOR SHOP AND FIELD FABRICATION. THE REVIEW OF CORRECTION OF ANY DRAWINGS SHALL NOT ACT AS A RELIEF FROM RESPONSIBILITY FOR THE CORRECTNESS OF THE STRENGTH OF THE DETAILS. REVIEW COVERS GENERAL DESIGN INTENT ONLY.
- DEFERRED SUBMITTAL SHALL BE SUPPLIED FOR MISCELLANEOUS STEEL FRAMINGS.
- ALL CONSTRUCTION PER LATEST AISC HANDBOOK.

STRUCTURAL STEEL CONT:

- ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, CORROSION PROTECTED AND ERECTED IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE, (LATEST EDITION) EXCEPT AS MODIFIED IN THESE NOTES. PROVIDE IN SHOP ONE (1) COAT OF RUST INHIBITING PAINT FOR ALL EXPOSED STRUCTURAL STEEL.
- THE STEEL FABRICATOR SHALL BE CERTIFIED BY THE AISC QUALITY CERTIFICATION PROGRAM.
- CONNECTION BOLTS SHALL HAVE A HARDENED WASHER PLACED UNDER THE ELEMENT TO BE TIGHTENED. BOLTS SHALL BE TIGHTENED ACCORDING TO THE "TURN-OF-NUT" TIGHTENING METHOD. LOAD INDICATING BOLTS AND HARDENED WASHERS MAY BE USED IN LIEU OF THE STANDARD BOLT ASSEMBLY. LOAD INDICATING BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.
- ALL REFERENCE TO HEADED STUDS SHALL BE HIGH STRENGTH HEADED STUDS. ATTACHMENT OF HEADED STUDS SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST EDITION OF THE "RECOMMENDED PRACTICES FOR STUD WELDING" AND THE "STRUCTURAL WELDING CODE" PUBLISHED BY AWS.
- ALL BOLTS, ANCHOR BOLTS, EXPANSION BOLTS, ETC. SHALL BE INSTALLED WITH STEEL WASHERS AT FACE OF WOOD OR AT SLOTTED HOLES IN STEEL SECTIONS. ALL HIGH STRENGTH BOLTING SHALL BE INSPECTED BY AN INDEPENDENT TESTING LABORATORY. ALL WELDING SHALL BE PERFORMED BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY THESE DRAWINGS DO NOT DISTINGUISH BETWEEN SHOP AND FIELD WELDS; THE CONTRACTOR MAY SHOP WELD OR FIELD WELD AT HIS DISCRETION. SHOP WELDS AND FIELD WELDS SHALL BE SHOWN ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW. ALL FULL (COMPLETE) PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY. WHEN STRUCTURAL STEEL IS FURNISHED TO A SPECIFIED MINIMUM YIELD POINT GREATER THAN 36 KSI, THE ASTM OR OTHER SPECIFICATION DESIGNATION SHALL BE INCLUDED NEAR THE ERECTION MARK ON EACH SHIPPING ASSEMBLY OR IMPORTANT CONSTRUCTION COMPONENT, OVER ANY SHOP COAT OF PAINT, PRIOR TO SHIPMENT FROM THE FABRICATOR'S PLANT.
- SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED ON THE CONTRACT DOCUMENTS IS PROHIBITED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER AS TO LOCATION, TYPE OF SPLICE AND CONNECTION TO BE MADE.
- ALL HIGH STRENGTH BOLTS SHALL BE ASTM A325 AND SHALL BE INSTALLED AS BEARING-TYPE CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE (I.E. A TYPE "N" CONNECTION). BOLTS MAY BE TIGHTENED USING ANY AISC APPROVED METHOD. USE SC (SLIP CRITICAL) AT ALL MOMENT FRAMES AND BRACED FRAMES. ALL HIGH STRENGTH BOLTING SHALL BE INSPECTED BY AN INDEPENDENT TESTING LABORATORY TO ENSURE BOLT TENSION.
- ALL REFERENCE TO HEADED STUDS SHALL BE AUTOMATIC WELDED HIGH STRENGTH HEADED STUDS. ATTACHMENT SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST EDITION OF THE "RECOMMENDED PRACTICES FOR STUD WELDING" AND THE "STRUCTURAL WELDING CODE" PUBLISHED BY THE AMERICAN WELDING SOCIETY. CONFORMANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL QUALITY CONTROL TESTING PROVISIONS OF THE AFOREMENTIONED PUBLICATIONS. SPACING OF HEADED SHEAR CONNECTOR STUDS ON COMPOSITE STEEL BEAMS:
- HEADED STUDS SHALL BE UNIFORMLY SPACED. USE NOT MORE THAN ONE STUD PER RIB WHERE THE NUMBER OF STUDS REQUIRED IS LESS THAN OR EQUAL TO THE NUMBER OF RIBS AVAILABLE. WHERE THE NUMBER OF STUDS REQUIRED EXCEEDS THE NUMBER OF RIBS AVAILABLE, PLACE A MINIMUM OF ONE STUD PER RIB FULL LENGTH OF THE BEAM. PLACE ADDED STUDS (NO MORE THAN TWO PER RIB TOTAL) IN EACH RIB BEGINNING AT THE SUPPORTS AT EACH END AND MOVING TOWARDS MID-SPAN UNTIL REQUIRED NUMBER OF STUDS IS SUPPLIED. MINIMUM LONGITUDINAL STUD SPACING IS 6 STUD DIAMETERS CENTER TO CENTER. MAXIMUM LONGITUDINAL STUD SPACING IS 18" CENTER TO CENTER. MINIMUM TRANSVERSE STUD SPACING IS 4 STUD DIAMETERS CENTER TO CENTER. MINIMUM TRANSVERSE DISTANCE BETWEEN EDGE OF BEAM AND CENTERLINE OF STUD IS 1". STUDS SHALL PROJECT A MINIMUM OF 1 1/2" ABOVE THE TOP OF THE STEEL DECK AND SHALL BE HELD A MINIMUM 3/4" CLEAR OF THE TOP OF THE CONCRETE SLAB. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.
- ALL STAIRS, GUARDRAILS, AND HANDRAILS, AND THEIR ANCHORAGE AND CONNECTIONS, SHALL BE DESIGNED BY A REGISTERED STRUCTURAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED.
- STAIR STRINGERS, TREADS, AND RISERS SHALL BE DESIGNED TO SUPPORT THE LIVE LOAD NOTED IN DRAWINGS.
- INDIVIDUAL STAIR TREADS SHALL BE DESIGNED TO SUPPORT A MINIMUM 300 POUND CONCENTRATED LOAD PLACED IN A POSITION THAT WOULD CAUSE MAXIMUM STRESS.
- THE TOP RAILS OF HANDRAILS AND GUARDRAILS SHALL BE DESIGNED TO WITHSTAND A LOAD OF 50 PLF OR A 200 POUND CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT AND HAVE ATTACHMENT ANCHORAGE SUFFICIENT TO TRANSFER THIS LOADING TO APPROPRIATE STRUCTURAL ELEMENTS OF THE BUILDING. THESE LOADS NEED NOT BE ASSUMED TO ACT CONCURRENTLY.
- ALL STAIRS ARE TO BE STEEL STAIRS PER THE ARCHITECTURAL DRAWINGS EXCEPT WHERE CONCRETE STAIRS ARE SPECIFICALLY SHOWN ON THE DRAWINGS.
- DRAWINGS AND BIDS ARE TO INCLUDE CONNECTIONS TO THE STRUCTURE
- ENGINEER WILL APPROVE THE DRAWINGS AS TO THEIR COMPLIANCE WITH THE INTENT OF THE STRUCTURAL DRAWINGS AND SPECIFICATIONS.
- STAIR SUPPORTS MAY BE HUNG FROM FLOOR FRAMING OR SELF-SUPPORTED.

METAL DECK, COMPOSITE BEAMS, AND STEEL JOIST

- COMPOSITE GALVANIZED FLOOR DECK SHALL BE 2" DEEP WITH MINIMUM RATIO OF WIDTH TO DEPTH (W/H) OF 2.0 OR GREATER. THE METAL DECK SHOULD BE ADEQUATE TO SUPPORT THE DEAD LOAD OF NORMALWEIGHT CONCRETE (145 LBS./CU FT.) SLAB AND 20 LBS./SQ.FT. OF CONSTRUCTION LIVE LOAD WITHOUT SHORING THE DECK. THE DEFLECTION OF THE DECK FOR CONCRETE WEIGHT SHOULD NOT BE GREATER THAN 1/240TH OF THE SPAN OR 1/2" WHICHEVER IS SMALLER. FOR DIFFERENT THICKNESSES OF SLABS SEE FLOOR FRAMING PLANS. UNLESS REINFORCED WITH MILD STEEL REINFORCEMENT (#3, #4 OR #5 BARS), THE DECK ACTING COMPOSITE WITH THE SLAB SHOULD BE CAPABLE OF SUPPORTING BOTH THE FINAL DESIGN LIVE AND SUPERIMPOSED DEAD LOAD AS GIVEN IN THE "GENERAL NOTES." NO METAL DECK USED IN THE BUILDING SHOULD HAVE SECTION PROPERTIES PER FOOT WIDTH LESS THAN THE FOLLOWING:

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
3VLI	20	WIDE RIB	3.0	.920	.920	.534	.551	50	-

- FOR ROOF DECK OVER BAR JOIST AND STEEL BEAMS, GALVANIZED CORRUGATED METAL DECK WITH THE PROPERTIES GIVEN BELOW OR EQUIVALENT, SHALL BE USED FOR THE FOLLOWING AREAS:

- OPEN WEB STEEL JOISTS SHALL CONFORM TO THE STANDARDS OF THE STEEL JOIST INSTITUTE.
- ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. THE FOLLOWING WWF SHOULD BE
- USED FOR AREAS SPECIFIED BELOW:

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
1.5B	20	WIDE RIB	1.5	.201	.222	.234	.247	33	-

FLOOR SLAB – 6X6X W2.9XW2.9 WWF
FOR ADDITIONAL WWF, IF ANY, SEE FLOOR FRAMING PLAN.

- SHEAR CONNECTORS (INDICATED AS "[XX]" ON THE DRAWINGS) SHALL DEVELOP A DESIGN VALUE OF [17.0] KIPS PER CONNECTOR WITH A MINIMUM SAFETY FACTOR OF 1.67. SUBSTITUTION OF SHEAR CONNECTORS WITH DESIGN SHEAR CAPACITY OTHER THAN GIVEN ABOVE WILL BE ACCEPTABLE PROVIDED TOTAL HORIZONTAL SHEAR CAPACITY IN A SPAN OF A BEAM OR A GIRDER IS UNALTERED. THE ARRANGEMENT AND SPACING OF SHEAR CONNECTORS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. THE UNSHORED COMPOSITE BEAMS RELY ON THE WELDED CONNECTIONS OF THE DECK TO THE TOP FLANGES FOR LATERAL BRACING PRIOR TO CURING OF SLAB CONCRETE. THICKNESS OF SLABS ON PERMANENT COMPOSITE METAL DECK SHALL NOT EXCEED THE TOTAL THICKNESS AS INDICATED ON THE FRAMING PLAN(S) BY 3/4 INCHES.
- SLABS SHALL BE REINFORCED WITH WELDED WIRE MESH, SUPPLIED IN FLAT SHEETS, AT 3/4" FROM TOP OF SLAB, TYPICAL UNLESS NOTED OTHERWISE. WIRE MESH SIZE SHALL BE AS INDICATED ON THE FRAMING PLAN(S), PROVIDE ADEQUATELY DESIGNED CHAIRS THAT MAINTAIN THE MESH POSITION FROM SLAB'S TOP SURFACE AS SPECIFIED. MINIMUM SPACING OF 2'-6" OC MAX OVER ALL BEAMS. LAP EDGES AND ENDS OF ADJOINING SHEETS. THE LENGTH OF LAP SHALL BE MEASURED BETWEEN THE OUTER MOST CROSS WIRES OF FABRIC SHEET AND SHALL NOT BE LESS THAN ONE SPACING OF THE CROSS WIRES PLUS 2 INCHES. OFFSET LAPS OF ADJOINING SHEET WIDTHS TO PREVENT CONTINUOUS LAPS IN EITHER DIRECTION. LACE OVERLAPS WITH WIRE.
- INSTALL DECK ENDS OVER SUPPORTING FRAME WITH A MINIMUM END BEARING LENGTH IN ACCORDANCE WITH THE TYPICAL FLOOR DECK BEARING DETAIL, WITH END JOINTS BUTTED; DO NOT OVERLAP.
- THE COMPOSITE STEEL DECK SHALL BE CONNECTED TO THE SUPPORTING STEEL BEAMS BY WELDING THE SHEAR-STUD CONNECTORS THROUGH THE DECK, WHERE SHEAR-STUD CONNECTORS ARE NOT SPECIFIED, THE METAL DECK SHALL BE ATTACHED TO THE SUPPORTING STEEL WITH 3/4" PUDDLE WELDS AT 12" OC MAX. WHERE THE SPECIFIED STUD SPACING EXCEEDS 12" OC, PROVIDE 3/4" PUDDLE WELDS BETWEEN SHEAR-STUD CONNECTORS TO MAINTAIN A MAXIMUM DECK CONNECTION SPACING OF 12" OC.
- FASTEN SIDE LAPS OF PANELS BETWEEN SUPPORTS, AT 24 INCHES ON CENTER MAX, WITH SELF-DRILLING NO. 10 DIAMETER OR LARGER CARBON-STEEL SCREWS, OR CLINCH OR BUTTON PUNCHING OR WITH A MINIMUM OF 1 1/2 INCH LONG WELDS.
- WELD GIRDER FILLERS TO STEEL BEAM WITH 2" LONG FUSION WELDS AT A MAXIMUM SPACING OF 12 INCHES. GIRDER FILLERS SHALL BE CONNECTED TO ADJACENT PIECES OF DECK PER ABOVE.
- COMPOSITE METAL DECK IS DESIGNED TO BE CONTINUOUS OVER THREE OR MORE SPANS. THE DECK SUPPLIER SHALL ADJUST THE THICKNESS OR GAUGE OF THE DECK AT LOCATIONS WHERE SINGLE OR DOUBLE SPAN CONDITIONS ARE PROVIDED. DECK SHALL BE DESIGNED TO PROVIDE EQUIVALENT OR GREATER LOAD CAPACITY AS THE SPECIFIED DECK SUPPORTED OVER THREE CONTINUOUS SPANS. THE THICKNESS OR GAGE OF THE DECK SHALL ALSO BE ADJUSTED BY THE DECK SUPPLIER WHERE REQUIRED DUE TO WEB CRIPPLING CONSIDERATIONS, BASED ON THE BEARING WIDTH AVAILABLE OVER THE BEAM FLANGES.
- PREPARE AND REPAIR DAMAGED GALVANIZED COATINGS ON BOTH SURFACES OF DECK WITH GALVANIZED REPAIR PAINT ACCORDING TO ASTM A780 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
- UNCAMBERED STEEL FLOOR FRAMING DEFLECTION NOTES:

- THE UNCAMBERED STEEL FRAMING HAS BEEN DESIGNED TO BE WITHIN CODE REQUIRED DEFLECTION LIMITS (UP TO SPAN DIVIDED BY 240 FOR DEAD LOADS). THE CONTRACTOR SHALL ACCOUNT FOR ANY ADDITIONAL CONCRETE THAT RESULTS DUE TO SUCH DEFLECTIONS IN THE FLOOR CONCRETE QUANTITIES.
- THE METAL DECK MAY DEFLECT UP TO 3/4". THE CONTRACTOR SHALL ACCOUNT FOR ANY ADDITIONAL CONCRETE THAT RESULTS DUE TO SUCH DEFLECTIONS IN THE FLOOR CONCRETE QUANTITIES.
- THE DETAILS IN THE CONTRACT DOCUMENTS CALL FOR BLOCKOUTS OF FLOOR OPENINGS, WITH THE DECK TO BE CUT AFTER THE SLAB IS POURED. IF HOLES IN THE DECK MUST BE CUT PRIOR TO THE SLAB BEING POURED, THE CONTRACTOR SHALL REINFORCE THE OPENINGS WITH C6x8.2 CHANNELS BETWEEN BEAMS TO SUPPORT THE METAL DECK.
- DO NOT APPLY CONSTRUCTION LOADS TO THE SLAB UNTIL THE CONCRETE HAS REACHED 75% OF SPECIFIED STRENGTH. NO CONDUITS ALLOWED IN SLABS WITHOUT PRIOR APPROVAL FROM ENGINEER.
- ALL STEEL JOINTS AND JOINT GIRDERS SHALL BE DESIGNED UNDER THE DIRECT SUPERVISION OF A STRUCTURAL ENGINEER ISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.
- THE FRAMING PLANS AND DETAILS MAY SHOW THE JOISTS IN ADJACENT BAYS WITH BUTTED SEATS. IF THE SUPPORTING STEEL BEAM OR EMBEDDED PLATE IN THE WALL IS NOT WIDE ENOUGH TO ALLOW BUTTED SEATS AND MEET THE MINIMUM BEARING LENGTH REQUIRED BY SJI, THEN THE SEATS SHALL BE LAPPED. THE CONTRACTOR SHALL COORDINATE THE FINAL JOIST LOCATION WITH THE METAL DECK SPANS.
- ALL STEEL JOISTS AND JOIST GIRDERS SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC AND SJI SPECIFICATIONS FOR OPEN WEB STEEL JOISTS AND JOIST GIRDERS. PROVIDE POSITIVE CAMBER IN COMPLIANCE WITH THE RECOMMENDATIONS OF THE CURRENT EDITION OF THE STEEL JOIST INSTITUTE'S STANDARD SPECIFICATIONS.
- JOIST, JOIST GIRDERS, AND ACCESSORIES SHALL BE PAINTED WITH ONE SHOP COAT OF RUST INHIBITIVE PAINT.
- JOISTS AND JOIST GIRDERS SHALL RESIST THE NET UPLIFT PRESSURE ON ROOF SHOWN IN THE DESIGN LOADS.
- SPECIAL JOISTS AND JOIST GIRDERS THAT REQUIRE SPECIFIC ORIENTATION SHALL BE TAGGED AT ONE END. DEFINE LOCATION OF TAGGED END ON ERECTION DRAWINGS.
- THE JOIST SIZES SHOWN ON THE FRAMING PLANS DO NOT TAKE INTO ACCOUNT THE WEIGHT OF THE MECHANICAL OR OTHER EQUIPMENT. STEEL JOISTS DESIGNATED WITH THE TERM "ADD LOAD" SHALL BE DESIGNED BY THE MANUFACTURER TO SUPPORT THE CONCENTRATED LOADS INDICATED ON THE ROOF FRAMING PLAN, LOCATED ANYWHERE ALONG THE JOIST, IN ADDITION TO THE DEAD AND LIVE LOADS INDICATED ON THE DRAWINGS. WHERE RTU LOCATIONS AND WEIGHTS ARE SHOWN, THE CONTRACTOR SHALL COORDINATE THE FINAL RTU LOCATIONS, WEIGHTS, AND SIZES WITH THE JOIST MANUFACTURER AND NOTIFY THE ENGINEER OF ANY CHANGES FROM WHAT IS SHOWN ON THE FRAMING PLANS.
- HANGERS SUPPORTING MECHANICAL EQUIPMENT FROM JOIST CHORDS SHALL BE LOCATED WITHIN 3 INCHES OF JOIST PANEL POINTS OR JOIST SHALL BE REINFORCED PER JOIST REINFORCING DETAIL. HANGER LOADS GREATER THAN 150 POUNDS SHALL NOT BE ATTACHED TO THE EDGE OF CHORD ANGLES AND SHALL BE CENTERED ON JOIST CHORD.
- DIAGONAL BRIDGING SHALL BE PROVIDED BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS DISCONTINUOUS

SHEAR STUD CONNECTORS

A. PROVIDE SHEAR STUD CONNECTIONS IN ACCORDANCE WITH THE FOLLOWING:

DECK	TOTAL SLAB THICKNESS	STUD THICKNESS
3"	6.5"	3/4" DIA. X 5"

ALL SHEAR STUD CONNECTIONS SHALL BE APPLIED IN THE FIELD AND PLACED IN THE DECK FLUTES IN CONTACT WITH THE TOP FLANGE OF THE BEAM. ESTABLISH APPROPRIATE CONNECTOR PLACEMENT PRIOR TO INSTALLATION OF SHEAR STUD CONNECTORS.
MAXIMUM SPACING OF SHEAR STUD CONNECTORS SHALL BE 36" ON CENTER. PROVIDE ADDITIONAL SHEAR/ HEADED STUD CONNECTORS AS REQUIRED TO COMPLY WITH THE MAXIMUM SPACING AT ALL BEAMS SUPPORTING COMPOSITE DECK WHERE SHEAR STUD CONNECTORS SPECIFIED IS LESS THAN REQUIRED TO MEET THE MAXIMUM SPACING.

PLOT DATE: 12/22/2023 8:15:19 PM TEMPLATE VERSION:

Ultimate Wind Pressures

Wind Loads - Components & Cladding : h ≤ 60'

Kh (case 2) = 0.95
Base pressure (qh) = **22.7 psf**
Minimum parapet ht = 4.0 ft
Roof Angle (θ) = 35.3 deg
Type of roof = Gable

h = 25.0 ft
a = 9.0 ft
GCpi = +/-0.18
qi = qh = 22.7 psf

20 PSF CONSIDER

Roof

	Surface Pressure (psf)								User input	
Area	2 sf	10 sf	20 sf	50 sf	100 sf	200 sf	300 sf	500 sf	10 sf	150 sf
Negative Zone 1, 2e & 2r	-44.9	-44.9	-38.1	-29.1	-22.2	-22.2	-22.2	-22.2	-44.9	-22.2
Negative Zone 2n, & 3r	-49.4	-49.4	-44.2	-37.3	-32.0	-26.8	-26.8	-26.8	-49.4	-28.9
Negative Zone 3e	-76.6	-60.6	-53.7	-44.6	-37.7	-30.8	-26.8	-26.8	-60.6	-33.7
Positive All Zones	24.5	24.5	21.8	18.2	16.0	16.0	16.0	16.0	24.5	16.0
Overhang Zone 1, 2e & 2r	-59	-59	-52.1	-43.1	-36.3	-36.3	-36.3	-36.3	-59.0	-36.3
Overhang Zone 2n & 3r	-63.5	-63.5	-58.2	-51.3	-46.1	-40.8	-40.8	-40.8	-63.5	-43.0
Overhang Zone 3e	-90.7	-74.7	-67.8	-58.7	-51.8	-44.9	-40.8	-40.8	-74.7	-47.7

Overhang pressures in the table above assume an internal pressure coefficient (Gcpi) of 0.0
Overhang soffit pressure equals adj wall pressure (which includes internal pressure of 4.1 psf)

Parapet

qp = 23.6 psf

	Surface Pressure (psf)						User input
Solid Parapet Pressure	2 sf	10 sf	100 sf	200 sf	300 sf	500 sf	20 sf
CASE A: Zone 2e & 2r :	99.0	99.0	36.3	37.0	36.3	35.1	57.5
Zone 2n & 3r :	70.7	70.7	48.4	41.7	41.0	40.1	64.0
Zone 3e :	99.0	82.3	54.3	45.9	41.0	40.1	73.9
CASE B: Interior zone :	-49.5	-49.5	-41.2	-38.7	-37.2	-35.3	-47.0
Corner zone :	-56.6	-56.6	-44.1	-40.3	-38.1	-35.3	-52.8

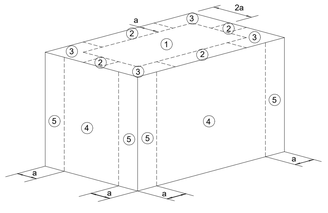
Walls

	GCp +/- GCpi				Surface Pressure at h				User input	
Area	10 sf	100 sf	200 sf	500 sf	10 sf	100 sf	200 sf	500 sf	20 sf	55 sf
Negative Zone 4	-1.28	-1.10	-1.05	-0.98	-29.0	-25.0	-23.8	-22.2	-27.8	-26.1
Negative Zone 5	-1.58	-1.23	-1.12	-0.98	-35.8	-27.8	-25.4	-22.2	-33.4	-29.9
Positive Zone 4 & 5	1.18	1.00	0.95	0.88	26.8	22.8	21.5	20.0	25.6	23.8

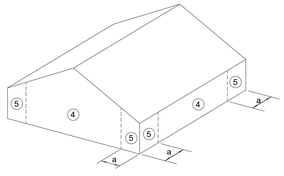
1 WIND LOADS

1/4" = 1'-0"

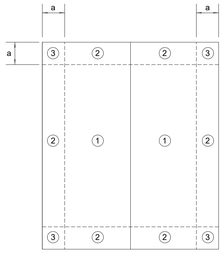
LOCATION OF C&C WIND PRESSURE ZONES



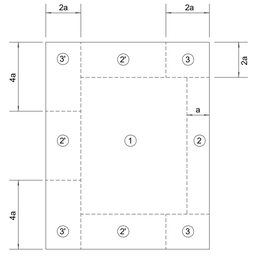
Roofs with Angle ≤ 10° and all walls h > 60'



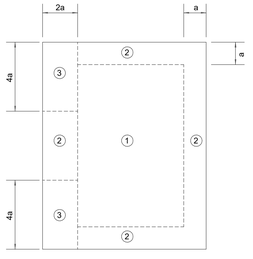
Walls h ≤ 60' and alt design h < 90'



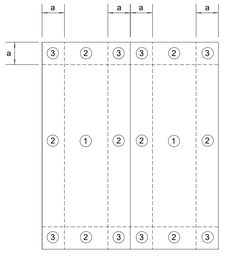
Gable, Sawtooth and
Multispan Gable 8 ≤ 7 degrees &
Monoslope ≤ 3 degrees
h ≤ 60' & alt design h<90'



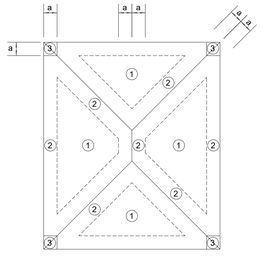
Monoslope roofs
3° < θ ≤ 10°
h ≤ 60' & alt design h<90'



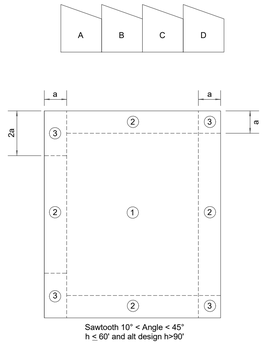
Monoslope roofs
10° < θ ≤ 30°
h ≤ 60' & alt design h<90



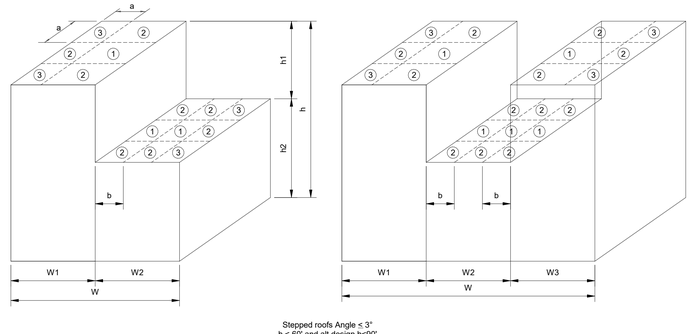
Multispan Gable and
Gable 7° ≤ Angle < 45°



Hip
7° ≤ Angle < 27°



Sawtooth 10° < Angle < 45°
h ≤ 60' and alt design h>90'



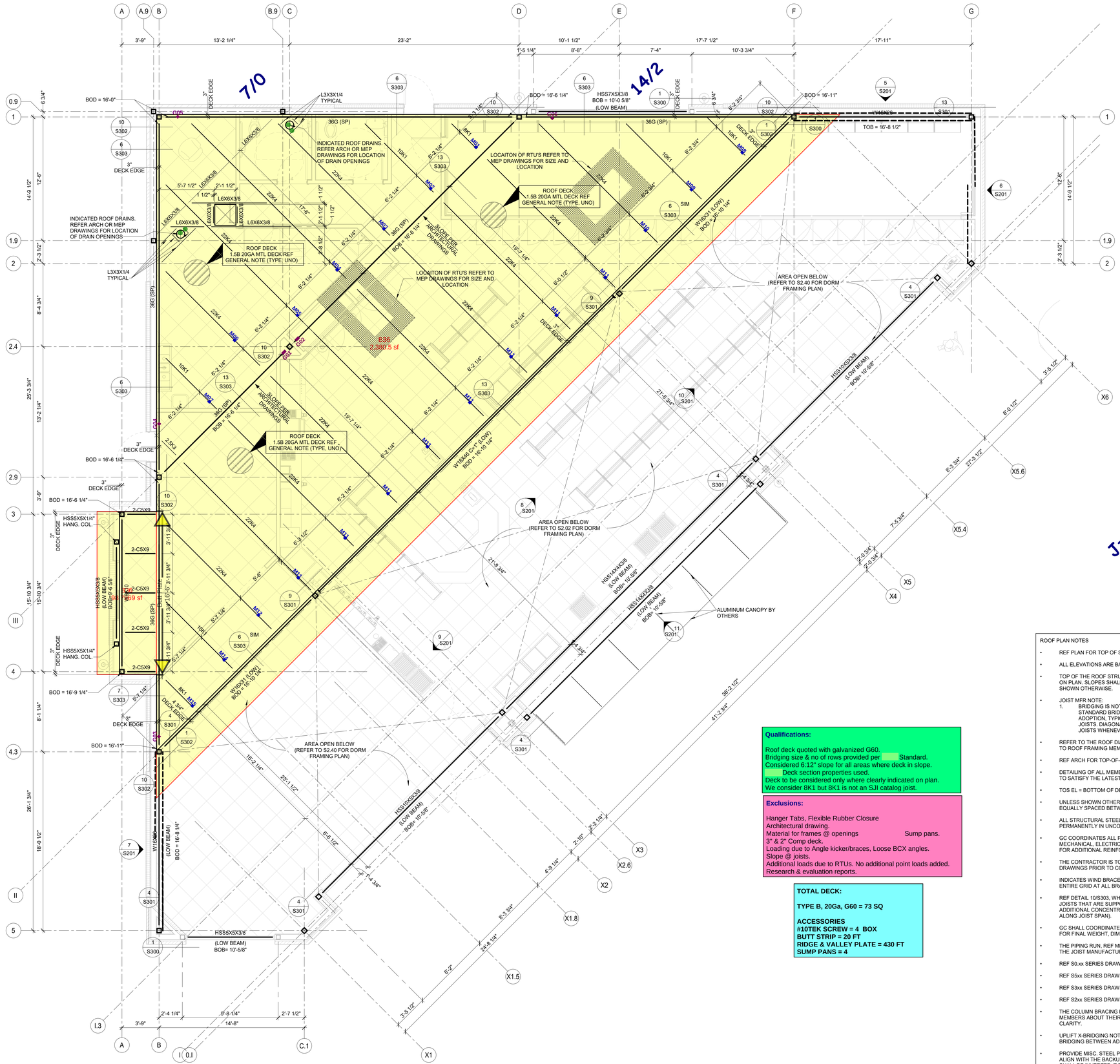
Stepped roofs Angle ≤ 3°
h < 60' and alt design h<90'

2 WIND LOAD DIAGRAM3

1/4" = 1'-0"

PLOT DATE: 12/22/2023 8:15:17 PM TEMPLATE VERSION:

Joist Description	Quantity
G01	1
G02	1
G03	1
G04	1
G05	1
G06	1
M01	1
M02	1
M03	1
M04	1
M05	1
M06	1
M07	1
M08	1
M09	1
M10	1
M11	8
M12	1
M14	1
M15	1



Qualifications:

Roof deck quoted with galvanized G60.
Bridging size & no of rows provided per Standard.
Considered 6.12" slope for all areas where deck in slope.
Deck section properties used.
Deck to be considered only where clearly indicated on plan.
We consider 8K1 but 8K1 is not an SJI catalog joist.

Exclusions:

Hanger Tabs, Flexible Rubber Closure
Architectural drawing.
Material for frames @ openings Sump pans.
3" & 2" Comp deck.
Loading due to Angle kicker/braces, Loose BCX angles.
Slope @ joists.
Additional loads due to RTUs. No additional point loads added.
Research & evaluation reports.

TOTAL DECK:

TYPE B, 20Ga, G60 = 73 SQ

ACCESSORIES
#10TEK SCREW = 4 BOX
BUTT STRIP = 20 FT
RIDGE & VALLEY PLATE = 430 FT
SUMP PANS = 4

ROOF PLAN NOTES

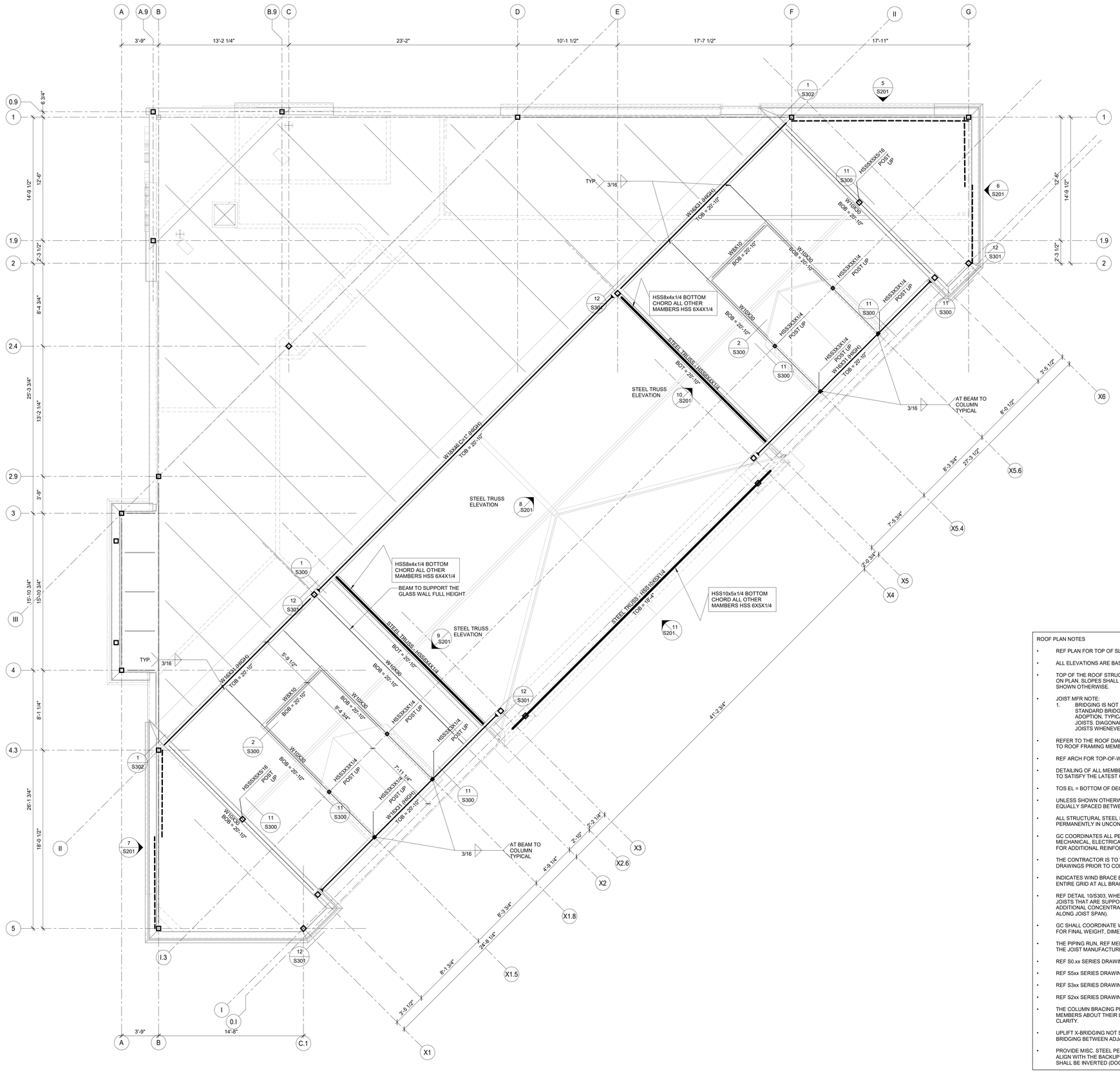
- REF PLAN FOR TOP OF SLAB ELEVATION.
- ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0".
- TOP OF THE ROOF STRUCTURE IS SLOPED FOR DRAINAGE. REF ELEVATIONS NOTED ON PLAN. SLOPES SHALL BE UNIFORM BETWEEN COLUMN CENTERLINES UNLESS SHOWN OTHERWISE.
- JOIST MFR NOTE:
  1. BRIDGING IS NOT SHOWN ON THE PLAN. THE MANUFACTURER SHALL PROVIDE STANDARD BRIDGING COMPLYING WITH SJI SPECIFICATIONS OF THE LATEST ADOPTION, TYPICAL FOR GRAVITY AND UPLIFT LOADS SUPERIMPOSED ON ALL JOISTS. DIAGONAL BRIDGING SHALL BE PROVIDED BETWEEN ADJACENT JOISTS WHENEVER BOTTOM CHORD HORIZONTAL BRIDGING IS CONTINUOUS.
- REFER TO THE ROOF DIAPHRAGM CONNECTION SCHEDULE FOR DECK ATTACHMENT TO ROOF FRAMING MEMBERS AND DECK FASTENER TYPE, SIZE AND SPACING.
- REF ARCH FOR TOP-OF-WALL ELEVATIONS.
- DETAILING OF ALL MEMBER CONNECTIONS TO THE SUPPORTS SHALL BE PERFORMED TO SATISFY THE LATEST OSHA ERECTION REQUIREMENTS.
- TOS EL = BOTTOM OF DECK.
- UNLESS SHOWN OTHERWISE, STEEL BEAMS OR JOISTS ARE CENTERED ON AND EQUALLY SPACED BETWEEN THE COLUMN CENTERLINES.
- ALL STRUCTURAL STEEL PERMANENTLY EXPOSED TO THE EXTERIOR OR PERMANENTLY IN UNCONDITIONED SPACE SHALL BE HOT-DIPPED GALVANIZED.
- GC COORDINATES ALL PENETRATIONS AND UNDERGROUND UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO TYPICAL DETAILS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.
- THE CONTRACTOR IS TO VERIFY ALL SLAB EDGE DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
- INDICATES WIND BRACE BEAM BOTTOM FLANGE BRACING PER 9/S303, TYP ALONG ENTIRE GRID AT ALL BRACE FRAMES. NOT SHOWN IN THE PLAN FOR CLARITY.
- REF DETAIL 10/S303, WHERE ROOFTOP EQUIPMENT REQUIRES A STRUCTURAL CURB. JOISTS THAT ARE SUPPORTING ROOFTOP EQUIPMENT SHALL BE DESIGNED FOR AN ADDITIONAL CONCENTRATED DEAD LOAD (AS SHOWN ON THE PLAN AT ANY POINT ALONG JOIST SPAN).
- GC SHALL COORDINATE WITH MEP, ARCHITECTURE, AND EQUIPMENT CUT SHEETS FOR FINAL WEIGHT, DIMENSION
- THE PIPING RUN, REF MEP DRAWINGS; GC SHALL COORDINATE THE GIVEN LOAD WITH THE JOIST MANUFACTURER.
- REF S0.xx SERIES DRAWINGS FOR GENERAL NOTES AND TYP DETAILS
- REF S5xx SERIES DRAWINGS FOR CMU DETAILS.
- REF S3xx SERIES DRAWINGS FOR STEEL FRAMING DETAILS.
- REF S2xx SERIES DRAWINGS FOR STEEL BRACE ELEVATIONS AND DETAILS.
- THE COLUMN BRACING PER12/S303. TYPICAL AT COLUMNS UNBRACED BY FRAMING MEMBERS ABOUT THEIR LOCAL AXIS. NOT ALL ARE SHOWN ON THE PLAN FOR CLARITY.
- UPLIFT X-BRIDGING NOT SHOWN ON PLANS FOR CLARITY. GC SHALL PROVIDE X-BRIDGING BETWEEN ADJACENT WF BEAMS AT THE ROOF PER DETAIL 15/S303.
- PROVIDE MISC. STEEL PER 16/S303 ABOVE AND BELOW ANY WINDOW THAT DOES NOT ALIGN WITH THE BACKUP, UNO, TYP. LOOSE LINTELS REQUIRED BELOW WINDOW SHALL BE INVERTED (DOG LEG DOWN), TYP.

1 LOW ROOF FRAMING PLAN

1/4" = 1'-0"

NORTH TRUE NORTH PLAN

PLOT DATE: 12/22/2023 8:15:32 PM TEMPLATE VERSION:



1 LOFT SALES AREA FRAMING PLAN

1/4" = 1'-0"

ROOF PLAN NOTES

- REF PLAN FOR TOP OF SLAB ELEVATION.
- ALL ELEVATIONS ARE BASED ON TOSC EL = 0'-0".
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- REF S5xx SERIES DRAWINGS FOR CMU DETAILS.
- REF S3xx SERIES DRAWINGS FOR STEEL FRAMING DETAILS.
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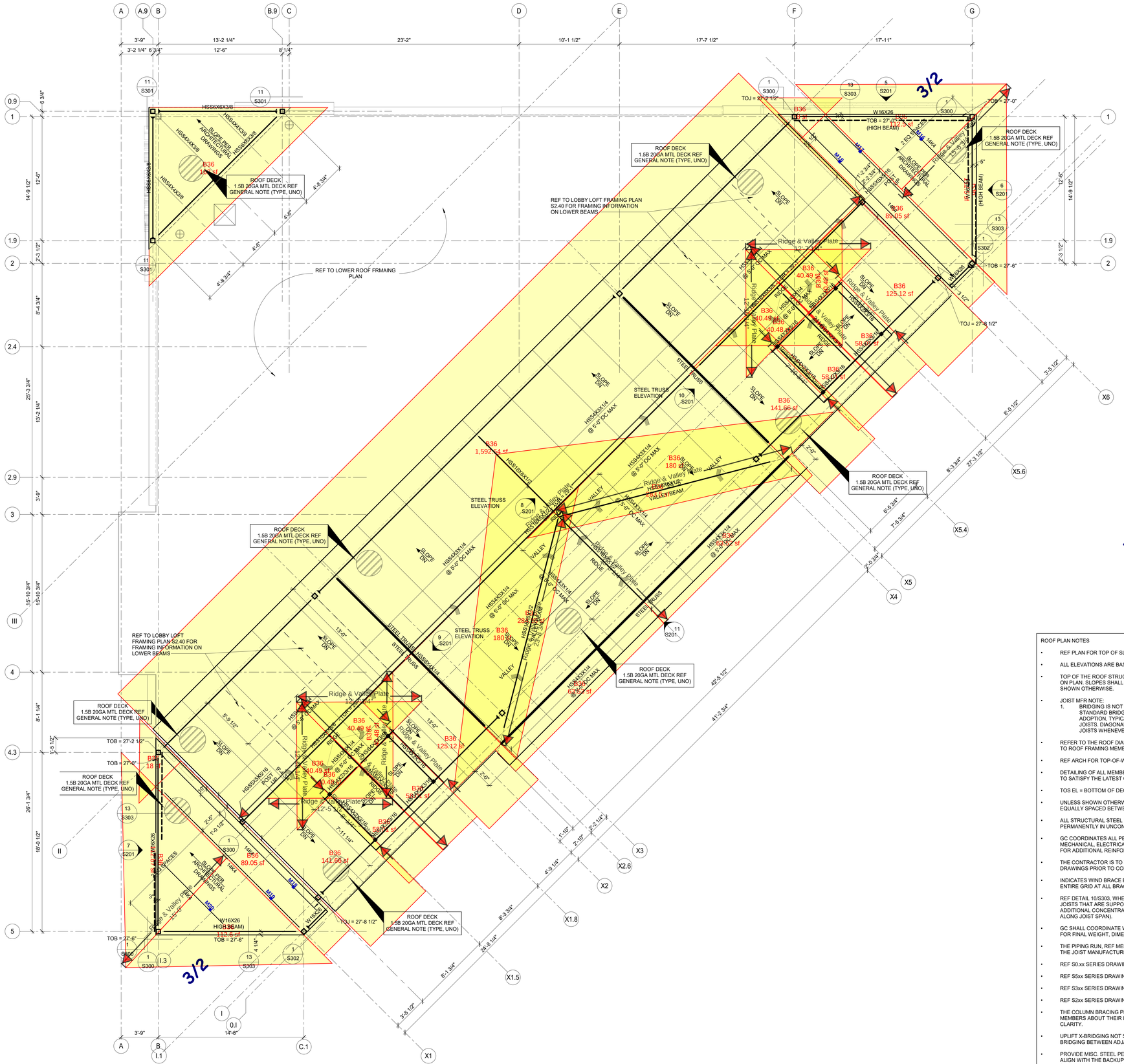
NORTH TRUE

NORTH PLAN



Joist

Description	Quantity
M16	1
M17	1
M18	2
M19	1
M20	1

ROOF PLAN NOTES

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1 HIGH ROOF FRAMING PLAN

1/4" = 1'-0"

NORTH TRUE NORTH PLAN

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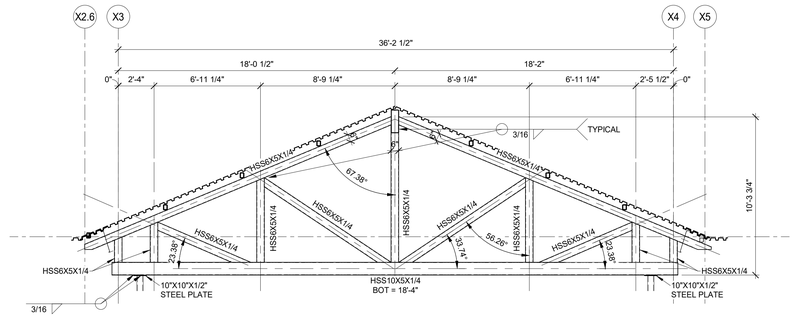
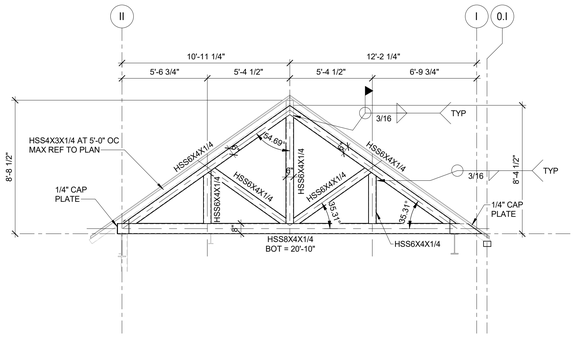
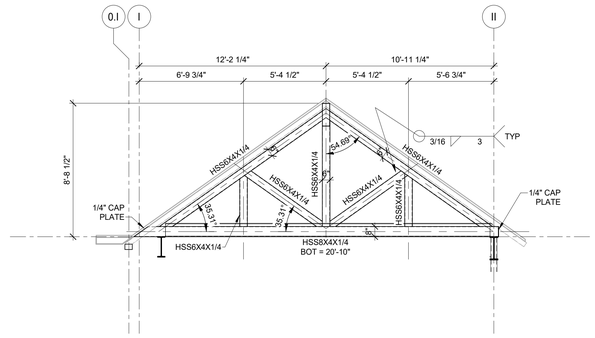


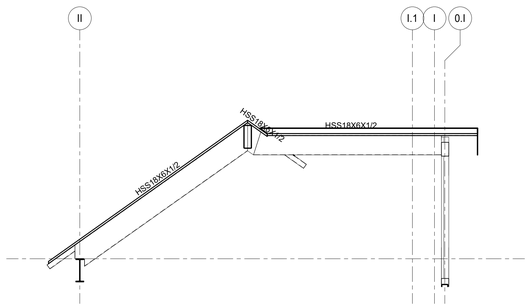
11 ROOF TRUSS @ GL 0.1
1/4" = 1'-0"



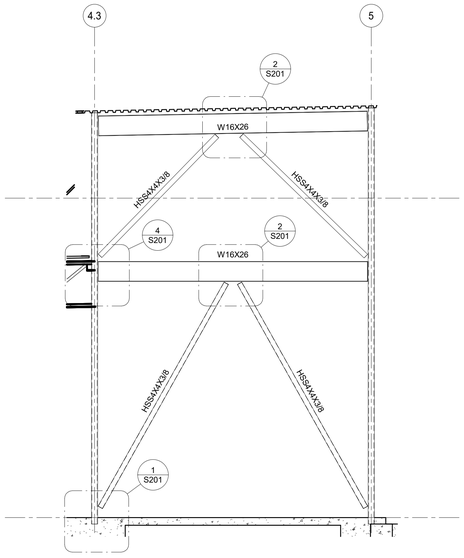
10 ROOF TRUSS @ GL X5
1/4" = 1'-0"



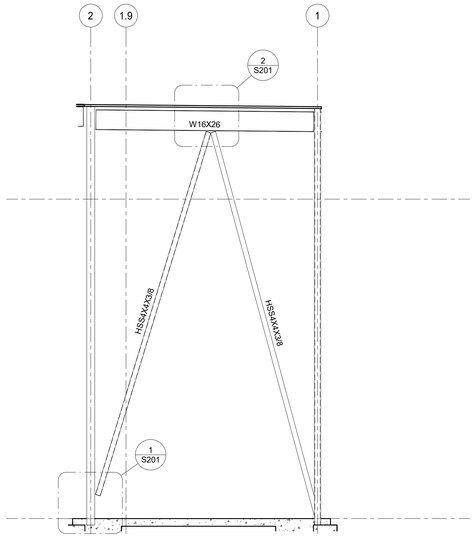
9 ROOF TRUSS @ GL X2.6
1/4" = 1'-0"



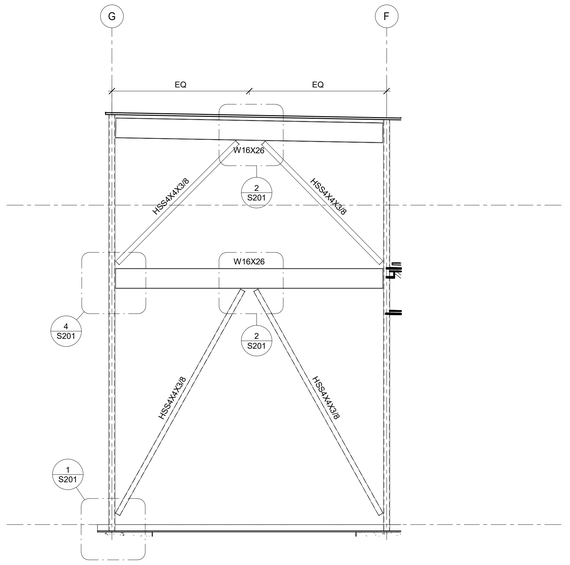
8 RIDGE TRUSS
1/4" = 1'-0"



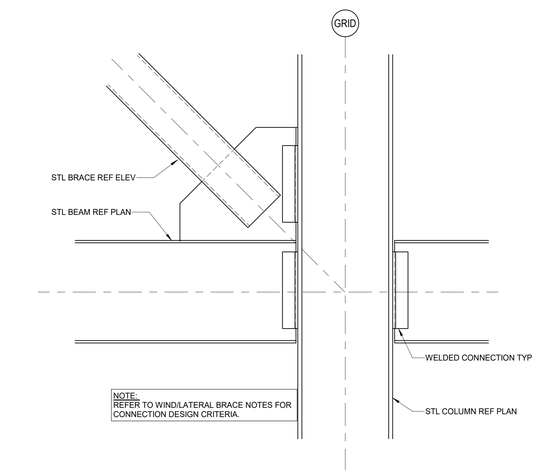
7 BRACE FRAME ELEVATION
1/4" = 1'-0"



6 BRACE FRAME ELEVATION
1/4" = 1'-0"



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

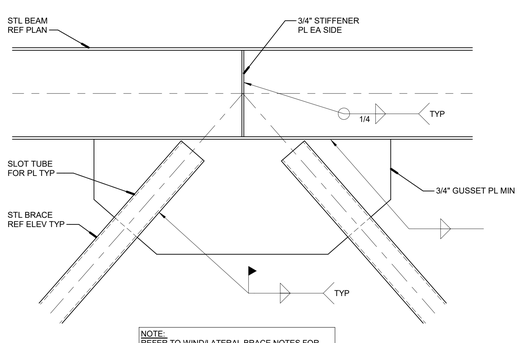


4 TYPICAL BRACE DETAIL
3/4" = 1'-0"

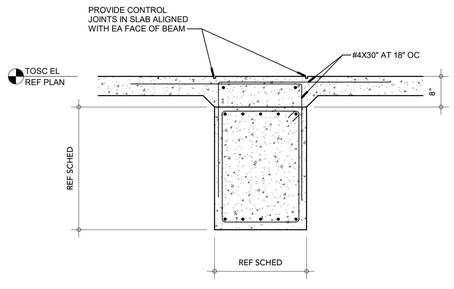
WIND/LATERAL BRACE NOTES

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 REQ'D 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. SEE SPECIFIC BRACE ELEVATIONS FOR TYPE OF DIAGONAL MEMBERS.

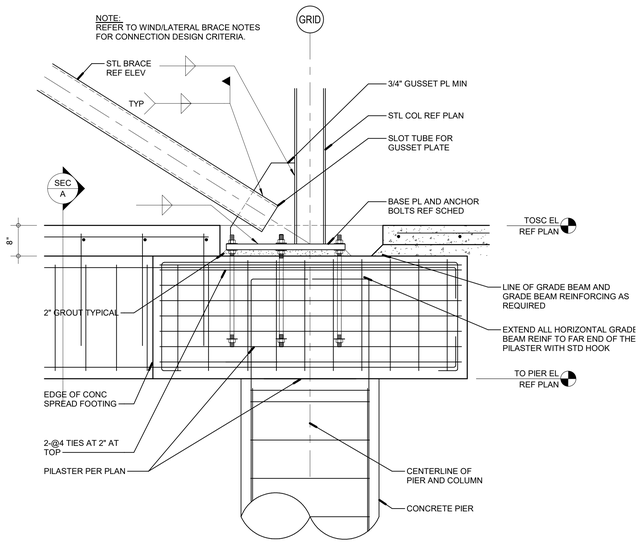
3 WIND LATERAL BRACE NOTES
12" = 1'-0"



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

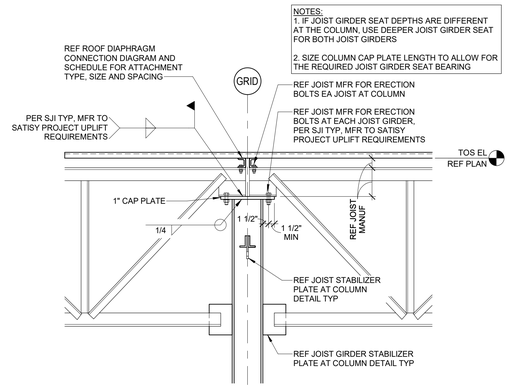


SECTION A



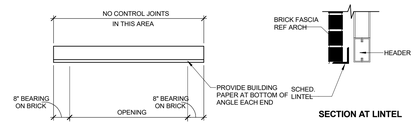
1 TYPICAL BRACED FRAME AT SPEAD FOOTING
3/4" = 1'-0"

PLOT DATE:
12/22/2023 8:15:39 PM
TEMPLATE VERSION



10 TYPICAL JOIST GIRDERS AT COLUMN

3/4" = 1'-0"



SECTION AT LINTEL

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

NOTES:

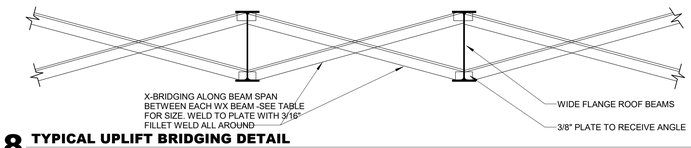
1. REF ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATIONS OF OPENINGS.
2. PROVIDE 1" OF BEARING @ EACH JAMB FOR EACH FOOT OF CLEARSPAN BUT NOT LESS THAN 8".
3. WHERE MIN. BEARING CANNOT BE ACHIEVED, PROVIDE ADEQUATE CONNECTION TO STRUCTURAL MEMBERS OR PROVIDE VERTICAL SUPPORTS AS REQ'D. SUCH DETAILS SHALL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

9 TYPICAL STEEL LOOSE LINTEL SCHEDULE

3/4" = 1'-0"

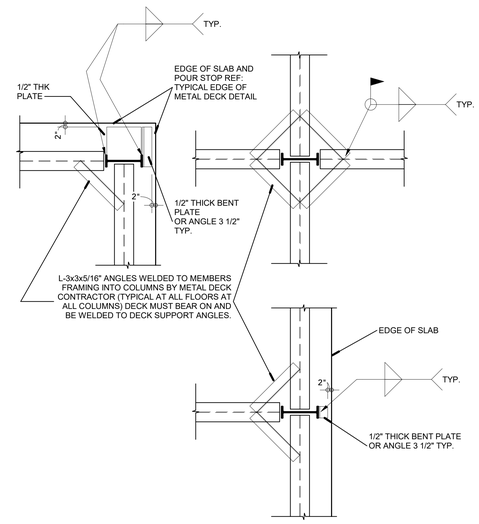
PURLIN SPAN LENGTH(FEET)	# OF ROWS OF BRIDGING	BRIDGING ANGLE SIZE
LESS THAN 10'-0"	**-0 -**	**L2x2x1/4"**
10'-0" -15'-0"	**-1 -**	**L2x2x1/4"**
15'-0" -20'-0"	**-1 -**	**L2x2x1/4"**
20'-0" -25'-0"	**-2 -**	**L2x2x1/4"**
25'-0" -30'-0"	**-2 -**	**L2x2x1/4"**
30'-0" -35'-0"	**-2 -**	**L2x2x1/4"**
35'-0" -40'-0"	**-3 -**	**L3x3x1/4"**
40'-0" -45'-0"	**-4 -**	**L3x3x1/4"**
45'-0" -50'-0"	**-4 -**	**L3x3x1/4"**
50'-0" -55'-0"	**-4 -**	**L3x3x1/4"**
55'-0" -60'-0"	**-4 -**	**L3x3x1/4"**
60'-0" -65'-0"	**-4 -**	**L3x3x1/4"**

ROOF DECK NOT SHOWN FOR CLARITY



8 TYPICAL UPLIFT BRIDGING DETAIL

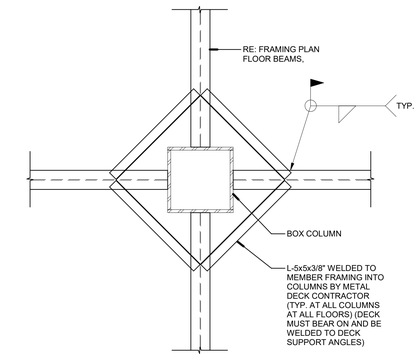
3/4" = 1'-0"



NOTES:
- REF: ADDITIONAL DETAILS AT CURTAIN WALL SUPPORTS.
- ATTACH DECK (ENDS AND SIDE LAPS) TO SUPPORT ANGLES OR PLATES (TYP.)

6 TYPICAL DECK SUPPORT PLAN DETAIL @ WF COLUMN

3/8" = 1'-0"

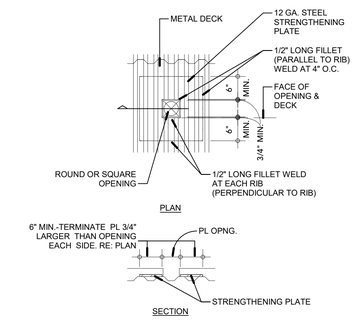


TYPICAL METAL DECK REINF. AT BOX COLUMN

NOTE:
ATTACH DECK (ENDS AND SIDE LAPS) TO SUPPORT ANGLES.

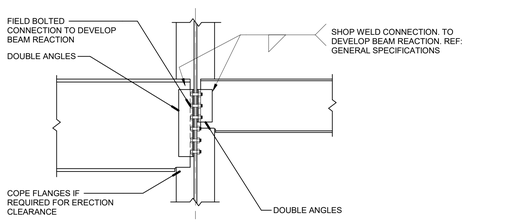
5 TYPICAL DECK SUPPORT PLAN DETAIL AT BOX COLUMN

3/8" = 1'-0"



4 DECK OPENING (FOR OPENING GREATER THAN 4" & UP TO 9" DIA. OR SQUARI

3/4" = 1'-0"



7 FULL HEIGHT COLUMN AT BEAM CONNECTION

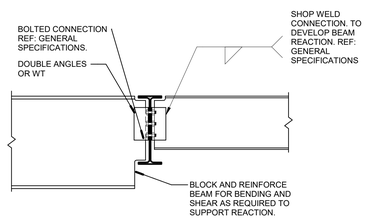
3/4" = 1'-0"

NOTES:
1.) REFER TO GENERAL SPECIFICATIONS FOR BEAM REACTION DESIGN CRITERIA
2.) PROVIDE PREDESIGNED CONNECTIONS AS SHOWN IN AISC MANUAL PART 4 WHERE APPLICABLE
3.) REFER TO GENERAL SPECIFICATIONS FOR BOLT TYPE.

TYPICAL DETAIL AT STEEL BEAM TO COLUMN WEB DOUBLE ANGLE SHEAR CONNECTION

3 TYPICAL DETAIL@ BEAM TO BEAM DOUBLE ANGLE SHEAR CONNECTION

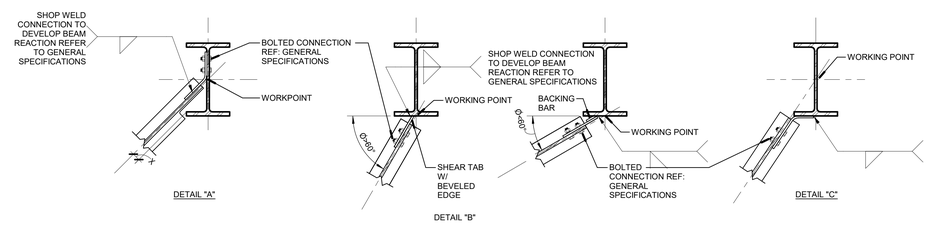
3/4" = 1'-0"



TYPICAL DETAIL AT BEAM TO BEAM DOUBLE ANGLE SHEAR CONNECTION

2 TYPICAL DETAIL@ BEAM TO BEAM DOUBLE ANGLE SHEAR CONNECTION

3/4" = 1'-0"



NOTES:
1.) FABRICATOR SHALL ASSUME WORKPOINT TO BE LOCATED AT CENTERLINE OF COLUMN FOR VALUES OF X < 1" AND PROVIDE CONNECTION AS SPECIFIED IN DETAIL "A". FABRICATOR SHALL ASSUME LOCATION OF WORKPOINT TO BE AT COLUMN FLANGE-WEB INTERSECTION AND PROVIDE CONNECTION AS SPECIFIED IN DETAIL "B" WHERE CLEARANCE DOES NOT EXIST FOR DETAIL "A" TO APPLY. FABRICATOR SHALL APPLY DETAIL "C" ONLY WHEN LOCATION OF WORKPOINT MUST BE LOCATED AT COLUMN CENTERLINE AND CLEARANCE DOES NOT EXIST FOR DETAIL "A" TO APPLY. LOCATION OF WORKPOINTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO SHOP DRAWING SUBMITTAL.
2.) SHEAR TAB CONNECTION MAY BE USED ONLY WHERE WORKPOINT IS AT INTERSECTION OF COLUMN FLANGE WEB.
3.) SINGLE BENT PLATES SHALL BE DESIGNED FOLLOWING PROCEDURES OUTLINED IN THE AISC MANUAL, 9TH EDITION, PG. 4-83
4.) REFER TO GENERAL SPECIFICATIONS FOR CONNECTION DESIGN CRITERIA.

TYPICAL DETAIL AT SKEWED STEEL BEAM TO COLUMN SHEAR CONNECTION

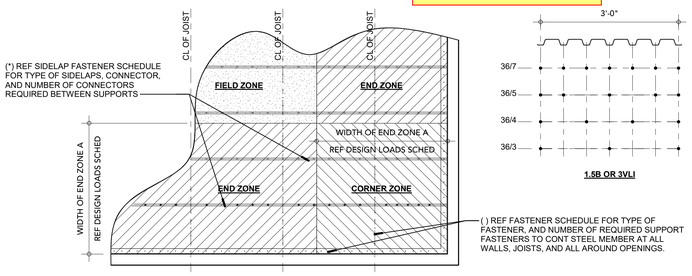
1 TYPICAL DETAIL @ SKEWED STEEL BEAM TO COLUMN SHEAR CONNECTION

3/4" = 1'-0"

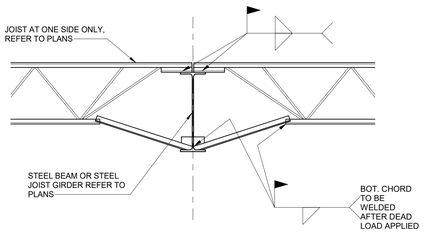
PLOT DATE: 12/22/2023 8:15:43 PM TEMPLATE VERSION:

ROOF FASTENER SCHEDULE

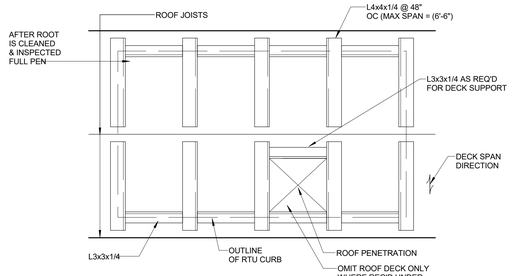
DECK TYPE	GAUGE	ZONE	(o) DECK TO CONTINUOUS MEMBER CONNECTOR TYPE	(*) SIDE LAP FASTENERS
1.5B	REF PLAN	CORNER ZONE	5/8" DIAMETER PUDDLE WELDS 36/7 PATTERN	(6) #10 TEK SCREWS AT (7) EQUAL SPACES
		END ZONE	5/8" DIAMETER PUDDLE WELDS 36/7 PATTERN	(6) #10 TEK SCREWS AT (7) EQUAL SPACES
		FIELD ZONE	5/8" DIAMETER PUDDLE WELDS 36/7 PATTERN	(6) #10 TEK SCREWS AT (7) EQUAL SPACES



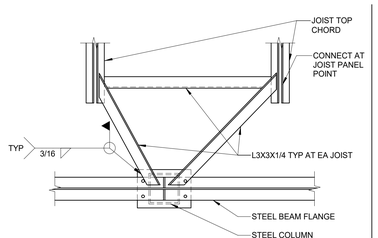
14 FLOOR AND ROOF DIAPHRAGM CONNECTION DIAGRAM AND SCHEDULE
3/4" = 1'-0"



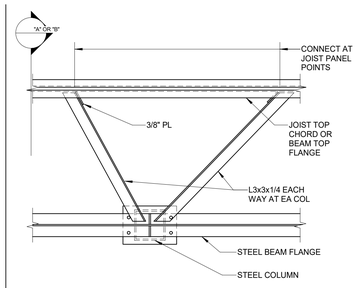
13 JOIST BOTTOM CHORD EXTENSION AT BEAM
3/4" = 1'-0"



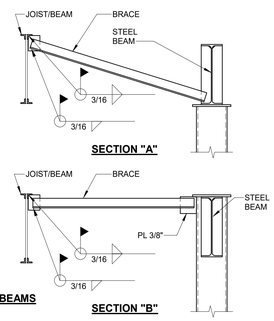
UNIT PARALLEL TO FRAMING



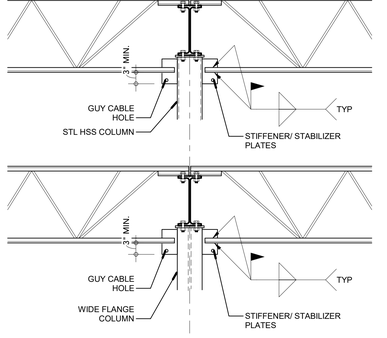
PLAN VIEW AT PERPENDICULAR JOISTS/BEAMS



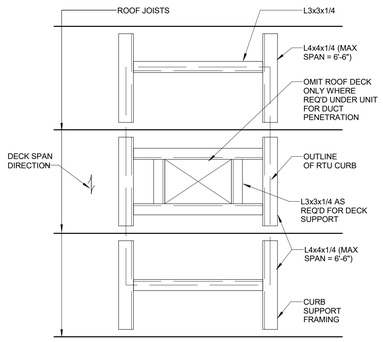
PLAN VIEW AT PARALLEL JOISTS/BEAMS



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



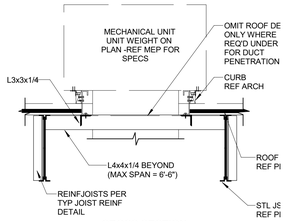
11 JOIST, BEAM @ COLUMN CONNECTION
3/4" = 1'-0"



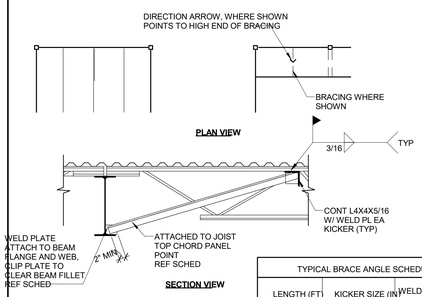
UNIT PERPENDICULAR TO FRAMING

NOTES:

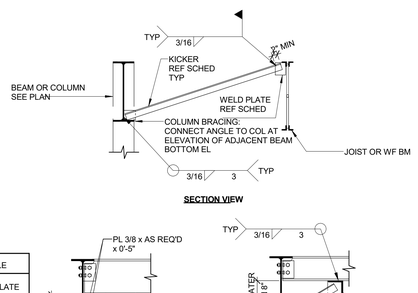
1. VERIFY SIZE OF FRAME W/ MECH CONTRACTOR.
2. VERIFY UNIT LOCATION ON SITE PRIOR TO FRAME FABRICATION.
3. CONTRACTOR TO VERIFY UNIT WEIGHT WITH WEIGHT SHOWN ON PLAN.

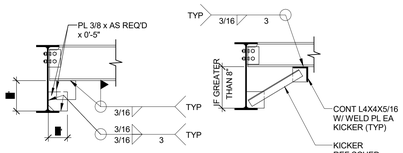


CROSS SECTION

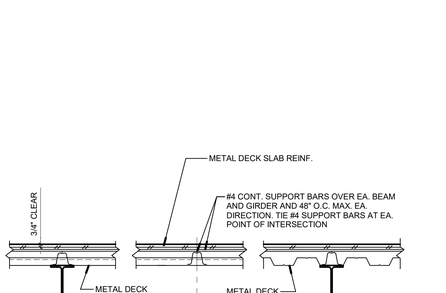


TYPICAL BRACE ANGLE SCHEDULE		
LENGTH (FT)	KICKER SIZE (IN)	WELD PLATE SIZE (IN)
UP TO 2'-0"	L2X2X3/16	PL 4x4x1/4
2'-0" TO 3'-0"	L2-1/2X2-1/2X3/16	PL 4x4x1/4
3'-0" TO 8'-0"	L3 x 3 x 1/4	PL 4x4x1/4
8'-0" TO 12'-0"	L4 x 4x 1/4	PL 5X5X1/4
12'-0" TO 16'-0"	L5 x 5x 5/16	PL 6x6x3/8

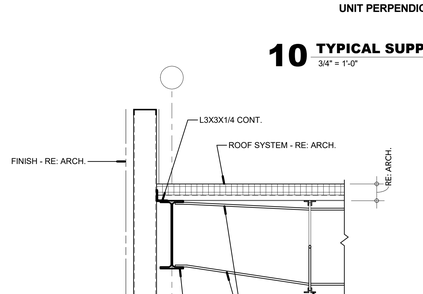




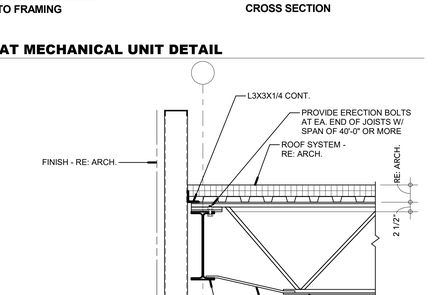
9 TYPICAL BEAM/ JOIST BOTTOM FLANGE BRACE
3/4" = 1'-0"



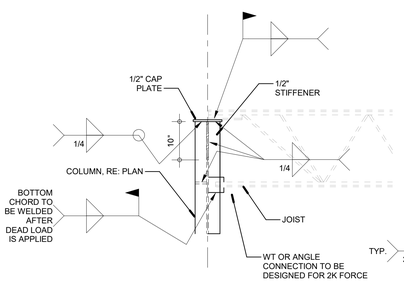
8 TYPICAL DETAIL @ COMPOSITE DECK
3/4" = 1'-0"



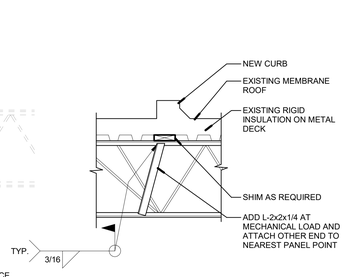
7 JOIST AND BEAM CONNECTION
3/4" = 1'-0"



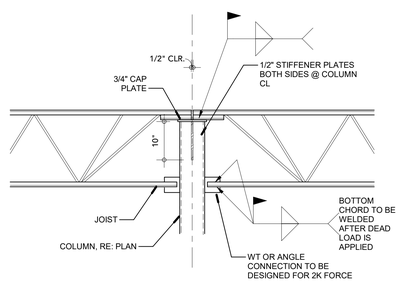
6 JOIST AND BEAM CONNECTION
3/4" = 1'-0"



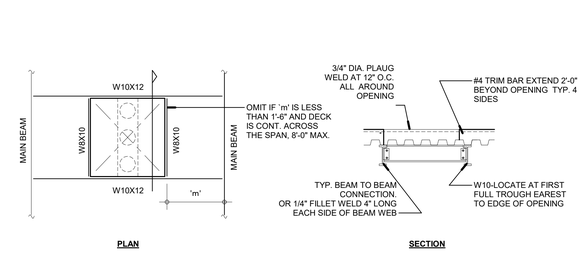
5 JOIST BEARING @ COLUMN FLANGE
3/4" = 1'-0"



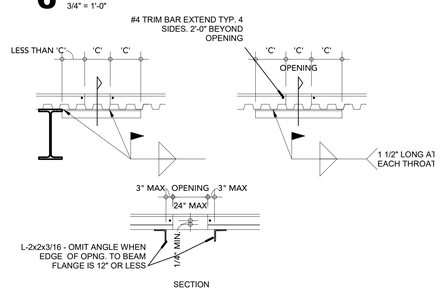
4 CURB SUPPORT DETAIL
3/4" = 1'-0"



3 JOIST BEARING AT COLUMN FLANGE
3/4" = 1'-0"



DECK OPENING (FOR OPENING LARGER THAN 9" & LESS THAN 24" DIA. OR SQUARE)
3/4" = 1'-0"



DECK OPENING (FOR OPENING LARGER THAN 9" & LESS THAN 24" DIA. OR SQUARE)
3/4" = 1'-0"

PLOT DATE: 12/22/2023 8:10:43 PM
TEMPLATE VERSION:

JOISTS

NOTES :

LL DEFL **L/240** TL DEFL JOIST SPACING

DWG	MARK	QTY	BCX	DESIGNATION	SPAN	SPACE	NU PSF	TCX L	TCX R	COMMENTS
	M01	1		8K1	5'-6"	6.25'	20			
	M02	1		10K1	11'-6"	6.25'	20			
	M03	1		22K4	17'-9"	6.25'	20			
	M04	1		22K4	24'-0"	6.25'	20			
	M05	1		22K4	21'-6"	6.25'	20			
	M06	1		22K4	15'-3"	6.25'	20			
	M07	1		10K1	9'-0"	6.25'	20			
	M08	1		10K1	6'-3"	6.25'	20			
	M09	1		10K1	12'-6"	6.25'	20			
	M10	1		22K4	18'-9"	6.25'	20			
	M11	8	2	22K4	19'-7 1/4"	6.25'	20			
	M12	1		22K4	17'-0"	5.75'	20			
	M14	1		10K1	11'-3"	5.75'	20			
	M15	1		8K1	5'-9"	5.75'	20			
	M16	1		14K4	10'-6"	5.25'	20	5"		
	M17	1	1	14K4	21'-0"	4'	20			
	M18	2	2	14K4	23'-3"	2'	20			
	M19	1	1	14K4	20'-9"	4'	20			
	M20	1		14K4	10'-3"	5.5'	20	4 1/4"		
TOTAL		27	6							

GIRDER

DWG	MARK	QTY	BCX	DESIGNATION	SPAN	NU	TCX L	TCX R	COMMENTS
	G01	1	1	36G4NSP	18'-7 1/2"				1, 2, 3, 6, 8, 18
	G02	1	1	36G6NSP	32'-9"				1, 4, 5, 7, 8, 18
	G03	1	1	36G4NSP	27'-9"				1, 8, 9, 10, 6, 18
	G04	1	1	36G5NSP	36'-4 1/2"				1, 8, 15, 11, 12, 18
	G05	1	1	36G5NSP	36'-4 1/4"				1, 8, 16, 11, 13, 18
	G06	1	1	36G4NSP	27'-9"				1, 8, 17, 10, 6, 13, 18
			0						
			0						
			0						
			0						
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			0						
			0						
			0						
			0						
			0						
TOTAL	0	6							

NOTES

1	LL Deflection = L/240		
2	Panel point spacing = 1 @ 3'-5 1/2", 2 @ 6'-2 1/4", 1 @ 2'-9 1/2" FTE		
3	NU = 2.18K @ PP1, 1.79K @ PP2, 1.41K @ PP3 to rest FTE.		
4	NU = 2.57K @ PP1, 2.73K @ PP2, 2.33K @ PP3, 1.94K @ PP4, 1.57K PP5 to rest FTE.		
5	Panel point spacing = 1 @ 2'-8 3/4", 4 @ 6'-2 1/4", 1 @ 5'-3 1/4" FTE		
6	Girder designation 36G4NSP		
7	Girder designation 36G6NSP		
8	Follow joist reaction for panel point loading.		
9	NU = 0.43K @ PP1, 0.84K @ PP2, 1.28K @ PP3 to rest FTE.		
10	Panel point spacing = 1 @ 8'-1 1/4"", 1 @ 7'-8 1/2", 1 @ 7'-11 3/8", 1 @ 3'-11 7/8" FTE		
11	Girder designation 36G5NSP		
12	NU = 0.26K @ PP1, 0.79K @ PP2, 1.33K @ PP3, 1.88K PP4 to rest FTE.		
13	NU = 2.1K @ PP1, 1.55K @ PP2, 1.01K @ PP3, 0.48K PP4 to rest FTE.		
14	NU = 1.64K @ PP1, 1.09K @ PP2, 0.55K @ PP3 to rest FTE.		
15	Panel point spacing = (1) 6'-2", (3) 8'-9", (1) rest of joist span.		
16	Panel point spacing =(1) 7'-6", (3) 8'-9", (1) rest of joist span.		
17	Panel point spacing = (3) @ 8'-9", (1) rest of joist span.		
18	Grider self weight need to be added.		