Everett Public Facilities District
2000 Hewitt Avenue, Suite 200
Everett, WA 98201
p 425.322.2600
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REQUEST FOR PROPOSAL

RIGGING STEEL ADDITIONS

Angel Of The Winds Arena – Everett Public Facilities District

Issue Date: Monday, November 2, 2026

Proposal Due Date: Friday, November 20, 2026, by 12PM PST

1. GENERAL

The Everett Public Facilities District (EPFD), the owner of Angel Of The Winds Arena in Everett, Washington, is seeking qualified contractors to submit proposals for the supply, fabrication, delivery and installation of additional steel to support rigging for entertainment events.

2. PROJECT OVERVIEW

- **Project Name:** Angel Of The Winds Arena Rigging Steel Additions
- **Location:** Angel Of The Winds Arena, 2000 Hewitt Ave, Everett, WA 98201

LABOR REQUIREMENTS

- Washington State Prevailing Wage Rates shall apply (https://www.lni.wa.gov/licensing-permits/public-works-projects/prevailing-wage-rates/). Vendor shall be responsible for submitting Intents to Pay and Affidavits of Wages Paid forms to Labor & Industries. Vendor shall supply the copies of forms and subsequent approvals to the EPFD.
- The Vendor will be responsible for obtaining all required permits, agreements, licenses, and insurance.
- The Vendor may employ subcontractors to perform certain portions of its responsibilities; however, the Vendor shall not subcontract any portion of its installation responsibilities without first obtaining express written permission from the EPFD. If the EPFD consents to such subcontract(s), the Vendor shall be fully responsible to the EPFD for all acts and omissions of the subcontractor(s).
- The Contractor shall prepare detailed description of work performed and drawings when applicable for the project. These plans shall become the property of the EPFD.

The Contract also includes:

A. Pre-Installation meetings on site.
B. Verification of dimensions and conditions at the job site.
C. Coordination with other contractors and trades.
D. Preparation of submittal information.
E. Installation in accordance with contract documents, manufacturer's recommendations, and all applicable code requirements.
F. Initial tests and adjustments, written report, and documentation.
G. Final Inspection and sign off by Engineer of Record
H. Maintenance services; warranty.
I. Coordination with venue manager to schedule work around events and regular venue operations.

J. Provision of all necessary materials, labor, machinery, safety equipment to fully execute the project scope and all materials required to protect the venue against damages and hazards present during the installation.

Any item or items missing from the information provided to the Vendor do not relieve the Vendor of the responsibility to provide what is required for a complete installation in accordance with the finalized plans.

QUALITY ASSURANCE

A. Manufacturer and Integrator must have at least 5 years of experience in the design, installation and implementation of all equipment indicated in this RFP.

B. Provide corporate financial data for the past three years including bonding capacity.

C. Provide a list of contacts of installations over the past three years for installations of similar size and scope projects.

D. Provide Project Manager by name and resume who will lead the project. Also, please indicate what subcontractors will be used with their experience.

E. To be considered as eligible to submit a Proposal, Vendor must be legally licensed under applicable laws in the State of Washington.

COMMISSIONING / CLOSEOUT

A. The installers are to fully commission all aspects of the rigging steel additions.

WARRANTIES AND SERVICE AGREEMENT

A. The manufacturer/installer is to provide a 12 Month (1 year) parts and labor warranty. If an issue can be handled over the telephone that will lead to fixing the problem quickly, then that is acceptable. Repairs requiring labor on part of the manufacturer/installer will be required to respond within 24 hours. Identification and location of the service center or third party will be required.

3. SCOPE OF WORK/PROJECT SPECIFICATIONS

- Provide and install steel to the structural drawings and specifications contained in Exhibits A-D.
- Project must minimally interfere with existing event schedule in the arena and agreed upon schedule must be strictly adhered to.

4. PROPOSAL REQUIREMENTS

Company Profile

The bidder should provide information about the company, including years of operation and client/employee growth.

System Description

Describe the Vendor's proposed system including capabilities, operation and equipment components, project timeline, technical specifications, technical support and warranties.

Customer Support

Describe the firm's ability to support the schedule and delivery requirements in accordance with Section 3. Describe the firm's customer support program for resolution of warranty items.

References

The bidder shall provide a list of at least three (3) references of similar type facilities that have utilized its equipment being proposed within the last five years.

Costs

The bidder shall provide a list of costs required to successfully meet the scope of work specifications.

5. DIVERSITY INCLUSION

Oak View Group has a long-standing commitment to diversity and inclusion. We recognize that diversity is an important component of our company's future success, not just as a value, but as a business philosophy central to our operations. As one of the world's leading Facility Management companies, we have a responsibility to reflect the customers and audiences we serve in all aspects of our business. To that end, we are committed to creating a best-in-class model for diversity and inclusion within the industry.

Supplier Diversity:

Oak View Group is committed to providing equal access and meaningful opportunities to all vendors. Our supplier diversity program is designed to maximize the inclusion of minority, women, veterans and small disadvantages business enterprises and individuals (Diversity Suppliers) in our supply chain. If the supplier is not diverse, they may be asked to report on relevant subcontracting (Tier II) activity with diverse suppliers. Supplier shall submit these reports at the frequency specified by Oak View Group.

Company Ownership:

Is your company publicly or privately held? _____

If your company is publicly held, please provide the stock symbol that your company's stock is traded under. _____

Please fill out below as it applies to your company's diversity status:

Women Business Enterprise (>=51% owned and controlled) YES_____ NO_____

Minority Business Enterprise (>=51% owned and controlled) YES_____ NO_____

Veteran Business Enterprise (>=51% owned and controlled) YES_____ NO_____

Other (Specify)_____

If Diverse, is your business certified? YES, _____ NO_____

If certified, by which organization/council? _____

Tier II (Subcontracting)
If your company does not have diversity status, please describe how a partnership with a diversity supplier would work. Oak View Group encourages Suppliers to explore all available opportunities to partner with diversity suppliers who offer products and services that are being sought in connection with this RFP. Oak View Group expects any such arrangements to augment, and not duplicate, the responsibilities and efforts of supplier and other suppliers engaged in the provision of the RFP. Please describe your company's efforts with respect to Tier II.

6. PROPOSAL EVALUATION CRITERIA

Proposals will be evaluated based on:

- Experience and qualifications (30%)
- Project cost (30%)
- Timeline and schedule plus ability to limit facility downtime (30%)
- References and past performance (10%)

7. ACCEPTANCE OR REJECTION OF PROPOSAL

The EPFD reserves the right to reject any and/or all Proposals when such rejection is in the interest of the EPFD to reject Proposal of Bidder who has not met the prerequisites of the bid proposal, who has previously failed to perform properly or complete on time contracts of a similar nature; and to reject proposal of Bidder who is, in the opinion of the EPFD, not in a position to perform the contract. EPFD also reserves the right to waive any information, technicalities or irregularities in bidding. Contract will be awarded based on the Proposal Evaluation Criteria listed in Section 6. Each factor will be rated, and the contract will be awarded (unless all bids are rejected), under normal circumstances, to the bidder receiving the highest number of points. Points will be awarded for Bid Proposals exceeding the minimum standards as described in Bidder's Pre-Qualifications. The EPFD reserves the right, however, to award contract to its best interest or to reject all bids. The EPFD reserves the right to award a contract on an adjusted project timeline or to separate it into multiple phases.

8. GENERAL INFORMATION & TIMELINE

Please keep your contact to Oak View Group/Angel Of The Winds Arena limited to email so that we can share your responses easily with members of our evaluation group and simply track discussion points.

Please include the name of your company and “Angel Of The Winds Arena Rigging Steel Additions RFP” in the email subject line of any correspondence (example: Steel Company: Angel Of The Winds Arena Rigging Steel Additions RFP).

Oak View Group/Angel Of The Winds Arena may contact you by phone for clarification on your responses.

All communication should be sent to:

Corey Margolis – General Manager, Angel Of The Winds Arena – Oak View Group | Corey.Margolis@oakviewgroup.com

Curtis Giboney – Director of Technology & Special Projects, Angel Of The Winds Arena – Oak View Group | Curtis.Giboney@oakviewgroup.com

Mark Clark – Chief Engineer, Angel Of The Winds Arena – Oak View Group | Mark.Clark@oakviewgroup.com

Site visits may be arranged through this contact list to assist in preparation of accurate proposals.

Timeline:

November 2, 2026 Request for Proposal issued to vendors

November 9, 2026 Last day for site visit requests

November 13, 2026 Last day for clarification questions

November 20, 2026 Responses from vendors due at 12:00 PM. (PST)

December 4, 2026 Notification to vendors on contract award (time TBD)

July/August 2027 Tentative construction period

This is a tentative schedule only and may be altered at the sole discretion of the EPFD.

Proposal Instructions:

Sealed bid proposals will be received at the offices of Oak View Group, 2000 Hewitt Avenue, Suite 200, Everett, WA 98201, until 12:00 P.M. on November 20, 2026. **Bid Proposals received after the time and date stated will not be accepted**. Proposals received on time will be opened publicly and read aloud in the presence of the bidders or their representatives at an appointed time.

Envelopes containing Proposals shall be labeled as stated below and must be presented so that they may be easily identified as containing a Proposal. Envelopes must include the following:

Name and location of project.
Name and address of bidder.
Addressed to Everett Public Facilities District.
Submit proposal in duplicate plus one original.

(*Oral or telephone modifications will not be considered.)*

The EPFD will negotiate a contract with the most qualified vendor at a price that the EPFD determines is fair and reasonable. In making its determination, the EPFD will consider the value of the services to be rendered as well as the scope, complexity, and professional nature of the services to be provided. If the EPFD is unable to negotiate a satisfactory contract with the vendor selected at a price that is determined to be fair and

reasonable, negotiations with that firm will be terminated in writing. Another firm will then be selected, and the process continued until an agreement is reached or the process is terminated.

9. Performance Bonds, Retainage, and Closeout

The Everett Public Facilities District requires a performance and payment bond of the contractor, which shall be with a licensed surety company. For contracts of $150,000 or less, the contractor may opt to have the District retain 10% of the contract amount in lieu of the bond.

The District shall also reserve a contract retainage of 5% of the moneys earned by the contractor as a trust fund to pay any claims arising under the contract. See RCW 60.28.011

Substantial completion occurs when all physical work is complete except for punch list items. Physical completion occurs when all physical work is done, and the contractor has no work left to do at the site.

Final acceptance occurs when the District formally accepts the work as complete. Before this occurs, the contracting agency must verify that all documentation required by the contract and by law has been furnished by the contractor – including approved prevailing wage statements and affidavits for the contractor and all subcontractors. After final acceptance of any project over $35,000, the District must file a Notice of Completion with the Department of Revenue ("DOR"), Department of Labor and Industries ("L&I"), and Employment Security Department ("ESD"). If any of those entities report that there are unpaid taxes or fees, the District must pay the missing amount to the State within 10 days and subtract it from the retainage.

Before releasing retainage, the District must have the following documents in its files:

- Statements of Intent to Pay Prevailing Wages, approved by L&I
- Affidavits of Wages Paid, approved by L&I
- And, for contracts over $35,000, the agency must also obtain these documents:
    - Certificate of Payment of State Excise Taxes by Public Works Contractor, issued by DOR
    - Certificate of Payment of Contribution, Penalties, and Interest on Public Works Contract, issued by ESD
    - Certificate of Release, issued by L&I Contract Release/Industrial Insurance

Construction project files must be retained for six years after completion of the project or the terms of the grant agreement, whichever is later. The files are then transferred to Washington State Archives.

10. GLOBAL PARTNERSHIPS

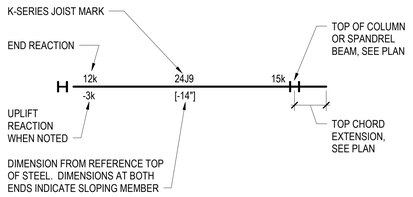
As an industry leader, Oak View Group administers best in class operations, sales, and marketing strategies in close collaboration with its corporate partners. In every contractual relationship, Oak View Group partners with its national product and service providers to develop customized sponsorship packages from its valuable asset base. Oak View Group's vast experience in live sports and entertainment allows it to successfully develop, forecast, and customize direct to consumer and business to business brand awareness programs across all mediums that efficiently and effectively contribute to each of our partners' sales and market growth strategies. Throughout these programs, partners receive premium service in every regard when partnering with Oak View Group. Furthermore, partner companies receive relationship prioritization as well as consideration in Oak View Group's domestic and international growth and expansion opportunities which have been consistent and rapidly thriving since Oak View Group's inception over 9 years ago.

a. Describe your top five existing partnerships / sponsorships where marketing, hospitality, and advertising arrangements are in place.
b. Describe your approach regarding an initial commitment percentage and/or dollar value for facility. Any sponsorship / partnership commitments proposed will be taken into consideration during the bidding process.

EXHIBIT A

&	AND
@	AT
° DEG	DEGREE
ø, DIA	DIAMETER
#	NUMBER, POUND
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
ADJ	ADJACENT
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL
AGGR	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APA	AMERICAN PLYWOOD ASSOCIATION
APPD	APPROVED
APPROX	APPROXIMATE
AR	ANCHOR RODS
ARCH	ARCHITECTURAL; ARCHITECT
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BAL	BALANCE
BD	BOARD
BF	BRACED FRAME
BLDG	BUILDING
BLK	BLOCK; BLOCKING
BM	BEAM
BMU	BRICK MASONRY UNIT
BOS	BOTTOM OF STEEL; BOSOM (WELD)
BOT	BOTTOM
BRB	BUCKLING RESTRAINED BRACE
BRCG	BRACING
BRG	BEARING
BRKT	BRACKET
BSMT	BASEMENT
BTWN	BETWEEN
BU	BUILT-UP
c	CAMBER
C	STANDARD CHANNEL
CANT	CANTILEVER
CC	CENTER TO CENTER
CFS	COLD-FORMED STEEL
CG	CENTER OF GRAVITY
CIP	CAST-IN-PLACE
CJ	CONSTRUCTION JOINT
CJP	COMPLETE JOINT PENETRATION WELD
CL	CENTERLINE
CLR	CLEARANCE; CLEAR
CLT	CROSS LAMINATED TIMBER
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMP	COMPRESSION
CONC	CONCRETE
CONFIG	CONFIGURATION
CONN	CONNECTION; CONNECT
CONST	CONSTRUCTION
CONT	CONTINUE; CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE; COORDINATION
CORR	CORRUGATED
CTR	CENTER
CTSK	COUNTERSINK; COUNTERSUNK
CU	CUBIC
d	PENNY (NAIL)
db	NOMINAL BAR DIAMETER (INCHES)
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DC	DEMAND CRITICAL WELD
DEG, °	DEGREE
DEMO	DEMOLISH; DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DIA, ø	DIAMETER
DIAG	DIAGONAL
DIAPH	DIAPHRAGM
DICA	DRILLED-IN CONCRETE ANCHOR
DIM	DIMENSION
DISC	DISCONTINUED; DISCONTINUOUS
DL	DEAD LOAD
DLT	DOWEL; LAMINATED TIMBER
DN	DOWN
DO	DO OVER; DITTO
DWG	DRAWING
DWL	DOWEL
(E)	EXISTING
E	EAST
E-W	EAST-WEST
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMBED	EMBEDDED
ENGR	ENGINEER
EQ	EQUAL; EARTHQUAKE
EQUIP	EQUIPMENT
ES	EACH SIDE
ETC	ET CETERA
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
EXTD	EXTEND; EXTENDED
F	DEGREES FAHRENHEIT
FD	FLOOR DRAIN
FDN	FOUNDATION
FF	FAR FACE
FG	FRICTION GRIP BOLT
FIN	FINISH
FL	FLOOR; FLOOR LINE
FLG	FLANGE
FOS	FACE OF STUD
FP	FIREPROOF; FULL PENETRATION
FRMG	FRAMING
FS	FULL SIZE; FAR SIDE
FT	FOOT; FEET; FINGER TIGHT
FTG	FOOTING
FV	FIELD VERIFY
GA	GAGE, GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GFRC	GLASS FIBER REINFORCED CONCRETE
GL	GLUED LAMINATED (BEAM)
GR	GRADE
GRND	GROUND
H	HORIZONTAL
HEF	HORIZONTAL EACH FACE
HGR	HANGER
HIF	HORIZONTAL INSIDE FACE
HOF	HORIZONTAL OUTSIDE FACE
HORIZ	HORIZONTAL
HP	HP SHAPES; HIGH POINT
HS	HIGH STRENGTH
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
ICC	INTERNATIONAL CODE COUNCIL
ID	INSIDE DIAMETER
IN	INCH
INCL	INCLUDE
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
JST	JOIST
JT	JOINT
K	KIP (1,000 POUNDS)
KO	KNOCK-OUT
KSI	KIPS PER SQUARE INCH
L	ANGLE
LAB	LABORATORY
LB, #	POUND
LF	LINEAL FOOT
LIN	LINEAL; LINEAR
LL	LIVE LOAD
LLBB	LONG LEGS BACK-TO-BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION; LOCATE
LONGIT	LONGITUDINAL
LP	LOW POINT
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
LSL	LONG SLOTTED (HOLES)
LSW	LIGHT GAGE SHEAR WALL
LTWT	LIGHTWEIGHT
LVL	LEVEL
LWC	LIGHTWEIGHT CONCRETE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MISCELLANEOUS CHANNEL
MECH	MECHANICAL
MEMB	MEMBRANE
MEP	MECHANICAL/ ELECTRICAL / PLUMBING
MEZZ	MEZZANINE
MF	MOMENT FRAME
MFB	MOMENT FRAME BEAM
MFC	MOMENT FRAME COLUMN
MFR	MANUFACTURE; MANUFACTURER
MFRG	MANUFACTURING
MIN	MINIMUM; MINUTE
MISC	MISCELLANEOUS
ML	MATCH LINE
MO	MASONRY OPENING
MS	MECHANICAL SPLICE
N	NORTH
N-S	NORTH-SOUTH
NF	NEAR FACE
NIC	NOT IN CONTRACT
NLT	NAIL LAMINATED TIMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMALWEIGHT CONCRETE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPNG	OPENING
OPP	OPPOSITE (HAND)
OPT	OPTION; OPTIONAL
OVS	OVERSIZED (HOLES)
OWJ	OPEN WEB JOIST
P	PIPE
PC	PRECAST
PCF	POUNDS PER CUBIC FOOT
PCP	PRECAST CONCRETE PANEL
PEN	PENETRATION
PERP	PERPENDICULAR
PH	PENTHOUSE
PJP	PARTIAL JOINT PENETRATION WELD
PL	PLATE
PLC	PLACE
PLF	POUNDS PER LINEAL FOOT
PLYWD	PLYWOOD
PREFAB	PREFABRICATED
PS	PRESTRESSED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POST-TENSIONED
PV	PHOTOVOLTAICS
PVC	POLYVINYL CHLORIDE
R	RADIUS
RB	RISER BAR
RC	REINFORCED CONCRETE
RCMD	RECOMMEND
REF	REFERENCE
REINF	REINFORCE; REINFORCING; REINFORCEMENT
REQD	REQUIRED
REQT	REQUIREMENT
S1S	SURFACED ONE SIDE
S2S	SURFACED TWO SIDES
S4S	SURFACED FOUR SIDES
S	AMERICAN STANDARD SHAPE; SOUTH
SB	SPACER BAR; SUPPORT BAR
SC	SLIP CRITICAL
SCC	STRUCTURAL CONSULTANT TO THE CONTRACTOR
SCHED	SCHEDULE, SCHEDULED
SDQ	SPECIAL DUCTILE QUALITY
SECT	SECTION
SEOR	STRUCTURAL ENGINEER OF RECORD
SFRS	SEISMIC FORCE-RESISTING SYSTEM
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SLBB	SHORT LEGS BACK-TO- BACK
SOG	SLAB ON GRADE
SOSD	SLAB ON STEEL DECK
SP	SPIRAL
SPC	SPACE
SPCG	SPACING
SPEC	SPECIFICATION
SQ	SQUARE
SSL	SHORT SLOTTED (HOLES)
STD	STANDARD
STIFF	STIFFENER
STIRR	STIRRUP
STL	STEEL
STR	STRAIGHT
STRUC	STRUCTURAL
SUPT	SUPPORT
SW	SHEAR WALL
SYM	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
T&R	TREAD AND RISER
TBD	TO BE DETERMINED
TEMP	TEMPERATURE; TEMPORARY
THK	THICK; THICKNESS
THRU	THROUGH
TOC	TOP OF CURB; TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TRANS	TRANSVERSE
TYP	TYPICAL
UB	UNIVERSAL BEAM
UBC	UNIFORM BUILDING CODE
UC	UNIVERSAL COLUMN
UL	UNDERWRITERS' LABORATORY, INC.
UNO	UNLESS NOTED OTHERWISE
UT	ULTRASONIC TEST
V, VERT	VERTICAL
VEF	VERTICAL EACH FACE
VG	VERTICAL GRAIN
VIF	VERTICAL INSIDE FACE
VOF	VERTICAL OUTSIDE FACE
W	WIDE FLANGE; WIDE; WEST
W/	WITH
W/O	WITHOUT
WD	WOOD
WF	WIDE FLANGE
WH	WEEP HOLE
WL	WORK LINE
WP	WORK POINT; WEB PERPENDICULAR
WPJ	WEAKENED PLANE JOINT
WT	WEIGHT; STRUCTURAL TEE CUT FROM W SHAPE
WV	WEB VERTICAL
WWR	WELDED WIRE REINFORCING
YD	YARD

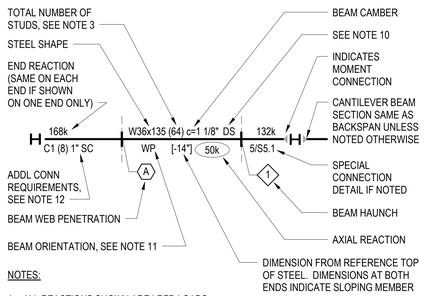
16 ABBREVIATIONS



NOTES:

1. REACTIONS SHOWN INDICATE LRFD LOADS. NEGATIVE REACTIONS INDICATE NET WIND UPLIFT.
2. "VS" INDICATES 2.5VS8 BY JOIST MANUFACTURER.

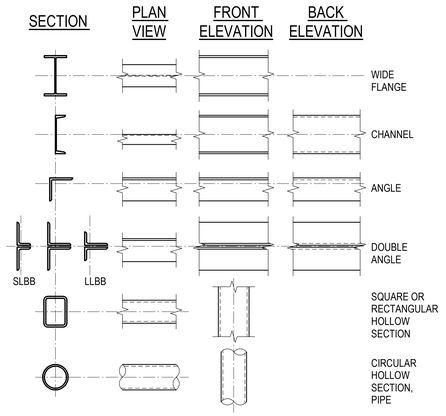
2 JOIST CALLOUT KEY



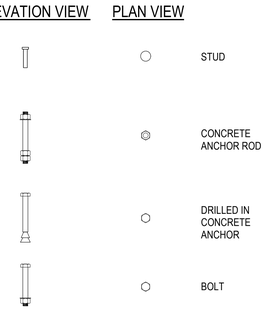
NOTES:

1. ALL REACTIONS SHOWN ARE LRFD LOADS.
2. NO REACTION AT EITHER END INDICATES MINIMUM CONNECTION FOR BEAM DEPTH WITH A MINIMUM CAPACITY OF 10 KIPS. SEE "GENERAL NOTES FOR STEEL CONNECTIONS".
3. SPACE STUDS PER "TYPICAL SHEAR STUD PLACEMENT" DETAIL. WHERE NO STUD COUNT IS SHOWN, PROVIDE MINIMUM NUMBER OF STUDS AS REQUIRED BY THE "GENERAL NOTES".
4. "M" IN PLACE OF STEEL SHAPE INDICATES W10x12 WITH MINIMUM CONNECTION.
5. "E" IN PLACE OF STEEL SHAPE INDICATES FRAMING PER "TYPICAL EXTENDED DECK EDGE" DETAILS.
6. WHERE NO BEAM SIZE IS CALLED OUT ADJACENT TO FLOOR OR ROOF OPENING, REFER TO TYPICAL STEEL DETAILS FOR SIZES AND CONNECTIONS.
7. (A) INDICATES BEAM WEB PENETRATION PER "TYPICAL BEAM WEB PENETRATION DETAILS".
8. (1) INDICATES BEAM HAUNCH PER "TYPICAL HAUNCHED BEAM DETAILS".
9. (50k) INDICATES AXIAL FORCE AT EACH END CONNECTION. '+' DENOTES A COMPRESSIVE FORCE, AND '-' DENOTES A TENSILE FORCE; WHERE NO SIGN IS SHOWN THE AXIAL FORCE SHALL BE CONSIDERED TO ACT IN BOTH TENSION AND COMPRESSION. UNLESS OTHERWISE NOTED, THE AXIAL FORCE ACTS CONCURRENTLY WITH OTHER CONNECTION LOADS SHOWN.
10. "DS" INDICATES DIAPHRAGM BOUNDARY MEMBER SUCH AS DRAG STRUT, COLLECTOR, DIAPHRAGM CHORD, ETC. SUCH MEMBERS ARE PART OF THE SEISMIC FORCE-RESISTING SYSTEM.
11. THE FOLLOWING DESIGNATIONS INDICATE MEMBER ORIENTATION WHERE NOTED:
    WP - BEAM IS ORIENTED WITH WEB PERPENDICULAR TO SLAB OR DECK.
    WV - BEAM IS ORIENTED WITH WEB VERTICAL.
    (FLAT) - MEMBER IS ORIENTED WITH WEB HORIZONTAL. FOR HSS, THIS INDICATES THE MEMBER IS ORIENTED WITH THE WIDE FACE HORIZONTAL.
12. THE FOLLOWING DESIGNATIONS INDICATE ADDITIONAL CONNECTION REQUIREMENTS APPLIED TO THE END OF THE BEAM WHERE NOTED:
    C# - TYPICAL STEEL BEAM CONNECTION DETAIL
    (#) - NUMBER OF BOLTS REQUIRED, WHERE DIFFERENT FROM MINIMUM REQUIRED BY NOTED DETAIL.
    X" - BOLT DIAMETER REQUIRED, WHERE DIFFERENT FROM MINIMUM REQUIRED BY NOTED DETAIL. WHERE A DIAMETER IS NOT NOTED, IT SHALL BE PER THE REQUIREMENTS OF THE NOTED DETAIL.
    A307, GR A, GR B - BOLT GRADE REQUIRED, WHERE DIFFERENT THAN NOTED DETAIL.
    ADDITIONAL BOLT DESIGNATIONS ARE PER THE GENERAL NOTES.

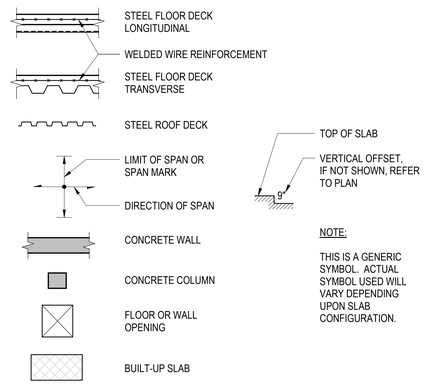
12 BEAM CALLOUT KEY



3 STEEL MEMBERS



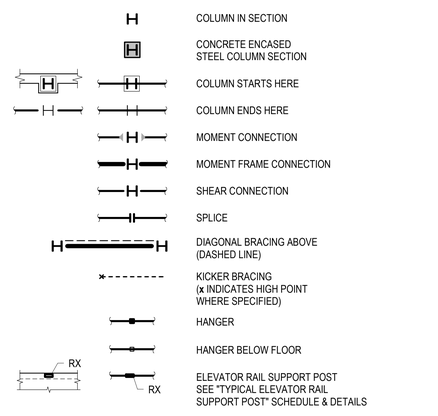
8 CONNECTORS



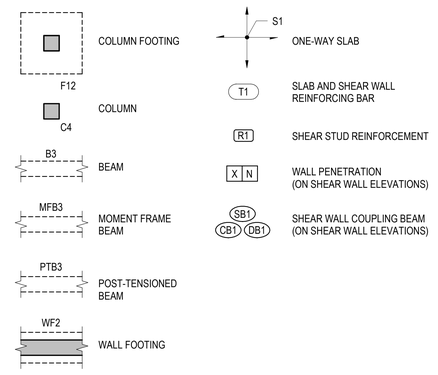
NOTE:

THIS IS A GENERIC SYMBOL. ACTUAL SYMBOL USED WILL VARY DEPENDING UPON SLAB CONFIGURATION.

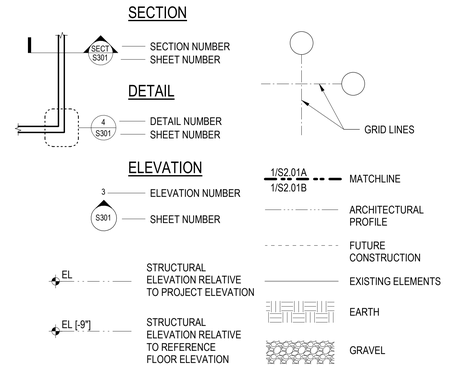
13 CONCRETE SYMBOLS



4 STEEL SYMBOLS



9 CONCRETE SCHEDULE MARKS



14 MISCELLANEOUS SYMBOLS

DRAWING LIST

NUMBER	NAME
S0.01	ABBREVIATIONS AND LEGENDS
S0.02	GENERAL NOTES
S1.01	RIGGING PLANS
S2.01	BOTTOM CHORD ROOF FRAMING PLAN
S2.11	ENLARGED BOTTOM CHORD ROOF FRAMING PLAN
S3.01	TRUSS ELEVATIONS
S4.21	STEEL DETAILS

5 DRAWING LIST

Angel of the Winds Arena Rigging

MAGNUSSON KLEMENCIC ASSOCIATES

Job Number:

NO.	Date	Description

Designed By: MEB
Drawn By: JB
Checked By: BAD
Date: 10/21/2026

ABBREVIATIONS AND LEGENDS

S0.01

GENERAL

ALL TYPICAL DETAILS AND NOTES SHOWN ON DRAWINGS SHALL APPLY UNLESS NOTED OTHERWISE. TYPICAL DETAILS MAY NOT NECESSARILY BE INDICATED ON THE PLANS BUT SHALL STILL APPLY AS SHOWN OR DESCRIBED IN THE DETAILS. WHERE TYPICAL DETAILS ARE NOTED ON THE DRAWINGS, THE SPECIFIED TYPICAL DETAIL SHALL BE USED. WHERE NO DETAIL IS NOTED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHOOSE THE APPROPRIATE TYPICAL DETAIL FROM THOSE PROVIDED. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED ALTERNATE TYPICAL DETAILS TO THOSE PROVIDED WITH RELATED CALCULATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO SHOP DRAWING PRODUCTION AND FIELD USE.

3D VIEWS (INCLUDING AXONOMETRICS, ISOMETRICS, PERSPECTIVES, ETC.) ARE PROVIDED FOR REFERENCE PURPOSES ONLY. IN THE EVENT OF ANY DISCREPANCIES BETWEEN INFORMATION REPRESENTED BY BOTH A 3D VIEW AND BY A NON-3D VIEW WITHIN THE CONSTRUCTION DOCUMENTS, THE NON-3D VIEW SHALL GOVERN IN ALL CASES. INFORMATION REPRESENTED BY 3D VIEWS BUT NOT REPRESENTED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS IS NOT INTENDED TO BE PART OF THE CONSTRUCTION DOCUMENTS.

BUILDING CODE

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE BUILDING CODE. THE PUBLICATIONS LISTED BELOW ARE THE GOVERNING CODES AND STANDARDS AND ARE REFERENCED BY THEIR BASIC DESIGNATION. IN THE CASE OF CONFLICTING REQUIREMENTS, THE BUILDING CODE SHALL GOVERN.

APPLICABLE CODES AND STANDARDS

BUILDING CODE	INTERNATIONAL BUILDING CODE (IBC), 2021 EDITION (INCLUDING THE WASHINGTON STATE AMENDMENTS)
	INTERNATIONAL EXISTING BUILDING CODE (IEBC), 2021 EDITION
RCSC	RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS, "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS," 2014 EDITION
AISC 360	AMERICAN INSTITUTE OF STEEL CONSTRUCTION, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," 2016 EDITION
AISI S100	AMERICAN IRON AND STEEL INSTITUTE, "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS," 2016 EDITION (REAFFIRMED 2020) WITH SUPPLEMENT 2, 2020 ADDITION
ASCE 7	AMERICAN SOCIETY OF CIVIL ENGINEERS, "MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES," 2016 EDITION, INCLUDING SUPPLEMENT NO. 1
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM INTERNATIONAL)
AWS A2.4	AMERICAN WELDING SOCIETY, "STANDARD SYMBOLS FOR WELDING, BRAZING, AND NONDESTRUCTIVE EVALUATION," 2020 EDITION
AWS D1.1	AMERICAN WELDING SOCIETY, "STRUCTURAL WELDING CODE - STEEL," 2015 EDITION
AWS D1.3	AMERICAN WELDING SOCIETY, "STRUCTURAL WELDING CODE - SHEET STEEL," 2008 EDITION
AWS D1.4	AMERICAN WELDING SOCIETY, "STRUCTURAL WELDING CODE - REINFORCING STEEL INCLUDING METAL INSERTS AND CONNECTIONS IN REINFORCED CONCRETE CONSTRUCTION," 2018 EDITION
AWS D1.8	AMERICAN WELDING SOCIETY, "STRUCTURAL WELDING CODE - SEISMIC SUPPLEMENT," 2016 EDITION
ICC	INTERNATIONAL CODE COUNCIL, INTERNATIONAL CODE COUNCIL - EVALUATION SERVICES (ICC-ES)
IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS – UNIFORM EVALUATION SERVICE (IAPMO-UES)

STRUCTURAL DESIGN DATA

BUILDING LOCATION: LATITUDE: 47.9786° N
LONGITUDE: -122.2032° W

LOAD COMBINATIONS: LOAD COMBINATIONS ARE IN ACCORDANCE WITH SECTION 1605 OF THE BUILDING CODE.

LIVE LOADS: LIVE LOADS SHALL BE IN ACCORDANCE WITH THE LOAD DIAGRAMS.

SEISMIC LOADS: SEISMIC LOADING SHALL BE IN ACCORDANCE WITH THE BUILDING CODE.

RISK CATEGORY: III

IMPORTANCE FACTOR: Ie = 1.25

SITE CLASS: D

SPECTRAL RESPONSE COEFFICIENTS: Sds = 0.991, Sd1 = 0.5456

SEISMIC DESIGN CATEGORY: D

STRUCTURAL STEEL

ALL STEEL SHALL CONFORM TO THE FOLLOWING:

W-SHAPES	ASTM A992, Fy=50 KSI ASTM A913, Fy=50 KSI
W-SHAPES CALLED OUT ON PLANS AS (Fy=65 KSI)	ASTM A913, Fy=65 KSI
ANGLES	ASTM A572, Fy=50 KSI
CHANNELS	ASTM A992, Fy=50 KSI
SQUARE OR RECTANGULAR STRUCTURAL TUBE (HSS)	ASTM A500, GRADE C, Fy=50 KSI
ROUND STRUCTURAL TUBE (HSS)	ASTM A500, GRADE C, Fy=46 KSI
STEEL PIPE DIAMETER LESS THAN OR EQUAL TO 12 INCHES	ASTM A53, TYPE E OR S, GRADE B, Fy=35 KSI
STEEL PLATE	ASTM A572, Fy=50 KSI
MATERIAL CALLED OUT ON PLANS AS (Fy=36 KSI)	ASTM A36, Fy=36 KSI
MATERIAL CALLED OUT ON PLANS AS (Fy=65 KSI)	ASTM A572, Fy=65 KSI
ALL OTHER STEEL UNLESS NOTED OTHERWISE	ASTM A572, Fy=50 KSI ASTM A588, Fy=50 KSI

GENERAL NOTES FOR STEEL CONNECTIONS SHALL APPLY TO ALL STEEL CONNECTIONS UNLESS NOTED OTHERWISE.

THE PRIMARY STEEL STRUCTURE IS DESIGNED USING THE LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD.

ALL WORK SHALL BE IN ACCORDANCE WITH THE AISC SPECIFICATION. SHOP DRAWINGS SHALL BE SUBMITTED AND REVIEWED BY THE ARCHITECT/ENGINEER BEFORE COMMENCING FABRICATION. ALL STEEL ANCHORS AND TIES AND OTHER MEMBERS EMBEDDED IN CONCRETE OR MASONRY SHALL BE LEFT UNPAINTED. DIMENSIONAL TOLERANCE FOR BUILT-UP MEMBERS SHALL BE PER AWS D1.1.

ASTM A6 HOT-ROLLED SHAPES HAVING FLANGE THICKNESSES IN EXCESS OF 2 INCHES AND SPLICES OR CONNECTIONS MADE USING COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE CHARPY V—NOTCH TESTING PROVIDED IN ACCORDANCE WITH ASTM A6 SUPPLEMENTARY REQUIREMENT S30 WITH A MINIMUM VALUE OF 20 FOOT—POUNDS AT 70 DEGREES FAHRENHEIT.

STEEL BEAMS ARE EQUALLY SPACED BETWEEN DIMENSION POINTS AT THE MAXIMUM DECK SPAN LOCATION, UNLESS NOTED OTHERWISE. FREE ENDS OF CANTILEVERED FRAMING SHALL EXTEND PAST INCOMING FRAMING SUFFICIENT TO ACCEPT INCOMING CONNECTIONS, BUT NOT FURTHER THAN THE EDGE OF ADJACENT BEAM FLANGES. STEEL BEAMS ARE ORIENTED WITH THE BEAM WEB VERTICAL, UNLESS NOTED OTHERWISE. HSS ARE ORIENTED WITH THE WIDE FACE VERTICAL, UNLESS NOTED OTHERWISE. MINIMUM CONNECTIONS SHALL BE A TWO-BOLT CONNECTION USING HIGH-STRENGTH BOLTS IN SINGLE SHEAR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERECTION AIDS THAT INCLUDE, BUT ARE NOT LIMITED TO, ERECTION ANGLES, LIFT HOLES, AND OTHER AIDS.

STRUCTURAL STEEL BOLTING

ALL BOLTS 7/8-INCH DIAMETER AND SMALLER SHALL BE GROUP A HIGH-STRENGTH BOLTS AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.

ALL BOLTS 1-INCH DIAMETER AND LARGER SHALL BE GROUP B HIGH-STRENGTH BOLTS AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.

EITHER HEAVY HEX OR TENSION-CONTROL BOLTS MAY BE USED AT THE CONTRACTOR'S OPTION. ALL HIGH-STRENGTH BOLTS SHALL BE INSTALLED, TIGHTENED, AND INSPECTED IN ACCORDANCE WITH THE RCSC.

BOLTS DESIGNATED "A307" IN THE DRAWINGS REFER TO ASTM A307 BOLTS. INSTALL A307 BOLTS TO SNUG-TIGHT CONDITION UNLESS NOTED OTHERWISE AND PROVIDE LOCK WASHERS UNDER NUTS OR SELF-LOCKING NUTS. WHERE A307 BOLTS OCCUR IN SLOTTED HOLES, PROVIDE WASHERS TO COMPLETELY COVER THE HOLES.

BOLTS DESIGNATED "THRU" IN THE DRAWINGS REFER TO ASTM A307 BOLTS, UNLESS NOTED OTHERWISE. ALL "THRU" BOLTS ARE INSTALLED TO FINGER-TIGHT REQUIREMENTS UNLESS NOTED OTHERWISE.

HIGH-STRENGTH BOLT THREADS ARE ALLOWED IN THE SHEAR PLANE EXCEPT WHERE DESIGNATED "X" IN THE DRAWINGS.

ALL HIGH-STRENGTH BOLTED CONNECTIONS SHALL BE PRETENSIONED, UNLESS NOTED OTHERWISE. PRETENSIONED AND SLIP-CRITICAL CONNECTIONS MAY USE TURN-OF-NUT PRETENSIONING, TWIST-OFF-TYPE TENSION-CONTROL BOLT PRETENSIONING, OR DIRECT-TENSION-INDICATOR PRETENSIONING.

BOLTS IN CONNECTIONS OF BEAM-TO-BEAM/GIRDER MAY BE SNUG-TIGHT, UNLESS SPECIFICALLY CALLED OUT PRETENSIONED, SLIP-CRITICAL, OR FINGER-TIGHT. SNUG-TIGHT CONNECTIONS SHALL BE INSTALLED PER THE CRITERIA FOR SNUG-TIGHT BOLTS PER THE RCSC.

CONNECTIONS (OR JOINTS) DESIGNATED "SC" IN THE DRAWINGS SHALL HAVE BOLTS INSTALLED TO SLIP-CRITICAL REQUIREMENTS WITH CLASS A FAYING SURFACES. CONNECTIONS DESIGNATED "SCB" IN THE DRAWINGS SHALL HAVE BOLTS INSTALLED TO SLIP-CRITICAL REQUIREMENTS WITH CLASS B FAYING SURFACES. WHERE SHIMS OR FILLERS ARE REQUIRED TO MAKE A SLIP-CRITICAL CONNECTION, A SINGLE PLY FILLER SHALL BE USED BETWEEN CONNECTING PARTS, UNLESS NOTED OTHERWISE. ALL SURFACES OF FILLERS IN SLIP-CRITICAL JOINTS SHALL HAVE FAYING SURFACES MATCHING THE DESIGNATED FAYING SURFACE CLASS.

CONNECTIONS DESIGNATED "FT" IN THE DRAWINGS SHALL HAVE BOLTS INSTALLED TO FINGER-TIGHT REQUIREMENTS. WHERE FINGER-TIGHT CONNECTIONS ARE NOTED, NUTS SHALL BE HAND-TIGHTENED AND THEN BACKED OFF ONE-QUARTER TURN. DEFORM THE BOLT THREADS, PROVIDE A LOCKING NUT, OR PROVIDE A JAMB NUT TO ENSURE THE NUT IS UNABLE TO BACK OFF FURTHER.

ALL HIGH-STRENGTH BOLTS SHALL HAVE WASHERS INSTALLED PER THE RCSC, UNLESS NOTED OTHERWISE.

ALL BOLT HOLES SHALL BE STANDARD SIZE, UNLESS NOTED OTHERWISE. CENTER FINGER-TIGHT BOLTS IN SLOTS AT LONG SLOTS, UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL WELDING

STRUCTURAL STEEL SHOP DRAWINGS SHALL SHOW ALL WELDING WITH AWS A2.4 SYMBOLS. ALL WELDING SHALL BE PERFORMED BY WELDERS WHO ARE CERTIFIED BY AWS AND MEET THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION, AND IN ACCORDANCE TO AWS D1.1. WELDS SHOWN ON THE DRAWINGS ARE THE MINIMUM SIZES. INCREASE WELD SIZE TO AWS MINIMUM SIZES, BASED ON PLATE THICKNESS. THE MINIMUM WELD SIZE SHALL BE 3/16 INCH. FIELD WELDING SYMBOLS HAVE NOT NECESSARILY BEEN INDICATED ON THE DRAWINGS. WHERE SHOWN, PROPER FIELD WELDING PER AWS D1.1 SHALL BE USED. WHERE NO FIELD WELDING SYMBOLS ARE SHOWN, IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE USE OF SHOP AND FIELD WELDS. ALL PARTIAL JOINT PENETRATION GROOVE WELD SIZES SHOWN ON THE DRAWINGS REFER TO EFFECTIVE THROAT THICKNESS. FLARE-GROOVE WELDS SHALL BE FILLED FULL TO MAXIMUM EFFECTIVE THROAT USING ANY OF THE PREQUALIFIED WELDING PROCESSES PER AISC 360-16 TABLE J2.2, UNLESS NOTED OTHERWISE. FOR BASE METALS WITH MAXIMUM YIELD STRENGTH EQUAL TO 50 KSI, ALL WELDS SHALL BE MADE USING LOW HYDROGEN ELECTRODES WITH MINIMUM TENSILE STRENGTH PER AWS D1.1 (MINIMUM 70 KSI). FOR BASE METALS WITH YIELD STRENGTH HIGHER THAN 50 KSI, ALL WELDS SHALL BE MADE USING LOW HYDROGEN ELECTRODES FROM WITHIN THE SAME GROUP PER AWS D1.1 TABLE 3.1. LOW HYDROGEN SMAW ELECTRODES SHALL BE STORED IN AN OVEN OR USED WITHIN THE ATMOSPHERIC TIME PERIODS SPECIFIED IN AWS D1.1 TABLE 5.1, OR SHALL BE REBAKED PER AWS D1.1 CLAUSE 5.3. ELECTRODES SHALL BE REBAKED NO MORE THAN ONE TIME, AND ELECTRODES THAT HAVE BEEN WET SHALL NOT BE USED.

FILLER METALS FOR ALL COMPLETE JOINT PENETRATION GROOVE WELDED T- AND CORNER JOINTS WITH BACKING LEFT IN PLACE AND COMPLETE JOINT PENETRATION GROOVE WELDED SPLICES IN HEAVY SECTIONS AS DEFINED IN AISC 360 A3.1d SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FOOT-POUNDS AT 40 DEGREES FAHRENHEIT.

ALL WELDING SHALL BE PERFORMED IN STRICT ADHERENCE TO A WRITTEN WELDING PROCEDURE SPECIFICATION (WPS) PER AWS D1.1. ALL WELDING PARAMETERS SHALL BE WITHIN THE ELECTRODE MANUFACTURER'S RECOMMENDATIONS. WELDING PROCEDURES SHALL BE SUBMITTED TO THE OWNER'S TESTING AGENCY FOR REVIEW PRIOR TO STARTING FABRICATION OR ERECTION. COPIES OF THE WPS SHALL BE ON SITE AND AVAILABLE TO ALL WELDERS AND THE SPECIAL INSPECTOR.

ALL COMPLETE JOINT PENETRATION WELDS SHALL BE ULTRASONICALLY TESTED UPON COMPLETION OF THE CONNECTION, EXCEPT PLATE LESS THAN OR EQUAL TO 1/4 INCH THICK, WHICH SHALL BE MAGNETIC PARTICLE TESTED. REDUCTION IN TESTING MAY BE MADE IN ACCORDANCE WITH THE BUILDING CODE WITH APPROVAL OF THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE JOINT PREPARATIONS AND WELDING PROCEDURES THAT INCLUDE, BUT ARE NOT LIMITED TO: REQUIRED ROOT OPENINGS, ROOT FACE DIMENSIONS, GROOVE ANGLES, BACKING BARS, COPES, SURFACE ROUGHNESS VALUES, AND TAPERS AND TRANSITIONS OF UNEQUAL PARTS.

MISCELLANEOUS METALS

THE CONTRACTOR SHALL DESIGN AND SUPPLY ALL ADDITIONAL MISCELLANEOUS METALS THAT ARE INDICATED IN THE ARCHITECTURAL DRAWINGS OR THOSE METALS WHICH ARE FOUND TO BE NECESSARY TO SUPPORT THE ARCHITECTURAL FINISHES OR OTHER BUILDING SYSTEMS.

ALL FRAMING AND CONNECTIONS DESIGNED BY THE CONTRACTOR SHALL NOT RESULT IN ECCENTRIC LOADS BEING APPLIED TO THE PRIMARY STRUCTURE NOR LATERAL LOADS BEING APPLIED TO THE BOTTOM FLANGE OR WEB OF STEEL BEAMS. THE CONTRACTOR'S DESIGN SHALL VERIFY THAT THE CONNECTIONS DO NOT RESULT IN ADVERSE LOCAL CONNECTION STRESSES OCCURRING WITHIN THE PRIMARY STRUCTURE. SUBMIT CALCULATIONS STAMPED BY AN ENGINEER LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED AND SHOP DRAWINGS INDICATING LOADS IMPOSED ON THE PRIMARY STRUCTURE.

FALL PROTECTION SYSTEM

THE CONTRACTOR SHALL DESIGN AND PROVIDE A FALL PROTECTION SYSTEM WHERE REQUIRED. SUBMIT LOADS IMPOSED TO THE STRUCTURAL ENGINEER FOR REVIEW. LOADS SHALL NOT BE APPLIED HORIZONTALLY TO BEAM BOTTOM FLANGES OR TO TRUSS DIAGONAL OR VERTICAL MEMBERS. PROVIDE SECONDARY FRAMING FOR THE FALL PROTECTION SYSTEM AS REQUIRED PER THE CONTRACTOR DESIGN.

MECHANICAL/ELECTRICAL/PLUMBING/FIRE PROTECTION SYSTEMS

THE CONTRACTOR SHALL DESIGN AND SUPPLY ALL ADDITIONAL MISCELLANEOUS METALS AND SYSTEM SUPPORT COMPONENTS, ATTACHMENTS, AND ANCHORAGES THAT ARE NECESSARY TO SUPPORT ALL MECHANICAL, ELECTRICAL (TELECOM, AUDIO VISUAL, ETC), AND PLUMBING/FIRE-PROTECTION (MEPF) SYSTEMS AND EQUIPMENT. SUCH METALS AND SUPPORT COMPONENTS AND THEIR CONNECTIONS SHALL BE PROVIDED AS NECESSARY TO DIRECTLY AND CONCENTRICALLY IMPOSE LOADS ON THE PRIMARY STRUCTURE. THE CONNECTIONS TO THE PRIMARY STRUCTURE ARE SUBJECT TO THE REQUIREMENTS OF THE MISCELLANEOUS METALS SECTION OF THE GENERAL NOTES. THESE SYSTEMS MAY BE SUPPORTED DIRECTLY FROM STEEL ROOF DECK SUBJECT TO THE FOLLOWING LIMITATIONS UNLESS SUPERSEDED BY HIGHER LIMITS NOTED ELSEWHERE IN THE STRUCTURAL DRAWINGS: WITHIN ANY 5 FOOT BY 5 FOOT AREA 50 POUNDS MAY HANG FROM STEEL ROOF DECK. THE LOAD LIMITS NOTED ARE INCLUSIVE OF ALL BUILDING SYSTEMS BUT NOT LIMITED TO CEILINGS AND SUSPENDED STUD FRAMING. THE CONTRACTOR SHALL COORDINATE THE SUPPORT AND HANGING LOADS FROM ALL BUILDING SYSTEMS. WHERE REQUIRED BY THE BUILDING CODE, THE MEPF SYSTEM SUPPORTS SHALL ACCOMMODATE LATERAL MOVEMENTS BETWEEN ADJACENT FLOORS AS DEFINED IN THE STORY DRIFT SECTION OF THESE NOTES.

ALL PENETRATIONS AND SLEEVES NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL.

THE CONTRACTOR SHALL PROVIDE THE FOLLOWING MEPF-SYSTEM-RELATED SUBMITTALS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW OF THE LOADS IMPOSED ON THE PRIMARY STRUCTURE. SUBMITTALS SHALL BE COORDINATED TO INCLUDE ALL APPLICABLE TRADES IN A CONSOLIDATED DOCUMENT FOR EACH OF THE FOLLOWING:

SUSPENDED MEPF SYSTEM LOADS AND SUPPORT DETAILS

MEPF SYSTEM EQUIPMENT LOADS AND SUPPORT DETAILS

NONSTRUCTURAL SYSTEMS SEISMIC REQUIREMENTS

NONSTRUCTURAL SYSTEMS INCLUDE PERMANENTLY ATTACHED ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND ELEVATOR COMPONENTS AND THEIR CONNECTIONS TO THE STRUCTURE.

THE CONTRACTOR SHALL DESIGN SUPPORT SYSTEMS, SEISMIC BRACING, AND ANCHORAGES TO RESIST SELF-WEIGHT, SEISMIC FORCES, AND OTHER LOADING WHERE APPLICABLE. SYSTEMS SHALL ACCOMMODATE LATERAL MOVEMENTS BETWEEN ADJACENT FLOORS AS DEFINED IN THE STORY DRIFT SECTION OF THESE NOTES WHERE REQUIRED BY THE BUILDING CODE. WHERE SEISMIC DESIGN IS REQUIRED, THE CONTRACTOR SHALL EMPLOY A REGISTERED ENGINEER, LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED, TO DESIGN ALL STRUCTURAL ELEMENTS OF THE SEISMIC BRACING SYSTEM. THIS ENGINEER SHALL PREPARE, STAMP, AND SIGN REQUIRED STRUCTURAL DRAWINGS AND CALCULATIONS. IBC SECTION 1613.1 AND ASCE 7 CHAPTER 13, SHALL DEFINE THE MINIMUM REQUIREMENTS FOR SEISMIC DESIGN OF NONSTRUCTURAL SYSTEMS.

SEISMIC DESIGN CRITERIA FOR NONSTRUCTURAL SYSTEMS CAN BE FOUND IN THE STRUCTURAL DESIGN DATA SECTION OF THESE NOTES. ALL NON-EXEMPT SYSTEMS AND COMPONENTS DEEMED TO BE CRITICAL SHALL BE ASSIGNED A COMPONENT IMPORTANCE FACTOR (I_P) OF 1.5 PER ASCE 7 CHAPTER 13.1.3. THESE SHALL INCLUDE SYSTEMS AND COMPONENTS REQUIRED TO FUNCTION FOR LIFE SAFETY PURPOSES AFTER AN EARTHQUAKE, SYSTEMS AND COMPONENTS CONTAINING HAZARDOUS, TOXIC, OR EXPLOSIVE MATERIALS, SYSTEMS AND COMPONENTS NEEDED FOR CONTINUED OPERATION OF THE FACILITY, AND OTHER SYSTEMS AND COMPONENTS THAT THE OWNER HAS SPECIFIED TO BE CRITICAL. AT A MINIMUM, THE FOLLOWING ARE CONSIDERED CRITICAL:

1. FIRE PROTECTION SPRINKLER SYSTEMS

ALL OTHER NONSTRUCTURAL SYSTEMS AND COMPONENTS NOT DESIGNATED AS CRITICAL BY THE BUILDING CODE OR THE OWNER SHALL BE CONSIDERED NOT CRITICAL AND ASSIGNED AN I_P OF 1.0.

BUILDING TOLERANCES

STANDARD TOLERANCES SHALL BE BASED ON THE REQUIREMENTS OF THE AISC CODE OF STANDARD PRACTICE AND ACI 117, "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS".

STRENGTH AND STABILITY DURING CONSTRUCTION

DURING CONSTRUCTION, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE.

A COMPLETED STRUCTURE IS REQUIRED TO PROVIDE GLOBAL STABILITY, TO PROVIDE LOCAL STABILITY OF INDIVIDUAL STRUCTURAL COMPONENTS (SLABS, DECKS, BEAMS, COLUMNS, WALLS, ETC.), AND TO RESIST IMPOSED LOADS.

THE STRUCTURE WAS ANALYZED AND DESIGNED BY MKA CONSIDERING ITS COMPLETED STATE ONLY. THE DESIGN DID NOT EVALUATE PARTIALLY COMPLETED CONSTRUCTION STAGES.

THE CONTRACTOR SHALL CONSIDER ALL ASPECTS OF CONSTRUCTION SEQUENCING. CONSIDERATIONS SHALL INCLUDE BUT NOT BE LIMITED TO STEEL ERECTION AND CONCRETE PLACEMENT, CRANE REQUIREMENTS, TEMPORARY SHORING, BRACING/STRENGTHENING, BACKFILLING, DE-STRESSING TIEBACKS, TEMPORARY CONSTRUCTION LOADS, SAFETY PROCEDURES, TEMPERATURE CHANGE, AND MOISTURE EFFECTS.

THE CONTRACTOR SHALL EVALUATE THE NEED FOR AND RETAIN AS NECESSARY AN ENGINEER LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED TO REVIEW ALL STAGES OF CONSTRUCTION SEQUENCING, VALIDATE ALL TEMPORARY CONSTRUCTION LOADS, AND PREPARE A COMPREHENSIVE CONSTRUCTION/ERECTION PLAN TO ADDRESS BOTH STABILITY AND RESISTANCE TO IMPOSED LOADS UNTIL THE STRUCTURE IS COMPLETE.

TEMPORARY SUPPORTS, TEMPORARY CONNECTIONS, AND/OR CONSTRUCTION/ ERECTION AIDS SHALL BE REMOVED BY THE CONTRACTOR AFTER THEY ARE NO LONGER REQUIRED.

EXISTING STRUCTURE

EXISTING STRUCTURAL DIMENSIONS AND MEMBER SIZES ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO FABRICATION. THE CONTRACTOR SHALL VERIFY THE ACTUAL CONFIGURATION OF EXISTING CONSTRUCTION AND THE CONDITION OF THE STRUCTURE BEFORE BEGINNING WORK. ANY DISCREPANCIES OR UNSOUND CONDITIONS SHALL BE REPORTED TO THE ARCHITECT FOR RESOLUTION BEFORE BEGINNING WORK. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS, EMBEDMENTS, AND OPENINGS NOT SHOWN. REFER TO MECHANICAL AND ELECTRICAL PLANS FOR DUCTS, PIPING, EMBEDMENTS, AND OPENINGS NOT SHOWN.

TEMPORARY SHORING AND BRACING MAY BE NECESSARY IN ORDER TO PERFORM THE NECESSARY STRUCTURAL MODIFICATIONS TO THE EXISTING STRUCTURE SHOWN ON THE STRUCTURAL AND ARCHITECTURAL PLANS AND DETAILS. THE CONTRACTOR MUST RETAIN AN ENGINEER LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED, WHO SHALL INVESTIGATE WHERE THIS TEMPORARY SHORING/BRACING IS REQUIRED AND SHALL DESIGN THIS TEMPORARY SHORING/BRACING.

MISCELLANEOUS

REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, CIVIL, ELEVATOR, OR OTHER SPECIALTY ENGINEERING DRAWINGS FOR DIMENSIONS NOT SHOWN, INCLUDING BUT NOT LIMITED TO: SIZE AND LOCATION OF CURBS, EQUIPMENT HOUSEKEEPING PADS, WALL AND FLOOR OPENINGS, BLOCKOUTS, FLOOR DEPRESSIONS, SUMPS, DRAINS, ANCHOR BOLTS, EMBEDDED ITEMS, ARCHITECTURAL TREATMENT, ETC. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND RESOLVE DISCREPANCIES OR CONFLICTS PRIOR TO CONSTRUCTION.

WHERE SECTIONS ARE INDICATED ON THE PLAN BY A NUMBER AND A DRAWING NUMBER THUS, 1/S5.01, THE INDICATED SECTION (1) IS SHOWN ON STRUCTURAL DRAWING S5.01.

SHOP DRAWINGS

SHOP DRAWINGS FOR STRUCTURAL STEEL SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD; THEREFORE, THEY SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY THE ENGINEER OF RECORD. THE CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO.

SUBMITTALS SHALL BE PROVIDED ELECTRONICALLY WHENEVER POSSIBLE AND WILL BE MARKED AND RETURNED ELECTRONICALLY. WHEN HARD COPY SUBMITTALS ARE REQUIRED, ONE ORIGINAL AND ONE COPY SHALL BE PROVIDED; THE REPRODUCIBLE COPY WILL BE MARKED AND RETURNED.

SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED, AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWINGS SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.

SHOP DRAWINGS FOR DEFERRED SUBMITTALS THAT ARE DEFINED AS DESIGN-BUILD COMPONENTS IN THE CONSTRUCTION DOCUMENTS SHALL BE SEALED AND SIGNED BY AN ENGINEER LICENSED TO PERFORM WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED AND SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE PRIMARY STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON THE PRIMARY STRUCTURE. DESIGN CALCULATIONS SHALL BE INCLUDED IN THE SUBMITTAL.

DEFERRED STRUCTURAL SUBMITTALS

SOME STRUCTURAL SYSTEMS ARE DEFINED AS VENDOR-DESIGNED COMPONENTS PER THE STRUCTURAL DOCUMENTS. THESE ELEMENTS OF THE DESIGN ARE DEFERRED SUBMITTAL COMPONENTS AND HAVE NOT BEEN PERMITTED UNDER THE BASE BUILDING APPLICATION. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT THE STAMPED COMPONENT SYSTEM DOCUMENTS TO THE BUILDING OFFICIAL FOR APPROVAL.

DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT, WHO SHALL REVIEW THEM FOR GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE CONTRACTOR SHALL SUBMIT THESE REVIEWED DEFERRED SUBMITTAL DOCUMENTS TO THE BUILDING OFFICIAL. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

THE FOLLOWING LIST INCLUDES THE ITEMS THAT ARE DEFINED AS DEFERRED STRUCTURAL SUBMITTAL COMPONENTS. REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS FOR ADDITIONAL DEFERRED SUBMITTAL COMPONENTS.

DEFERRED STRUCTURAL SUBMITTAL COMPONENTS:

ANCHORAGE FOR MECHANICAL/ELECTRICAL/PLUMBING SYSTEMS

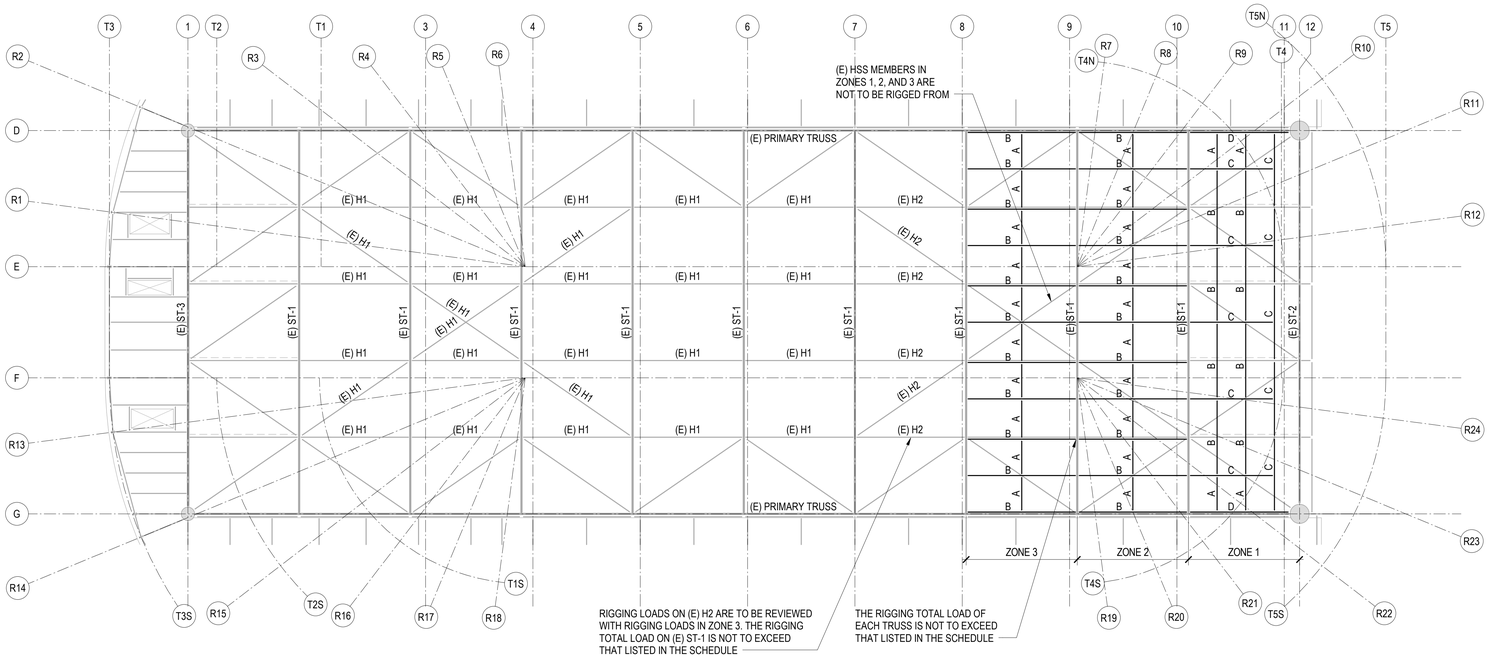
METAL STAIRS AND LANDINGS

FALL PROTECTION SYSTEM

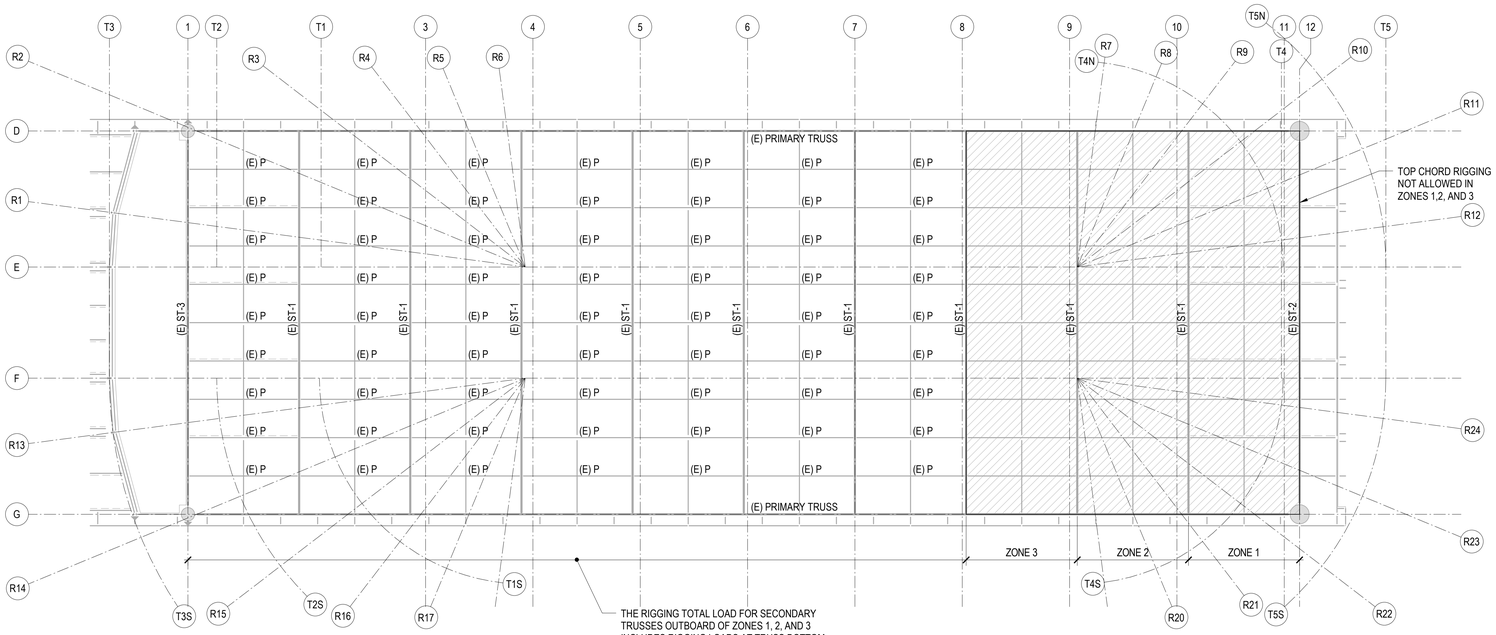
SPECIAL INSPECTION

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION AND TESTING PER IBC SECTION 1705. THIS WORK SHALL BE PERFORMED BY A SPECIAL INSPECTOR CERTIFIED BY THE CITY OF EVERETT TO PERFORM THE TYPES OF INSPECTIONS AND TESTS SPECIFIED. THE FREQUENCY OF INSPECTIONS AND TESTING SHALL BE AS OUTLINED IN THE IBC TABLE ITEMS LISTED BELOW. DEFICIENCIES SHALL BE REPORTED DAILY TO THE CONTRACTOR. SUMMARY REPORTS SHALL BE DISTRIBUTED WEEKLY TO THE OWNER, ARCHITECT, CONTRACTOR, BUILDING OFFICIAL, AND STRUCTURAL ENGINEER. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SPECIAL INSPECTION AND TESTING.

ITEM	DESCRIPTION (REFER TO IBC SECTION 1705)	IBC REFERENCE
STRUCTURAL STEEL AND WELDING	STRUCTURAL STEEL THAT IS PART OF THE STRUCTURE.	SECTION 1705.2
HIGH STRENGTH BOLTING	SEE SPECIFICATIONS FOR PROCEDURES FOR INSPECTION AND TESTING.

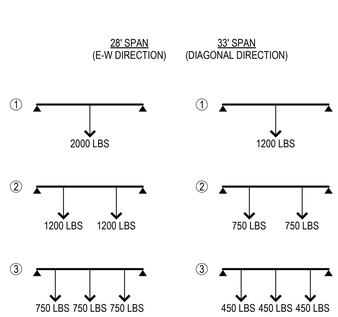


6 BOTTOM CHORD RIGGING PLAN



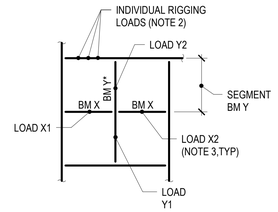
16 TOP CHORD RIGGING PLAN

(E) H1 & (E) H2
ALLOWABLE RIGGING LOADS AS FOLLOWS:



NOTES:

1. THESE LOADS COUNT TOWARD 75,000 POUNDS MAXIMUM ON SECONDARY TRUSS BOTTOM CHORD.



* BEAM Y TRIBUTARY LOAD = X1+X2+Y1+Y2
TOTAL LOAD TO BE LESS THAN SCHEDULE (NOTE 1).
SIMILAR AT MULTIPLE INFILL BEAMS AND AT LOADS TO HANGERS.

RIGGING TRIBUTARY (TRIB) LOAD APPLICATION

1. THE RIGGING TOTAL LOAD ON ANY MEMBER EQUALS THE DIRECT APPLIED LOADS + LOADS FROM ANY SUPPORTED MEMBERS. LOAD SHALL NOT EXCEED SCHEDULED TOTAL LOAD.
2. A SECONDARY TRUSS MAY HAVE A MAXIMUM OF 15,000# AT THE PANEL POINTS. WHERE RIGGING LOADS ARE APPLIED BETWEEN PANEL POINTS, THE MAXIMUM RIGGING LOADS ARE 10,000# AT A PANEL POINT, AND 5,000# BETWEEN PANEL POINTS. RIGGING LOADING ON THE SECONDARY TRUSS IS TO BE UNFORMLY DISTRIBUTED ALONG THE TRUSS. THE TOTAL LOAD IS TO BE LESS THAN THE LOAD LISTED IN THE SCHEDULE.
3. A MAXIMUM OF 120,000# PER ZONE IS PERMITED. WHERE RIGGING IN MULTIPLE ZONES OCCURS, THE TOTAL RIGGING LOAD ON A SECONDARY TRUSS IS TO BE LESS THAN THE LOAD LISTED IN THE SCHEDULE.
4. THE TOTAL ARENA ROOF RIGGING CAPACITY IS 300,000#.
5. ALL NEW RIGGING BEAMS SHALL HAVE THE FOLLOWING TEXT ON THE TOP FLANGE OF THE BEAM TO INDICATE THE RIGGING CAPACITY OF EACH MEMBER:

   RIGGING BEAMS TAGGED A ON THE RIGGING PLAN:

   MAX INDIVIDUAL RIGGING LOAD = 2,500 LBS
   MAX TOTAL RIGGING LOAD ON BEAM = 2,500 LBS

   RIGGING BEAMS TAGGED B, C, OR D ON THE RIGGING PLAN:

   MAX INDIVIDUAL RIGGING LOAD = 5,000 LBS
   MAX TOTAL RIGGING LOAD ON BEAM = XX,000 LBS

   WHERE XX,000 REPRESENTS THE TOTAL BEAM RIGGING CAPACITY PER THE "RIGGING LOAD TABLE", I.E., FOR RIGGING BEAM TYPE 'C': "MAX TOTAL RIGGING LOAD ON BEAM = 10,000 LBS".

   TEXT SHALL BE PAINTED IN WHITE WITH 2" TALL LETTERS ON THE TOP FLANGE OF THE BEAMS AND CENTERED ON THE BEAM LENGTH, UNLESS THAT LOCATION IS OBSTRUCTED, IN WHICH CASE THE TEXT SHALL BE SHIFTED TO A VISABLE SECTION OF THE TOP FLANGE.

RIGGING LOAD TABLE

ELEMENT	SIZE	TOTAL CAPACITY	REMARKS
(E) ST-1	SECONDARY TRUSS	75,000# TRIB TO TRUSS	RIGGING LOAD IS TO BE UNIFORMLY DISTRIBUTED
(E) ST-2	SECONDARY TRUSS	75,000# TRIB TO TRUSS	RIGGING LOAD IS TO BE UNIFORMLY DISTRIBUTED
(E) ST-3	SECONDARY TRUSS	75,000# TRIB TO TRUSS	RIGGING LOAD IS TO BE UNIFORMLY DISTRIBUTED
(E) P	W14X22	3,000#	SEE PLAN NOTE
(E) H1	HSS8X8X1/4	-	SEE DIAGRAM
(E) H2	HSS8X8X1/4	-	SEE DIAGRAM
A	W14X43	2,500#	BEAM MAY HAVE 2,500# TOTAL BRIDLE LOAD (AT A 45°) BETWEEN INTERSECTING BEAMS
B	W14X43	5,000#	BEAM MAY HAVE 5,000# TOTAL BRIDLE LOAD (AT A 45°) BETWEEN INTERSECTING BEAMS
C	W14X61	10,000#	
D	W14X61	15,000#	

RIGGING LOAD NOTES AND DIAGRAMS

Angel of the Winds Arena Rigging

MAGNUSSON KLEMENCIC ASSOCIATES

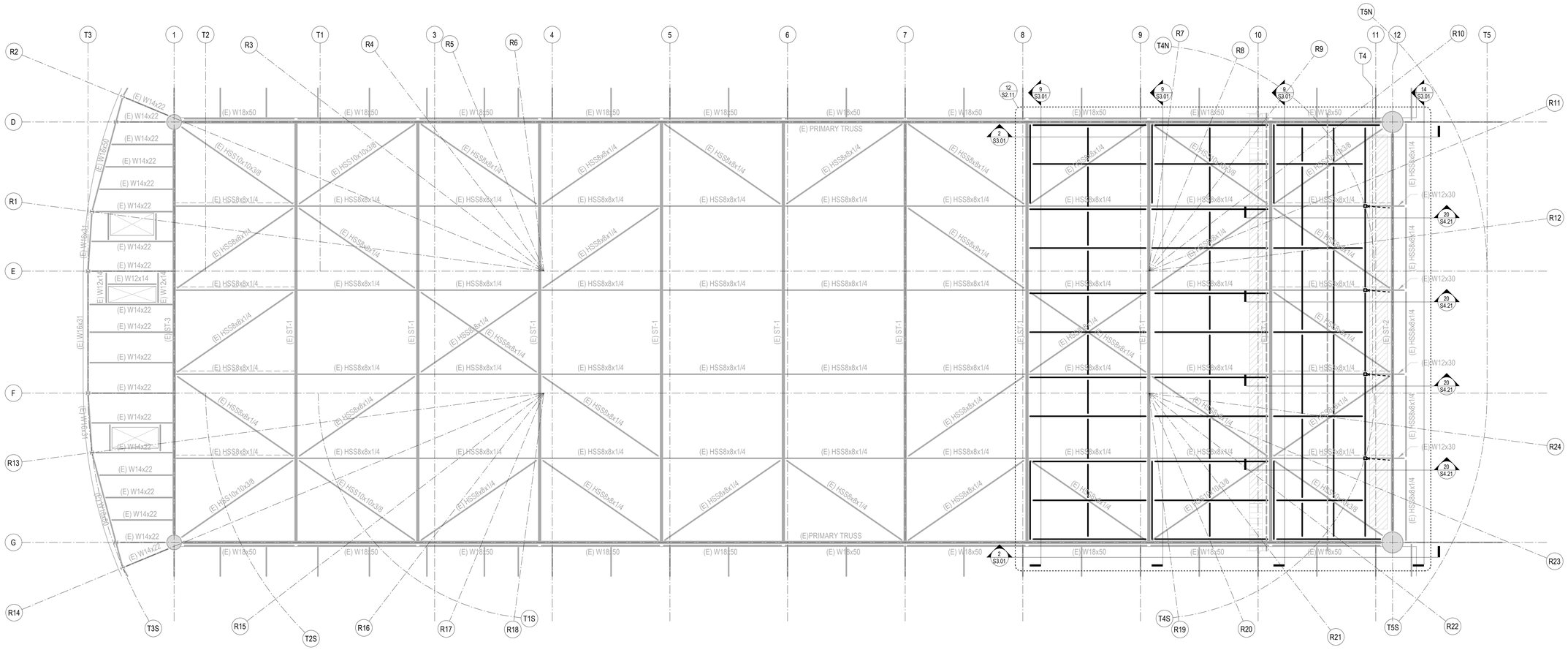
Job Number:

NO.	Date	Description

Designed By: MEB
Drawn By: JB
Checked By: BAD
Date: 10/21/2026

RIGGING PLANS

S1.01



11 BOTTOM CHORD ROOF FRAMING PLAN

3/32" = 1'-0"

Angel of the Winds Arena Rigging

MAGNUSSON KLEMENCIC ASSOCIATES

Job Number:

NO.	Date	Description

Designed By: MEB

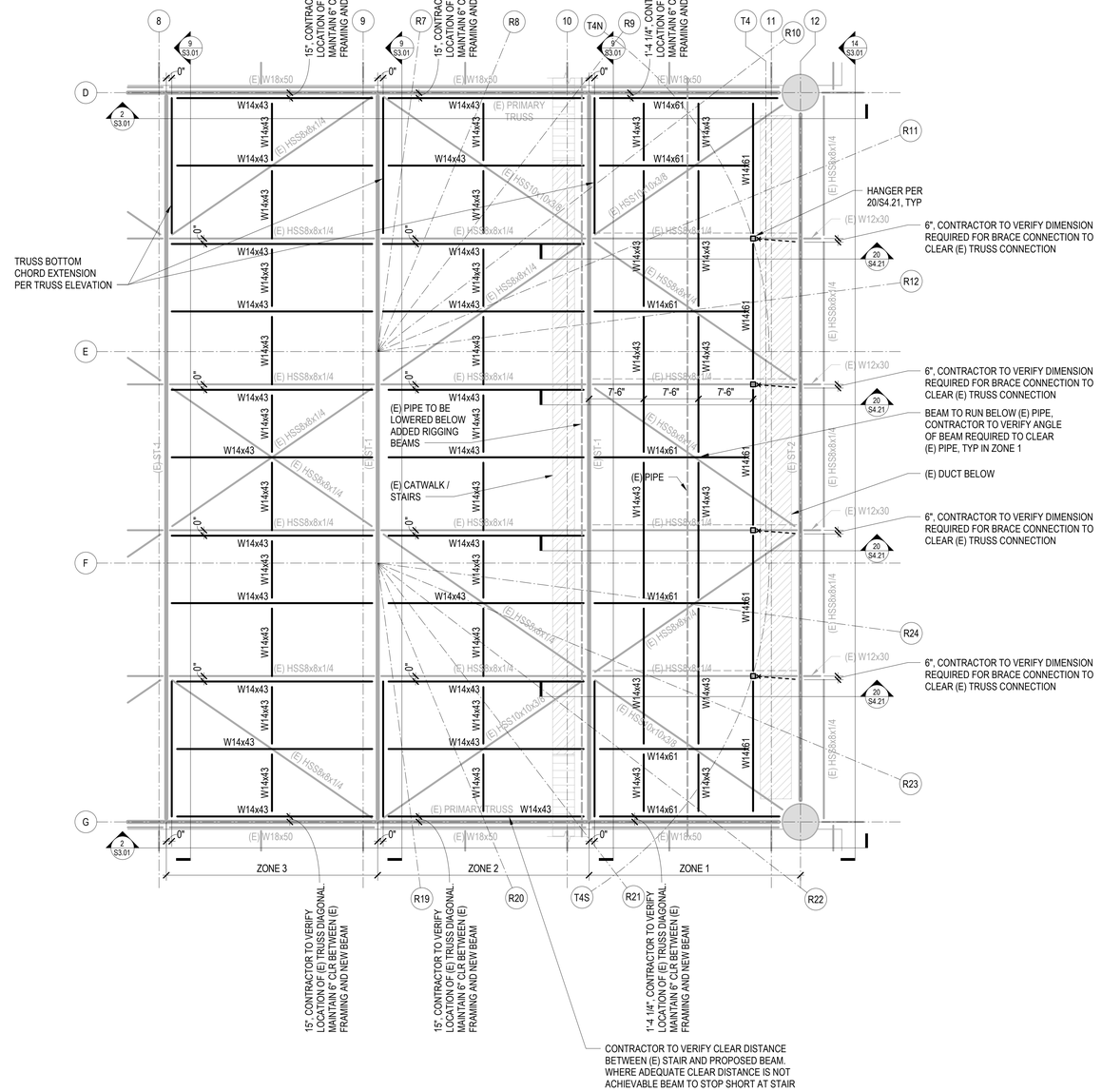
Drawn By: JB

Checked By: BAD

Date: 10/21/2026

BOTTOM CHORD ROOF FRAMING PLAN

S2.01



12 PARTIAL PLAN - BOTTOM CHORD ROOF FRAMING PLAN

1/8" = 1'-0"

Angel of the Winds Arena Rigging

MAGNUSSON KLEMENCIC ASSOCIATES

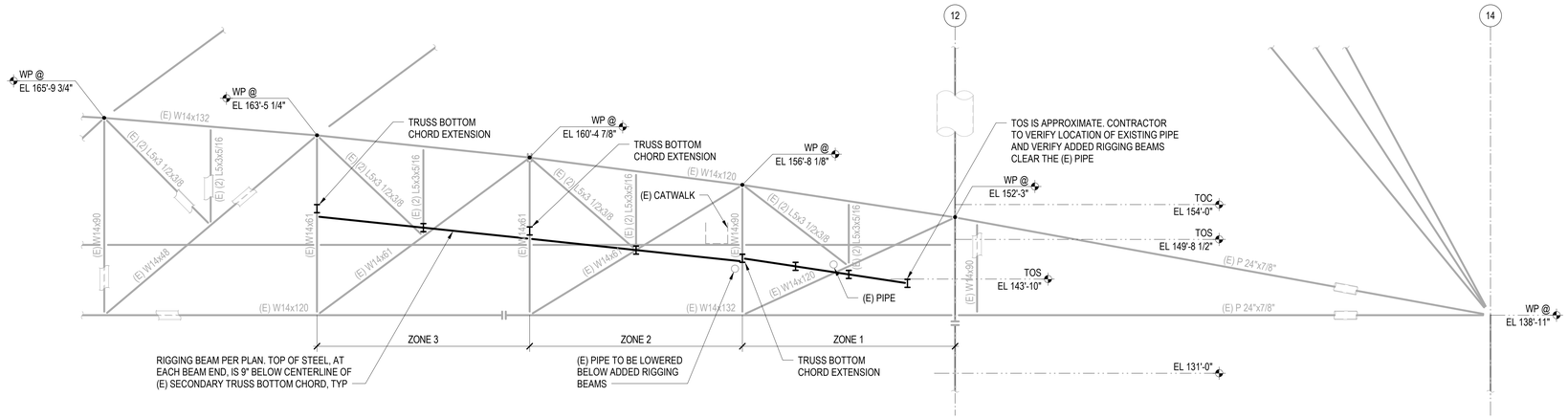
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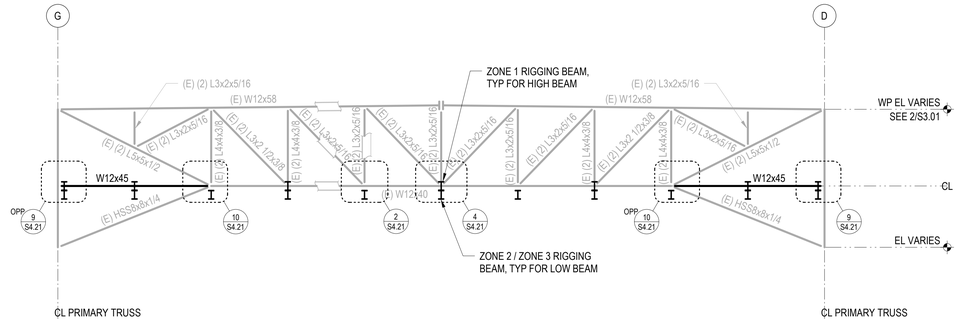
Designed By: MEB
Drawn By: JB
Checked By: BAD
Date: 10/21/2026

ENLARGED BOTTOM CHORD ROOF FRAMING PLAN

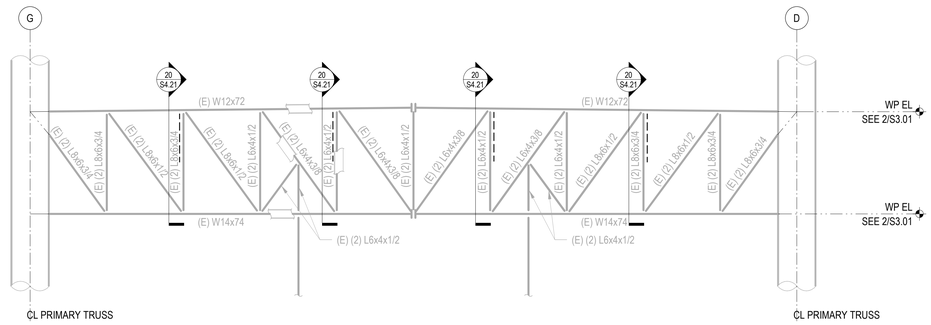
S2.11



2 PARTIAL PRIMARY TRUSS ELEVATION
1/8" = 1'-0"



9 ST-1 TRUSS ELEVATION
1/8" = 1'-0"



14 ST-2 TRUSS ELEVATION
1/8" = 1'-0"

Angel of the Winds Arena Rigging

MAGNUSSON
KLEMENCIC
ASSOCIATES

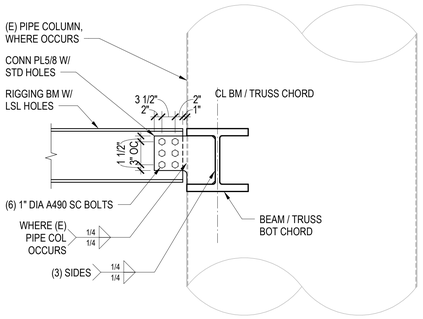
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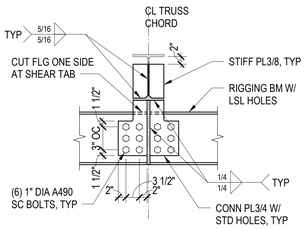
Designed By: MEB
Drawn By: JB
Checked By: BAD
Date: 10/21/2026

TRUSS
ELEVATIONS

S3.01

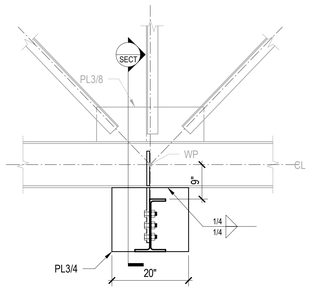


1 TYPICAL RIGGING BEAM CONNECTION
3/4" = 1'-0"

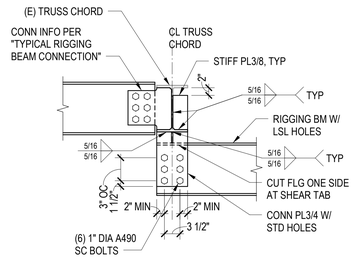


SECTION

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

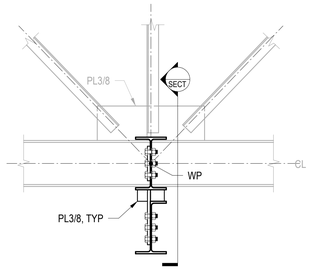


CONNECTION AT ZONE 2 / ZONE 3 RIGGING BEAM

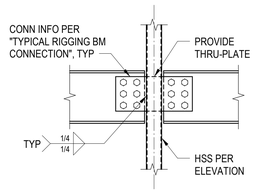


SECTION

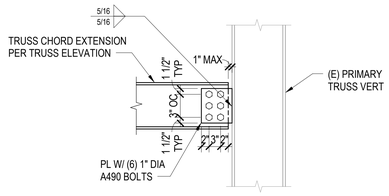
4 DETAIL
3/4" = 1'-0"



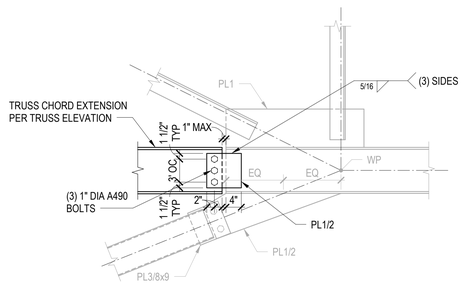
CONNECTION AT ZONE 1 RIGGING BEAM



8 RIGGING BEAM CONNECTION AT HSS
3/4" = 1'-0"

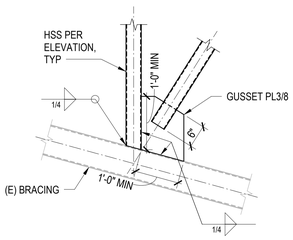


9 DETAIL
3/4" = 1'-0"

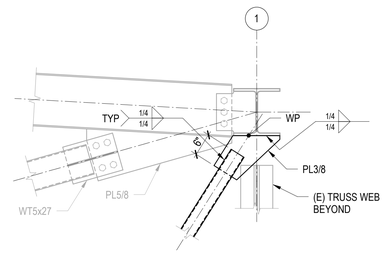


10 DETAIL
3/4" = 1'-0"

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



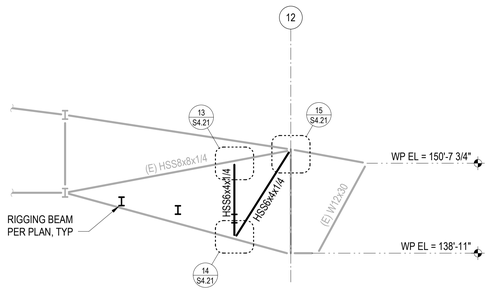
14 DETAIL
3/4" = 1'-0"



NOTES:

1. SLOT WIDTH IN BRACE SHALL BE EQUAL TO THE CONNECTING PLATE THICKNESS PLUS 1/8" MINIMUM. WHERE SLOT WIDTHS RESULT IN GAP AT ROOT OF WELD, CONTRACTOR SHALL INCREASE WELD SIZE TO COMPENSATE FOR GAP.

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



20 PARTIAL BRACING ELEVATION
1/8" = 1'-0"

Angel of the Winds Arena Rigging

MAGNUSSON KLEMENCIC ASSOCIATES

Job Number:

NO.	Date	Description

Designed By: MEB
Drawn By: JB
Checked By: BAD
Date: 10/21/2026

STEEL DETAILS

S4.21

Exhibit B

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. The drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes: Inspection and testing laboratory services for materials, products, and construction methods as specified hereafter for the work.

B. Costs: The costs of the initial services for testing and inspection personnel will be paid by the Owner. If initial tests indicate non-compliance with contract document requirements, any subsequent testing shall be performed by the same personnel and paid for by the contractor. Schedule portions of the work requiring testing and inspections services so as to be continuous and as brief as possible.

C. Code Compliance Inspection and Tests: Inspections and tests not specified herein and required by codes and ordinances, or by plan approval authorities, and made by a legally constituted authority, shall be the responsibility of the contractor, unless otherwise specified.

1.3 REFERENCE STANDARDS

A. General: Comply with the provisions of the latest versions of the publications listed below except as otherwise shown or specified.

B. The Building Code as defined in the Structural Drawings.

C. American Institute of Steel Construction (AISC):

1. AISC 360 Specification for Structural Steel Buildings

D. American National Standards Institute (ANSI)/American Society for Nondestructive Testing (ASNT):

1. ANSI/ASNT CP-189-1995
2. ANSI/ASNT SNT-TC-1A

E. American Society for Testing and Materials (ASTM). The following are specifically referenced for structural steel testing:

1. ASTM A435 Standard Specification for Straight-Beam Ultrasonic Examination of Steel Plates

2.	ASTM A898	Standard Specification for Straight Beam Ultrasonic Examination of Rolled Steel Structural Shapes
3.	ASTM E114	Standard Practice for Ultrasonic Pulse-Echo Straight Beam Contact Testing
4.	ASTM E164	Standard Practice for Contact Examination of Weldments
5.	ASTM E329	Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
6.	ASTM E543	Standard Practice for Agencies Performing Non-destructive Testing
7.	ASTM E587	Standard Practice for Ultrasonic Angle-Beam Contact Testing
8.	ASTM E709	Standard Guide for Magnetic Particle Testing
9.	ASTM E1212	Standard Practice for Establishing Quality Management Systems for Nondestructive Testing Agencies
10.	ASTM E1444	Standard Practice for Magnetic Particle Testing

F. American Welding Society (AWS):

1.	AWS D1.1	Structural Welding Code - Steel

G. Research Council on Structural Connections (RCSC):

1. RCSC Specification for Structural Joints Using High-Strength Bolts

1.4 DEFINITIONS

A. Testing Agency refers to the organization or group of organizations responsible for representing the Owner and performing all inspection, testing, and laboratory services as described herein.

B. Inspector refers to testing agency employees, management, and personnel.

1.5 SUBMITTALS

A. Testing agency shall submit the following:

1. The qualifications of the testing agency management and personnel designated to the project.
2. The testing agency "Written Practice for Quality Assurance."
3. Qualification records for Inspector and NDT technicians designated for the project.
4. The testing agency NDT procedures, equipment calibration records, and personnel training records.
5. The testing agency Quality Control Plan for the monitoring and control of the testing operations.
6. Welding Inspection Procedures.

7. Bolting Inspection Procedures.
8. Shear Connector Stud Inspection Procedures.

B. Test and Inspection Reports: The independent testing and inspection agency or agencies will prepare logs, test reports, and certificates applicable to specific tests and inspections and deliver copies distributed as follows:

1. 1 copy to the Owner
2. 1 copy to the Architect
3. 1 copy to the Structural Engineer
4. 1 copy to the Contractor
5. Copy or copies, as required, to the building department (or as required by the authority having jurisdiction)

C. Other tests, certificates, and similar documents shall be obtained by the Contractor and delivered to the Owner and/or Architect in such time as not to delay progress of the work or final payment therefore.

D. Laboratory Reports: Furnish reports of materials and construction as required, including:

1. Description of method of test.
2. Identification of sample and portion of the work tested.
    a. Description of location in the work of the sample.
    b. Time and date when sample was obtained.
    c. Weather and climatic conditions at time when sample was obtained.
3. Evaluation of results of tests including recommendations for action.

E. Inspection Reports: Furnish "Inspection at Site" reports for each site visit documenting activities, observations, and inspections, including notation of weather and climatic conditions, time and date, conditions and status of the work, actions taken, and recommendations or evaluation of the work.

1.6 QUALITY ASSURANCE

A. Qualifications: All inspection and testing required to establish compliance with the contract document requirements, except as may be otherwise specified, shall be made by a prequalified, independent professional testing agency provided, and paid for by the Owner.

B. Certification: Product producers and associations, which have instituted approved systems of quality control and which have been approved by document approval agencies, are not required to have further testing. Concrete mixing plants, plants producing fabricated concrete and wood or plywood products certified by the agency, lumber, plywood grade marked by approved associates, and materials or equipment

bearing underwriters' laboratory labels require no further testing and inspection.

C. Special Inspector Qualifications: All special inspectors shall be trained and competent in accordance with the quality assurance plan.

D. Welding Inspector Qualifications:

1. All welding inspectors shall meet the qualification as set forth in AWS D1.1.

E. Nondestructive Testing (NDT) Personnel Qualifications:

1. NDT personnel shall be qualified in accordance with AWS D1.1.

F. Bolting Inspector Qualifications: Each bolting inspector shall be trained and qualified to inspect bolting operations and high strength bolted connection for compliance with the Research Council on Structural Connections (RCSC) Specification and the Quality Assurance Plan. Competency shall be demonstrated through the administration of a written examination and through the hands-on demonstration by the Inspector of the methods to be used for bolt installation and inspection.

1.7 CONTRACTOR'S RESPONSIBILITY

A. General: Coordinate quality control activities to avoid delay and to eliminate any need to uncover work for testing or inspection.

B. Access: Furnish free access to the various parts of the work and assist testing and inspection personnel in the performance of their duties at no additional cost to the Owner.

C. Data: Furnish records, drawings, certificates, and similar data as may be required by the testing and inspection personnel to assure compliance with the contract documents.

D. Notice: Furnish notice to Owner and/or Architect and testing and inspection agency not less than 48 hours prior to any time required for such services.

E. Defective Work: Remove and replace any work found defective or not complying with contract document requirements at no additional cost to the Owner. Where testing personnel take cores or cut-outs to verify compliance, repair prior to acceptance.

F. Structural Steel: Should any weld or structural connection fail to meet design requirements, provide additional testing for structural connections as directed by the Owner and/or Architect or Structural Engineer. Replace or repair all defective connections as directed.

1.8 TESTING AGENCY SERVICES

A. General: Testing agency shall test or obtain certificates of tests of materials and methods of construction, as described herein or elsewhere in the technical specification. The testing agency shall provide the management, personnel, equipment, and services necessary to perform the testing functions as outlined in this section.

B. Inspection Services: The testing agency will have full authority to see that the work is performed in strict accordance with requirements of the contract documents and the directions of the Owner and/or Architect.

1.9 TESTS AND INSPECTION REPORTS

A. Inspection Reports: Furnish "Inspection at Site" reports for each site visit documenting activities, observations, and inspections. Include notation of weather and climatic conditions, time and date, conditions and status of the work, actions taken, and recommendations or evaluation of the work.

1. Include the following in all structural steel test and inspection reports (include all that apply):

    a. Welder's certification
    b. Weld qualification tests
    c. Visual inspections
    d. Review of materials testing procedures, including electrodes used, item inspected
    e. Magnetic particle tests (MP)
    f. Radiographic tests (RT)
    g. Ultrasonic tests (UT)
    h. Liquid Penetrant tests (LP)
    i. High-strength bolted connection tests

1.10 REPORTING TEST FAILURES

A. Immediately upon inspector's determination of a test failure, the inspector shall report results to the Contractor, Owner, and Architect. On the same day, the inspector shall distribute written test results.

1.11 TESTING AND INSPECTION

A. Structural Steel - General:

1. Mill Certificates: Mill certificates or affidavits and manufacturer's certification shall be supplied to the inspector for verification of steel materials. Testing laboratory shall be notified at least three weeks in advance of fabrication and supplied with the reports so that shop inspection may be performed.

2. General Inspection:

   a. Testing agency shall be at the fabricator's plant to verify that materials used match the mill tests or affidavits of test reports; that fabrication, welding procedures, surface preparation, and shop painting meet specifications; and that the work in progress conforms with project requirements.
   b. Testing agency shall visually check fabricated steel delivered to the job to confirm that the work is in compliance with approved shop drawings and shall make any physical tests, measurements, etc., believed to be necessary.
   c. Testing agency shall witness and report all corrections performed by the steel fabricator occurring on the fabricators own initiative.
   d. Testing agency shall be present during steel erection at all times.

3. Welding Requirements: Special inspection shall be provided by the testing agency for all welding in accordance with the Building Code.

   a. Review welder, welding operator, and tack welder qualifications to ensure conformance with AWS D1.1 Clauses 4 and 9, where applicable.
   b. Nondestructive testing shall be performed as required by the Building Code, AWS D1.1, AISC 360 Chapter N, and as specified herein for all shop and field welds.
   c. All welds shall be visually inspected. Welds considered suspect shall be further checked by other means deemed necessary by the welding inspector.
   d. Ultrasonically test 100 percent of all complete joint penetration welds in material 5/16 inch thick or greater.
   e. Ultrasonically test all joints where the base metal is thicker than 1-1/2 inches and is subjected to through-thickness weld shrinkage strains. The joint shall be ultrasonically inspected for discontinuities directly behind such welds after joint completion.
   f. When ultrasonic indications arising from the weld root cannot be interpreted as either a weld defect or the backing strip itself, the backing strip shall be removed at the expense of the Contractor, and if no root defect is visible, the weld shall be re-tested. If no defect is indicated on this re-test, and no significant amount of weld metal has been removed, no further repair of welding is necessary. If a defect is indicated, it shall be repaired at no expense to the Owner.
   g. Perform magnetic particle tests of thermally cut surfaces of access holes when the flange thickness exceeds 2 inches for rolled shapes, or when the web thickness exceeds 2 inches for built-up shapes.

h. The inspector shall perform magnetic particle testing in accordance with ASTM E709 for any questionable welds.
i. See Specification Section 05 12 00, "Structural Steel Framing," for additional test/quality control requirements.

4. Bolting Requirements: All inspection shall conform to the requirements of the current edition of the "Specification for Structural Joints Using High-Strength Bolts."

   a. For connections using high-strength bolts installed using Load Indicating Washers, the Owner's testing agency need not be present during the entire installation and tightening operation, provided the Owner's testing agency provides the following:

      1) Inspection of the surface and bolt type for conformance to plans and specifications prior to the start of bolting.
      2) Verification of the minimum specified bolt tensions visually and by using the feeler gauge as "no go" inspection on a few bolts in each connection (10 percent or two bolts, whichever is greater).

   b. For connection using high-strength tension control bolts, the Owners Testing Agency need not be present during the entire installation and tightening operation, provided the Testing Agency provides the following:

      1) Inspection of the surface and bolt type for conformance to plans and specifications prior to the start of bolting.
      2) Visual inspection of 100 percent of the high-strength bolts for properly installed tension.

5. Miscellaneous Metal: Where miscellaneous angles, channels, studs, and similar shapes are detailed for support of major components of the work, the welds, bolts, and material are subject to the same testing requirement as other structural supporting members.

PART 2 – PRODUCTS – NOT APPLICABLE

PART 3 – EXECUTION – NOT APPLICABLE

END OF SECTION

Exhibit C

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. The drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Features:

1. Structural steel fabrication and erection required for completion of the work.

B. Related Sections:

1. 01 45 00 – Structural Testing, Inspection, and Quality Assurance

1.3 REFERENCE STANDARDS

A. General: Comply with the provisions of the latest versions of the publications listed below except as otherwise shown or specified.

B. American Institute of Steel Construction (AISC):

1.	AISC	Steel Construction Manual
2.	AISC 303	Code of Standard Practice for Steel Buildings and Bridges, as modified herein
3.	AISC 360	Specifications for Structural Steel Buildings

C. American Society for Testing and Materials (ASTM):

1.	ASTM A6	Standard Specification for General Requirements for Rolled Steel Bars, Plates, Shapes, and Sheet Piling
2.	ASTM A36	Standard Specification for Carbon Structural Steel
3.	ASTM A53	Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
4.	ASTM A123	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
5.	ASTM A307	Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod, 60,000 PSI Tensile Strength
6.	ASTM A354	Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners
7.	ASTM A435	Standard Specification for Straight-Beam Ultrasonic Examination of Steel Plates

8.	ASTM A449	Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use
9.	ASTM A500	Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
10.	ASTM A501	Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
11.	ASTM A572	Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
12.	ASTM A588	Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance
13.	ASTM A706	Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
14.	ASTM A780	Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
15.	ASTM A898	Standard Specification for Straight Beam Ultrasonic Examination of Rolled Steel Structural Shapes
16.	ASTM A913	Standard Specification for High-Strength Low-Alloy Steel Shapes of Structural Quality, Produced by the Quenching and Self-Tempering Process (QST)
17.	ASTM A992	Standard Specifications for Steel for Structural Shapes
18.	ASTM F959	Standard Specification for Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners
19.	ASTM F1554	Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength
20.	ASTM F3125	Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions
21.	ASTM F3148	Standard Specification for High Strength Structural Bolt Assemblies, Steel and Alloy Steel, Heat Treated, 144ksi Minimum Tensile Strength, Inch Dimensions

D. American Welding Society (AWS):

1.	AWS A2.4	Standard Symbols for Welding, Brazing, and Nondestructive Examination
2.	AWS A3.0	Standard Terms and Definitions
3.	AWS A5.1	Specifications for Carbon Steel Electrodes for Shielded Metal Arc Welding
4.	AWS A5.5	Specification for Low-Alloy Electrodes for Shielded Metal Arc Welding
5.	AWS A5.17	Specification for Carbon Steel Electrodes and Fluxes for Submerged Arc Welding

6.	AWS A5.18	Specification for Carbon Steel Electrodes and Rods for Gas Shielded Arc Welding
7.	AWS A5.20	Specification for Carbon Steel Electrodes for Flux Cored Arc Welding
8.	AWS A5.23	Specification for Low-Alloy Steel Electrodes and Fluxes for Submerged Arc Welding
9.	AWS A5.28	Specification for Low-Alloy Steel Electrodes and Rods for Gas Shielded Arc Welding
10.	AWS A5.29	Specification for Low-Alloy Steel Electrodes for Flux Cored Arc Welding
11.	AWS D1.1	Structural Welding Code - Steel

E. Research Council on Structural Connections (RCSC):

1.	RCSC	Specification for Structural Joints Using High-Strength Bolts

1.4 STRUCTURAL DRAWINGS

A. The Contract Documents are complementary. The Structural Drawings shall not be considered a stand-alone document. The Contractor shall use the Structural Drawings in conjunction with all of the Contract Documents, including but not limited to the Architectural, Civil, Mechanical, and Electrical Drawings. Locations of steel members not provided in the Structural Drawings shall be determined from these other Drawings.

B. Delete Sections 2.1 and 2.2 from AISC 303 and replace with the following:

2.1 Definition of Structural Steel
Structural Steel shall consist of the elements of the structural frame that are shown and sized in the structural Design Drawings.

2.2 Other Steel, Iron, or Metal Items
Structural Steel shall not include other steel, iron, or metal items that are not shown and sized in the structural Design Drawings.

C. Section 3.1 and 3.2 from AISC 303 pertaining to the accurate dimensioning of structural steel shall be subject to the following additional requirements:

1. Dimensions and locations of steel framing shall be determined from the Structural Drawings as well as all other construction documents, including but not limited to the Architectural and MEP Drawings. It shall be the Contractor’s responsibility to coordinate the dimensions of the structural steel between all of the construction documents.

D. Section 4.4 from AISC 303 pertaining to Approval shall be subject to the following additional requirements:

1. The review of submitted shop erection drawings will be in accordance with Division 1.
2. Submitted shop and erection drawings may not necessarily be individually annotated as approved or subject to corrections. The submittal as a whole will be noted by the Structural Engineer as "No Exceptions Taken," "Make Corrections Noted," "Revise and Resubmit," or "Not Reviewed." Correction notations specific to each piece will be noted.

1.5 QUALITY CONTROL

A. Fabricator/Erector:

1. Must have plant, facilities, and personnel sufficient to fabricate and/or erect structural steel indicated on the drawings. Must have minimum of 5 years' experience with a record of successful in-service performance and be able, upon request, to show framing of size, materials, and scope similar to work of this contract. Must demonstrate sufficient production capacity to provide structural steel indicated on the drawings.
2. Must have a Quality Control Plan established in accordance with AISC 360 Chapter N; quality control procedures shall be established and maintained in accordance with these requirements.

B. Material: Provide only structural steel certified as conforming with specified requirements and fabricate specifically to the requirements of this contract. Material that does not conform to the requirements of this contract may be rejected at any time.

C. Charpy V-Notch Testing: Testing shall be in accordance with ASTM A6, Supplement S5 or S30, where this testing is specifically required.

D. Allowable Tolerances: Unless otherwise specified or noted on drawings provide structural steel work in accordance with the following minimum tolerances:

1. Fabrication Tolerances: In accordance with requirements of AISC specification unless noted otherwise and as required to maintain the erection tolerances specified herein.
2. Erection Tolerances: In accordance with requirements of AISC. The Contractor alone shall be responsible for the correct fitting of all structural members and for the elevation and alignment of the finished structure. Any adjustment necessary in the steel frame because of discrepancies in elevations and alignment shall be the responsibility of the Contractor.

E. Connection Identification: Each person installing connections shall be assigned an identifying symbol or mark, and all shop and field connections shall be so identified so that the Owner's Testing Agency can refer to the person making the connection.

F. Testing and Inspections: Work is subject to special testing and inspection in accordance with the Building Code, AISC 360 Chapter N. Refer to Section 01 45 00, "Structural Testing, Inspection, and Quality Assurance." The Fabricator/Erector shall provide the Owner's Testing Agency and the Architect/Engineer access to places where material is being fabricated/erected. Notice shall be given for joints requiring inspection for proper end preparation, root opening, etc., prior to welding.

G. Welder Qualifications: Each welder performing work on this project shall be qualified before commencement of welding on this project in accordance with the American Welding Society, AWS D1.1 and requirements of the Authority Having Jurisdiction.

Copies of each welder's qualification records shall be made available to the Architect and Owner's Testing Agency for review.

H. Inspections: A qualified inspector under the requirements of the building code shall continuously inspect field welds.

I. Shop Testing by Contractor: Prior to fabrication, the Contractor shall perform visual inspection and ultrasonic testing of discontinuities at all plate material and rolled sections greater than 1-1/2 inches thickness and located at welded connections where weld sequencing results in the base metal being subjected to though-thickness weld shrinkage strains. The test area is defined as a zone up to 6 inches away from the weld in the connection.

Conduct the testing in accordance with the following standards:

1. Ultrasonic Testing of Plate Material: ASTM A435 and the following modifications and supplementary requirements:

    a. Supplementary Requirements S1, requiring 100% scanning of the test area, are to be included.
    b. Section 5.2, Acceptance Standards, is supplemented with the following provision: "The fabricator, insofar as practical, may reposition a rejected plate so that rejectable defects are not located in a test area."

2. Ultrasonic Testing of Wide Flange Material: Conduct in accordance with ASTM A898, Level I acceptance standard.

These tests shall be in addition to the ultrasonic testing of all complete joint penetration welds and base metal that will be performed by the Owner’s Testing Agency after joint completion. The Contractor’s testing shall be submitted to the Architect/Engineer and Owner’s Testing Agency. All costs associated with this testing shall be borne by the Contractor.

J. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar

with the specified requirements and the methods needed for proper performance of the work of this section.

K. Pre-Construction Conference: Schedule a job conference to review the Structural Documents prior to development of shop drawings. The conference shall be attended by all pertinent parties, which is, at a minimum, to include the Fabricator, Erector, Contractor, Owner's Testing Agency, and Structural Engineer.

1.6 SUBMITTALS

A. Submit the following.

B. Shop Drawings: Submit shop drawings for review prior to commencing any fabrication of structural steel.

1. Show framing layout, dimensions, connections with adjoining materials and construction, finishes, welds, bolts and fasteners, anchoring, and all fabrication or erection accessories required.
2. Specify field welds, cuts, holes, bolts, and fasteners.
3. Verify all dimensions and correlate with adjoining construction and materials.
4. Indicate size, type, and grade of all members.
5. Include with each detail shown on the shop drawings a reference to the Architect's and Engineer's drawings and details, where applicable.
6. Prior to shop drawing submittal, the Contractor and Fabricator shall review the drawings for obvious drafting and detailing errors.

C. One month prior to commencing fabrication, submit Fabricator's quality control procedures to the Architect, Engineer, Owner, and Owner's Testing Agency.

D. Indicate welded connections on shop drawings using standard AWS welding symbols. Show all welded connections with details showing size, length, location, and type of welds.

E. Mill Reports: Submit three copies of certified mill reports indicating heat and melt numbers of steel. Mill reports are to be submitted for record only and will not be reviewed:

1. If test reports are not submitted or test reports cannot be identified with material proposed for use in the work, then secure and perform structural tests on 5% of all such unidentified steel.
2. Contractor shall furnish all such material for testing and pay for all such tests.
3. Furnish Owner, Architect, and Structural Engineer certified copies and Fabricator one certified copy of all test reports.

F. Inspection Test Reports: Upon request, submit to Architect copies of Contractor's ultrasonic testing reports.

G. Placement Plans: Submit placement plans and details as required for the satisfactory placing, connection, and anchorage of all structural members.

H. Survey Reports: Promptly submit an accurate survey of actual elevations and locations of base plates and anchor rods, and alignments as well as elevations of all steel as noted on the drawings. The report shall specify that the location of the structural steel is acceptable for plumbness, level, and alignment within the specified tolerances.

I. Certification: Submit manufacturer's certified test reports on compressible washer-type direct tension indicators and/or tension control bolts on at least three samples from each heat supplied to conform to tolerance range.

J. Welding Procedures: For welded joints prequalified and non-prequalified by AWS D1.1, submit a Welding Procedure Specification a minimum of one month prior to use. Furnish joint welding procedure qualification tests as required by AWS D1.1 for non-prequalified welded joints. Welding procedures shall be reviewed by the Owner's Testing Agency, and an approved copy shall be forwarded to the Structural Engineer.

K. Manufacturer's Certification is required as follows:

1. Bolts, Nuts and Washers: Furnish complete manufacturer's mill test reports conforming with the specified bolt material. Markings and chemistry must also comply with the specification. Certification numbers must appear on product containers and correspond to certification numbers on mill test report to be accepted. Mill test report must be supplied to both purchaser and Owner's Testing Agency.
2. Filler material for welding.

L. Product Data: For shop primers and galvanizing repairs where occur, include manufacturer's technical information including basic materials analysis and application instructions.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with the requirements of the general conditions and of ASTM A6, including the following.

B. Store materials in a manner to permit easy access for inspection and identification.

1. Keep steel members off the ground, using pallets, platforms, or other supports.

2. Protect steel members and packaged materials from corrosion and deterioration.

C. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting structures. Repair or replace damaged materials or structures at no additional cost to the Owner.

D. All bolts and fasteners shall be stored and protected in accordance with the current requirements of the "Specification for Structural Joints Using High-Strength Bolts."

1.8 JOB CONDITIONS

A. Temporary Bracing: Temporary bracing and guylines shall be provided to adequately protect all persons and property and to ensure proper alignment.

B. Temporary Floors: All temporary flooring, planking, and scaffolding necessary in connection with the erection of the structural steel or support of erection machinery shall be provided. The temporary floors or use of steel decking shall be as required by law and governing safety regulations. The reduced load capacity of members and assembly, especially the floor and roof beams and girders due to their unbraced condition prior to welding of steel deck and completion of concrete slabs, is hereby noted and shall be considered.

C. Holding and Protection: In assembling and during welding, the component parts shall be held with sufficient clamps or other adequate means to keep parts straight and in close contact. In welding, precautions shall be taken to minimize "lock-up" stress and distortion due to heat. In windy conditions, welding shall be done only after adequate wind protection is furnished and set up and as specified in the AWS.

PART 2 - PRODUCTS

2.1 MATERIALS AND COMPONENTS

A. Carbon Steel and High-Strength Low-Alloy Steel: Provide steel shapes, plates, and bars of structural quality, sizes, and standards noted on drawings for use in welded and bolted construction. Steel manufactured by the acid bessemer process shall not be used for structural purposes. Steel that, in the opinion of the Owner's Testing Agency, is badly corroded or physically damaged shall not be incorporated in the work until the Owner's representatives, Contractor, Erector, and Fabricator have agreed to allow the installation.

B. Primer: Fabricators standard lead- and chromate-free, non-asphaltic, rust-inhibiting primer.

1. Weldable primers shall not be used.
2. Subject to compliance with requirements, provide:

    a. Primer: Sherwin Williams Steel Spec 1003 Shopcoat Primer
    b. Color: B50AV11

C. A307 Bolts: Low-carbon steel externally and internally threaded fasteners conforming to requirements of ASTM A307, Grade A. Provide hexagonal heads and nuts for all connections. Include lock washers under nuts or self-locking nuts.

D. High-Strength Bolts: Quenched and tempered steel bolts and nuts conforming to requirements of ASTM F3125, ASTM A354, ASTM A449,or ASTM F3148.

1. Washers other than compressible washer type direct tension indicators shall be hardened steel.
2. Compressible washer type direct tension indicators, where used, shall conform to ASTM F959.
3. Any proposed substitutions must have documentation submitted for review and approval of the Structural Engineer one month prior to construction.

E. Weld Electrodes: See AWS D1.1 and AWS D1.8 for requirements.

F. Other Materials: Provide all incidental and accessory materials, tools, methods, and equipment required for fabrication and erection of structural steel framing as indicated on drawings. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

G. General: Miscellaneous materials or accessories not listed above shall be provided as specified herein under the various items of work and as indicated on the drawings or required for good construction practice.

2.2 FABRICATION

A. Fabricate all steel in accordance with requirements of AISC specifications and in accordance with details indicated on the drawings or as approved on shop drawings.

1. Identify all steel at mill showing ASTM standard grade.
2. Identify each piece with an erection mark corresponding to identifications noted on erection drawings.

B. Materials shall be properly identified with an erection mark corresponding to identifications noted on erection drawings and match-marked where field assembly requires. The sequence of shipments shall be such as to expedite erection and minimize the field handling of material.

C. Cutting: All holes and openings must be approved by the Owner's Structural Engineer.

1. Do no thermal cutting by hand of openings greater than 1/2 the depth of the member, unless approved by the Engineer.
2. All thermally-cut holes shall be smoothed by chipping, planing, or grinding members to required AISC tolerances.
3. Sharp bends or kinks will not be allowed.
4. Thermal cutting by hand will not be allowed for holes at connections.

D. Milled Surfaces: All milled surfaces shall be completely assembled or welded before milling. Milled surfaces are to provide full contact bearing for the entire cross section.

E. Beams, girders, and trusses shall be upward cambered where indicated on the drawings. For beams, girders, and trusses without specified cambers, fabricate members so that after erection, any minor camber due to rolling or fabrication is upward.

F. Connections Designed on the Structural Drawings:

1. The Contractor shall not deviate from these designs unless approved by the Architect and Engineer.
2. Connections shown on the drawings may eliminate certain methods of erection.
3. If the Contractor elects a method of erection that requires a change of some of the connections, it must be approved by the Architect and Engineer.

G. Combination of bolts and welds shall not be used for stress transmission in the same faying face of any connection without prior approval by the Structural Engineer.

H. Welding processes other than shielded metal arc, flux core arc, and submerged arc may be used, provided procedure qualification tests in accordance with the American Welding Society are made for the intended application of all such processes.

I. Built-up sections assembled by welding shall be free of warpage, and all faces shall have true alignment.

J. Types of Welds: Required weld types are indicated by symbols on drawings; characteristics of welds shall be in accordance with standard specifications or codes as applicable; each welder shall mark his identification symbol on his work.

K. Preparation of Steel Surfaces to be Welded: Prepare edges to be joined by welding as indicated on drawings and in accordance with AWS D1.1. All welds are to be made to sufficiently clean steel. Remove all coatings, galvanizing, grease, scale, rust, and other foreign matter at locations that are to be welded in accordance with AWS D1.1.

L. Welding Environment: Welding shall not be done when the ambient temperature is lower than 0°F; when surfaces are wet or exposed to rain or snow; when exposed to high wind velocities; or when welding personnel are exposed to inclement weather.

M. The toughness and notch sensitivity of the steel shall be considered in the formation of all welding procedures to prevent brittle and premature fracture during fabrication and erection.

N. Detailing of connections, welding sequences, and preheat methods shall be such as to minimize restraint and the accumulation and concentration of through thickness strains due to weld shrinkage.

O. At welded joints that are not hidden by architectural finish materials, remove projecting ends of runoff tabs, backer bars, and any other erection aids, and grind flush with edges of plates.

P. Cleaning of Steel Surfaces: Clean all surfaces of oil, grease, loose rust, loose mill scale, and other foreign matter present in sufficient quantities to impair bond of spray fireproofing or other specified coatings.

Q. Bolted Faying Surfaces at Slip Critical Connections: Surfaces are to be prepared such that faying surfaces satisfy the requirements shown on the structural drawings.

R. Shop Priming: Prime steel as follows:

1. Shop prime steel surfaces except the following:

    a. Within 2 inches of surfaces to be welded.

2. Surface Preparation: Clean surfaces to be primed. Remove loose rust, loose mill scale, and splatter, slag, or flux deposits. Prepare surfaces to SSPC specification as follows:

    a. SSPC SP3 "Power Tool Cleaning" or SSPC SP6 "Commercial Blast Cleaning" to a minimum blast profile of 1.5 mils.

3. Priming: Immediately after surface preparation, apply primer according to the manufacturer's instruction and at the rate recommended by SSPC to provide a dry film thickness of not less than 3.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

    a. Stripe paint corners, crevices, bolts, welds, and sharp edges.
    b. Apply two coats of primer paint to inaccessible surfaces after assembly or erection. Change color of second coat to distinguish it from first.

S. If the Contractor elects a method of erection that requires a change of some of the connections, or otherwise wishes to use alternate connections, the alternate connections must be reviewed and approved by the Architect. The design of all alternate connections is the responsibility of the Contractor. The Contractor shall retain an engineer licensed to perform the work in the jurisdiction where the project is located to prepare details and calculations, which shall be submitted for review and approval by the Architect.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 ERECTION

A. General: Erect structural steel framing in accordance with governing codes and specifications. Conform to configurations and connections as shown in the documents.

B. Shoring and Bracing: Provide temporary shoring and bracing members as required and according to the AISC Code of Standard Practice as well as any applicable Local, State, or Federal requirements. The design of the shoring and bracing is the responsibility of the Contractor. The determination of the timing of the installation and removal of the shoring and bracing elements is strictly the responsibility of the Contractor.

C. Field Assembly: Accurately assemble structural framing to lines and elevations indicated within specified or noted tolerances.

1. Align and adjust various members of framing system prior to fastening.
2. Prior to assembly, clean bearing surfaces and surfaces that will be in permanent contact.
3. Splice structural members only where indicated or where approved.
4. Cut holes by drilling only.
5. Fasten splices of compression members after bringing abutting surfaces completely into contact.
6. Make all field connections by high-strength bolting or welding, unless otherwise noted.
7. Unless noted otherwise, tighten and leave erection bolts in place after welding. Where high-strength bolts are required, provide identified and marked bolts.
8. Do not field cut or alter structural members without the written approval of the Structural Engineer.

9. Do not use gas-cutting torches for correcting fabrication errors in structural framing.
10. Finish gas-cut sections equal to a sheared appearance.

D. Furnish shim plates or develop fills where required to obtain proper fit and alignment.

E. Non-Fusible Backing Materials: The use of non-fusible backing materials, including ceramic and copper, in accordance with the structural notes, is permitted only with satisfactory welder qualification testing performed using the type of backing proposed for use, using the test plate shown in AWS D1.1, Figure 4.21, except that groove dimensions shall be as provided in the weld procedure specification. Welders using these backings shall be prequalified per AWS.

F. Connections: No welding or bolting shall be done until as much of the structure as will be stiffened by the welding or bolting has been properly aligned.

G. Drift pins shall not be used to enlarge unfair holes in main material. Holes that must be enlarged shall be reamed up to a maximum of 1/16 inch larger to admit bolts. Burning, drifting, and reaming may be used to align unfair holes in members only after approval by the Owner's Structural Engineer.

H. The steel erector shall leave the steel clean of oil or other contaminants as outlined under Part 2 of this Specification.

I. Touch-up Priming: Immediately after erection, clean field welds, bolted connections, and abraded areas of the shop primer. Apply primer to exposed area with the same material as used for shop priming. Apply by brush or spray to provide a minimum dry film thickness of 1.5 mils.

3.3 ERECTION TOLERANCES

A. Plumb, level, and align individual pieces in accordance with the requirements of the "AISC Code of Standard Practice for Steel Buildings and Bridges."

3.4 HIGH-STRENGTH BOLT INSTALLATION

A. General: Supply and install all high-strength bolts, nuts, and washers in conformance with the requirements of the current edition of "Specification for Structural Joints Using High-Strength Bolts."

1. High-strength bolts in snug-tight connections, where allowed by the drawings, shall be installed in accordance with Section 8.1, "Snug-Tightened Joints."
2. High-strength bolts in finger-tight connections, where allowed by the drawings, nuts shall be hand-tightened and then backed off one-quarter turn. Deform the bolt threads, provide a locking

nut, or provide a jamb nut to ensure the nut is unable to back off further.

3. All other high-strength bolts shall be installed in accordance with Section 8.2, "Pretensioned Joints and Slip-Critical Joints."

   a. Turn-of-nut pretensioning shall be in accordance with Section 8.2.1.
   b. Calibrated wrench pretensioning is not an acceptable pretensioning method.
   c. Twist-off-type tension-control bolt pretensioning shall be in accordance with Section 8.2.3. Tension control bolts shall be supplied and installed in accordance with the manufacturer's written procedures.
   d. Direct-tension-indicator pretensioning shall be in accordance with Section 8.2.4. Direct tension indicators shall be supplied and installed in accordance with the manufacturer's written procedures.
   e. The combined method of pretensioning shall be in accordance with Section 8.2.5.

END OF SECTION

Exhibit D

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. The drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Work of this section includes the design, supply and installation of the following:

1. Fall Protection System

    a. Horizontal Lifeline and connections/hardware
    b. Miscellaneous metals and components/connections to existing primary structure

B. Related Work:

1. Section 051200 Structural Steel Framing

1.3 REFERENCE STANDARDS

A. AA ADM-1 2020 – Aluminum Design Manual; Aluminum Association

B. AISC 360 2016 – Specification for Structural Steel Buildings; American Institute for Steel Construction

C. ASTM A123/A123M 2017 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; American Society for Testing and Materials

D. ASTM B221/B221M 2021 – Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; American Society for Testing and Materials

E. AWS D1.1/D1.1M 2020 – Structural Welding Code – Steel; American Welding Society

F. AWS D1.2/D1.2M 2014 – Structural Welding Code – Aluminum; American Welding Society

G. ANSI ASC A14 – Ladders Standards

H. ANSI ASSE Z359 – Fall Protection Code, American Society of Safety Engineers

I. ANSI SAIA A92 –Aerial Work Platforms

1.4 REGULATORY REQUIREMENTS

A. OSHA 1910 Subpart D – Walking-Working Surfaces

B. OSHA 1910.140 – Personal Fall Protection Systems

C. Other applicable regulations of local jurisdiction

1.5 SUBMITTALS

A. Design Drawings: Engineered drawing set with plans, elevations, and section details showing complete fall protection systems, including components and accessories.

1. Drawings to be created using Contract Documents and project drawing sets provided by the Engineer.
2. Indicate dimensions, locations, materials, structural attachments, fastening hardware, etc.
3. Include installation and rigging instructions, and necessary Restrictive and Non-Restrictive Working Usage Notes and General Safety Notes.
4. Design drawings to be stamped by a Professional Engineer registered in the state of Washington.
5. Design drawings shall clearly indicate the loads imposed on the existing structure.

B. Submit proof of certification for workers performing welding either in factory or on-site.

C. Provide mill certificates for steel and aluminum elements demonstrating the materials meet the requirements of this specification.

D. Test Reports:

1. Submit test report for completed factory testing as described in paragraph 3.2 of this specification
2. Submit test report for completed post-install field testing as described in paragraph 3.6 of this specification.
3. Submit weld testing reports from local third-party testing agency

    a. Test reports should include a description of standards used and their comparison to American standards.

E. Calculations:

1. Submit calculations stamped by a Professional Engineer registered in the state of Washington.
2. Calculation submittal must include:

    a. Load case and stability verification
    b. Verification of design loads at structural components

F. Inspection Logbook, submitted at closeout, with "Initial Inspection – Certification for Use" and "Inspection Sign-Off" forms completed.

1.6 WARRANTY

A. Provide complete warranty covering manufacturing and installation including labor and materials for a two (2) year period from the date of final acceptance of the Fall Protection System by the Engineer, Owner and Local Authority.

PART 2 – PRODUCTS

2.1 FALL PROTECTION SYSTEM

A. Fall Protection System and Horizontal Lifelines (HLL)

1. HLL shall be designed, installed, and used under the supervision of qualified person, as part of a complete personal arrest system that maintains a safety factor of at least two (2).
2. HLL shall be designed for fall arrest for a maximum of 2 users per length of wire rope.
3. HLL shall be the Hands-Free type that allows workers to passively bypass intermediate supports

    a. Lanyard Cable Runner: For each length of wire rope, provide one (1) per worker for continuous "hands-free" operation that can be attached or removed anywhere on the wire rope.
    b. Intermediate supports shall have stainless steel brackets with reinforcing end caps for securing the wire rope and shall be designed to allow the lanyard cable runner to bypass the support without user input.

4. Components shall be made of corrosion-resistant material/finish and sized to suit application.
5. Wire rope terminations shall be lab tested to demonstrate a minimum of 80% efficiency of the wire rope breaking strength.
6. Redirecting wire rope, i.e. bending wire rope, shall have a bending radius of no less than six (6) times that of the wire rope diameter.
7. HLL system entry points to be equipped with prominently displayed non-corrosive data plate clearly stating Maximum Service Capacity and Number of Users.

PART 3 – EXECUTION

3.1 EXAMINATION

A. General Requirement: Examine site conditions and proceed with work in accordance with Division 1.

B. Examine surfaces and areas upon which the work of this section depends.

C. Verify structural steel to which equipment are to be attached have adequate bearing surface, either as indicated in design drawings or as necessary to ensure 100% weld area.

D. Verify site dimensions. Contractor is responsible for the accuracy of existing site dimensions as related to their work.

E. Report unsatisfactory site conditions that would cause defective installation of products or cause latent defects in workmanship and function to the Engineer and Owner in writing.

F. Start of work will constitute acceptance of site conditions.

3.2 INSTALLATION

A. Comply with requirements of authorities having jurisdiction as to loading and safety procedures.

B. Install equipment in accordance with approved design drawings and Manufacturer’s recommendations.

C. Install equipment true, level, tightly fitted and flush with adjacent surfaces as required.

End of Section