



MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY

2022 SEWER IMPROVEMENTS ERWWTF EARTHQUAKE REPAIRS **AND STRUCTURAL RETROFITS**

PROJECT IDENTIFICATION No. WM.00151

JUNE 2022

100% SUBMITTAL

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REVISIONS	DATE:	_		PRIME CONSULTANT	CONSULTANT	SEAL

GENERAL NOTES

ABBREVIATIONS

R PLAN

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ABBREVIATIONS

STUD WALL PLAN

1. ALL CONSTRUCTION SHALL BE INSTALLED AS SPECIFIED IN THE MOST CURRENT EDITION OF THE MUNICIPALITY OF ANCHORAGE STANDARD **SPECIFICATIONS (MASS).**

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2. WORK SCOPE INVOLVING DEMOLITION, RELOCATION, AND/OR INSTALLATION OF MECHANICAL AND ELECTRICAL INFRASTRUCTURE TO BE COMPLETED BY BUILDING TRADE RESOURCES LICENSED AND CERTIFIED TO EXECUTE THAT WORK IN ACCORDANCE WITH ALASKA STATUTES.

SET Ζ 73 AWWI NO. 1 -

STRUCTURAL - GENERAL NOTES

GENERAL REQUIREMENTS

GOVERNING CODE: The design and construction of this project is governed by the "International Existing Building Code (IEBC)", 2018 Edition, hereafter referred to as the IEBC, as adopted and modified by the Municipality of Anchorage, AK understood to be the Authority Having Jurisdiction (AHJ). In addition, this project is based on a Tier 3 ASCE 41-13 Analysis.

REFERENCE STANDARDS: Refer to Chapter 35 of 2018 IBC. Where other Standards are noted in the drawings, use the latest edition of the standard unless a specific date is indicated. Reference to a specific section in a code does not relieve the contractor from compliance with the entire standard.

DEFINITIONS: The following definitions cover the meanings of certain terms used in these notes:

"Engineer" – The Structural Engineer of Record.

- "Structural Engineer of Record" (SER) The structural engineer who is licensed to stamp & sign the structural documents for the project. The SER is responsible for the design of the Primary Structural System
- "Specialty Structural Engineer" (SSE) A professional engineer (PE or SE), licensed in the State where the project is located, (typically not the SER), who performs specialty structural engineering services for selected specialty-engineered elements identified in the Contract Documents, and who has experience and training in the Specialty. Documents stamped and signed by the SSE shall be completed by or under the direct supervision of the SSE.

STRUCTURAL DETAILS: The structural drawings are intended to show the general character and extent of the project and are not intended to show all details of the work. Use entire detail sheets and specific details referenced in the plans as "typical" wherever they apply. Similarly, use details on entire sheets with "typical" in the name wherever they apply.

STRUCTURAL RESPONSIBILITIES: The structural engineer (SER) is responsible for the strength and stability of the primary structure in its completed form.

COORDINATION: The Contractor is responsible for coordinating details and accuracy of the work; for confirming and correlating all quantities and dimensions; for selecting fabrication processes; for techniques of assembly; and for performing work in a safe and secure manner.

MEANS, METHODS and SAFETY REQUIREMENTS: The contractor is responsible for the means and methods of construction and all job related safety standards such as OSHA and DOSH (Department of Occupational Safety and Health). Contractor is responsible to adhere to OSHA regulations regarding steel erection items specifically addressed in the latest OSHA regulations. Bolting and field welding at all member connections is to be completed prior to the release of the member from the hoisting mechanism unless reviewed and approved by the General Contractor's temporary bracing and shoring design engineer. The construction documents represent the completed structure. The contractor is responsible for means and methods of construction related to the intermediate structural conditions (i.e. movement of the structure due to moisture and thermal effects; construction sequence; temporary bracing, etc).

BRACING/SHORING DESIGN ENGINEER: The contractor shall at his discretion employ an SSE, a registered professional engineer for the design of any temporary bracing.

TEMPORARY BRACING: The contractor is responsible for the strength and stability of the structure during construction and shall provide temporary, bracing and other elements required to maintain stability until the structure is complete. It is the contractor's responsibility to be familiar with the work required in the construction documents and the requirements for executing it properly.

CONSTRUCTION LOADS: Loads on the structure during construction shall not exceed the design loads as noted in DESIGN CRITERIA & LOADS below or the capacity of partially completed construction as determined by the Contractor's SSE for Bracing.

CHANGES IN LOADING: The contractor has the responsibility to notify the SER of any architectural, mechanical, electrical, or plumbing load imposed onto the structure that differs from, or that is not documented on the original Contract Documents. Provide documentation of location, load, size and anchorage of all undocumented loads in excess of 400 pounds. Provide marked-up structural plan indicating locations of any new equipment or loads. Submit plans to the Engineer for review prior to installation.

NOTE PRIORITIES: Plan and detail notes and specific loading data provided on individual plans and detail drawings supplements information in the Structural General Notes

DISCREPANCIES: MASS 10.4.2 gives order of precedence in case of discrepancies between the General Notes, Specifications, Plans/Details or Reference Standards, the Engineer shall determine which shall govern. Discrepancies shall be brought to the attention of the Engineer before proceeding with the work. Should any discrepancy be found in the Contract Documents, the Contractor will be deemed to have included in the price the most expensive way of completing the work, unless prior to the submission of the price, the Contractor asks for a decision as to which shall govern. Accordingly, any conflict in or between the Contract Documents shall not be a basis for adjustment in the Contract Price.

SITE VERIFICATION: The contractor shall verify all dimensions and conditions at the site. Conflicts between the drawings and actual site conditions shall be brought to the attention of the Engineer before proceeding with the work

DESIGN CRITERIA AND LOADS

SEISMIC

DESIGN

OCCUPANO

R	isk Category of Building per 2018 IBC Table 1604.5	=		III
S	eismic Design Category:	SDC =	D	
В	asic Structural System		Building	g Frame
S	eismic Force Resisting System		Ordinar tric Bra (Long.), Steel Frame (y Concen- ced Frames Ordinary Moment Transv.)
Si Si	ite Classification per ASCE 41-13, Ch. 2.4 i te Class =		D	
в	asic Safety Earthquakes (BSE):		BSE-1E	
S	tructural Performance Level:		Damage (average and IO I	e Control e btwn LS evels)
Ν	onstructural Performance Level:		Positior	Retention
S	pectral Acceleration:			
S	Spectral Response Acceleration (Short Period)	S _{xs} =	0.932	
S	pectral Response Acceleration (1-Second Period)	S _{x1} =	0.651	
D	esign Base Shear Building 1 (KIPS)		639	
D	esign Base Shear Building 2 (KIPS)		568	
D	esign Base Shear Aeration Building (KIPS)		368	
S	eismic Analysis procedure used:		Linear S dure	tatic Proce-

SNOW LOAD:	Flat Roof Snow Load, (PSF)	р _f =	40
	Snow Drift Loading required by Authority Having Jurisdiction?		Yes
	Ground Snow Load, (PSF)	p _g =	50
	Snow Exposure Factor	C _e =	В
	Thermal Factor	C _t =	1.0

SUBMITTALS

SUBMIT FOR REVIEW: SUBMITTALS of shop drawings, and product data and mill tests shall be in accordance with the submittal requirements of MASS Div 10 and Specifications Section 01 13 00 and are required for PREFABRICATED CONSTRUCTION: All prefabricated construction shall conform to IBC Section 1704. items noted in the individual materials sections and for *bidder designed* elements.

SUBMITTAL REVIEW PERIOD: Submittals shall be made in time to provide a minimum of TWO WEEKS or 10 VORKING DAYS for review by the Engineer prior to the onset of fabrication.

GENERAL CONTRACTOR'S PRIOR REVIEW: Prior to submission to the Engineer, the Contractor shall review the submittal for completeness. Dimensions and quantities are not reviewed by the SER, and therefore, must be verified by the General Contractor. Contractor shall provide any necessary dimensional details requested by the Detailer and provide the Contractor's review stamp and signature before forwarding to the Engineer.

SHOP DRAWING REVIEW: Once the contractor has completed his review, the SER will review the submittal for general conformance with the design concept and the contract documents of the building and will stamp the submittal accordingly. Markings or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The SER will return submittals in the form they are submitted in (either hard copy or electronic). For hard copy submittals, the contractor is responsible for submitting the required number of copies to the SER for review.

INSPECTIONS, QUALITY ASSURANCE VERIFICATIONS AND TEST REQUIREMENTS

INSPECTIONS: Framing is subject to inspection by the Building Official in accordance with IBC 110.3. Contractor shall coordinate all required inspections with the Building Official.

SPECIAL INSPECTIONS, VERIFICATIONS and TESTS: Special Inspections, Verifications and Testing shall be done in accordance with IBC Chapter 17 and the STATEMENT OF SPECIAL INSPECTIONS herein per IBC Sections 1704 and 1705, including 1705.12 for seismic resistance for projects in Seismic Design Categories C, D, E and F and including 1705.11 for high wind regions as applicable.

SPECIAL INSPECTION AGENCY and SPECIAL INSPECTORS: Owner shall retain an "approved agency" per IBC 1703 to provide Special Inspections for the project. Special Inspectors shall be qualified persons per IBC 1704.2.1.

1705 are required for the following:

STRUCTURAL STEEL per IBC 1704.2.5.1

A qualified Special Inspector of an "approved agency" providing Quality Assurance (QA) Special Inspections for the project shall review and confirm the Fabricator and Erector's Quality Control (QC) procedures for completeness and adequacy relative to AISC 360-16 Chapter N, the AISC 303 Code of Standard Practice, AWS D1.1-2015 Structural Welding Code, AISC 341-16 Seismic Provisions Section J, AWS D1.8 Seismic Supplement and 2018 IBC code requirements for the fabricator's scope of work.

- Section N4

STATEMENT OF SPECIAL INSPECTIONS. Special Inspections and Testing per IBC Sections 1704 and

FABRICATION SHOP INSPECTION: Where off-site Fabrication of gravity LOAD BEARING MEMBERS & ASSEMBLIES is performed, Special Inspector shall verify that the fabricator complies with <u>IBC 1704.2.5</u>.

o QA Agency providing Special Inspections shall provide personnel meeting the minimum qualification requirements for Inspection and Nondestructive Testing NDT per AISC 360-16

• For Special Inspections of Steel Seismic Force Resisting Systems, QA Agency personnel shall meet the minimum qualification requirements for Inspection and Nondestructive Testing NDT per AISC 341-16 Sections J3 and J4.

- QA Agency shall submit gualification documents per AISC 341-16 section J2 on projects subject to Special Inspections on Seismic Force Resisting Systems with R >3.
- NDT personnel shall be qualified per AISC 341-16 Section J4.
- Provide QA Inspections per AISC 341-16 Section J5 through J10 as applicable.
- Verify Fabricator and Erector Quality Control Program per AISC 360-16 Section N2.
- o Visual Welding Inspection of welds by both QC and QA personnel shall be per tables listed in AISC 360 Section N5. Additional Visual Inspections per AISC 341-16 Section J6 and AWS D1.8 shall be performed by both Quality Control and Quality Assurance personnel on SFRS in accordance with Tables listed below.
- Inspection Tasks for Welding
 - Prior to Welding per AISC 360-16 Table N5.4-1 and AISC 341-16 Table J6-1 of the
 - During Welding per AISC 360-16 Table N5.4-2 and AISC 341-16 Table J6-2 of the
 - After Welding per AISC 360-16 Table N5.4-3 and AISC 341-16 Table J6-3 of the SFRS
- Nondestructive Testing (NDT) of welds: Non-Destructive Testing (NDT) of welded joints per AISC 360-16 N.5 and J6.2 for
 - elements of the SFRS Risk Category for determination of extent of NDT per AISC 360 N5.5b is noted in the Design Criteria and Loads section of these General Requirements.
 - NDT performed shall be documented and reports shall identify the tested weld by piece mark and location in the piece.
 - For field work, the NDT report shall identify the tested weld by location in the structure, piece mark and location in the piece.
- Inspection Tasks for Bolting per AISC 360-16 Section N5.6 Prior to Bolting per AISC 360-16 Table N5.6-1and AISC 341-16 Table J7-1 of the
 - SFRS. Not required for snug-tight joints. During Bolting per AISC 360-16 Table N5.6-2 and AISC 341-16 Table J7-2 of the SFRS. Not required for snug-tight joints. After Bolting per AISC 360-16 Table N5.6-3 and AISC 341-16 Table J7-3 of the
- SFRS. Additional Inspection tasks per AISC 360-16 Section N5.7 and AISC 341-16 Table J8-1 of
- the SFRS.

INSPECTION SUBMITTALS: Special inspection reports shall be provided on a weekly basis. Final special inspection reports will be required by each special inspection firm per IBC 1704.2.4. Submit copies of all inspection reports to the Engineer and the Authority Having Jurisdiction for review.

CONTRACTOR RESPONSIBILITY: Prior to issuance of the building permit, the Contractor is required to provide the Authority Having Jurisdiction a signed, written acknowledgement of the Contractor's responsibilities associated with the above Statement of Special Inspections addressing the requirements listed in IBC Section 1704.4. Contractor is referred to IBC Sections 1705.12.5 and 1705.12.6 for architectural and mechanical/electrical/plumbing (MEP) building systems that may be subject to additional inspections (based on the building's designated Seismic Design Category listed in the CRITERIA), including anchorage of HVAC ductwork containing hazardous materials, piping systems and mechanical units containing flammable, combustible or highly toxic materials, electrical equipment used for emergency or standby power, exterior wall panels and suspended ceiling systems.

POST-INSTALLED ANCHORS (INTO CONCRETE)

REFERENCE STANDARDS: Conform to:

IBC Chapter 19 "Concrete" ACI 318-14 "Building Code Requirements for Structural Concrete"

POST-INSTALLED ANCHORS: Install only where specifically shown in the details or allowed by SER. All post-Installed anchors types and locations shall be approved by the SER and shall have a current ICC-Evaluation Service Report that provides relevant design values necessary to validate the available strength exceeds the required strength. Submit current manufacturer's data and ICC ESR report to SER for approval regardless of whether or not it is a pre-approved anchor. Anchors shall be installed in strict accordance to ICC-ESR and manufacturer's instructions. No reinforcing bars shall be damaged during installation of postinstalled anchors. Special inspection shall be per the TESTS and INSPECTIONS section. Anchor type, diameter and embedment shall be as indicated on drawings.

- ADHESIVE ANCHORS: The following Adhesive-type anchoring systems have been used in the design and shall be used for anchorage to CONCRETE, as applicable and in accordance with corresponding current ICC ESR report. Drilled-in anchor embedment lengths shall be as shown on drawings, or not less than 7 times the anchor nominal diameter (7D).
- a. SIMPSON "SET-XP" ICC ESR 2508 for anchorage to CONCRETE

STRUCTURAL STEEL

REFERENCE STANDARDS: Conform to: IBC Chapter 22 – "Steel

- 2) ANSI/AISC 303-16 "Code of Standard Practice for Steel Buildings & Bridges"
- AISC "Manual of Steel Construction", Fourteenth Edition (2010) ANSI/AISC 360-16 – "Specification for Structural Steel Buildings"
- 5) AWS D1.1:2015 "Structural Welding Code Steel"
- 6) 2014 RCSC (Research Council on Structural Connections) "Specification for Structural Joints using High-Strength Bolts"
- ANSI/AISC 341-16 "Seismic Provisions for Structural Steel Buildings" 8) ANSI/AISC 358-16 – "Prequalified Connections for Special and Intermediate Steel Moment Frames
- for Seismic Applications" including Supplement No. 1
- 9) AWS D1.8:2009 "Structural Welding Code Seismic Supplement"

SPECIAL PROVISIONS for ELEMENTS of the SEISMIC FORCE RESISTING SYSTEM (SFRS): Selected steel elements of this project are part of the Seismic Force Resisting System" (SFRS) and, thus are subject to special requirements detailed in the AISC "Seismic Provisions". Elements of the SFRS are designated on plans. Refer to DRAWING LEGEND for symbols used to designate elements on the plans and STRUCTUR-AL STEEL SEISMIC PROVISIONS Section of General Notes for supplemental requirements.

↓G Note: To be fille	d out on original drawings upon project completion	REUSE OF DOCUMENTS		A HAR A HAR
that these Record accurate ect as constructed. E:	3. Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed. DATA TRANSFER CHECKED BY: COMPANY: BY: TITLE: DATE:	THIS DOCUMENT AND THE IDEAS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF AWWU AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT WRITTEN AUTHORIZATION OF	Standard Conversando Inc. All Rights Reserved This document, and the ledes and degrees my not be ruised, in whole or indication of the ledes and degrees my not be ruised. In whole or Division of the ledes and degrees my not be ruised, in whole or indications of the ledes and degrees my not be ruised. In whole or Division of the ledes and degrees my not be ruised in whole or Division of the ledes and degrees my not be ruised. In whole or Division of the ledes and degrees my not be ruised in whole or Division of the ledes and degrees my not be ruised. In whole or Division of the ledes and degrees my not be ruised in whole or Division of the ledes and degrees my not be ruised. In whole or Division of the ledes and degrees and the ledes and degrees and the Division of the ledes of the run of the ledes of	49 TH PAUL D. ROGNESS No. SE13924 PROFESSIONA EXPIRES: 12/31/23 SE AI

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		STRUC TURAL GENERAL NOTES	S0.1
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		PROJ. ID.: WM.00151	24

- (1) SHOP DRAWINGS complying with AISC 360 Sections M1and N3 and AISC 303 Section 4. ERECTION DRAWINGS complying AISC 360 Sections M1and N3 and AISC 303 Section 4.
- Weld Procedure Specifications (WPS's) for shop and field welding.
 Manufacturer's Certificates of Conformance for electrodes, fluxes and gases (welding consumables).

Make copies of the following documents available to the SER or Owner's Inspection Agency in electronic or printed form prior to fabrication per AISC 360 Section N3.2 requirements:

(1) <u>Fabricator's written Quality Control Manual</u> that includes, as a minimum: a. Material Control Procedures

- Inspection Procedures
- c. Non-conformance Procedures
- (2) Steel & Anchor Rod suppliers' Material Test Reports (MTR's) indicating the compliance with specifications. (3) Fastener manufacturer's Certification documenting conformance with the specification.
- (4) Filler metal manufacturer's product data for Shielded Metal Arc Welding (SMAW), Flux-Cored Arc Welding (FCAW) and Gas Metal Arc Welding (GMAW) indicating:
 - a. Product specification compliance b. Recommended welding parameters
 - c. Recommended storage and exposure requirements including baking
- Limitations of use (5) <u>Procedure Qualification Records (PQR's)</u> for WPS's that are not prequalified in accordance with AWS.
- (6) <u>Welding personnel Performance Qualification Records (WPQR)</u> and continuity records conforming to
- AWS standards.

MATERIALS:

Structural steel materials shall conform to materials and requirements listed in AISC 360 section A3 including, but not limited to: .. ASTM A36, Fy (Yield Stress) = 36 ksi Angle (L) Shapes ..

- .. ASTM A36, Fy = 36 ksi Structural Plate (PL)...
- Hollow Structural Section Square/Rect (HSS).. ASTM A500, Grade B Fy = 46 ksi Washers (Hardened Flat or Beveled) ASTM F436, Grade and Finish per RCSC Table 2.1 High Strength Threaded Rods ASTM A449, Fy = 50 ksi

FABRICATION:

1) Conform to AISC 360 Section M2 "Fabrication" and AISC 303 Section 6 "Shop Fabrication".

- 2) Quality Control (QC) shall conform to:
 - a. AISC 360 Chapter N "Quality Control and Quality Assurance" and
 - b. AISC 303 Section 8 "Quality Control".
 - c. Fabricator and Erector shall establish and maintain written Quality Control (QC) procedures per AISC 360 section N3. d. Fabricator shall perform self-inspections per AISC 360 section N5 to ensure that their work
 - is performed in accordance with Code of Standard Practice, the AISC Specification, Contract Documents and the Applicable Building Code.
 - e. QC inspections may be coordinated with Quality Assurance inspections per Section N5.3 where fabricators QA procedures provide the necessary basis for material control, inspection, and control of the workmanship expected by the Special Inspector.

WELDING:

- 1) Welding shall conform to AWS D1.1 and D1.8 as applicable for Seismic elements with Prequalified Welding Processes except as modified by AISC 360 section J2 and AISC 341 as applicable. Welders shall be qualified in accordance with AWS D1.1 (and D1.8 for Demand Critical Welds where applicable) requirements.
- 2) Use 70ksi strength, low-hydrogen type electrodes (E7018) or E71T as appropriate for the process selected. 3) Welding of high strength anchor rods is prohibited unless approved by Engineer.
- 4) Welding of headed stud anchors shall be in accordance with AWS D1.1 Chapter 7 "Stud Welding".

ERECTION:

- 1) Conform to AISC 360 Section M4 "Erection" and AISC 303 Section 7 "Erection".
- 2) Conform to AISC 360 Chapter N "Quality Control and Quality Assurance" and AISC 303 Section 8. a. The Erector/Contractor shall maintain detailed erection quality control procedures that ensure that the work is performed in accordance with these requirements and the Contract Documents.
- 3) Steel work shall be carried up true and plumb within the limits defined in AISC 303 Section 7.13.
- "Required Testing", as applicable and AISC 360 Chapter J, Section M2.5 and Section N5.6.
- 5) The contractor shall provide temporary bracing and safety protection required by AISC 360 Section M4.2 and AISC 303 Section 7.10 and 7.11.
- 6) All bolts and threaded rods shall be tightened to "Snug-tight" condition per RCSC, unless noted otherwise.

STRUCTURAL STEEL - SEISMIC PROVISIONS

REFERENCE STANDARDS: Conform to the standards in the STRUCTURAL STEEL section and the following:

1) ANSI/AISC 341-16 – "Seismic Provisions for Structural Steel Buildings" 2) AWS D1.8:2009 – "Structural Welding Code – Seismic Supplement"

<u>SCOPE</u>: In addition to the standards specified in the STRUCTURAL STEEL Section of these GENERAL RE-QUIREMENTS, Structural Steel that is part of or that transfers seismic loads to the designated Seismic Force Resisting System (SFRS) defined in the DESIGN CRITERIA AND LOADS section of these GENERAL REQUIREMENTS, shall comply with the applicable SEISMIC PROVISIONS below.

SEISMIC FORCE RESISTING SYSTEM (SFRS): The SFRS is an assemblage of beams, columns, and braces that have been specially proportioned into vertical frame systems to resist lateral seismic forces. Beyond the frames are typically other horizontal members connecting to the vertical shear-resisting frames that collect and deliver concentrated seismic forces to the vertical shear elements. These elements include "collectors", "drags", and "diaphragms" (such as the floor slab and roof deck), which also form part of the SFRS and are subject to the "Seismic Provisions" of AISC 341.

DESIGNATION of the primary SFRS Framing System for this project is provided in the DESIGN CRITERIA AND LOADS section of these GENERAL REQUIREMENTS. In addition to the primary steel SFRS, Stability of the structure under seismic loads is reliant upon structural steel collectors, drag struts, and diaphragm chords which are also governed by the Seismic Provisions.

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							DEVISIONS		
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Lowest Anticipated Service Ter closed and expected to be main Structural members and their co

Seismic Provisions of this section documentation, fabrication, inspe not limited to:

1) Identification of SFRS cial detailing, welding ar

QUALITY CONTROL and QUAL Assurance (QA) (by an approve accordance with AISC 341, Char

 Fabricator and Erector s a. Fabricator and

- Agency, prior to quired per AISC
- 2) Special Inspections req SPECIAL INSPECTIONS
- SUBMITTALS: Submit Fabricator and Ere
- (2) Shop drawings of the SFI tions A4.1, A4.2, and I1 ar
 - DESIGNATION MEMBER and (
- (3) Weld Procedure Specifica
- (4) Bolt Installation Procedure (5) Material Data For Demand

SFRS MATERIALS: Structural s A3.1. Reference the MATERIALS

SFRS WELDING REQUIREMENT ing.

- 1) <u>WELDING PROCEDUR</u> Procedures prepared in
- AISC 341 Section I2.3. 2) FILLER METAL: Welds requirements of AISC have a minimum Charpy dence of compliance.

NONSTRUCTURAL SEISMIC

Drywall Crack Repair: Repair drywall cracks in Building process area and admin area) tents of repairs will be identified to

-) Cracks less than ¹/₈-inch: a. Trim any loose pieces fr b. Fill with joint compound,
- Let harden and add sec d. Sand when dry.
- e. Prime and paint entire w Paint shall be latex acry

Cracks ¹/₈-inch and greater:

- a. Trim any loose pieces fr b. Use a utility knife to wide
- c. Test the strength of the
- wall screws and drill to a
- d. Apply drywall compound crack. Draw knife firmly over tape with knife. Let
- cent surface. e. When dry, use sandpar
- apply texture, as neede

Prime and paint entire was g. Paint shall be latex acryl

Pipe Insulation Repair:

Reference Specifications for repa

4) High strength bolting shall comply with the RCSC requirements including RCSC Section 7.2

MARK	DESCRIPTION	MARK	DESCRIPTIC
F2.0	FOOTING SYMBOL (REFER TO SPREAD FOOTING SCHEDULE)	I	INDICATES WIDE FLANGE
2W4	SHEAR WALL SYMBOL (REFER TO SHEAR WALL SCHEDULE)		INDICATES HOLLOW STR SECTION (HSS) COLUMN TUBE STEEL (TS) COLUM
RFI 00	REVISION TRIANGLE	0	INDICATES HOLLOW STR SECTION (HSS) COLUMN STEEL PIPE COLUMN
$\langle 1 \rangle$	ROOF/FLOOR DIAPHRAGM NAILING SYMBOL (REFER TO DIAPHRAGM NAILING SCHEDULE)		INDICATES WOOD POST
	ELEVATION SYMBOL (T/ REFERS TO COMPONENT THAT THE ELEVATION REFERENCES)		INDICATES BUNDLED ST
3	STUD BUBBLE (INDICATES NUMBER OF STUDS REQUIRED IF EXCEEDS NUMBER SPECIFIED IN PLAN NOTE)		INDICATES MOMENT FRA
	INDICATES STEP IN FOOTING (REFER TO TYPICAL STEP IN FOOTING DETAIL)	⊱,	INDICATES A LEDGER
X SX.X	DETAILS OR SECTION CUT (DETAIL NUMBER/SHEET NUMBER)	÷•••••	INDICATES WOOD OR ST BEARING WALL LINE PER KEY ON SHEET
00 S0.0	DETAILS OR SECTION CUT IN PLAN VIEW (DETAIL NUMBER/SHEET NUMBER)		INDICATES WOOD OR ST SHEAR WALL LINE AND F PER KEY ON SHEET
XX/SXX.XX	INDICATES LOCATION OF CONCRETE WALLS, SHEAR WALLS OR BRACED FRAME ELEVATIONS	\$ <u>77777</u> \$	INDICATES MASONRY/CN
	STRUCTURAL EXTENT SYMBOL SINGLE ARROW - END OF EXTENT	<u> </u>	INDICATES CONCRETE/TI CONCRETE WALL
	EXTENT ALONG THE ELEMENT LINE UNTIL THE ELEMENT IS INTERRUPTED	\$\$	INDICATES BEARING WA
	INDICATES DIRECTION OF DECK SPAN	\$\$	INDICATES EXISTING WA

L Angle EXT	Exterior PJP	Partial J
AB Anchor Bolt FB	Factory-Built PREFAB	Prefabri
ADDL Additional FD	Floor Drain PSF	Pounds
ADH Adhesive FDN	Foundation PSI	Pounds
ALT Alternate FIN	Finish PSL	Parallel
ARCH Architectural FLR	Floor P-T	Post-Te
B or BOT Bottom FRP	Fiberglass Reinforced Plastic PT	Pressur
B/ Bottom Of FRT	Fire Retardant Treated R	Radius
BLDG Building FTG	Footing RD	Roof Dr
BLKG Blocking E/	Face of BEF	Refer/R
BMU Brick Masonry Unit GA	Gage BEINE	Reinford
BP Basenlate GAL	Galvanized BEOD	Require
BRBE Buckling Bestrained GEO		Rotainin
Broad Frame	Clue Lemineted Timber SP	
Dideeu Fidille GL		Sile-Dui
BRG Bearing GVE		Special
BIVVN Between HDR	Header	Braced
C Camber HF	Hem-Fir SCHED	Schedul
CB Castellated Beam HGR	Hanger SER	Structur
C'BORE Counterbore HD	Hold-down	Record
CL or 🖞 Centerline HOR	Z Horizontal SFRS	Seismic
CLT Cross-Laminated Timber HP	High Point	Resistin
CIP Cast in Place HSS	TS (Hollow Structural Section) SHTHG	Sheathi
CJ Construction or IBC	International Building Code SIM	Similar
Control Joint ID	Inside Diameter SLBB	Short Le
CJP Complete Joint IE	Invert Elevation SMF	Special
Penetration IF	Inside Face SOG	Slab on
CLB Clear INT	Interior SP	Souther
CLG Ceiling k	Kins SPEC	Specific
CMLL Concrete Masonry Unit KSE	Kips Per Square Foot SO	Square
	Lineal Foot	Studrail
CONC Concrete LI	Live Load SE	Squara
CONV Connection	Live Load Si	Staiplas
CONST Construction	Long Leg Back-to-Back SST	Stannes
CONST Construction LLH	Long Leg Honzontal STAGG	Stagger
		Standar
C SINK Countersink LP		Stiffene
CIRD Centered LONG	II Longitudinal SIL	Steel
DIA Diameter LSL	Laminated Strand Lumber STRUCT	Structur
DB Drop Beam LVL	Laminated Veneer Lumber SWWJ	Solid W
DBA Deformed Bar Anchor MAS	Masonry SYM	Symme
DBL Double MAX	Maximum T	Тор
DEMO Demolish MEC	Mechanical T/	Top Of
DEV Development MEZ	Mezzanine T&B	Top & E
DF Douglas Fir MFR	Manufacturer TC AX LD	Top Cho
DIAG Diagonal MIN	Minimum TCX	Top Cho
DIST Distributed MISC	Miscellaneous TDS	Tie Dov
DL Dead Load NIC	Not In Contract T&G	Tonaue
DN Down NIT	Nail-Laminated Timber THKND	Thicken
DO Ditto NTS	Not To Scale THRD	Threade
DP Denth/Deen OC	On Center THBU	Through
DWG Drawing OCB	Ordinany Concentric Braced TBANSV	Transvo
(E) Existing	Eromo TVP	Typical
(L) Existing	Outside Dispector	Liniona
EA Each Con		Uniess
EF Each Face OF		Unreimo
EL Elevation OPIN	Opening	Unit
ELEC Electrical OPP		vertical
ELEV Elevator OWS	Open Web Steel Joist W	VVide
EMBED Embedment OWV	J Open Web Wood Joist W/	With
EQ Equal PL	Plate W/O	Without
EQUIP Equipment PAF	Powder Actuated Fastener WHS	Welded
EW Each Way PC		
	Precast WP	Working
EXP Expansion PERF	Precast WP Perpendicular WWF	Working Welded

			n
	DRAWIN	G LEGEND	
	MARK DESCRIPTION	MARK DESCRIPTION	
<u>mperature (LAST)</u> : The primary SFRS framing for this project is to be en- tained with the LAST of 50 degrees Fahrenheit.	F2.0 FOOTING SYMBOL (REFER TO SPREAD FOOTING SCHEDULE)	I INDICATES WIDE FLANGE COLUMN	
onnections considered in the design of the SFRS are subject to the special on. Subject elements require special attention to detailing, material control,	2W4 SHEAR WALL SYMBOL (REFER TO SHEAR WALL SCHEDULE)	INDICATES HOLLOW STRUCTURAL SECTION (HSS) COLUMN OR TUBE STEEL (TS) COLUMN INDICATES HOLLOW STRUCTURAL	
Members and their Connections on shop and erection drawings; include spe-	RFI 00 REVISION TRIANGLE	SECTION (HSS) COLUMN OR STEEL PIPE COLUMN	
LITY ASSURANCE PLAN: Quality Control (QC) (by Contractor) and Quality ad Special Inspection Agency) for members of the SFRS shall be provided in inter. Land coordinated per Section	ROOF/FLOOR DIAPHRAGM NAILING SYMBOL (REFER TO DIAPHRAGM NAILING SCHEDULE)	INDICATES WOOD POST	
shall have Quality Control Program per AISC 360 Section N2. Erector shall provide access to the Quality Assurance/Special Inspection to the start of work, for purposes of review of the Quality Control Program re-	T/FTG = X'-X" TO COMPONENT THAT THE ELEVATION REFERENCES) STUD BUBBLE (INDICATES NUMBER	INDICATES BUNDLED STUDS	
uired per IBC section N2 per IBC 1704.2.5. Juired per IBC sections 1705.2.1 and 1705.12.1 and the STATEMENT OF IS section of these GENERAL REQUIREMENTS.	OF STUDS REQUIRED IF EXCEEDS NUMBER SPECIFIED IN PLAN NOTE)	INDICATES MOMENT FRAME CONNECTION	Z
ector Documents per AISC 360 Section N3 and AISC 341 Section J2.1. RS shall be prepared in accordance with AISC 303 Section 4, AISC 341 Sec- nd shall include the following:	(REFER TO TYPICAL STEP IN FOOTING DETAIL)		3 P
of the SFRS. CONNECTIONS of the SFRS clearly identified.	SX.X (DETAILS OR SECTION COT (DETAIL NUMBER/SHEET NUMBER)	# BEARING WALL LINE PER KEY ON SHEET PER KEY ON SHEET	
ations (WPS's). es. d Critical Welds per AISC 341 J2.1(3).	00 DETAILS OR SECTION CUT IN PLAN S0.0 VIEW (DETAIL NUMBER/SHEET NUMBEI	R) OR SHEAR WALL LINE AND HOLD-DOWNS PER KEY ON SHEET	25
steel part of the SFRS shall meet the requirements of AISC 341, Section S section of the STRUCTURAL STEEL for specific ASTM specifications.	XX/SXX.XX INDICATES LOCATION OF CONCRETE WALLS, SHEAR WALLS OR BRACED FRAME ELEVATIONS	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	۲ ۲
<u>NTS</u> : All welding of the SFRS shall conform to the Structural Welding Code, oplement, AWS D1.8, including, both shop fabrication and field erection weld-	STRUCTURAL EXTENT SYMBOL SINGLE ARROW - END OF EXTENT	INDICATES CONCRETE/TILT-UP CONCRETE WALL	A Z Z
<u>RE SPECIFICATIONS (WPS)</u> : Welding shall be done with appropriate Weld a accordance with AWS D1.1, AWS D1.8 clause 6.1. Submit for review per	DOUBLE ARROW - CONTINUOUS EXTENT ALONG THE ELEMENT LINE UNTIL THE ELEMENT IS INTERRUPTED	をニニニニネ INDICATES BEARING WALL BELOW	
of members of the SFRS shall be made with filler metal conforming to the 341 Section A3.4 and AWS D1.8 clause 6.3, which can produce welds that y V-Notch toughness of 20 foot-pounds at 0 degrees Fahrenheit. Submit evi-	INDICATES DIRECTION OF DECK SPAN	INDICATES EXISTING WALL	
	ABBRE	VIATIONS	
REPAIR ITEMS	L Angle EXT Exterio AB Anchor Bolt FB Factory ADDI Additional ED Eloor D	or PJP Partial Joint Penetration y-Built PREFAB Prefabricated Drain PSE Pounds per Square Foot	
g 1 (shop area, admin area, HVAC rooms and pipe penetrations between the and Building 2. Quantities on Bid Proposal are approximate and actual ex- by Engineer. Repair drywall cracks as follows:	ADH Adhesive FDN Founda ALT Alternate FIN Finish ARCH Architectural FLR Floor B or BOT Bottom FRP Fiberal	ass Beinforced Plastic PT Provide Point Pressure Treated	
rom the cracked area and wipe clean. , using a putty knife.	B/Bottom OfFRTFire ReBLDGBuildingFTGFootingBLKGBlockingF/Face of	etardant Treated R Radius g RD Roof Drain f REF Refer/Reference	
vall to match existing, to nearest corner or as otherwise specified.	BMU Brick Masonry Unit GA Gage BP Baseplate GALV Galvan BRBF Buckling Restrained GEOTECH Geotect	REINF Reinforcing ized REQD Required chnical RET Retaining	
iic; submit for approval	Braced Frame GL Glue L BRG Bearing GWB Gypsu	aminated Timber SB Site-Built m Wall Board SCBF Special Concentric	
om the cracked area with a utility knife and wipe clean en the crack and cut it into a "V" to help the drywall compound adhere wall by pushing on the crack with your hands. If the wall moves, use the dry-	C Camber HDR Heade CB Castellated Beam HGR Hange	r Braced Frame ir SCHED Schedule r SER Structural Engineer of	
attach it to the closest stud d over the crack with a 5-inch joint knife, embed tape in compound to bridge v over crack to tightly embed tape. Let compound harden. Apply compound t harden and apply second cost of compound if possesany. Feather to adia	C'BORECounterboreHDHold-dCL or QCenterlineHORIZHorizonCLTCross-Laminated TimberHPHigh P	own Record ntal SFRS Seismic Force- oint Resisting System	
per and hand sander or a sanding sponge to create a smooth surface and	CIP Cast in Place HSS = TS (Hollov CJ Construction or IBC Interna Control Joint ID Inside	v Structural Section) SHTHG Sheathing ational Building Code SIM Similar Diameter SI BB Short Leg Back-to-Back	
vall to match existing, to nearest corner or as otherwise specified. lic; submit for approval	CJP Complete Joint IE Invert Penetration IF Inside CLR Clear INT Interior	Elevation SMF Special Moment Frame Face SOG Slab on Grade r SP Southern Pine	
	CLG Ceiling k Kips CMU Concrete Masonry Unit KSF Kips Pe COL Column	SPEC Specification er Square Foot SQ Square	
air of pipe insulation where required.	COLColumnLFLinearCONCConcreteLLLive LoCONNConnectionLLBBLong L	bad SF Square Foot eg Back-to-Back SST Stainless Steel	
	CONST Construction LLH Long L CONT Continuous LLV Long L C'SINK Countersink LP Low Po	eg Horizontal STAGG Stagger/Staggered eg Vertical STD Standard oint STIFF Stiffener	
	CTRD Centered LONGIT Longitu DIA Diameter LSL Lamina DB Drop Beam LVI Lamina	udinal STL Steel ated Strand Lumber STRUCT Structural ated Veneer Lumber SWW L Solid Web Wood Joist	
	DBA Deformed Bar Anchor MAS Mason DBL Double MAX Maxim	iry SYM Symmetrical Imm T Top	
	DEMO Demolish MECH Mecha DEV Development MEZZ Mezza DE Douglas Fir MEB Manuf	nical T/ Top Of nine T&B Top & Bottom acturer TC AX I D Top Chord Axial Load	
	DIAG Diagonal MIN Minim DIST Distributed MISC Miscel	Image: Total and the state of the	
	DL Dead Load NIC Not In DN Down NLT Nail-La DO Ditto NTS Not To	Contract I&G Longue & Groove minated Timber THKND Thickened Scale THRD Threaded	
	DP Depth/Deep OC On Cert DWG Drawing OCBF Ordina (5) Eviction Evice	nter THRU Through ry Concentric Braced TRANSV Transverse	
	EA Each OD Outsid EF Each Face OF Outsid	e Diameter UNO Unless Noted Otherwise e Face URM Unreinforced Masonry	
	ELElevationOPNGOpenirELECElectricalOPPOpposELECElectricalOPPOppos	ng Unit ite VERT Vertical	
	EMBED Embedment OWWJ Open V EQ Equal PL Plate	Web Wood Joist W/ With W/O Without	
	EQUIPEquipmentPAFPowdeEWEach WayPCPrecase	er Actuated Fastener WHS Welded Headed Stud t WP Working Point	
	EXP Expansion PERP Perper EXP JT Expansion Joint PLWD Plywoo	vvvvFvvelded Wire Fabricod±Plus or Minus	
			MUNICIDALITY OF ANCHORACE
Note: To be filled out on original drawings upon project completion 3. Based on periodic field observations by the	THIS DOCUMENT AND THE		WASTERIAN WATER & WASTEWATER UTILITY
that these Record Engineer (or an individual under his/her direct supervision), the Contractor-provided data	IDEAS INCORPORATED HEREIN,		ERWWTF SCHED A EARTHQUAKE REPAIRS DWG
E: DATA TRANSFER CHECKED BY:	PROFESSIONAL SERVICE, IS THE PROPERTY OF AWWU AND P: (907) 257-2613 Www.dci-e	ngineers.com	STRUCTURAL GENERAL NOTES CONTINUED. LEGEND AND S0.2
BY: TITLE:	IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY	All Rights Reserved reused, in whole or reseand Inc. for its unauthorized use.	ABBREVIATIONS
	WRITTEN AUTHORIZATION OF	EXPIRES: 12/31/23	DATE: JUNE 2022 GRID: NW0150 SHEET 4 of 24

SPECIAL INSPECTIONS

The following Statement and Schedules of Inspections are those Special Inspections and Tests that shall be performed for this project. Special Inspectors shall reference these plans and IBC Chapter 17 for all special inspection requirements.

The owner shall retain an "approved agency" per IBC 1703 to provide special inspections for this project. Special Inspectors shall be qualified persons per IBC 1703.1.3. Special inspection reports shall be provided on a weekly basis. Submit copies of all inspection reports to the Engineer and the Authority Having Jurisdiction for review. In addition to special inspec-

tion reports and tests, submit reports and certificates noted in IBC 1704.5 to the Authority Having Jurisdiction. Final special inspection reports will be required by each special inspection firm per IBC 1704.2.4.

- STATEMENT OF SPECIAL INSPECTIONS: This statement of Special Inspections has been written with the understanding that the Building Official will:
- Review and approve the qualifications of the Special Inspectors - Monitor the special inspection activity on the project site to assure that Special Inspectors
- are qualified and performing their duty as state within this statement. Review all Special Inspection Reports submitted to them by the Special Inspector - Perform inspections as required by IBC Section 110.3.

The following Special Inspections are applicable to this project: - Special Inspections for Standard Buildings (per IBC 1705.1) REQUIRED - Special Inspections for Seismic Resistance (per IBC 1705.12) REQUIRED - Testing for Seismic Resistance (per IBC 1705.12) REQUIRED

STRUCTURAL STEEL per IBC 1705.2.1 ,1705.12.2, 1705.13.1

A qualified Special Inspector of an "approved agency" providing Quality Assurance (QA) Special Inspections for the project shall review and confirm the Fabricator and Erector's Quality Control (QC) procedures for completeness and adequacy relative to AISC 360-16 Chapter N, AISC 303-16 Code of Standard Practice, AWS D1.1-2015 Structural Welding Code, AISC 341-16 Seismic Provisions Chapter J, AWS D1.8-2009 Seismic Supplement and 2018 IBC code requirements for the fabricator's scope of work

- QA Agency providing Special Inspections shall provide personnel meeting the minimum qualification requirements for Inspection and Nondestructive Testing NDT per AISC 360 Section N4.
- For Special Inspections of Steel Seismic Force Resisting Systems, QA Agency personnel shall meet the minimum qualification requirements for Inspection and Nondestructive Testing NDT per AISC 341 Sections J3 and J4.
 - QC Agency shall submit qualification documents per AISC 341 section J2 on projects subject to Special Inspections on Seismic Force Resisting Systems with R >3.
 - NDT personnel shall be qualified per AISC 341 Section J4.
 - Provide QC and QA Inspections per AISC 341 Section J5 through J10 as applica-
- Verify Fabricator and Erector QC Program per AISC 360 Section N2.

o Inspection of welds and bolts by both QC and QA personnel shall be per the Schedule of Special Inspections below. All provisions of AWS D1.1 Structural Welding Code for statically loaded structures shall apply. Additional Weld and Bolt Inspections shall be performed by both QC and QA personnel on SFRS elements in accordance with the Schedule of Special Inspections below. Welding inspection and nondestructive testing shall also satisfy AISC 360 and AWS D1.8 Seismic Supplement.

- Nondestructive Testing (NDT) of welds:
 - Non-Destructive Testing (NDT) of welded joints per AISC 360 N5.5 and AISC 341 J6.2 for elements of the SFRS.
 - Risk Category for determination of extent of NDT per AISC 360 N5.5b is noted in the Design Criteria and Loads section of these General Requirements.
 - NDT performed shall be documented and reports shall identify the tested weld by piece mark and location of the piece.
 - For field work, the NDT report shall identify the tested weld by location in the structure, piece mark and location of the piece.
- Additional Inspection tasks per AISC 360 Section N5.8.
- Inspection for Composite Construction shall be done per AISC 360 Section N6.

POST-INSTALLED ANCHORS TO CONCRETE: shall comply with IBC Section 1703. Inspections shall be in accordance with the requirements set forth in the approved ICC Evaluation Report and as indicated by the design requirements specified on the drawings. Refer to the POST INSTALLED ANCHORS section of these notes for anchors that are the basis of the design. Special inspector shall verify anchors are as specified in the POST INSTALLED ANCHORS section of these notes or as otherwise specified on the drawings. Substitutions require approval by the SER and require substantiating calculations and current 2018 IBC recognized ICC Evaluation Services (ES) Report. Special Inspector shall document in their Special Inspection Report compliance with each of the elements required within the applicable ICC Evaluation Services (ES) Report.

<u>SCI</u>	<u>IED</u>	UL	ES	OF	SP
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	INSPECTION TASKS
INSF WEL	PECTION TASKS PRIOR TO DING
1. W ty	/elder qualification records and cont
2. W a'	/elding procedure specifications (WI vailable
3. M co	lanufacturing certifications for weldir onsumables available
4. M	laterial identification (type/grade)
5. W	elder Identification system
6. Fi gʻ	it-up of groove welds (including joint eometry)
	Joint preparationDimensions (alignment, root op
	 ing, root face, bevel) Cleanliness (condition of steel surfaces)
	 Tacking (tack welding quality a location)
	Backing type and fit (if applicable
7. C 8. Fi	onfiguration and finish of access ho it-up of fillet welds
	• Dimensions (alignment, gaps a root)
	Cleanliness (condition of steel surfaces) Tacking (tack weld quality and
	location)
9. C	
WEL	DING
1. U	se of qualified welders
2. C bl	control and handling of welding cons les
	Packaging Exposure control
3. N	o welding over cracked tack welds
4. E	Wind speed within limits Precipitation and temperature
5. W	/PS followed
	Settings on welding equipment Travel speed Selected welding restarials
	Selected weiding materials Shielding gas type/flowrate Preheat applied
	 Interpass temperature maintain (min/max)
6 14	Proper position (F, V, H, OH)
0. 1	 Interpass and final cleaning Each pass within profile limitation
	 Each pass meets quality require ments
INSF	PECTION TASKS AFTER
1. W	/elds cleaned
2. S	ize, length, and locations of welds
3. W	 Velds meet visual acceptance criteria Crack prohibition
	Weld/base-metal fusion Crater cross section Weld profiles
	Weld size Undercut
1 0	Porosity
5. k-	-area
6. W ai	/eld access holes in rolled heavy sh nd built-up heavy shapes
7. B	acking removed and weld tabs remo
8. R	epair activities
9. D w	ocument acceptance or rejection of elded joint or member
9. D w 10.	ocument acceptance or rejection of elded joint or member No prohibited welds have bee
9. D w 10. a INSF	ocument acceptance or rejection of elded joint or member No prohibited welds have been dded without the approval of the EO PECTION TASKS PRIOR TO
9. D w 10. a INSF BOL	ocument acceptance or rejection of relded joint or member No prohibited welds have been dded without the approval of the EO PECTION TASKS PRIOR TO TING
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9. D www. INSF BOLL 1. Mr fr fr d 3. C d d a a a a a 5. C c p pr r fr fr f 6. P in r fr f f f f f f f f f f f f f f f f f	ocument acceptance or rejection of elded joint or member No prohibited welds have bee ded without the approval of the EC PECTION TASKS PRIOR TO TING lanufacturer's certifications available istener materials asteners marked in accordance with STM requirements orrect fasteners selected for the join tetail (grade, type, bolt length if three re to be excluded from shear plane) orrect bolting procedure selected for int detail onnecting elements, including the a rate faying surface condition and ha reparation, if specified, meet applica aquirements re-installation verification testing by istallation personnel observed and o the sused.
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SCALE DATA BY		NG DATA		CHECKED	REV DATE 1 05/202 2 6/24/2	SCALE ACCORDINGLY E DESCRIPTION 22 BDC RESPONSE RD 1 22 TENSION ROD SCOPE	VERT SCALE: N/A BY JLR JLR	 DATA PROVIDED BY: This shall serve to certify that these Record Drawings are a true and accurate representation of the project as constructed. CONTRACTOR: BY: DATE: 2. DATA TRANSFERRED BY: COMPANY: 	 3. Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed. DATA TRANSFER CHECKED BY:	THIS DOCUMENT AND THE IDEAS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF AWWU AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT	Solution of the second	A9 TH PAUL D. ROGNESS No. SE13924	
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ECIAL INSPECTIONS:

MINIMUM REQUIREMENTS FOR INSPECTIONS OF STRUCTURAL STEEL CONSTRUCTION

	QC	QA	REFERENCED STANDARD
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ntinui-	Р	0	AISC 360 TABLE N5.4-1
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MINIMUM REQUIREMENTS SPECIAL INSPECTION OF STRUCTURAL STEEL SEISMIC FORCE RESISTING SYSTEM (SFRS)

INSPECTION TASK	QC	QC	QA	QA	REFERENCED STAND-
	TASK	DOC	TASK	DOC	AND
VISUAL INSPECTION TASKS PRI-					
1. Material Identification (Type/Grade)	0	-	0	_	AISC 341 TABLE J6-1
2. Welder Identification System	0	-	0	-	AISC 341 TABLE J6-1
3. Fit-up Groove Welds (including joint geom- etry)					
Joint preparationDimensions (alignment, root opening,					
 root face, bevel) Cleanliness (condition of steel surfac- os) 	P/0**	-	0	-	AISC 341 TABLE J6-1
 Tacking (tack weld quality and loca- tion) 					
Backing type and fit (if applicable)	0				
5. Fit-up fillet welds	0	-	0	-	AISC 341 TABLE J6-1
 Dimensions (alignment, gaps at root) Cleanliness (condition of steel surfac- 	P/0**	-	0	_	AISC 341 TABLE J6-1
es) • Tacking (tack weld quality and loca- tion					
VISUAL INSPECTION TASKS DUR-					
ING WELDING					
• Settings on welding equipment • Travel speed					
Selected welding materials Shielding gas type/flowrate					
Preheat applied Interpass temperature maintained	0	-	0	-	AISC 341 TABLE J6-2
(min/max) • Proper position (F, V, H, OH)					
Intermix of filler metals avoided un- less approved					
2. Use of qualified welders	0	-	0	-	AISC 341 TABLE J6-2
 S. Control and handling of weiding consuma- bles Packaging 	0	-	О	-	AISC 341 TABLE J6-2
•Exposure control					
4. Environmental conditions Wind speed within limits Prognitation and temporature 	0	-	ο	-	AISC 341 TABLE J6-2
5. Welding techniques					
 Interpass and final cleaning Each pass within profile limitations 	О	-	0	-	AISC 341 TABLE J6-2
Each pass meets quality require- ments					
6. No welding over cracked tacks	0	-	0	-	AISC 341 TABLE J6-2
TER WELDING					
1. Welds cleaned	0	-	0	-	AISC 341 TABLE J6-3
2. Size, length, and locations of welds	Р	-	Р	-	AISC 341 TABLE J6-3
3. Welds meet visual acceptance criteria Crack prohibition Weld/base matel fusion 					
Weld/base-metal fusion Crater cross section Weld profiles and size	Р	D	Р	D	AISC 341 TABLE J6-3
Undercut Porosity					
4. k-area	Р	D	Р	D	AISC 341 TABLE J6-3
5. Placement of reinforcing or contouring fillet welds (if required)	Р	D	Р	D	AISC 341 TABLE J6-3
6. Backing removed, weld tabs removed, and finished, and fillet welds added (if required)	Р	D	Р	D	AISC 341 TABLE J6-3
7. Repair activities	Р	-	Р	D	AISC 341 TABLE J6-3
INSPECTION TASKS PRIOR TO					
1. Proper fasteners selected for the joint detail	0	-	0	_	AISC 341 TABLE J7-1
2. Proper bolting procedure selected for joint	0	-	0		AISC 341 TABLE J7-1
3. Connecting elements, including the appro-					
priate faying surface condition and hole preparation, if specified, meet applicable	0	-	0	-	AISC 341 TABLE J7-1
4. Pre-installation verification testing by instal-				_	
lation personnel observed for fastener assemblies and methods used.	Р	D	0	D	AISC 341 TABLE J7-1
5. Proper storage provided for bolts, nuts, washers and other fastener components	0	-	0	-	AISC 341 TABLE J7-1
INSPECTION TASKS DURING					
1. Fastener assemblies placed in all holes and	-		-		
washers (if required) are positioned as required	0	-	0	-	AISC 341 TABLE J7-2
2. Joint brought to the snug-tight condition prior to the pre-tensioning operation	0	-	0	-	AISC 341 TABLE J7-2
3. Fastener component not turned by the wrench prevented from rotating	0	-	0	-	AISC 341 TABLE J7-2
4. Bolts are pre-tensioned progressing sys- tematically from the most rigid point toward	0	-	0	-	AISC 341 TABLE J7-2
ING					
1. Document accepted and rejected connec- tions	Р	D	Ρ	D	AISC 341 TABLE J7-3
OTHER INSPECTION TASKS					
1. RBS requirements, if applicable • Contour and finish • Dimensional tolerances	Р	D	Р	D	AISC 341 TABLE J8-1
 Protected zone- no holes and unapproved attachments made by fabricator or erector, as applicable 	Р	D	P	D	AISC 341 TABLE J8-1
O - The inspector shall observe these functions (n a random (u Haily basis Oper	ations need no	ı at be delaved per	

 B - These inspector shall be performed prior to the final acceptance of the item.
 D - The inspector shall prepare reports indicating that the work has been performed in accordance with the contract documents. The report need not provide detailed measurements for joint fit-up, WPS settings, completed welds, or other individual items listed in the tables. For shop fabrication, the report shall indicate the piece mark of the piece inspected. For field work, the report shall indicate the reference gird lines and floor elevation inspected. Work not in compliance with the contract documents and whether the noncompliance has been satisfactorily repaired shall be noted in the inspection report. **Follow performance of this inspection task for ten welds to be made by a given welder, with the welder demonstrating understanding of requirements

and possession of skills and tools to verify these items, the perform designation of this task shall be reduced to observe, and the welder shall perform this task. Should the inspector determine that the welder has discontinued performance of this task, the task shall be returned to perform until such time as the inspector has re-establishes adequate assurance that the welder will perform the inspection tasks listed.

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AWWU PLAN SET NO. 11173

<u>KEY PLAN</u>

FOUNDATION PLAN NOTES:

1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S0.1, S0.2 AND S0.3.

2. ALL EXISTING DIMENSIONS SHALL BE FIELD VERIFIED.

3. CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY SHORING.

REVISIONS

PLAN CHECK

G Note: To be fille	d out on original drawings upon project completion	REUSE OF DOCUMENTS		A.T.E. OF AKA
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ELEVATION VIEW

AERATION BASIN EXPANSION JOINT SCALE: 1" = 1'-0"

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 Anchorage, Alaska 99503

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STRUCTURAL - GENERAL NOTES

GENERAL REQUIREMENTS

GOVERNING CODE: The design and construction of this project is governed by the "International Existing Building Code (IEBC)", 2018 Edition, hereafter referred to as the IEBC, as adopted and modified by the Municipality of Anchorage, AK understood to be the Authority Having Jurisdiction (AHJ). In addition, this project is based on a Tier 3 ASCE 41-13 Analysis.

REFERENCE STANDARDS: Refer to Chapter 35 of 2018 IBC. Where other Standards are noted in the drawings, use the latest edition of the standard unless a specific date is indicated. Reference to a specific section in a code does not relieve the contractor from compliance with the entire standard.

DEFINITIONS: The following definitions cover the meanings of certain terms used in these notes:

"Engineer" – The Structural Engineer of Record.

- "Structural Engineer of Record" (SER) The structural engineer who is licensed to stamp & sign the structural documents for the project. The SER is responsible for the design of the Primary Structural System
- "Specialty Structural Engineer" (SSE) A professional engineer (PE or SE), licensed in the State where the project is located, (typically not the SER), who performs specialty structural engineering services for selected specialty-engineered elements identified in the Contract Documents, and who has experience and training in the Specialty. Documents stamped and signed by the SSE shall be completed by or under the direct supervision of the SSE.

STRUCTURAL DETAILS: The structural drawings are intended to show the general character and extent of the project and are not intended to show all details of the work. Use entire detail sheets and specific details referenced in the plans as "typical" wherever they apply. Similarly, use details on entire sheets with "typical" in the name wherever they apply.

STRUCTURAL RESPONSIBILITIES: The structural engineer (SER) is responsible for the strength and stability of the primary structure in its completed form.

COORDINATION: The Contractor is responsible for coordinating details and accuracy of the work; for confirming and correlating all quantities and dimensions; for selecting fabrication processes; for techniques of assembly; and for performing work in a safe and secure manner.

MEANS, METHODS and SAFETY REQUIREMENTS: The contractor is responsible for the means and methods of construction and all job related safety standards such as OSHA and DOSH (Department of Occupational Safety and Health). Contractor is responsible to adhere to OSHA regulations regarding steel erection items specifically addressed in the latest OSHA regulations. Bolting and field welding at all member connections is to be completed prior to the release of the member from the hoisting mechanism unless reviewed and approved by the General Contractor's temporary bracing and shoring design engineer. The construction documents represent the completed structure. The contractor is responsible for means and methods of construction related to the intermediate structural conditions (i.e. movement of the structure due to moisture and thermal effects; construction sequence; temporary bracing, etc).

BRACING/SHORING DESIGN ENGINEER: The contractor shall at his discretion employ an SSE, a registered professional engineer for the design of any temporary bracing.

TEMPORARY BRACING: The contractor is responsible for the strength and stability of the structure during construction and shall provide temporary, bracing and other elements required to maintain stability until the structure is complete. It is the contractor's responsibility to be familiar with the work required in the construction documents and the requirements for executing it properly.

CONSTRUCTION LOADS: Loads on the structure during construction shall not exceed the design loads as noted in DESIGN CRITERIA & LOADS below or the capacity of partially completed construction as determined by the Contractor's SSE for Bracing.

CHANGES IN LOADING: The contractor has the responsibility to notify the SER of any architectural, mechanical, electrical, or plumbing load imposed onto the structure that differs from, or that is not documented on the original Contract Documents. Provide documentation of location, load, size and anchorage of all undocumented loads in excess of 400 pounds. Provide marked-up structural plan indicating locations of any new equipment or loads. Submit plans to the Engineer for review prior to installation.

NOTE PRIORITIES: Plan and detail notes and specific loading data provided on individual plans and detail drawings supplements information in the Structural General Notes.

DISCREPANCIES: MASS 10.4.2 gives order of precedence in case of discrepancies between the General Notes, Specifications, Plans/Details or Reference Standards, the Engineer shall determine which shall govern. Discrepancies shall be brought to the attention of the Engineer before proceeding with the work. Should any discrepancy be found in the Contract Documents, the Contractor will be deemed to have included in the price the most expensive way of completing the work, unless prior to the submission of the price, the Contractor asks for a decision as to which shall govern. Accordingly, any conflict in or between the Contract Documents shall not be a basis for adjustment in the Contract Price.

SITE VERIFICATION: The contractor shall verify all dimensions and conditions at the site. Conflicts between the drawings and actual site conditions shall be brought to the attention of the Engineer before proceeding with the work.

DESIGN CRITERIA AND LOADS

OCCUPA

SEISMIC DESIGN:

NCY:	Risk Category of Building per 2018 IBC Table 1604.5		Ш	
	·			
	Seismic Design Category:	SDC =	D	
	Basic Structural System		Building	g Frame
	Seismic Force Resisting System		Ordinary tric Brac (Long.), Steel Frame (y Concen- ced Frames Ordinary Moment Transv.)
	Site Classification per ASCE 41-13, Ch. 2.4 Site Class =		D	
	Basic Safety Earthquakes (BSE):		BSE-1E	
	Structural Performance Level:		Damage (average and IO I	e Control e btwn LS evels)
	Nonstructural Performance Level:		Position	Retention
	Spectral Acceleration:			
	Spectral Response Acceleration (Short Period)	S _{xs} =	0.932	
	Spectral Response Acceleration (1-Second Period)	S _{x1} =	0.651	
	Design Base Shear Building 1 (KIPS)		639	
	Design Base Shear Building 2 (KIPS)		568	
	Design Base Shear Aeration Building (KIPS)		368	
	Seismic Analysis procedure used:		Linear S dure	tatic Proce-

SNOW LOAD:	Flat Roof Snow Load, (PSF)	p _f =	40
	Snow Drift Loading required by Authority Having Jurisdiction?		Yes
	Ground Snow Load, (PSF)	p _g =	50
	Snow Exposure Factor	C _e =	В
	Thermal Factor	C , =	1.0

SUBMITTALS

SUBMIT FOR REVIEW: SUBMITTALS of shop drawings, and product data and mill tests shall be in accordance with the submittal requirements of MASS Div 10 and Specifications Section 01 13 00 and are required for items noted in the individual materials sections and for *bidder designed* elements.

SUBMITTAL REVIEW PERIOD: Submittals shall be made in time to provide a minimum of TWO WEEKS or 10 WORKING DAYS for review by the Engineer prior to the onset of fabrication.

GENERAL CONTRACTOR'S PRIOR REVIEW: Prior to submission to the Engineer, the Contractor shall review the submittal for completeness. Dimensions and quantities are not reviewed by the SER, and therefore, must be verified by the General Contractor. Contractor shall provide any necessary dimensional details requested by the Detailer and provide the Contractor's review stamp and signature before forwarding to the Engineer.

SHOP DRAWING REVIEW: Once the contractor has completed his review, the SER will review the submittal for general conformance with the design concept and the contract documents of the building and will stamp the submittal accordingly. Markings or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The SER will return submittals in the form they are submitted in (either hard copy or electronic). For hard copy submittals, the contractor is responsible for submitting the required number of copies to the SER for review.

INSPECTIONS, QUALITY ASSURANCE VERIFICATIONS AND TEST REQUIREMENTS

INSPECTIONS: Framing is subject to inspection by the Building Official in accordance with IBC 110.3. Contractor shall coordinate all required inspections with the Building Official.

SPECIAL INSPECTIONS, VERIFICATIONS and TESTS: Special Inspections, Verifications and Testing shall be done in accordance with IBC Chapter 17 and the STATEMENT OF SPECIAL INSPECTIONS herein per IBC Sections 1704 and 1705, including 1705.12 for seismic resistance for projects in Seismic Design Categories C, D, E and F and including 1705.11 for high wind regions as applicable.

SPECIAL INSPECTION AGENCY and SPECIAL INSPECTORS: Owner shall retain an "approved agency" per IBC 1703 to provide Special Inspections for the project. Special Inspectors shall be qualified persons per IBC 1704.2.1.

1705 are required for the following:

STRUCTURAL STEEL per IBC 1704.2.5.1

A qualified Special Inspector of an "approved agency" providing Quality Assurance (QA) Special Inspections for the project shall review and confirm the Fabricator and Erector's Quality Control (QC) procedures for completeness and adequacy relative to AISC 360-16 Chapter N, the AISC 303 Code of Standard Practice, AWS D1.1-2015 Structural Welding Code, AISC 341-16 Seismic Provisions Section J, AWS D1.8 Seismic Supplement and 2018 IBC code requirements for the fabricator's scope of work.

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STATEMENT OF SPECIAL INSPECTIONS. Special Inspections and Testing per IBC Sections 1704 and

FABRICATION SHOP INSPECTION: Where off-site Fabrication of gravity LOAD BEARING MEMBERS & ASSEMBLIES is performed, Special Inspector shall verify that the fabricator complies with <u>IBC 1704.2.5</u>.

 QA Agency providing Special Inspections shall provide personnel meeting the minimum qualification requirements for Inspection and Nondestructive Testing NDT per AISC 360-16

- o For Special Inspections of Steel Seismic Force Resisting Systems, QA Agency personnel shall meet the minimum qualification requirements for Inspection and Nondestructive Testing NDT per AISC 341-16 Sections J3 and J4.
 - QA Agency shall submit qualification documents per AISC 341-16 section J2 on projects subject to Special Inspections on Seismic Force Resisting Systems with R >3.
 - NDT personnel shall be qualified per AISC 341-16 Section J4.
- Provide QA Inspections per AISC 341-16 Section J5 through J10 as applicable. • Verify Fabricator and Erector Quality Control Program per AISC 360-16 Section N2.
- Visual Welding Inspection of welds by both QC and QA personnel shall be per tables listed in AISC 360 Section N5. Additional Visual Inspections per AISC 341-16 Section J6 and AWS D1.8 shall be performed by both Quality Control and Quality Assurance personnel on SFRS in accordance with Tables listed below.
- Inspection Tasks for Welding Prior to Welding per AISC 360-16 Table N5.4-1 and AISC 341-16 Table J6-1 of the
 - During Welding per AISC 360-16 Table N5.4-2 and AISC 341-16 Table J6-2 of the
- After Welding per AISC 360-16 Table N5.4-3 and AISC 341-16 Table J6-3 of the Nondestructive Testing (NDT) of welds:
 - Non-Destructive Testing (NDT) of welded joints per AISC 360-16 N.5 and J6.2 for elements of the SFRS
 - Risk Category for determination of extent of NDT per AISC 360 N5.5b is noted in the Design Criteria and Loads section of these General Requirements. NDT performed shall be documented and reports shall identify the tested weld by
 - piece mark and location in the piece. For field work, the NDT report shall identify the tested weld by location in the structure, piece mark and location in the piece.
- Inspection Tasks for Bolting per AISC 360-16 Section N5.6
 - Prior to Bolting per AISC 360-16 Table N5.6-1and AISC 341-16 Table J7-1 of the SFRS. Not required for snug-tight joints. During Bolting per AISC 360-16 Table N5.6-2 and AISC 341-16 Table J7-2 of the
 - SFRS. Not required for snug-tight joints. After Bolting per AISC 360-16 Table N5.6-3 and AISC 341-16 Table J7-3 of the SERS
- Additional Inspection tasks per AISC 360-16 Section N5.7 and AISC 341-16 Table J8-1 of the SFRS.

INSPECTION SUBMITTALS: Special inspection reports shall be provided on a weekly basis. Final special inspection reports will be required by each special inspection firm per IBC 1704.2.4. Submit copies of all inspection reports to the Engineer and the Authority Having Jurisdiction for review.

CONTRACTOR RESPONSIBILITY: Prior to issuance of the building permit, the Contractor is required to provide the Authority Having Jurisdiction a signed, written acknowledgement of the Contractor's responsibilities associated with the above Statement of Special Inspections addressing the requirements listed in IBC Section 1704.4. Contractor is referred to IBC Sections 1705.12.5 and 1705.12.6 for architectural and mechanical/electrical/plumbing (MEP) building systems that may be subject to additional inspections (based on the building's designated Seismic Design Category listed in the CRITERIA), including anchorage of HVAC ductwork containing hazardous materials, piping systems and mechanical units containing flammable, combustible or highly toxic materials, electrical equipment used for emergency or standby power, exterior wall panels and suspended ceiling systems.

PREFABRICATED CONSTRUCTION: All prefabricated construction shall conform to IBC Section 1704.

POST-INSTALLED ANCHORS (INTO CONCRETE)

REFERENCE STANDARDS: Conform to:

 IBC Chapter 19 "Concrete" ACI 318-14 "Building Code Requirements for Structural Concrete"

POST-INSTALLED ANCHORS: Install only where specifically shown in the details or allowed by SER. All post-Installed anchors types and locations shall be approved by the SER and shall have a current ICC-Evaluation Service Report that provides relevant design values necessary to validate the available strength exceeds the required strength. Submit current manufacturer's data and ICC ESR report to SER for approval regardless of whether or not it is a pre-approved anchor. Anchors shall be installed in strict accordance to ICC-ESR and manufacturer's instructions. No reinforcing bars shall be damaged during installation of postinstalled anchors. Special inspection shall be per the TESTS and INSPECTIONS section. Anchor type, diameter and embedment shall be as indicated on drawings.

- 1. ADHESIVE ANCHORS: The following Adhesive-type anchoring systems have been used in the design and shall be used for anchorage to CONCRETE, as applicable and in accordance with corresponding current ICC ESR report. Drilled-in anchor embedment lengths shall be as shown on drawings, or not less than 7 times the anchor nominal diameter (7D).
 - a. SIMPSON "SET-XP" ICC ESR 2508 for anchorage to CONCRETE

STRUCTURAL STEEL

- REFERENCE STANDARDS: Conform to:
- IBC Chapter 22 "Steel" ANSI/AISC 303-16 – "Code of Standard Practice for Steel Buildings & Bridges"
- AISC "Manual of Steel Construction", Fourteenth Edition (2010)
- ANSI/AISC 360-16 "Specification for Structural Steel Buildings"
- 5) AWS D1.1:2015 "Structural Welding Code Steel" 6) 2014 RCSC (Research Council on Structural Connections) - "Specification for Structural Joints using High-Strength Bolts"
- 7) ANSI/AISC 341-16 "Seismic Provisions for Structural Steel Buildings" 8) ANSI/AISC 358-16 – "Prequalified Connections for Special and Intermediate Steel Moment Frames
- for Seismic Applications" including Supplement No. 1 AWS D1.8:2009 – "Structural Welding Code – Seismic Supplement"

SPECIAL PROVISIONS for ELEMENTS of the SEISMIC FORCE RESISTING SYSTEM (SFRS): Selected steel elements of this project are part of the Seismic Force Resisting System" (SFRS) and, thus are subject to special requirements detailed in the AISC "Seismic Provisions". Elements of the SFRS are designated on plans. Refer to DRAWING LEGEND for symbols used to designate elements on the plans and STRUCTUR-AL STEEL SEISMIC PROVISIONS Section of General Notes for supplemental requirements.

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SUBMITTALS: In accordance with MASS & section 01 13 00 Submittals, submit the following documents to the SER for review:

- <u>SHOP DRAWINGS</u> complying with AISC 360 Sections M1and N3 and AISC 303 Section 4.
 <u>ERECTION DRAWINGS</u> complying AISC 360 Sections M1and N3 and AISC 303 Section 4.
- Weld Procedure Specifications (WPS's) for shop and field welding.
 Manufacturer's Certificates of Conformance for electrodes, fluxes and gases (welding consumables).

Make copies of the following documents available to the SER or Owner's Inspection Agency in electronic or printed form prior to fabrication per AISC 360 Section N3.2 requirements:

(1) Fabricator's written Quality Control Manual that includes, as a minimum:

а.	Material Control Procedures	
b.	Inspection Procedures	

- c. Non-conformance Procedures
- (2) Steel & Anchor Rod suppliers' Material Test Reports (MTR's) indicating the compliance with specifications.
- (3) <u>Fastener manufacturer's Certification</u> documenting conformance with the specification. (4) <u>Filler metal manufacturer's product data</u> for Shielded Metal Arc Welding (SMAW), Flux-Cored Arc Welding (FCAW) and Gas Metal Arc Welding (GMAW) indicating:
 - Product specification compliance Recommended welding parameters
 - c. Recommended storage and exposure requirements including baking
- Limitations of use
- (6) <u>Welding personnel Performance Qualification Records (WPQR)</u> and continuity records conforming to

MATERIALS:

Structural steel materials shall conform to materials and requirements listed in AISC 360 section A3 including, but not limited to:

Angle (L) Shapes	ASTM A36, Fy (Yield St	ress) = 36 ksi
Structural Plate (PL)	ASTM A36, Fy = 36 ksi	
Hollow Structural Section – Square/Rect (HSS)	ASTM A500, Grade B	Fy = 46 ksi
Washers (Hardened Flat or Beveled)	ASTM F436, Grade and F	Finish per RCSC Table 2.1
High Strength Threaded Rods	ASTM A449,	Fy = 50 ksi
High Strength Threaded Rods	ASTM A193, Grade B7,	Fy = 100 ksi

FABRICATION:

- 1) Conform to AISC 360 Section M2 "Fabrication" and AISC 303 Section 6 "Shop Fabrication".
- 2) Quality Control (QC) shall conform to:
 - a. AISC 360 Chapter N "Quality Control and Quality Assurance" and
 - b. AISC 303 Section 8 "Quality Control". c. Fabricator and Erector shall establish and maintain written Quality Control (QC) procedures per AISC 360 section N3.
 - d. Fabricator shall perform self-inspections per AISC 360 section N5 to ensure that their work is performed in accordance with Code of Standard Practice, the AISC Specification, Con-
 - tract Documents and the Applicable Building Code. e. QC inspections may be coordinated with Quality Assurance inspections per Section N5.3 where fabricators QA procedures provide the necessary basis for material control, inspection, and control of the workmanship expected by the Special Inspector.

WELDING:

- 1) Welding shall conform to AWS D1.1 and D1.8 as applicable for Seismic elements with Prequalified Welding Processes except as modified by AISC 360 section J2 and AISC 341 as applicable. Welders shall be qualified in accordance with AWS D1.1 (and D1.8 for Demand Critical Welds where applicable) requirements.
- 2) Use 70ksi strength, low-hydrogen type electrodes (E7018) or E71T as appropriate for the process selected.
- Welding of high strength anchor rods is prohibited unless approved by Engineer.
 Welding of headed stud anchors shall be in accordance with AWS D1.1 Chapter 7 "Stud Welding".

ERECTION:

- 1) Conform to AISC 360 Section M4 "Erection" and AISC 303 Section 7 "Erection".
- 2) Conform to AISC 360 Chapter N "Quality Control and Quality Assurance" and AISC 303 Section 8. a. The Erector/Contractor shall maintain detailed erection guality control procedures that ensure that the work is performed in accordance with these requirements and the Contract Documents.
- Steel work shall be carried up true and plumb within the limits defined in AISC 303 Section 7.13. 4) High strength bolting shall comply with the RCSC requirements including RCSC Section 7.2
- 'Required Testing", as applicable and AISC 360 Chapter J, Section M2.5 and Section N5.6. 5) The contractor shall provide temporary bracing and safety protection required by AISC 360 Section
- M4.2 and AISC 303 Section 7.10 and 7.11. 6) All bolts and threaded rods shall be tightened to "Snug-tight" condition per RCSC, unless noted otherwise.

STRUCTURAL STEEL - SEISMIC PROVISIONS

REFERENCE STANDARDS: Conform to the standards in the STRUCTURAL STEEL section and the follow-

1) ANSI/AISC 341-16 – "Seismic Provisions for Structural Steel Buildings" AWS D1.8:2009 – "Structural Welding Code – Seismic Supplement"

<u>SCOPE</u>: In addition to the standards specified in the STRUCTURAL STEEL Section of these GENERAL RE-QUIREMENTS, Structural Steel that is part of or that transfers seismic loads to the designated Seismic Force Resisting System (SFRS) defined in the DESIGN CRITERIA AND LOADS section of these GENERAL REQUIREMENTS, shall comply with the applicable SEISMIC PROVISIONS below.

SEISMIC FORCE RESISTING SYSTEM (SFRS): The SFRS is an assemblage of beams, columns, and braces that have been specially proportioned into vertical frame systems to resist lateral seismic forces. Beyond the frames are typically other horizontal members connecting to the vertical shear-resisting frames that collect and deliver concentrated seismic forces to the vertical shear elements. These elements include "collectors", "drags", and "diaphragms" (such as the floor slab and roof deck), which also form part of the SFRS and are subject to the "Seismic Provisions" of AISC 341.

DESIGNATION of the primary SFRS Framing System for this project is provided in the DESIGN CRITERIA AND LOADS section of these GENERAL REQUIREMENTS. In addition to the primary steel SFRS, Stability

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of the structure under seismic loads is reliant upon structural steel collectors, drag struts, and diaphragm chords which are also governed by the Seismic Provisions.

Lowest Anticipated Service Temperature (LAST): The primary SFRS framing for this project is to be enclosed and expected to be maintained with the LAST of 50 degrees Fahrenheit.

Structural members and their connections considered in the design of the SFRS are subject to the special Seismic Provisions of this section. Subject elements require special attention to detailing, material control, documentation, fabrication, inspection, and protections from all trades. Special requirements include but are not limited to:

1) Identification of SFRS Members and their Connections on shop and erection drawings; include special detailing, welding and inspection requirements.

QUALITY CONTROL and QUALITY ASSURANCE PLAN: Quality Control (QC) (by Contractor) and Quality Assurance (QA) (by an approved Special Inspection Agency) for members of the SFRS shall be provided in accordance with AISC 341, Chapter J and coordinated per Section J6.4.

1) Fabricator and Erector shall have Quality Control Program per AISC 360 Section N2. a. Fabricator and Erector shall provide access to the Quality Assurance/Special Inspection

Agency, prior to the start of work, for purposes of review of the Quality Control Program required per AISC 360 Section N2 per IBC 1704.2.5. 2) Special Inspections required per IBC sections 1705.2.1 and 1705.12.1 and the STATEMENT OF SPECIAL INSPECTIONS section of these GENERAL REQUIREMENTS.

- SUBMITTALS tions A4.1, A4.2, and I1 and shall include the following:
- DESIGNATION of the SFRS.
- (3) Weld Procedure Specifications (WPS's). (4) Bolt Installation Procedures.

- - AISC 341 Section I2.3.
 - dence of compliance.

- (5) Procedure Qualification Records (PQR's) for WPS's that are not prequalified in accordance with
- AWS standards.

(1) Submit Fabricator and Erector Documents per AISC 360 Section N3 and AISC 341 Section J2.1. (2) Shop drawings of the SFRS shall be prepared in accordance with AISC 303 Section 4, AISC 341 Sec-

MEMBER and CONNECTIONS of the SFRS clearly identified.

(5) Material Data For Demand Critical Welds per AISC 341 J2.1(3).

SFRS MATERIALS: Structural steel part of the SFRS shall meet the requirements of AISC 341, Section A3.1. Reference the MATERIALS section of the STRUCTURAL STEEL for specific ASTM specifications.

<u>SFRS WELDING REQUIREMENTS</u>: All welding of the SFRS shall conform to the Structural Welding Code, AWS D1.1 and the Seismic Supplement, AWS D1.8, including, both shop fabrication and field erection weld-

1) <u>WELDING PROCEDURE SPECIFICATIONS (WPS)</u>: Welding shall be done with appropriate Weld Procedures prepared in accordance with AWS D1.1, AWS D1.8 clause 6.1. Submit for review per

2) FILLER METAL: Welds of members of the SFRS shall be made with filler metal conforming to the requirements of AISC 341 Section A3.4 and AWS D1.8 clause 6.3, which can produce welds that have a minimum Charpy V-Notch toughness of 20 foot-pounds at 0 degrees Fahrenheit. Submit evi-

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F2.0	FOOTING SCHEDUL		0	T	INDICATES W	OLLOW STRUCTURAL
2W4	SHEAR WALL SCHE	DULE)			SECTION (HS TUBE STEEL INDICATES H	S) COLUMN OR (TS) COLUMN OLLOW STRUCTURAL
 RFI 00	REVISION TRIANGLE	E		0	SECTION (HS STEEL PIPE C	S) COLUMN OR OLUMN
	KUUF/FLOOR DIAPH SYMBOL (REFER TO NAILING SCHEDULE	HKAGM NAIL DIAPHRAGN E)	ING A		INDICATES W	OOD POST
	ELEVATION SYMBO TO COMPONENT TH	L (T/ REFERS IAT THE INCES)			INDICATES B	UNDLED STUDS
3	STUD BUBBLE (INDI OF STUDS REQUIRE	ICATES NUM	BER S	►	INDICATES N	IOMENT FRAME
- 	NUMBER SPECIFIED INDICATES STEP IN (REFER TO TYPICAI) IN PLAN NC FOOTING STEP IN	0TE)	<u> </u>	INDICATES A	LEDGER
	FOOTING DETAIL)	ON CUT		, 		
SX.X			ER)		PER KEY ON	SHEET SHEET OOD OR STEEL STUD
S0.0					SHEAR WALL PER KEY ON	LINE AND HOLD-DOWI SHEET
XX/SXX.XX	WALLS, SHEAR WAL FRAME ELEVATIONS	LLS OR BRAC	ED	\$ <u>777777</u> \$	INDICATES N	IASONRY/CMU WALL
2	STRUCTURAL EXTER	NT SYMBOL ND OF EXTEN	IT	<u>*********</u> *	INDICATES C CONCRETE V	ONCRETE/TILT-UP VALL
	EXTENT ALONG THE UNTIL THE ELEMEN	LONTINUOUS E ELEMENT L T IS INTERRU	INE IPTED	\$\$	INDICATES B	EARING WALL BELOW
	INDICATES DIRECTION	ON OF DECK	SPAN		INDICATES EX	XISTING WALL
_						
L An	ngle	EXT	Exterior		PJP	Partial Joint Penetratior
AB An ADDL Ad ADH Ad	nchor Bolt dditional dhesive	FB FD FDN	Factory-B Floor Drai	uilt n n	PREFAB PSF PSI	Prefabricated Pounds per Square Foc Pounds Per Square Inc
ALT Alt ARCH Arc	ternate chitectural	FIN FLR	Finish Floor		PSL P-T	Parallel Strand Lumber Post-Tensioned
B or BOT Bo B/ Bo	ottom ottom Of	FRP FRT	Fiberglass Fire Retar	Reinforced Plas dant Treated	tic PT R	Pressure Treated Radius
BLKG Blo	uilding ocking iole Massang Lipit	FIG F/	Footing Face of		RD REF	Roof Drain Refer/Reference
BP Ba BRBF Bu	aseplate uckling Restrained	GALV GEOTECH	Galvanize Geotechn	d ical	REQD	Required Retaining
BRG Be	raced Frame earing	GL GWB	Glue Lam	nated Timber Vall Board	SB SCBF	Site-Built Special Concentric
BTWN Be C Ca	etween amber	HDR HF	Header Hem-Fir		SCHED	Braced Frame Schedule
CB Ca C'BORE Co	astellated Beam ounterbore	HGR HD	Hanger Hold-dow	٦	SER	Structural Engineer of Record
CL or @ Ce CLT Cro	enterline oss-Laminated Timber	HORIZ HP	Horizontal High Poin	t	SFRS	Seismic Force- Resisting System
CIP Car CJ Co	ast in Place onstruction or	HSS = TS IBC	(Hollow S ⁻ Internation	tructural Section) nal Building Code	SHTHG SIM	Sheathing Similar
Co CJP Co	ontrol Joint omplete Joint	ID IE	Inside Dia	meter /ation	SLBB SMF	Short Leg Back-to-Back Special Moment Frame
CLR Cle	enetration ear	IF INT	Inside Fac	e	SOG SP	Slab on Grade Southern Pine
CLG Ce CMU Co	eiling oncrete Masonry Unit	k KSF	Kips Kips Per S	quare Foot	SPEC SQ	Specification Square
CONC Co	olumn oncrete		Lineal Foo	Rack-to-Back	SR SF SST	Studrall Square Foot Staipless Steel
CONST Co CONT Co	onstruction	LLH LLV	Long Leg	Horizontal Vertical	STAGG STD	Stagger/Staggered Standard
C'SINK Co CTRD Ce	ountersink entered	LP LONGIT	Low Point Longitudir	nal	STIFF STL	Stiffener Steel
DIA Dia DB Dro	ameter rop Beam	LSL LVL	Laminated Laminated	l Strand Lumber I Veneer Lumber	STRUCT SWWJ	Structural Solid Web Wood Joist
DBA De DBL Do	eformed Bar Anchor ouble	MAS MAX	Masonry Maximum		SYM T	Symmetrical Top
DEMO De DEV De	emolish evelopment	MECH MEZZ	Mechanic	al e	T/ T&B TC AX I D	Top Of Top & Bottom
DF Do DIAG Dia	agonal astributed	MIN	Minimum	Jrer	TC AX LD TCX TDS	Top Chord Axial Load Top Chord Extension
DIST DIS DL De	ead Load	NIC	Not In Co	ntract Nated Timber	T&G THKND	Tongue & Groove
DO Dit DO De	tto epth/Deep	NTS OC	Not To Sc On Cente	ale	THRD	Threaded Through
DWG Dra (E) Exi	rawing kisting	OCBF	Ordinary (Frame	Concentric Brace	d TRANSV TYP	Transverse Typical
EA Ea EF Ea	ach ach Face	OD OF	Outside D Outside F	iameter ace	UNO URM	Unless Noted Otherwis Unreinforced Masonry
EL Ele ELEC Ele	evation ectrical	OPNG OPP	Opening Opposite		VERT	Unit Vertical
ELEV Ele EMBED Em	evator nbedment	OWSJ OWWJ	Open We Open We	o Steel Joist o Wood Joist	W W/	Wide With
EQ Eq EQUIP Eq	qual quipment	PL PAF	Plate Powder A	ctuated Fastener	W/O WHS	Without Welded Headed Stud
EW Ead EXP Exp	ach Way kpansion	PC PERP	Precast Perpendic	ular	WP WWF	Working Point Welded Wire Fabric
EAFJI EX	yansıon JOINT	rlvvD	гıyWOOd		±	rius ut iviinus
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		DRAV	WING		D	
MARK	DESCR	RIPTION		MARK		DESCRIPTION
F2.0	FOOTING SYMBOL (FOOTING SCHEDUL	(REFER TO SP E)	PREAD	I	INDICATES W	IDE FLANGE COLU
2W4	SHEAR WALL SYMB		0		INDICATES H SECTION (HS	OLLOW STRUCTUR S) COLUMN OR
	REVISION TRIANGLE	=		0	TUBE STEEL INDICATES H SECTION (HS	TS) COLUMN OLLOW STRUCTUR S) COLUMN OR
	ROOF/FLOOR DIAPH	HRAGM NAILI DIAPHRAGM	ING A			
<u> </u>	NAILING SCHEDULE	L (T/ REFERS		-		
/FTG = X'-X"	TO COMPONENT THELEVATION REFERE	HAT THE INCES)	BER		INDICATES B	JNDLED STUDS
3	OF STUDS REQUIRE	D IF EXCEED	DER S DTE)	►	INDICATES N CONNECTION	OMENT FRAME
5	INDICATES STEP IN (REFER TO TYPICAL	FOOTING STEP IN	-	<u> </u>	INDICATES A	LEDGER
X	FOOTING DETAIL)	N CUT			INDICATES W	
SX.X	DETAIL NUMBER/SI		ER)		PER KEY ON	SHEET /OOD OR STEEL ST
\$0.0	VIEW (DETAIL NUME	BER/SHEET N			SHEAR WALL PER KEY ON	LINE AND HOLD-D
X/SXX.XX	WALLS, SHEAR WAL	איט UF CONCF LLS OR BRAC S	KETE CED	\$77777	INDICATES N	ASONRY/CMU WAI
	STRUCTURAL EXTEN			<u></u>		
	DOUBLE ARROW - EN EXTENT ALONG THE	CONTINUOUS E ELEMENT LI	S INE			
		T IS INTERRU	IPTED	<u>}</u>	INDICATES B	-ARING WALL BELC
		ON OF DECK	SPAN	<u>↓</u>	INDICATES E	(ISTING WALL
		ABE	BREV	IATIONS		
An 3 An	ngle nchor Bolt	EXT FB	Exterior Factory-F	Built	PJP PREFAR	Partial Joint Penet Prefabricated
DDL Ad DH Ad	lditional Ihesive	FD FDN	Floor Dra Foundatio	iin on	PSF PSI	Pounds per Square Pounds Per Square
Alt CH Ard or BOT Bo	chitectural ottom	FIIN FLR FRP	Finish Floor Fiberglas	s Reinforced Pla	PSL P-T stic PT	Parallel Strand Lun Post-Tensioned Pressure Treated
.DG Bu	ottom Of uilding	FRT FTG	Fire Reta Footing	rdant Treated	R RD	Radius Roof Drain
.KG Blo MU Bri P Ba	ocking ick Masonry Unit aseplate	F/ GA GALV	Face of Gage	ad	REF REINF BEOD	Reter/Reterence Reinforcing Bequired
RF Bu Bra	uckling Restrained aced Frame	GEOTECH GL	Geotechr Glue Lan	nical ninated Timber	RET SB	Retaining Site-Built
RG Be WN Be	earing etween	GWB HDR	Gypsum Header	Wall Board	SCBF	Special Concentric Braced Frame
Ca B Ca	imber istellated Beam	HF HGR	Hem-Fir Hanger		SCHED SER	Schedule Structural Enginee
BUKE Co .or & Ce T Cr	punterpore enterline oss-Laminated Timber	ни HORIZ НР	Hold-dov Horizonta	vn al nt	SFRS	necora Seismic Force- Resisting System
P Ca	ast in Place	HSS = TS IBC	(Hollow S Internatio	Structural Section	n) SHTHG de SIM	Sheathing Similar
P Co	ontrol Joint omplete Joint	ID IE	Inside Di Invert Ele	ameter evation	SLBB SMF	Short Leg Back-to- Special Moment F
.R Cle	enetration ear siling	IF INT	Inside Fa Interior	ce	SOG SP	Slab on Grade Southern Pine
U Ce AU Co	ening oncrete Masonry Unit olumn	к KSF I F	Kips Kips Per	Square Foot	SPEC SQ SR	Specification Square Studrail
NC Co	oncrete	LL LLBB		d g Back-to-Back	SF SST	Square Foot Stainless Steel
DNST Co DNT Co	onstruction ontinuous	LLH LLV	Long Leg	y Horizontal Vertical	STAGG STD	Stagger/Staggered Standard
SINK Co RD Ce	ountersink entered	LP LONGIT	Low Poir Longitud	nt inal	STIFF STL	Stiffener Steel
H Dia 3 Dr 3 Dr	ameter op Beam aformed Bar Anchor	lol LVL Mag	Laminate Laminate	ed Veneer Lumbe	Er SVWJ	Solid Web Wood J Symmetrical
BL De BL De EMO De	puble emolish	MAX MECH	Maximur Mechanie	n cal	T T/	Top Top Of
EV De Do	evelopment buglas Fir	MEZZ MFR	Mezzanir Manufac	ne turer	T&B TC AX LD	Top & Bottom Top Chord Axial Lo
AG Dia ST Dia	agonal stributed	MIN MISC	Minimum Miscellar	n neous	TCX TDS	Top Chord Extensi Tie Down System
	ead Load own tto	NIC NLT NTS	Not In Co Nail-Lami	ontract inated Timber cale	I&G THKND THPD	Iongue & Groove Thickened Threaded
DII DE DE VG Dr.	epth/Deep awing	OC OCBF	On Cente Ordinarv	er Concentric Brac	THRU ed TRANSV	Through Transverse
Ex Ea	isting ich	OD	Frame Outside I	Diameter	TYP UNO	Typical Unless Noted Oth
Ea Ele	ich Face evation	OF OPNG	Outside I Opening	Face	URM	Unreinforced Mase Unit
EU Ele EV Ele ABED Em	ectrical evator obedment	OPP OWSJ OVAAA	Open We	eb Steel Joist	VERT W	vertical Wide With
νισευ Επ Σ Eq ΣUIP Fo	jual juipment	OVVVVJ PL PAF	Open We Plate Powder 4	eu vvood Joist Actuated Fasten	vv/ W/O er WHS	Without Welded Headed S
V Ea XP Ex	ch Way pansion	PC PERP	Precast Perpendi	cular	WP WWF	Working Point Welded Wire Fabr
(P JT Ex	pansion Joint	PLWD	Plywood		±	Plus or Minus
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that these Record3. Basethat these RecordEngineeraccuratesupervisappearsDATAE:COMPAB Y:DATE:	ed on periodic field observations by the r (or an individual under his/her direct sion), the Contractor-provided data to represent the project as constructed. TRANSFER CHECKED BY: ANY:	THIS DOCUMENT AND THE IDEAS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF AWWU AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT WRITTEN AUTHORIZATION OF	Standard Sta	A9TH PAUL D. ROGNESS No. SE13924 PROFESSIONN EXPIRES: 12/31/23
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SPECIAL INSPECTIONS

The following Statement and Schedules of Inspections are those Special Inspections and Tests that shall be performed for this project. Special Inspectors shall reference these plans and IBC Chapter 17 for all special inspection requirements.

The owner shall retain an "approved agency" per IBC 1703 to provide special inspections for this project. Special Inspectors shall be qualified persons per IBC 1703.1.3. Special inspection reports shall be provided on a weekly basis. Submit copies of all inspection reports to the Engineer and the Authority Having Jurisdiction for review. In addition to special inspec-

tion reports and tests, submit reports and certificates noted in IBC 1704.5 to the Authority Having Jurisdiction. Final special inspection reports will be required by each special inspection firm per IBC 1704.2.4.

STATEMENT OF SPECIAL INSPECTIONS: This statement of Special Inspections has been written with the understanding that the Building Official will:

- Review and approve the qualifications of the Special Inspectors - Monitor the special inspection activity on the project site to assure that Special Inspectors
- are qualified and performing their duty as state within this statement. Review all Special Inspection Reports submitted to them by the Special Inspector - Perform inspections as required by IBC Section 110.3.

The following Special Inspections are applicable to this project: - Special Inspections for Standard Buildings (per IBC 1705.1) REQUIRED - Special Inspections for Seismic Resistance (per IBC 1705.12) REQUIRED - Testing for Seismic Resistance (per IBC 1705.12) REQUIRED

STRUCTURAL STEEL per IBC 1705.2.1 ,1705.12.2, 1705.13.1

A qualified Special Inspector of an "approved agency" providing Quality Assurance (QA) Special Inspections for the project shall review and confirm the Fabricator and Erector's Quality Control (QC) procedures for completeness and adequacy relative to AISC 360-16 Chapter N, AISC 303-16 Code of Standard Practice, AWS D1.1-2015 Structural Welding Code, AISC 341-16 Seismic Provisions Chapter J, AWS D1.8-2009 Seismic Supplement and 2018 IBC code requirements for the fabricator's scope of work

- QA Agency providing Special Inspections shall provide personnel meeting the minimum qualification requirements for Inspection and Nondestructive Testing NDT per AISC 360 Section N4.
- For Special Inspections of Steel Seismic Force Resisting Systems, QA Agency personnel shall meet the minimum qualification requirements for Inspection and Nondestructive Testing NDT per AISC 341 Sections J3 and J4.
 - QC Agency shall submit qualification documents per AISC 341 section J2 on projects subject to Special Inspections on Seismic Force Resisting Systems with R >3.

 - NDT personnel shall be qualified per AISC 341 Section J4. Provide QC and QA Inspections per AISC 341 Section J5 through J10 as applica-
- Verify Fabricator and Erector QC Program per AISC 360 Section N2.

o Inspection of welds and bolts by both QC and QA personnel shall be per the Schedule of Special Inspections below. All provisions of AWS D1.1 Structural Welding Code for statically loaded structures shall apply. Additional Weld and Bolt Inspections shall be performed by both QC and QA personnel on SFRS elements in accordance with the Schedule of Special Inspections below. Welding inspection and nondestructive testing shall also satisfy AISC 360 and AWS D1.8 Seismic Supplement.

- Nondestructive Testing (NDT) of welds:
 - Non-Destructive Testing (NDT) of welded joints per AISC 360 N5.5 and AISC 341 J6.2 for elements of the SFRS.
 - Risk Category for determination of extent of NDT per AISC 360 N5.5b is noted in the Design Criteria and Loads section of these General Requirements.
 - NDT performed shall be documented and reports shall identify the tested weld by piece mark and location of the piece.
 - For field work, the NDT report shall identify the tested weld by location in the structure, piece mark and location of the piece.
- Additional Inspection tasks per AISC 360 Section N5.8.

• Inspection for Composite Construction shall be done per AISC 360 Section N6.

POST-INSTALLED ANCHORS TO CONCRETE: shall comply with IBC Section 1703. Inspections shall be in accordance with the requirements set forth in the approved ICC Evaluation Report and as indicated by the design requirements specified on the drawings. Refer to the POST INSTALLED ANCHORS section of these notes for anchors that are the basis of the design. Special inspector shall verify anchors are as specified in the POST INSTALLED ANCHORS section of these notes or as otherwise specified on the drawings. Substitutions require approval by the SER and require substantiating calculations and current 2018 IBC recognized ICC Evaluation Services (ES) Report. Special Inspector shall document in their Special Inspection Report compliance with each of the elements required within the applicable ICC Evaluation Services (ES) Report.

<u>SCHEDULES OF SI</u>	P
MINIMUM REQUIRE	N

	INSPECTION TASKS
INS WE	PECTION TASKS PRIOR TO
1.	Welder qualification records and cont
2.	Welding procedure specifications (W
3.	Manufacturing certifications for weldin
4.	Material identification (type/grade)
5.	Welder Identification system
6.	Fit-up of groove welds (including joint geometry)
	 Joint preparation Dimensions (alignment, root op ing, root face, beyel)
	Cleanliness (condition of steel surfaces)
	 Tacking (tack welding quality a location) Packing type and fit (if application)
7.	Configuration and finish of access ho
8.	Fit-up of fillet welds • Dimensions (alignment, gaps a
	root) • Cleanliness (condition of steel
	 Tacking (tack weld quality and location)
9.	Check welding equipment
INS	SPECTION TASKS DURIN
1.	Use of qualified welders
2.	Control and handling of welding cons
	Packaging Exposure control
3.	No welding over cracked tack welds
4.	Environmental conditions • Wind speed within limits
5.	Precipitation and temperature WPS followed
	Settings on welding equipment Travel speed
	Selected weiging materials Shielding gas type/flowrate Preheat applied
	 Interpass temperature maintain (min/max)
6.	Proper position (F, V, H, OH) Welding techniques
	 Interpass and final cleaning Each pass within profile limitation
	• Each pass meets quality require ments
INS WE	PECTION TASKS AFTER
1.	Welds cleaned
2.	Welds meet visual acceptance criteria
	· · · · · · · · · · · · · · · · · · ·
	Crack prohibition Weld/base-metal fusion
	Crack prohibition Weld/base-metal fusion Crater cross section Weld profiles Weld size
	Crack prohibition Weld/base-metal fusion Crater cross section Weld profiles Weld size Undercut Porosity
4.	Crack prohibition Weld/base-metal fusion Crater cross section Weld profiles Weld size Undercut Porosity Arc strikes
4. 5. 6.	Crack prohibition Weld/base-metal fusion Crater cross section Weld profiles Weld size Undercut Porosity Arc strikes k-area Weld access holes in rolled heavy sh
4. 5. 6. 7.	Crack prohibition Weld/base-metal fusion Crater cross section Weld profiles Weld size Undercut Porosity Arc strikes k-area Weld access holes in rolled heavy sh and built-up heavy shapes Backing removed and weld tabs reme
4. 5. 6. 7.	Crack prohibition Weld/base-metal fusion Crater cross section Weld profiles Weld size Undercut Porosity Arc strikes k-area Weld access holes in rolled heavy sh and built-up heavy shapes Backing removed and weld tabs remo (if required) Bacai estivities
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4. 5. 6. 7. 8. 9. 10 10 1. 2. 3. 4. 5.	Crack prohibition Weld/base-metal fusion Crater cross section Weld profiles Weld size Undercut Porosity Arc strikes k-area Weld access holes in rolled heavy sh and built-up heavy shapes Backing removed and weld tabs remo (if required) Repair activities Document acceptance or rejection of welded joint or member D. No prohibited welds have bees added without the approval of the EC SPECTION TASKS PRIOR TO LTING Manufacturer's certifications available fastener materials Fasteners marked in accordance with ASTM requirements Correct fasteners selected for the joir detail (grade, type, bolt length if three are to be excluded from shear plane) Correct bolting procedure selected fo joint detail Connecting elements, including the a preparation, if specified, meet applica
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	PLAN	N CHECK				REVISIONS		BY:	IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT WRITTEN AUTHORIZATION OF AWWU.	CONSULTANT Consultation of the loss and designs may not be reused, in whole or part, while within permission from 20 Panalo Conversant on. Anato Conversant on the reused, in whole or part, while within permission from 20 Panalo Conversant on. Anato Conversant on the distant any responsibility for its unauthorized use.	No. SE13924 PROFESSIONAL EXPIRES: 12/31/23 SEAL	

SCHEDULES OF SPECIAL INSPECTIONS:

MENTS FOR INSPECTIONS OF STRUCTURAL STEEL CONSTRUCTION

	QC	QA	REFERENCED STANDARD
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	Р	Р	AISC 360 TABLE N5.4-3
hapes	P	P	AISC 360 TABLE N5.4-3
nupoo	Р	Р	AISC 360 TABLE N5.4-3
loveu	P	P	AISC 360 TABLE N5.4-3
ıf	P	P	AISC 360 TABLE N5.4-3
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OR	P	P	AISC 360 TABLE N5.4-3
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tion	0	0	AISC 360 TABLE N5.6-2
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ord- oro- st	О	О	AISC 360-10 TABLE N5.6-2
οι			
f	Р	Р	AISC 360 TABLE N5.6-3

MINIMUM REQUIREMENTS SPECIAL INSPECTION OF STRUCTURAL STEEL SEISMIC FORCE RESISTING SYSTEM (SFRS)

INSPECTION TASK	QC	QC	QA	QA	REFERENCED STAND-
	TASK	DOC	TASK	DOC	AKD
VISUAL INSPECTION TASKS PRI-					
1. Material Identification (Type/Grade)	0	-	0	_	AISC 341 TABLE J6-1
2. Welder Identification System	0	-	0	-	AISC 341 TABLE J6-1
3. Fit-up Groove Welds (including joint geom- etry)					
Joint preparationDimensions (alignment, root opening,					
 root face, bevel) Cleanliness (condition of steel surfac- es) 	P/O**	-	0	-	AISC 341 TABLE J6-1
• Tacking (tack weld quality and loca- tion)					
Backing type and fit (if applicable)	0		0		
5. Fit-up fillet welds	0	-	0	-	AISC 341 TABLE JO-1
Dimensions (alignment, gaps at root) Cleanliness (condition of steel surfac-	P/O**	-	0	-	AISC 341 TABLE J6-1
es) • Tacking (tack weld quality and loca- tion	.,.		-		
VISUAL INSPECTION TASKS DUR-					
Settings on welding equipment Travel speed					
Selected welding materials Shielding gas type/flowrate					
Preheat applied Interpass temperature maintained	0	-	0	-	AISC 341 TABLE J6-2
(min/max) • Proper position (F, V, H, OH)					
Intermix of filler metals avoided un- less approved					
2. Use of qualified welders	0	-	0	-	AISC 341 TABLE J6-2
 bles Packaging 	0	-	о	-	AISC 341 TABLE J6-2
Exposure control					
Environmental conditions Wind speed within limits Precipitation and temperature	0	-	О	-	AISC 341 TABLE J6-2
5. Welding techniques					
Interpass and final cleaning Each pass within profile limitations Fach pass mode quality require	0	-	0	-	AISC 341 TABLE J6-2
• Each pass meets quality require- ments					
6. No welding over cracked tacks	0	-	0	-	AISC 341 TABLE J6-2
TER WELDING					
1. Welds cleaned	0	-	0	-	AISC 341 TABLE J6-3
2. Size, length, and locations of welds 3. Welds meet visual acceptance criteria	P	-	P	-	AISC 341 TABLE J6-3
Crack prohibition Weld/base-metal fusion					
Crater cross sectionWeld profiles and size	Р	D	Р	D	AISC 341 TABLE J6-3
• Undercut • Porosity					
4. k-area	Р	D	Р	D	AISC 341 TABLE J6-3
5. Placement of reinforcing or contouring fillet welds (if required)	Р	D	Р	D	AISC 341 TABLE J6-3
Backing removed, weld tabs removed, and finished, and fillet welds added (if required)	Р	D	Р	D	AISC 341 TABLE J6-3
7. Repair activities	Р	-	Р	D	AISC 341 TABLE J6-3
INSPECTION TASKS PRIOR TO BOLTING					
1. Proper fasteners selected for the joint detail	0	-	0	-	AISC 341 TABLE J7-1
2. Proper bolting procedure selected for joint detail	0	-	0	-	AISC 341 TABLE J7-1
3. Connecting elements, including the appro- priate faying surface condition and hole	0		0		
preparation, if specified, meet applicable requirements	0	-	0	-	AISC 341 TABLE J7-1
4. Pre-installation verification testing by instal- lation personnel observed for fastener	Р	D	О	D	AISC 341 TABLE J7-1
assemblies and methods used. 5. Proper storage provided for bolts, nuts,					
washers and other fastener components	0	-	0	-	AISC 341 TABLE 37-1
BOLTING					
1. Fastener assemblies placed in all holes and washers (if required) are positioned as	0	-	о	-	AISC 341 TABLE J7-2
2. Joint brought to the snug-tight condition	0	_	0	_	
prior to the pre-tensioning operation 3. Fastener component not turned by the	0	-		-	
wrench prevented from rotating	U	-	0	-	AISC 341 TABLE J7-2
tematically from the most rigid point toward the free edges	0	-	0	-	AISC 341 TABLE J7-2
INSPECTION TASKS AFTER BOLT-					
1. Document accepted and rejected connec-					
	۲ 				AISU 341 TABLE J7-3
1. RBS requirements. if applicable					
Contour and finish Dimensional tolerances	Р	D	Р	D	AISC 341 TABLE J8-1
2. Protected zone- no holes and unapproved attachments made by fabricator or erector	P	п	Р	п	AISC 341 TABLE 18-1
as applicable			tions read		

 B - These inspector shall be performed prior to the final acceptance of the item.
 D - The inspector shall prepare reports indicating that the work has been performed in accordance with the contract documents. The report need not provide detailed measurements for joint fit-up, WPS settings, completed welds, or other individual items listed in the tables. For shop fabrication, the report shall indicate the piece mark of the piece inspected. For field work, the report shall indicate the reference gird lines and floor elevation inspected. Work not in compliance with the contract documents and whether the noncompliance has been satisfactorily repaired shall be noted in the inspection report. **Follow performance of this inspection task for ten welds to be made by a given welder, with the welder demonstrating understanding of requirements and the performance of this task shall be reduced to observe, and the welder shall perform

and possession of skills and tools to verify these items, the perform designation of this task shall be reduced to observe, and the welder shall perform this task. Should the inspector determine that the welder has discontinued performance of this task, the task shall be returned to perform until such time as the inspector has re-establishes adequate assurance that the welder will perform the inspection tasks listed.

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BUILDING 1

BUILDING 2

3.Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed. DATA TRANSFER CHECKED BY: _____ COMPANY: _____

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PRIME CONSULTANT

CONSULTANT

CONTRACTOR STAGING AND PARKING AREA

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CONTRACTOR ACCESS ROUTE

-milli

No. 107216

SEAL

MAR. 4, 2022

MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY ERWWTF EARTHQUAKE REPAIRS AND STRUCTURAL RETROFITS EXISTING SITE PLAN AND CONTRACTOR STAGING AREA

DWG G.4

	DATE: MARCH 2022	GRID: NE 1902	CHEET	28
PROJ ID · WM.00151				2° 20

APPROXIMATE LOCATION OF DAMAGE PICTURED ON THIS SHEET AERATION BUILDING 6" W3		
AERATION BASINS		
VERIFY IF BAR IS NOT ONE SCALE INCH, ADJUST DRAWING EV DATE DESCRIPTION BY	To be filled ou 3.Be ord Er	ut on ased c ngineer

_ TITLE: ____

DATE:____

BY:____

DATE:

DATE: _

REVISIONS

COMPANY: ____

. DATA TRANSFERRED BY:_____

BY:___

REPLACE DAMAGED AND MISSING INSULATION ON 2" W1 PIPING (APPROX. 5 FEET). SEE NOTES THIS SHEET. FURNISH AND INSTALL SIMILAR TO W3 INSULATION AND WRAP.

BUILDING 2

EXAMPLE OF DAMAGE TO BE REPAIRED IN THE AERATION BASIN BUILDING ALONG THE WEST WALL

NOTES:

CUTTING TOOLS.

4) INSTALL THE NEW SECTION OF INSULATION AND WRAP IN ACCORDANCE WITH THE MANUFACTURER'S PIPE INSULATION, INCLUDING LAP JOINT SEALING AND BUTT STRAP INSTALLATION. 5) PREFORMED FIBERGLASS PIPE INSULATION AND WRAP, COMPLYING WITH:

a) ASTM C547, CLASS 3

PER QUANTITIES IDENTIFIED ON THE BID PROPOSAL, AND AT LOCATIONS IDENTIFIED BY THE OWNER ON THE 6-INCH W3 PIPELINE IN THE AERATION BUILDING AND BUILDING 2, REMOVE SECTIONS OF INSULATION AND WRAP DAMAGED BY CHAFFING OF THE PIPE SUPPORTS AND REPLACE WITH NEW INSULATION AND WRAP AS FOLLOWS:

1) FURNISH AND INSTALL NEW INSTALLATION OF THICKNESS AND WRAP TYPE TO MATCH THE EXISTING INSULATION THICKNESS AND WRAP TYPE.

2) CUT THE EXISTING WRAP AND INSULATION STRAIGHT AND PERPENDICULAR TO THE W3 PIPELINE TO REMOVE THE DAMAGED SECTION WITHOUT CONTACTING THE EXISTING W3 PIPING WITH

3) CUT A NEW SECTION OF INSULATION AND WRAP STRAIGHT AND TO THE LENGTH REQUIRED TO SNUGGLY FIT THE AREA OF THE REMOVED SECTION.

b) ASTM C518 THERMAL CONDUCTIVITY ("K"): 0.23 BTUIN/ (HRFT2 °F) AT 75°F MEAN TEMPERATURE c) MAXIMUM SERVICE TEMPERATURE: 850°F

d) ASTM E84 RATED 25/50

e) ASTM C 1136, TYPE I WRAP: WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING; WITH SELF-SEALING, PRESSURE-SENSITIVE, ACRYLIC-BASED ADHESIVE COVERED BY A REMOVABLE PROTECTIVE STRIP.

6) MANUFACTURER AND PRODUCT: JOHNS MANVILLE; MICRO-LOK, OR APPROVED EQUAL.