GENERAL STRUCTURAL NOTES

(The following apply unless shown otherwise on the plans)

CRITERIA

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, THE 2021 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC).

2. DESIGN LOADING CRITERIA

ROOF SNOW LOAD	25 PSF
FLOOR LIVE LOAD (OFFICES)	100 PSF OR 2,000 LBS.
PARTITION LIVE LOAD HORIZONTAL	5 PSF

WIND : ANALYSIS PROCEDURE: ASCE 7-16 CHAPTER 27 "PART 1 - BUILDINGS OF ALL HEIGHTS"
RISK CATEGORY IV
108 MPH
EXPOSURE "B"
TOPOGRAPHIC FACTOR Kzt = 1.0
WIND BASE SHEAR, NORTH/SOUTH Vw = 217 K
WIND BASE SHEAR, EAST/WEST Vw = 406 K

EARTHQUAKE : ANALYSIS PROCEDURE: IBC "EQUIVALENT LATERAL FORCE PROCEDURE"
SEISMIC DESIGN CATEGORY (SDC) = D
RISK CATEGORY = IV
SEISMIC SITE CLASS = C
IMPORTANCE FACTOR Ie = 1.5
MAPPED MCE Ss = 1.26; S_1 = 0.43
DESIGN ACCELERATION Sds = 1.01; Sd_1 = 0.43
SEISMIC RESISTING SYSTEM: STEEL BUCKLING RESTRAINED BRACED FRAMES, R = 8.0
SEISMIC RESPONSE COEFFICIENT: Cs = 0.13
SEISMIC BASE SHEAR Vs = 1283 K

SEE PLANS FOR ADDITIONAL LOADING CRITERIA. POST ALL COMMERCIAL OR INDUSTRIAL LIVE LOADS OVER 50 PSF PER IBC SECTION 106.1.

3. LATERAL LOADS ARE TRANSFERRED BY THE ROOF AND FLOOR DIAPHRAGMS TO THE BRACED FRAMES. MOMENTS, SHEARS AND ROTATIONAL FORCES ARE BASED ON THE RIGIDITY OF EACH BRACED FRAME AND ARE CARRIED BY THE BRACED FRAMES TO THE FOUNDATION.

4. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

5. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED.

6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THEIR WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES OF THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

8. CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

9. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. WHERE INFORMATION ON THE DRAWINGS IS IN CONFLICT WITH THE SPECIFICATIONS, THE MORE STRINGENT SHALL APPLY, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. DO NOT SCALE THE DRAWINGS.

10. ALL STRUCTURAL SYSTEMS WHICH ARE COMPOSED OF FIELD ERECTED COMPONENTS SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

11. SHOP DRAWINGS FOR REINFORCING STEEL, STRUCTURAL STEEL, AND METAL DECKING SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

    CONTRACTOR SHALL SUBMIT WALL ELEVATION DRAWINGS OF AT LEAST 1/8" = 1'-0" SCALE INDICATING LOCATIONS OF CONNECTION EMBEDMENTS AND WALL OPENINGS FOR REVIEW PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH REINFORCEMENT SHOP DRAWINGS.

12. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, AND THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. A MINIMUM OF TWO WEEKS SHALL BE ALLOWED FOR REVIEW.

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

14. DEFERRED SUBMITTALS OF DESIGN BUILD COMPONENTS SHALL BEAR THE STAMP AND SIGNATURE OF A STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER AND SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. DEFERRED SUBMITTALS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON BASIC STRUCTURE AND SHALL INCLUDE DESIGN CALCULATIONS WITH THE ENGINEER'S STAMP.

    THE FOLLOWING COMPONENTS SHALL BE DEFERRED SUBMITTALS FOR THIS PROJECT:
    BUCKLING RESTRAINED BRACES AND CONNECTIONS

15. SPECIAL INSPECTION: SHALL BE SUPERVISED BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE OWNER IN ACCORDANCE WITH SECTIONS 1704 & 1705 OF THE IBC, THE PROJECT SPECIFICATIONS, AND THE SPECIAL INSPECTION SCHEDULE AT THE END OF THE STRUCTURAL NOTES. THE TESTING AGENCY AND INSPECTOR SHALL BE REGISTERED WITH WABO AND SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS DIRECTLY TO THE OWNER, ARCHITECT, STRUCTURAL ENGINEER, CONTRACTOR AND THE BUILDING OFFICIAL. ANY MATERIALS WHICH FAIL TO MEET PROJECT SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

GEOTECHNICAL

16. FOUNDATION NOTES: SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, AND FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH RECOMMENDATIONS GIVEN IN THE GEOTECHNICAL REPORT OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER. FOOTINGS SHALL BEAR ON SOLID UNDISTURBED EARTH (CONTROLLED, COMPACTED STRUCTURAL FILL OR BOTH) AT LEAST 18" BELOW LOWEST ADJACENT FINISHED GRADE. FOOTING DEPTHS/ELEVATIONS SHOWN ON PLANS (OR IN DETAILS) ARE MINIMUM AND FOR GUIDANCE ONLY; THE ACTUAL ELEVATIONS OF FOOTINGS MUST BE ESTABLISHED BY THE CONTRACTOR IN THE FIELD WORKING WITH THE TESTING LAB AND GEOTECHNICAL ENGINEER. UNLESS OTHERWISE NOTED, FOOTINGS SHALL BE CENTERED UNDER COLUMNS OR WALLS ABOVE.

    BACKFILL BEHIND ALL RETAINING WALLS WITH FREE DRAINING GRANULAR FILL AND PROVIDE FOR SUBSURFACE DRAINAGE AS NOTED IN THE GEOTECHNICAL REPORT.

    THE STRUCTURAL DESIGN IS BASED ON THE FOLLOWING VALUES FROM THE REFERENCED GEOTECHNICAL REPORT:

ALLOWABLE SOIL BEARING PRESSURE	5,000 PSF
LATERAL EARTH PRESSURE (RESTRAINED/UNRESTRAINED)	55 PCF/35 PCF
SEISMIC SURCHARGE PRESSURE	8H PSF
PASSIVE SOIL PRESSURE	300 PCF
SOIL COEFFICIENT OF FRICTION	0.40

GEOTECHNICAL REPORT REFERENCE:#4565-064-09 BY GEOENGINEERS, INC. DATED OCTOBER 14, 2024.

RENOVATION

17. DEMOLITION: VERIFY ALL EXISTING CONDITIONS BEFORE COMMENCING ANY DEMOLITION. SHORING SHALL BE INSTALLED TO SUPPORT EXISTING CONSTRUCTION AS REQUIRED AND IN A MANNER SUITABLE TO THE WORK SEQUENCES. EXISTING REINFORCING SHALL BE SAVED WHERE AND AS NOTED ON THE PLANS. SAW CUTTING, IF AND WHERE USED, SHALL NOT CUT EXISTING REINFORCING THAT IS TO BE SAVED. DEMOLITION DEBRIS SHALL NOT BE ALLOWED TO DAMAGE OR OVERLOAD THE EXISTING STRUCTURE. LIMIT CONSTRUCTION LOADING (INCLUDING DEMOLITION DEBRIS) ON EXISTING FLOOR SYSTEMS TO 60 PSF.
    A. ALL NEW OPENINGS THROUGH EXISTING SLABS AND BEAMS SHALL BE ACCOMPLISHED BY SAW CUTTING WHEREVER POSSIBLE.
    B. VERIFY ALL EXISTING CONDITIONS AND LOCATION OF MEMBERS PRIOR TO CUTTING ANY OPENINGS.
    C. SMALL ROUND OPENINGS SHALL BE ACCOMPLISHED BY CORE DRILLING, IF POSSIBLE.
    D. WHERE NEW REINFORCING TERMINATES AT EXISTING CONCRETE, REBAR DOWELS EPOXIED INTO THE EXISTING CONCRETE SHALL BE PROVIDED TO MATCH HORIZONTAL REINFORCING, UNLESS OTHERWISE NOTED ON PLANS.

CONCRETE

18. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 301. CONSTRUCTION TOLERANCES SHALL NOT EXCEED THOSE LISTED IN ACI 117. STRENGTHS AT 28 DAYS AND MIX CRITERIA SHALL BE AS FOLLOWS:

TYPE OF CONSTRUCTION	28 DAY STRENGTH (f'c)	MAXIMUM SLUMP	MIN. CEMENT CONTENT PER CUBIC YARD	MAX. AGGREGATE SIZE
A. FOOTINGS, SLABS-ON-GRADE,	3,000 PSI	5"	5-1/2 SACKS	1 1/4"
B. SLABS ON METAL DECK	3,000 PSI	5"	5-1/2 SACKS	3/4"
C. ALL STRUCTURAL CONCRETE: PLINTHS, PLINTH JACKETS, SHEAR CAPS	5,000 PSI	5"	7-1/2 SACKS	3/4"

MIXES SHALL BE PROPORTIONED SO AS NOT TO EXCEED THE MAXIMUM SLUMPS INDICATED (BEFORE THE ADDITION OF ADMIXTURES). THE WATER/CEMENT RATIO SHALL NOT EXCEED 0.55 FOR FOOTINGS AND 0.45 FOR ALL SLABS AND EXPOSED CONCRETE.

THE MINIMUM AMOUNT OF CEMENT AND THE MAXIMUM SLUMP MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE STRUCTURAL ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. (THE W/C RATIO LIMITS STILL APPLY). THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, CEMENTITIOUS MATERIAL, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES AS WELL AS THE WATER/CEMENT RATIO, SLUMP, CONCRETE YIELD AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH ACI 301. CHEMICAL ADMIXTURES AND FLY ASH SHALL CONFORM TO ASTM C494 AND C618 RESPECTIVELY. FLY ASH PERCENTAGE OF TOTAL CEMENTITIOUS MATERIAL SHALL NOT EXCEED 20%. THE USE OF A PERFORMANCE MIX REQUIRES BATCH PLANT INSPECTION, THE COST OF WHICH SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER. REVIEW OF MIX SUBMITTALS BY THE ENGINEER OF RECORD INDICATES ONLY THAT INFORMATION PRESENTED CONFORMS GENERALLY TO CONTRACT DOCUMENTS. CONTRACTOR MAINTAINS FULL RESPONSIBILITY FOR SPECIFIED PERFORMANCE.

ALL CONCRETE WITH SURFACES EXPOSED TO STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260. TOTAL AIR CONTENT FOR FROST-RESISTANT CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318-19 TABLE 19.3.3.1. ALL CONCRETE EXPOSED TO THE WEATHER AND ALL GARAGE SLABS-ON-GRADE SHALL ATTAIN A 28-DAY STRENGTH f'c OF 4,500 PSI IN ACCORDANCE WITH ACI 318 TABLE 19.3.2.1 AND IBC SECTION 1904.

CONCRETE USED FOR ELEVATED SLABS SHALL HAVE A SHRINKAGE LIMIT OF 0.035 PERCENT AT 28 DAYS AS TESTED BY ASTM C157. IF TESTING IS NOT PERFORMED, THE WATER CONTENT OF THE MIX SHALL NOT EXCEED 240 LB./CU. YD OF CONCRETE.

19. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, fy = 60,000 PSI. GRADE 60 REINFORCING STEEL INDICATED ON DRAWINGS TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING STEEL COMPLYING WITH ASTM A615 (S1) MAY BE WELDED ONLY IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN A.W.S. D1.4 ARE SUBMITTED.

20. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315 AND 318. LAP ALL REINFORCEMENTS IN ACCORDANCE WITH "THE REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE." PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

    NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. NO REINFORCING BARS SHALL BE "WET-SET" INTO THE CONCRETE.

21. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST EARTH	3"
FORMED SURFACES EXPOSED TO EARTH (i.e. WALLS BELOW GROUND) OR WEATHER	
(#6 BARS OR LARGER)	2"
(#5 BARS OR SMALLER)	1-1/2"
COLUMN TIES	1-1/2"
SLABS (INTERIOR FACE)	1"

22. NON-SHRINK GROUT SHALL BE NON-METALLIC CONFORMING TO ASTM C1107 AND BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (8000 PSI MINIMUM).

23. MECHANICAL SPLICING OF REINFORCING BARS, WHERE INDICATED ON THE DRAWINGS, SHALL BE BY AN I.C.C. APPROVED SYSTEM (SUCH AS LENTON, FOX-HOWLETT, ETC.) AND SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE BARS.

ANCHORAGE

24. EXPANSION BOLTS INTO CONCRETE SHALL BE "STRONG-BOLT 2 WEDGE ANCHOR", AS MANUFACTURED BY SIMPSON STRONG-TIE ANCHOR SYSTEMS. INSTALL IN STRICT ACCORDANCE WITH I.C.C. REPORT NO. ESR-3037 INCLUDING STANDARD EMBEDMENT REQUIREMENTS U.O.N. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW WITH I.C.C. OR IAPMO UES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. SPECIAL INSPECTION IS REQUIRED FOR ALL EXPANSION BOLT INSTALLATION.

25. SCREW ANCHORS INTO CONCRETE SHALL BE "TITEN HD", AS MANUFACTURED BY SIMPSON STRONG-TIE ANCHOR SYSTEMS. INSTALL IN STRICT ACCORDANCE WITH I.C.C. REPORT NO. ESR-2713 INCLUDING STANDARD EMBEDMENT REQUIREMENTS U.O.N. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW WITH I.C.C. OR IAPMO UES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. SPECIAL INSPECTION IS REQUIRED FOR ALL SCREW ANCHOR INSTALLATION.

26. DRIVE PINS, SHOT PINS AND OTHER POWDER-ACTUATED FASTENERS SHALL BE LOW VELOCITY TYPE FASTENERS AS MANUFACTURED BY HILTI CORPORATION. WHEN CALLED FOR IN THE DRAWINGS, PROVIDE THE APPROPRIATE FASTENER AS NOTED IN THE TABLE BELOW FOR EACH GIVEN APPLICATION. INSTALL IN STRICT ACCORDANCE WITH I.C.C. REPORTS NO. ESR-2269 FOR THE X-U FASTENERS AND ESR-2379 FOR THE X-CP FASTENERS. MINIMUM EMBEDMENT IN CONCRETE SHALL BE 1" UNLESS OTHERWISE NOTED. MAINTAIN AT LEAST 3" TO NEAREST CONCRETE EDGE AND 4" CENTER TO CENTER SPACING. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW WITH I.C.C. OR IAPMO UES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. MAXIMUM EMBEDMENT IN POST TENSIONED SLABS IS 3/4Δ.

ALLOWABLE APPLICATION	ALLOWABLE FASTENER TYPE	SHEAR CAPACITY (LBS)	TENSION CAPACITY (LBS)
2X TREATED LUMBER TO CONCRETE (2000 PSI MIN.)	X-CP 72 P8 S23 w/ 1.33" EMBED	250	175
LIGHT GAUGE STEEL 33 MILS (20 GA.) MIN. TO CONCRETE (2000 PSI MIN.)	X-U 27 P8 S15	190	165
2X LUMBER TO STRUCTURAL STEEL (3/16" MIN., 36 OR 50 KSI)	X-U 52 MX PLUS R-23 WASHERS	250	175
LIGHT GAUGE STEEL 43 & 33 MILS (18 & 20 GA.) TO STRUCTURAL STEEL (3/16" MIN. TO 11/16" MAX)	X-U 19 P8 TH	445	360
LIGHT GAUGE STEEL 97, 68 & 54 MILS (12, 14 & 16 GA.) TO STRUCTURAL STEEL (3/16" MIN. TO 11/16" MAX)	X-U 19 P8 TH	720	535
LIGHT GAUGE STEEL (ALL GA.) TO STRUCTURAL STEEL (3/4" AND GREATER)	X-U 19 P8 TH	350	375

27. EPOXY-GROUTED ITEMS (THREADED RODS OR REINFORCING BAR) INTO CONCRETE SHALL BE INSTALLED USING "SET-3G" ADHESIVE ANCHOR AS MANUFACTURED BY SIMPSON STRONG-TIE ANCHOR SYSTEMS. INSTALL IN STRICT ACCORDANCE WITH I.C.C. REPORT NO. ESR-4057, INCLUDING STANDARD EMBEDMENT REQUIREMENTS U.O.N. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW WITH I.C.C. OR IAPMO UES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. SPECIAL INSPECTION OF INSTALLATION IS REQUIRED.

STEEL

28. STRUCTURAL STEEL DESIGN, FABRICATION, AND ERECTION SHALL BE BASED ON THE LATEST EDITIONS OF THE A.I.S.C. SPECIFICATIONS AND CODES:
    A. AISC - STEEL CONSTRUCTION MANUAL, 15TH EDITION
    B. AISC 303-16 - CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
    C. 2014 RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS.

29. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TYPE OF MEMBER	ASTM SPECIFICATION	Fy
A. WIDE FLANGE (W AND WT) SHAPES	A992	50 KSI
B. ALL OTHER SHAPES	A36	36 KSI
C. PLATE	A36 OR A572	36 KSI (MIN)
D. PIPE SECTIONS	A53 (TYPE E OR S, GRADE B)	35 KSI
E. STRUCTURAL TUBING (SQUARE OR RECTANGULAR)	A500 (GRADE C)	50 KSI
F. ANCHOR BOLTS AND THREADED RODS (EMBEDDED IN CONCRETE)	F1554 (GRADE 36) OR F1554 (GRADE 55, SUPP. S1)	36 KSI 55 KSI
G. CONNECTION BOLTS (7/8" ROUND, UNLESS SHOWN OTHERWISE)	F3125 GRADE A325-N	92 KSI
H. BUCKLING RESTRAINED BRACES		Fy,min = 39 KSI Fy,max = 46 KSI

SUBSTITUTION OF MEMBER SIZES OR STEEL GRADE SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER. ALL STEEL ANCHORS AND TIES AND OTHER MEMBERS EMBEDDED IN CONCRETE SHALL BE LEFT UNPAINTED. ALL STEEL TO BE FIREPROOFED SHALL BE LEFT UNPAINTED. ALL OTHER STEEL SHALL HAVE ONE COAT OF APPROVED SHOP PAINT.

STRUCTURAL STEEL AND CONNECTIONS EXPOSED TO WEATHER OR EARTH SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IN COMPLIANCE WITH ASTM A123. GALVANIZE BOLTS AND SIMILAR THREADED FASTENERS EXPOSED TO WEATHER OR EARTH IN ACCORDANCE WITH ASTM A153. ALL FIELD WELDS EXPOSED TO WEATHER OR EARTH SHALL BE COATED WITH BRUSH APPLIED ZINC RICH PAINT COMPLYING WITH ASTM A780 (Z.R.C. OR EQUIVALENT).

A MINIMUM OF TWO BOLTS ARE REQUIRED FOR ALL CONNECTIONS. ALTERNATE CONNECTIONS TO THOSE SHOWN ON THESE DRAWINGS WILL REQUIRE PRIOR APPROVAL OF THE ENGINEER.

ALL MEMBERS ARE TO BE ERECTED WITH THE NATURAL MILL CAMBER OR INDUCED CAMBER UP, UNLESS OTHERWISE NOTED ON THE DRAWINGS. BEAM CAMBER ON THE DRAWINGS IS THE UPWARD CAMBER REQUIRED IN THE BEAM AS DELIVERED TO THE JOBSITE. CONTRACTOR TO CONSIDER CAMBER LOSS, IF ANY, DUE TO SHIPPING AND HANDLING.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERECTION AIDS AND JOINT PREPARATIONS THAT INCLUDE, BUT ARE NOT LIMITED TO, ERECTION ANGLES, LIFT HOLES, AND OTHER AIDS, WELDING PROCEDURES, REQUIRED ROOT OPENINGS, ROOT FACE DIMENSIONS, GROOVE ANGLES, BACKING BARS, COPES, SURFACE ROUGHNESS VALUES AND UNEQUAL PARTS.

30. ARCHITECTURALLY EXPOSED STRUCTURAL STEEL SHALL CONFORM TO SECTION 10 OF THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.

31. STEEL DETAILING SHALL BE PERFORMED BY A DETAILER WITH FIVE YEARS MINIMUM EXPERIENCE ON SIMILAR PROJECTS OF EQUAL OR LARGER COMPLEXITY AND SCOPE. QUALIFICATIONS SHALL BE SUBMITTED TWO WEEKS PRIOR TO BID.

32. ALL A325 CONNECTION BOLTS SHALL BE INSTALLED TO THE SNUG-TIGHT CONDITION PER RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. ALL NUTS SHALL CONFORM TO ASTM A563. ALL WASHERS SHALL CONFORM TO ASTM F436 OR ASTM F959 TYPE 325. ALL BOLT HOLES SHALL BE STANDARD SIZE UNLESS OTHERWISE NOTED.

33. ALL A325 CONNECTION BOLTS AT MEMBERS WHICH ARE PART OF THE LATERAL FORCE RESISTING SYSTEM SHALL BE INSTALLED TO THE SLIP-CRITICAL CONDITION PER RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. ALL FAYING SURFACES SHALL BE PREPARED AS CLASS A PER THE AISC SPECIFICATION. ALL NUTS SHALL CONFORM TO ASTM A563. ALL WASHERS SHALL CONFORM TO ASTM F436 OR ASTM F959 TYPE 325. ALL BOLT HOLES SHALL BE STANDARD SIZE UNLESS OTHERWISE NOTED.

34. ALL WELDING SHALL BE IN CONFORMANCE WITH A.I.S.C. AND A.W.S. STANDARDS AND SHALL BE PERFORMED BY W.A.B.O. CERTIFIED WELDERS USING E70 XX ELECTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY A.W.S.) SHALL BE USED. WELDING OF GRADE 60 REINFORCING BARS (IF REQUIRED) SHALL BE PERFORMED USING LOW HYDROGEN ELECTRODES. WELDING WITHIN 4" OF COLD BENDS IN REINFORCING STEEL IS NOT PERMITTED. SEE REINFORCING NOTE FOR MATERIAL REQUIREMENTS OF WELDED BARS. ALL WELDING SHALL BE PERFORMED BY WELDERS WITH AWS / W.A.B.O. CERTIFICATION WITH THE MATERIAL AND METHOD REQUIRED.

    SHOP DRAWINGS SHALL SHOW ALL WELDING WITH AWS A2.4 SYMBOLS. WELDS SHOWN ON DRAWINGS ARE MINIMUM SIZES. INCREASE WELD SIZE TO AWS MINIMUM SIZES BASED ON PLATE THICKNESS. MINIMUM WELDING SHALL BE 3/16-INCH. THE WELDS SHOWN ARE FOR THE FINAL CONNECTIONS. FIELD WELD ARROWS ARE SHOWN WHERE A FIELD WELD IS REQUIRED BY THE STRUCTURAL DESIGN; THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING IF A WELD SHOULD BE SHOP OR FIELD WELDED IN ORDER TO FACILITATE THE STRUCTURAL STEEL DELIVERY AND ERECTION. SEE THE SPECIFICATIONS AND DRAWINGS FOR ADDITIONAL WELDING REQUIREMENTS, ESPECIALLY AT SEISMIC CRITICAL WELDS.

35. WELDING OF LATERAL FORCE RESISTING MEMBERS SHALL BE PERFORMED IN ACCORDANCE WITH A WELDING PROCEDURE SPECIFICATION (WPS) AS REQUIRED IN AWS D1.1 (INCLUDING AWS D1.8 SEISMIC SUPPLEMENT) AND APPROVED BY THE STRUCTURAL ENGINEER BEFORE WORK BEGINS. THE WPS VARIABLES SHALL BE WITHIN THE PARAMETERS ESTABLISHED BY THE FILLER METAL MANUFACTURER. WELDING ELECTRODES SHALL BE E70T7-K2 OR E70T-6 WITH A MINIMUM SPECIFIED CHARPY V-NOTCH (CVN) OF 20 ft-lbs AT -20 DEGREES FAHRENHEIT AND 40 ft-lbs AT 70 DEGREES FAHRENHEIT.

STRUCTURAL OBSERVATION

AS NOTED IN IBC SECTION 1704.6, STRUCTURAL OBSERVATION IS REQUIRED FOR THIS PROJECT. STRUCTURAL OBSERVATION MEANS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM, INCLUDING BUT NOT LIMITED TO, THE ELEMENTS AND CONNECTIONS AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY OF THE INSPECTIONS REQUIRED BY IBC SECTIONS 110 AND 1704.

IN OUR STRUCTURAL OBSERVATION, WE WILL SELECT PORTIONS OF WORK TO REVIEW CLOSELY AS WELL AS OBSERVE THE STRUCTURAL SYSTEM FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. SUCH REVIEW PROCEDURES WILL BE CONDUCTED IN ACCORDANCE WITH COMMONLY ACCEPTED STANDARDS OF PRACTICE. THE BUILDING OFFICIAL UNDERSTANDS THAT SUCH PROCEDURES INDICATE ACTUAL CONDITIONS ONLY WHERE THE REVIEW IS PERFORMED AND THAT THE RESULTS WILL BE INFERRED TO EXIST IN OTHER AREAS NOT REVIEWED.

THE BUILDING OFFICIAL ALSO RECOGNIZES THAT STRUCTURAL REVIEW IS A TECHNIQUE EMPLOYED TO MINIMIZE THE RISK OF PROBLEMS ARISING DURING CONSTRUCTION. STRUCTURAL OBSERVATION BY THE DESIGN PROFESSIONAL DOES NOT CONSTITUTE WARRANTY OR GUARANTEE OF ANY TYPE. IN ALL CASES, THE CONTRACTOR SHALL RETAIN RESPONSIBILITY FOR THE QUALITY OF WORK AND FOR ADHERENCE TO THE APPROVED PLANS AND SPECIFICATIONS.

City of Puyallup
Building
REVIEWED
FOR
COMPLIANCE
BSnowden
07/17/2025
2:36:36 PM

The approved construction plans, documents, and all engineering must be posted on the job at all inspections in a visible and readily accessible location.

Full sized legible color plans are required to be provided by the permittee on site for inspection.

Approval of submitted plans is not an approval of omissions or oversights by this office or non compliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable codes and regulations of the local government.

QUANTUM
CONSULTING ENGINEERS

1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER
36098

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING
1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

NO.	DESCRIPTION	DATE	BY
	PERMIT SET	12/20/24	
1	PERMIT RESUBMITTAL SET	3/14/25	
2	POST-PERMIT REVISIONS	4/23/25	
3	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ○ REVISIONS: △

P.M.: SHT
P.E.: TVM
DRAWN BY: SSN
SCALE: AS SHOWN
DATE: 12/20/24
JOB NO.: 19305.04

SHEET TITLE:
GENERAL STRUCTURAL NOTES

SHEET NO.
S1.0

SPECIAL INSPECTION SCHEDULES

STRUCTURAL STEEL SPECIAL INSPECTION SCHEDULE (AISC 360-15 CHAPTER N)		
INSPECTION TASKS PRIOR TO WELDING	**QC**	**QA**
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	P	O
WPS AVAILABLE	P	P
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P
MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
WELDER IDENTIFICATION SYSTEM (3)	O	O
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) • JOINT PREPARATIONS • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION) • BACKING TYPE AND FIT (IF APPLICABLE)	O	O
FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY) • JOINT PREPARATIONS • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	P	O
CONFIGURATION AND FINISH OF ACCESS HOLES	O	O
FIT-UP OF FILLET WELDS • DIMENSIONS (ALIGNMENT, GAPS AT ROOT) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	O	O
CHECK WELDING EQUIPMENT	O	-
INSPECTION TASKS DURING WELDING		
CONTROL AND HANDLING OF WELDING CONSUMABLES • PACKAGING • EXPOSURE CONTROL	O	O
NO WELDING OVER CRACKED TACK WELDS	O	O
ENVIRONMENTAL CONDITIONS • WIND SPEED WITHIN LIMITS • PRECIPITATION AND TEMPERATURE	O	O
WPS FOLLOWED • SETTINGS ON WELDING EQUIPMENT • TRAVEL SPEED • SELECTED WELDING MATERIALS • SHIELDING GAS TYPE/FLOW RATE • PREHEAT APPLIED • INTERPASS TEMPERATURE MAINTAINED (MIN/MAX.) • PROPER POSITION (F, V, H, OH)	O	O
WELDING TECHNIQUES • INTERPASS AND FINAL CLEANING • EACH PASS WITHIN PROFILE LIMITATIONS • EACH PASS MEETS QUALITY REQUIREMENTS	O	O
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	P	P
INSPECTION TASKS AFTER WELDING		
WELDS CLEANED	O	O
SIZE, LENGTH AND LOCATION OF WELDS	P	P
WELDS MEET VISUAL ACCEPTANCE CRITERIA • CRACK PROHIBITION • WELD/BASE-METAL FUSION • CRATER CROSS SECTION • WELD PROFILES • WELD SIZE • UNDERCUT • POROSITY	P	P
ARC STRIKES	P	P
K-AREA (4)	P	P
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES (5)	P	P
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P
REPAIR ACTIVITIES	P	P
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	O	O

STRUCTURAL STEEL SPECIAL INSPECTION SCHEDULE (AISC 360-15 CHAPTER N)		
INSPECTION TASKS PRIOR TO HIGH STRENGTH BOLTING	**QC**	**QA**
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O
CORRECT FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	O	O
CORRECT BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O
PROTECTED STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O
INSPECTION TASKS DURING HIGH STRENGTH BOLTING		
FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED	O	O
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	O
INSPECTION TASKS AFTER HIGH STRENGTH BOLTING		
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	P	P

NOTES:

1. QUALITY CONTROL (QC) SHALL BE PROVIDED BY THE FABRICATOR, ERECTOR OR OTHER RESPONSIBLE CONTRACTOR AS APPLICABLE. QUALITY ASSURANCE (QA) SHALL BE PROVIDED BY OTHERS WHEN REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ), APPLICABLE BUILDING CODE (ABC), PURCHASER, OWNER OR ENGINEER OF RECORD (EOR). NONDESTRUCTIVE TESTING (NDT) SHALL BE PERFORMED BY THE AGENCY OR FIRM RESPONSIBLE FOR QUALITY ASSURANCE, EXCEPT AS PERMITTED IN ACCORDANCE WITH AISC 360-16 SECTION N6.
2. INSPECTION TASKS
   A. OBSERVE (O)
      THE INSPECTOR SHALL OBSERVE THESE FUNCTIONS ON A RANDOM, DAILY BASIS. OPERATIONS NEED NOT BE DELAYED PENDING OBSERVATIONS.

   B. PERFORM (P)
      THESE INSPECTIONS SHALL BE PERFORMED PRIOR TO THE FINAL ACCEPTANCE OF THE ITEM.
3. THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.
4. WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 IN. (75 MM) OF THE WELD.
5. AFTER ROLLED HEAVY SHAPES (SEE SECTION A3.1C) AND BUILT-UP HEAVY SHAPES (SEE SECTION A3.1D) ARE WELDED, VISUALLY INSPECT THE WELD ACCESS HOLE FOR CRACKS.

STRUCTURAL STEEL SEISMIC FORCE RESISTING SYSTEM SPECIAL INSPECTION SCHEDULE (AISC 341-15 CHAPTER J)				
	QC		**QA**	
VISUAL INSPECTION TASKS PRIOR TO WELDING	**TASK**	**DOC.**	**TASK**	**DOC.**
MATERIAL IDENTIFICATION (TYPE/GRADE)	O	-	O	-
WELDER IDENTIFICATION SYSTEM	O	-	O	-
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) -JOINT PREPARATION -DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) -CLEANLINESS (CONDITION OF STEEL SURFACES) -TACKING (TACK WELD QUALITY AND LOCATION) -BACKING TYPE AND FIT (IF APPLICABLE)	P/O (3)	-	O	-
CONFIGURATION AND FINISH OF ACCESS HOLES	O	-	O	-
FIT-UP OF FILLET WELDS -DIMENSIONS (ALIGNMENT, GAPS AT ROOT) -CLEANLINESS (CONDITION OF STEEL SURFACES) -TACKING (TACK WELD QUALITY AND LOCATION)	P/O (3)	-	O	-
VISUAL INSPECTION TASKS DURING WELDING				
WPS FOLLOWED -SETTINGS ON WELDING EQUIPMENT -TRAVEL SPEED -SELECTED WELDING MATERIALS -SHIELDING GAS TYPE/FLOW RATE -PREHEAT APPLIED -INTERPASS TEMPERATURE MAINTAINED (MIN/MAX.) -PROPER POSITION (F, V, H, OH) -INTERMIX OF FILLER METALS AVOIDED UNLESS APPROVED	O	-	O	-
USE OF QUALIFIED WELDERS	O	-	O	-
CONTROL AND HANDLING OF WELDING CONSUMABLES -PACKAGING -EXPOSURE CONTROL	O	-	O	-
ENVIRONMENTAL CONDITIONS -WIND SPEED WITHIN LIMITS -PRECIPITATION AND TEMPERATURE	O	-	O	-
WELDING TECHNIQUES -INTERPASS AND FINAL CLEANING -EACH PASS WITHIN PROFILE LIMITATIONS -EACH PASS MEETS QUALITY REQUIREMENTS	O	-	O	-
NO WELDING OVER CRACKED TACKS	O	-	O	-
VISUAL INSPECTION TASKS AFTER WELDING				
WELDS CLEANED	O	-	O	-
SIZE, LENGTH, AND LOCATION OF WELDS	P	-	P	-
WELDS MEET VISUAL ACCEPTANCE CRITERIA -CRACK PROHIBITION -WELD/BASE-METAL FUSION -CRATER CROSS SECTION -WELD PROFILES AND SIZE -UNDERCUT -POROSITY	P	D	P	D
K-AREA (4)	P	D	P	D
PLACEMENT OF REINFORCING OR CONTOURING FILLET WELDS (IF REQUIRED)	P	D	P	D
BACKING REMOVED, WELD TABS REMOVED AND FINISHED, AND FILLET WELDS ADDED (IF REQUIRED)	P	D	P	D
REPAIR ACTIVITIES	P	-	P	D

STRUCTURAL STEEL SEISMIC FORCE RESISTING SYSTEM SPECIAL INSPECTION SCHEDULE (AISC 341-15 CHAPTER J)				
	QC		**QA**	
INSPECTION TASKS PRIOR TO HIGH STRENGTH BOLTING	**TASK**	**DOC.**	**TASK**	**DOC.**
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL	O	-	O	-
PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	-	O	-
CONNECTING ELEMENTS, INCLUDING THE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	-	O	-
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED FOR FASTENER ASSEMBLIES AND METHODS USED	P	D	O	D
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	-	O	-
INSPECTION TASKS DURING HIGH STRENGTH BOLTING				
FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	O	-	O	-
JOINT BROUGHT TO THE SNUG TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	-	O	-
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	-	O	-
BOLTS ARE PRETENSIONED PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	-	O	-
INSPECTION TASKS AFTER HIGH STRENGTH BOLTING				
DOCUMENT ACCEPTED AND REJECTED CONNECTIONS	P	D	P	D
OTHER INSPECTION TASKS				
RBS REQUIREMENTS, IF APPLICABLE -CONTOUR AND FINISH -DIMENSIONAL TOLERANCES	P	D	P	D
PROTECTED ZONE -NO HOLES AND UNAPPROVED ATTACHMENTS MADE BY FABRICATOR OR ERECTOR, AS APPLICABLE	P	D	P	D

NOTES:

1. QUALITY CONTROL (QC) SHALL BE PROVIDED BY THE FABRICATOR, ERECTOR OR OTHER RESPONSIBLE CONTRACTOR AS APPLICABLE. QUALITY ASSURANCE (QA) SHALL BE PROVIDED BY OTHERS WHEN REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ), APPLICABLE BUILDING CODE (ABC), PURCHASER, OWNER OR ENGINEER OF RECORD (EOR). NONDESTRUCTIVE TESTING (NDT) SHALL BE PERFORMED BY THE AGENCY OR FIRM RESPONSIBLE FOR QUALITY ASSURANCE, EXCEPT AS PERMITTED IN ACCORDANCE WITH AISC 360-16 SECTION N6.
2. INSPECTION TASKS
   A. OBSERVE (O)
      THE INSPECTOR SHALL OBSERVE THESE FUNCTIONS ON A RANDOM, DAILY BASIS. OPERATIONS NEED NOT BE DELAYED PENDING OBSERVATIONS.

   B. PERFORM (P)
      THESE INSPECTIONS SHALL BE PERFORMED PRIOR TO THE FINAL ACCEPTANCE OF THE ITEM.

   C. DOCUMENT (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 GRID LINES AND FLOOR OR 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.
3. FOLLOWING 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-ESTABLISHED ADEQUATE ASSURANCE THAT THE WELDER WILL PERFORM THE INSPECTION TASKS LISTED.
4. WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 IN. (75 MM) OF THE WELD. THE VISUAL INSPECTION SHALL BE PERFORMED NO SOONER THAN 48 HOURS FOLLOWING COMPLETION OF THE WELDING.

The final special inspection report must be on site during City inspections.

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING
1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

NO.	DESCRIPTION	DATE	BY
1	PERMIT SET	12/20/24	
2	PERMIT RESUBMITTAL SET	3/14/25	
3	POST-PERMIT REVISIONS	4/23/25	
4	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ◯ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

SHEET TITLE:

SPECIAL INSPECTION SCHEDULES

SHEET NO.

S1.1

File: 305-s101.dwg Plotted: 06/23/25 8:51 am

SPECIAL INSPECTION SCHEDULE

SEE NOTES 1 & 2

			CONTINUOUS	PERIODIC	REMARKS
FOUNDATION	1	EXCAVATION, GRADING AND FILL	X		BY GEOTECHNICAL ENGINEER
	2	FINAL FOUNDATION PREPARATION	X		BY GEOTECHNICAL ENGINEER
	3	PLACEMENT OF FOUNDATION AND RETAINING WALL BACKFILL	X		BY GEOTECHNICAL ENGINEER
CONCRETE	1	INSPECTION OF REINFORCING STEEL, INCLUDING MECHANICAL SPLICES AND PLACEMENT		X	
	2	INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED	X		
	3	VERIFYING USE OF REQUIRED DESIGN MIX		X	
	4	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X		
	5	INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X		
	6	INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X	
	7	INSPECTION OF EMBED PLATES AND OTHER EMBEDDED ITEMS PRIOR TO AND DURING PLACEMENT OF CONCRETE		X	
DRILLED IN ANCHORS	1	PLACEMENT OF ADHESIVE ANCHORS, RODS AND DOWELS	X		SEE NOTE 3
	2	PLACEMENT OF EXPANSION AND SCREW ANCHORS		X	SEE NOTE 3
ARCHITECTURAL COMPONENTS	1	DURING ERECTION AND FASTENING OF EXTERIOR CLADDING, INTERIOR NON-BEARING WALLS, AND INTERIOR AND EXTERIOR VENEER		X	SEE NOTE 5
MECHANICAL AND ELECTRICAL COMPONENTS	1	DURING ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY OR STANDBY POWER SYSTEMS		X	
	2	DURING INSTALLATION OF PIPING SYSTEMS INTENDED TO CARRY FLAMMABLE, COMBUSTIBLE OR HIGHLY TOXIC CONTENTS AND THEIR ASSOCIATED MECHANICAL UNITS		X	
APPROVED FABRICATORS	1	APPROVED FABRICATORS MUST SUBMIT CERTIFICATE OF COMPLIANCE FOR ALL OFFSITE FABRICATORS SUCH AS STRUCTURAL STEEL, GLULAMS, PRECAST CONCRETE, ETC.			
PREFABRICATED CONSTRUCTION	1				SEE NOTE 4

NOTES:

1. THE ITEMS CHECKED WITH AN "X" SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17 BY A CERTIFIED SPECIAL INSPECTOR FROM AN ESTABLISHED TESTING AGENCY. FOR MATERIAL SAMPLING AND TESTING REQUIREMENTS REFER TO THE PROJECT SPECIFICATIONS, THE STRUCTURAL NOTES, AND THE NOTES BELOW. SPECIAL INSPECTION TESTING REQUIREMENTS APPLY EQUALLY TO ALL BIDDER DESIGNED COMPONENTS.
2. CONTINUOUS INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON THE SITE AT ALL TIMES OBSERVING THE WORK REQUIRING SPECIAL INSPECTION (IBC 1702). PERIODIC SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON SITE AT TIME INTERVALS NECESSARY TO CONFIRM THAT ALL WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE.
3. INSPECTION OF DRILLED ANCHORS, INCLUDING EXPANSION AND ADHESIVE GROUTED ANCHORS, WHERE SPECIFIED, SHALL INCLUDE VISUAL VERIFICATION OF DRILLED HOLE DEPTH, SPACING, EDGE DISTANCES AND HOLE CLEANING. FOR GROUTED ANCHORS, GROUT INSTALLATION SHALL BE OBSERVED AND GROUT PRODUCT SPECIFICATION AND PREPARATION SHALL BE VERIFIED.
4. INSPECTION OF PREFABRICATED CONSTRUCTION SHALL BE THE SAME AS IF THE MATERIAL USED IN THE CONSTRUCTION TOOK PLACE ON SITE. CONTINUOUS INSPECTION WILL NOT BE REQUIRED DURING PREFABRICATION IF THE APPROVED AGENCY CERTIFIES THE CONSTRUCTION AND FURNISHES EVIDENCE OF COMPLIANCE.
5. EXCEPTIONS - SPECIAL INSPECTION IS NOT REQUIRED FOR:

   a) CLADDING AND VENEER WEIGHING 5 PSF OR LESS.
   b) INTERIOR NON-BEARING WALLS WEIGHING 15 PSF OR LESS.
   c) ARCHITECTURAL COMPONENTS IN STRUCTURES 30 FEET OR LESS IN HEIGHT.

1705.13.6 Plumbing, mechanical and electrical components.

Periodic special inspection of plumbing, mechanical and electrical components shall be required for the following:
1. Anchorage of electrical equipment for emergency and standby power systems in structures assigned to Seismic Design Category C, D, E or F.
2. Anchorage of other electrical equipment in structures assigned to Seismic Design Category E or F.
3. Installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to Seismic Design Category C, D, E or F.
4. Installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to Seismic Design Category C, D, E or F.
5. Installation and anchorage of vibration isolation systems in structures assigned to Seismic Design Category C, D, E or F where the approved construction documents require a nominal clearance of 1/4 inch (6.4 mm) or less between the equipment support frame and restraint.
6. Installation of mechanical and electrical equipment, including duct work, piping systems and their structural supports, where automatic sprinkler systems are installed in structures assigned to Seismic Design Category C, D, E or F to verify one of the following:
   6.1. Minimum clearances have been provided as required by Section 13.2.3 ASCE/SEI 7.
   6.2. A nominal clearance of not less than 3 inches (76 mm) has been be provided between automatic sprinkler system drops and sprigs and: structural members not used collectively or independently to support the sprinklers; equipment attached to the building structure; and other systems' piping.

Where flexible sprinkler hose fittings are used, special inspection of minimum clearances is not required.

ABBREVIATIONS

@	At	L	Angle
d	Penny (Nails)	LB.	Pound
ø	Diameter	LL	Live Load
°	Degrees	LLH	Long Leg Horizontal
...#	Pounds	LLV	Long Leg Vertical
#...	Number	LONGIT.	Longitudinal
		LT. WT.	Lightweight
(A)	Above		
A.B.	Anchor Bolt	MAX.	Maximum
ADD'L	Additional	MECH.	Mechanical
ALT.	Alternate	MEZZ.	Mezzanine
APPROX.	Approximate	MF	Moment Frame
ARCH.	Architect	MFR.	Manufacturer
A.S.D.	Allowable Stress Design	MIN.	Minimum
		MISC.	Miscellaneous
(B)	Below	MK.	Mark
B/	Bottom of		
BF	Braced Frame	(N)	New
BLKG.	Blocking	N.	North
BLDG.	Building	N.S.	Near Side
BM.	Beam	NOM.	Nominal
BOT.	Bottom	NTS	Not to Scale
BRG.	Bearing		
BTWN.	Between	O.C.	On Center
		O.D.	Outside Diameter
CL or ℄	Centerline	O.F.	Outside Face
C	Camber	O.H.	Overhang
CIP	Cast In Place	OPNG.	Opening
C.J.	Construction Joint or Control Joint	OPP.	Opposite
CJP	Complete Joint Penetration		
CLG.	Ceiling	PAF	Powder Actuated Fastener
CLR.	Clear	PC.	Precast
CMU	Concrete Masonry Unit	PEMB	Pre-engineered Metal Building
COL.	Column	PERM.	Permanent
CONC.	Concrete	PERP.	Perpendicular
CONN.	Connections	PJP	Partial Joint Penetration
CONST.	Construction	PL or ℗	Plate
CONT.	Continuous	PLF	Pounds per linear Foot
CSK.	Countersink	PLYWD	Plywood
		PREFAB.	Prefabricated
DBA	Deformed Bar Anchor	PSF	Pounds per Square Foot
DBL.	Double	PSI	Pounds per Square Inch
DEG.	Degree	P.T. or PT	Post-Tensioning
DF	Doug Fir-Larch	P/T	Pressure-Treated
DIA.	Diameter		
DIAG.	Diagonal	RAD.	Radius
DIAPH.	Diaphragm	REF.	Reference
DIM.	Dimension	REINF.	Reinforce or Reinforcement
DN.	Down	REQD.	Required
DO	Ditto	REV.	Revise
DTL.	Detail	R.O.	Rough Opening
DTP	Double Top Plate		
DWG.	Drawing	S.	South
		SCH. or SCHED.	Schedule
(E)	Existing	SECT.	Section
E.	East	SHT.	Sheet
EA.	Each	SIM.	Similar
E.F.	Each Face	SOG	Slab On Grade
EL.	Elevation	SPEC.	Specification
ELEV.	Elevator	SQ.	Square
EMBED.	Embedment Length	SQ. FT.	Square Feet
ENGR.	Engineer	SQ. IN.	Square Inch(es)
EQ.	Equal	SPF	Spruce-Pine-Fir
E.W.	Each Way	S.S.	Stainless Steel
EXP.	Expansion	STD.	Standard
EXT.	Exterior	STIFF.	Stiffener
		STL.	Steel
FDN.	Foundation	STR.	Structural
FIN.	Finish	SUB.	Substitute
FLR.	Floor	SYM.	Symmetrical
FRP	Fiber Reinforced Polymer		
F.S.	Far Side	T/	Top of
FT.	Foot or Feet	T&B	Top and Bottom
FTG.	Footing	T&G	Tongue & Groove
		TEMP.	Temporary
GA.	Gauge	THRU	Through
GALV.	Galvanized	T.O.C.	Top of Concrete
GL	Glue Laminated	T.O.S.	Top of Steel
GWB	Gypsum Wall Board	T.O.W.	Top of Wall
		TRANS.	Transverse
HDG	Hot Dipped Galvanized	TS	Tube Steel
HDR.	Header	TYP.	Typical
HF	Hem Fir		
HGR.	Hanger	U.O.N.	Unless Otherwise Noted
HORIZ.	Horizontal		
HSS	Hollow Structural Section	VERT.	Vertical
HT.	Height	VIF	Verify in Field
I.D.	Inside Diameter	W.	West
I.F.	Inside Face	W/ or w/	With
IN.	Inch	W.H.S.	Welded Headed Stud
INFO.	Information	W/O	Without
INT.	Interior	W.P.	Work Point
		W.T.S.	Welded Threaded Stud
JT.	Joint	WWF	Welded Wire Fabric
K	Kips	X SECT.	Cross Section
KSF	Kips per Square Foot	X-STR	Extra Strong
KSI	Kips per Square Inch	XX-STR	Double Extra Strong

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — REGISTERED PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING
1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

NO.	DESCRIPTION	DATE	BY
	PERMIT SET	12/20/24	
1	PERMIT RESUBMITTAL SET	3/14/25	
2	POST-PERMIT REVISIONS	4/23/25	
3	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ◯ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

SHEET TITLE:

SPECIAL INSPECTION SCHEDULE, ABBREVIATIONS

SHEET NO.

S1.2

File: 305-s102.dwg Plotted: 06/23/25 8:52 am

FOUNDATION PLAN NOTES:

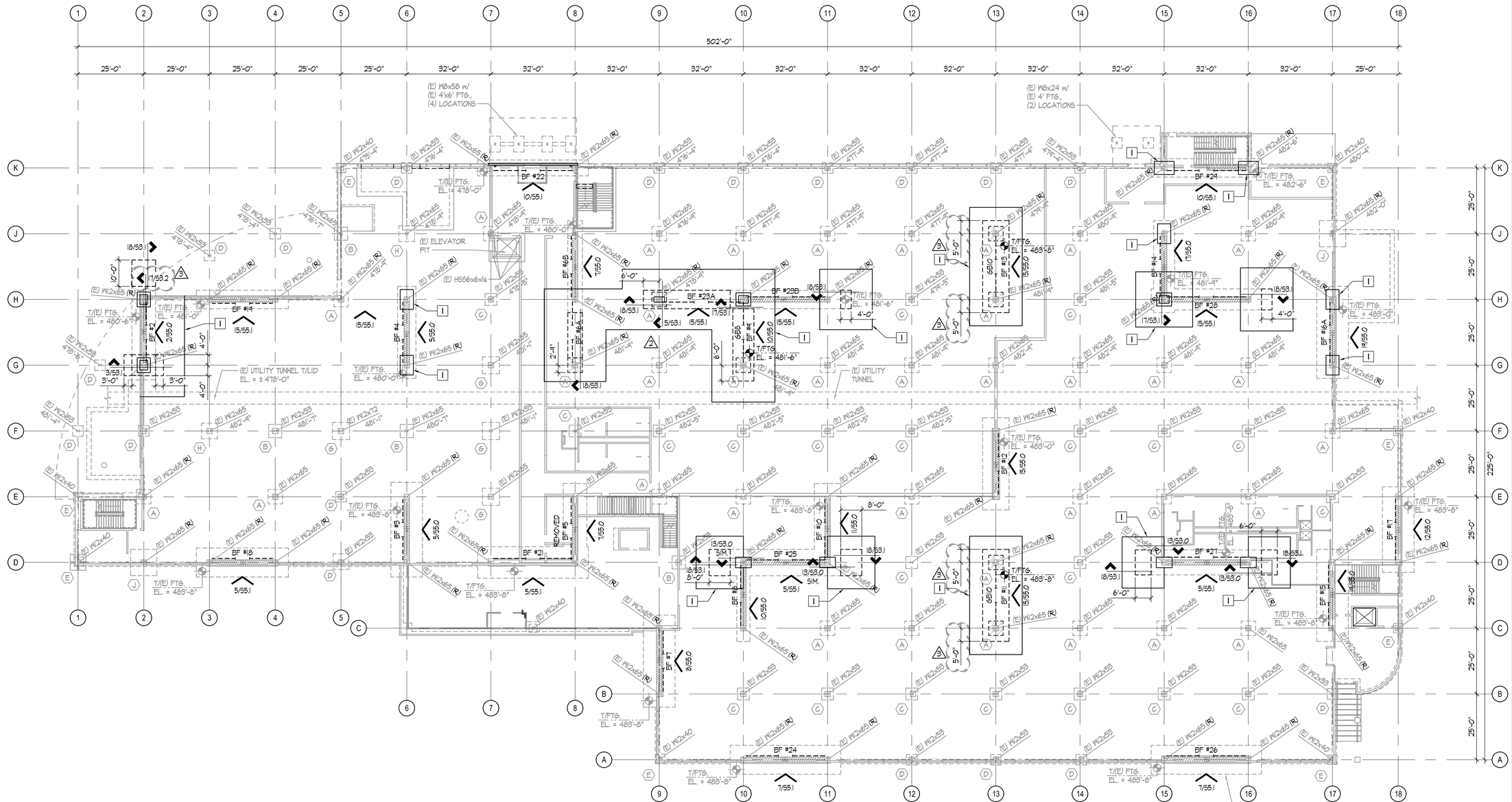
1. ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR WITH THE ARCHITECTURAL DRAWINGS BEFORE CONSTRUCTION BEGINS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY.
2. ALL EXISTING INFORMATION IS TO BE FIELD VERIFIED. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY.
3. SEE SHEETS S1.0 TO S1.2 FOR GENERAL STRUCTURAL NOTES, SPECIAL INSPECTIONS, AND ABBREVIATIONS. SEE SHEET S3.0 FOR TYPICAL CONCRETE AND FOUNDATION DETAILS. SEE SHEETS S5.0 AND S5.1 FOR TYPICAL BRB FRAME ELEVATIONS.
4. SLAB-ON-GRADE SHALL BE 6" THICK CONCRETE REINFORCED WITH #4 @ 16" O.C. EACH WAY, U.O.N. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING SUB-GRADE MOISTURE BARRIER AND ELEVATIONS, ETC.
5. WHERE NEW CONCRETE IS CAST AGAINST EXISTING CONCRETE FOUNDATIONS, DRILL AND EPOXY #4 DOWELS x 3'-0" LONG TO LAP WITH THE NEW FOOTING LONGITUDINAL REINFORCING (5" MINIMUM EMBEDMENT), U.O.N.
6. PROJECT TOP OF SLAB (T.O.S.) ELEVATION IS 484'-6" (ORIGINAL CONSTRUCTION DATUM). TYPICAL TOP OF EXISTING INTERIOR FOOTING ELEVATION = 483'-8" U.O.N. TYPICAL TOP OF EXISTING EXTERIOR FOOTINGS ELEVATION VARIES.
7. COLUMNS INDICATED ARE AT THIS LEVEL. ALL ORIGINAL CONSTRUCTION COLUMNS ARE ASTM A36 (GR. 36).
8. GB#x INDICATES GRADE BEAM FOOTING TYPE, SEE 9/S3.0 FOR REINF. AND DIMENSIONS
9. (X) INDICATES EXISTING FOOTING. SEE 5/S3.0 FOR SCHEDULE.

LEGEND:

- INDICATES STEEL COLUMN SIZE — W12x65 (R) 476'-4"
- INDICATES COLUMN TO RECEIVE FLANGE STIFFENING RETROFIT FOR DUCTILITY (FULL FRAME HEIGHT) PER 15/S5.3. SEE S5.0 & S5.1 FOR EXTENTS — 3
- INDICATES NON-TYPICAL EXISTING TOP OF SPREAD FOOTING ELEVATION, SEE PLAN NOTE 6.
- T/(E) FTG. EL. = 481'-4" — INDICATES BRACED FRAME TOP OF (E) FOOTING ELEVATION
- INDICATES DEMOLISHED FOOTING
- T/FTG. EL. = 481'-4" — INDICATES BRACED FRAME TOP OF FOOTING ELEVATION

KEY NOTES:

1. DEMO & REPLACE EXISTING SLAB FOR FOUNDATION RETROFIT. SEE 8/S5.1 FOR CONNECTION DETAIL



FOUNDATION PLAN

SCALE: 1/16" = 1'-0"

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — REGISTERED PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING

1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

	PERMIT SET	12/20/24
1	PERMIT RESUBMITTAL SET	3/14/25
2	POST-PERMIT REVISIONS	4/23/25
3	CONSTRUCTION DRAWINGS	6/23/25

NO.	DESCRIPTION	DATE	BY

ISSUES: ◯ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

SHEET TITLE:

FOUNDATION PLAN

SHEET NO.

S2.0

File: S2S-s2001.dwg Plotted: 06/23/25 8:52 am

SECOND FLOOR FRAMING PLAN NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR WITH THE ARCHITECTURAL DRAWINGS BEFORE CONSTRUCTION BEGINS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY.
2. ALL EXISTING INFORMATION IS TO BE FIELD VERIFIED. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY.
3. SEE SHEETS S1.0 TO S1.2 FOR STRUCTURAL GENERAL NOTES, SPECIAL INSPECTIONS, AND ABBREVIATIONS.
4. FINISH FLOOR EL. = 504'-6", TO MATCH EXISTING. FIELD VERIFY.
5. TYPICAL EXISTING FLOOR SYSTEM NORTH OF GRID 6 IS 3-1/2" CONCRETE OVER 3" 20 GA. COMPOSITE METAL DECK (6-1/2" TOTAL). TYPICAL EXISTING FLOOR SYSTEM SOUTH OF GRID 6 IS 2-15/16" CONCRETE OVER 9/16" SHALLOW FORM DECK (3-1/2" TOTAL).
6. ALL ORIGINAL CONSTRUCTION BEAMS ARE ASTM A572, GR. 50 U.O.N.

LEGEND:

- DENOTES BRACED FRAME WITH NEW BUCKLING RESTRAINED BRACES ABOVE THIS LEVEL
- INDICATES LOCATION OF (N) BOTTOM FLANGE BRACING FOR (E) W-SHAPE BEAM PER 3/S5.3 (FRAMING PARALLEL)
- INDICATES LOCATION OF (N) BOTTOM FLANGE BRACING FOR (E) W-SHAPE BEAM PER 20/S5.2 (FRAMING PERPENDICULAR)
- TEMP INDICATES ESTIMATED LOCATIONS OF BEAMS THAT MAY REQUIRE SHORING DURING CONSTRUCTION. SHORING IS MEANS AND METHODS AND SHALL BE VERIFIED BY THE CONTRACTOR

SECOND FLOOR FRAMING PLAN

SCALE: 1/16" = 1'-0"

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — REGISTERED PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING

1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

NO.	DESCRIPTION	DATE	BY
	PERMIT SET	12/20/24	
1	PERMIT RESUBMITTAL SET	3/14/25	
2	POST-PERMIT REVISIONS	4/23/25	
3	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ○ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

SHEET TITLE:

SECOND FLOOR FRAMING PLAN

SHEET NO.

S2.1

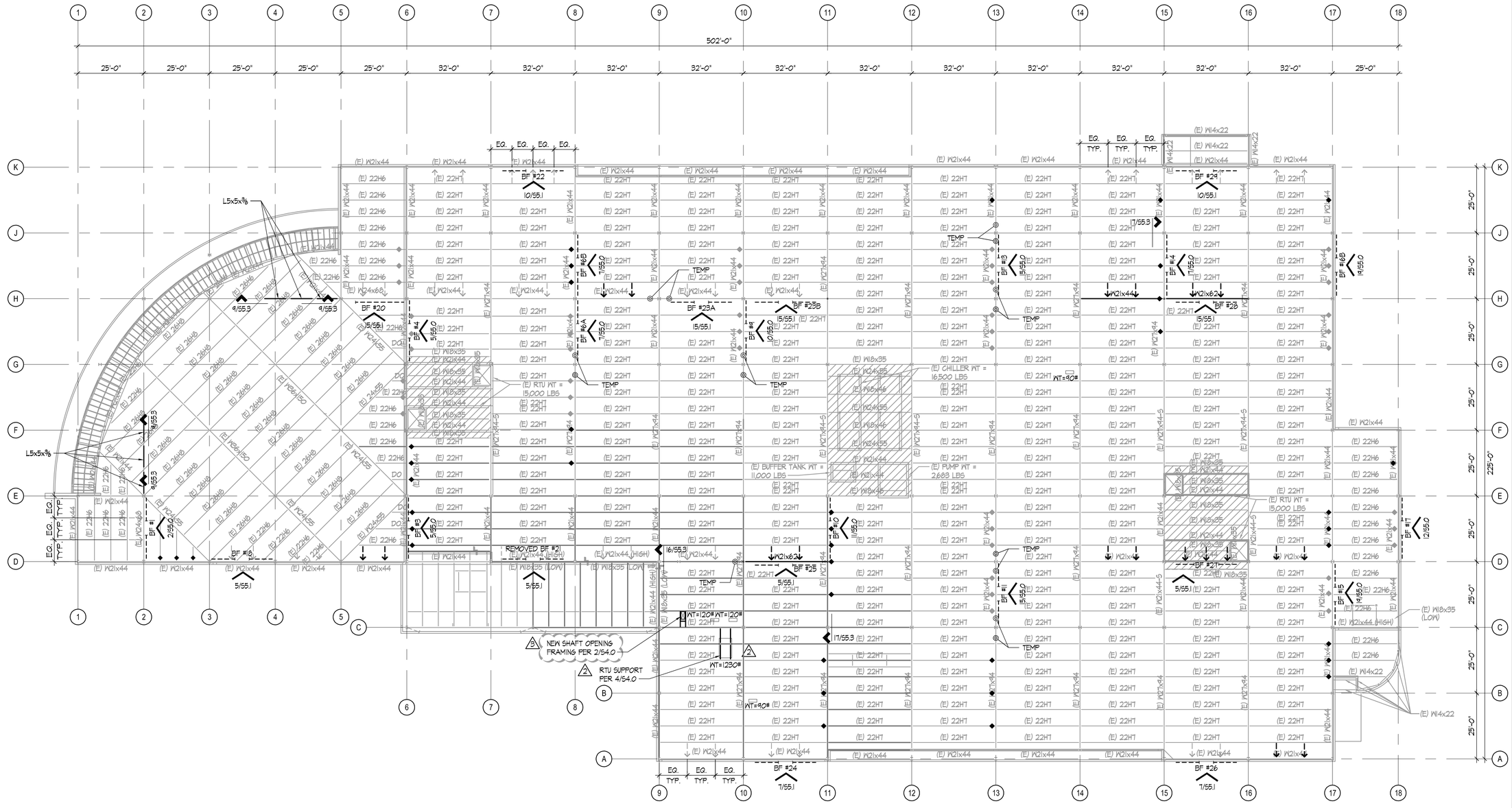
File: 305-s201.dwg Plotted: 06/23/25 9:52 am

ROOF FRAMING PLAN NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR WITH THE ARCHITECTURAL DRAWINGS BEFORE CONSTRUCTION BEGINS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY.
2. ALL EXISTING INFORMATION IS TO BE FIELD VERIFIED. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY.
3. SEE SHEETS S1.0 TO S1.2 FOR STRUCTURAL GENERAL NOTES, SPECIAL INSPECTIONS, AND ABBREVIATIONS.
4. TOP OF STEEL JOISTS: AT RIDGE 522'-2", AT VALLEY: 521'-6". TO MATCH EXISTING - FIELD VERIFY.
5. TYPICAL (E) ROOF SYSTEM IS 1-1/2" 20 GA. HSB-36 (Fy = 33 KSI) METAL ROOF DECK.
6. ALL ORIGINAL CONSTRUCTION W27 & 36 BEAMS ARE ASTM A572 GR. 50. ALL OTHER ORIGINAL CONSTRUCTION BEAMS ARE ASTM A36 (GR. 36).

LEGEND:

- → INDICATES LOCATION OF (N) BOTTOM FLANGE BRACING FOR W-SHAPE BEAM PER 9/S5.3 (FRAMING PARALLEL)
- ◆ INDICATES LOCATION OF (N) BOTTOM FLANGE BRACING FOR W-SHAPE BEAM PER 20/S5.2 (FRAMING PERPENDICULAR)
- TEMP INDICATES ESTIMATED LOCATIONS OF BEAMS THAT MAY REQUIRE SHORING DURING CONSTRUCTION. SHORING IS MEANS AND METHODS AND SHALL BE VERIFIED BY THE CONTRACTOR
- (E) W27x94-S INDICATES PREVIOUSLY STRENGTHENED BEAM



ROOF FRAMING PLAN

SCALE: 1/16" = 1'-0"

QUANTUM
CONSULTING ENGINEERS

1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — REGISTERED PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING

1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building | Planning | Engineering | Public Works | Fire | Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

NO.	DESCRIPTION	DATE	BY
1	PERMIT SET	12/20/24	
2	PERMIT RESUBMITTAL SET	3/14/25	
3	POST-PERMIT REVISIONS	4/23/25	
4	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ◯ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

SHEET TITLE:

ROOF FRAMING PLAN

SHEET NO.

S2.2

File: 305-s2021.dwg Plotted: 06/27/25 9:52 am

EXISTING BRACED FRAME FOOTING SCHEDULE

FRAME #	GRID	L	W	D	TOP. REINF.		BOT. REINF.	
					LONG.	TRANS	LONG.	TRANS
BF #2	2G - 2H	35'-0"	9'-0"	3'-6"	9- #9	#7 @ 14" O.C.	13- #9	9- #9 @ 14" O.C.
BF #3	6D - 6E	35'-0"	12'-0"	3'-9"	10- #7		12- #9	9- #9 @ 14" O.C.
BF #4	6G - 6H	35'-0"	7'-0"	3'-0"	7- #9		12- #9	13- #7 @ 10" O.C.
BF #5	8D - 8E	35'-0"	9'-0"	3'-6"	7- #7		9- #9	9- #9 @ 14" O.C.
BF #6A	8H - 8J	35'-0"	5'-6"	4'-0"	6- #9		10- #9	15- #7 @ 8" O.C.
BF #7	4B - 4C	35'-0"	12'-0"	3'-6"	10- #7		11- #9	9- #9 @ 14" O.C.
BF #8	10C - 10D	35'-0"	5'-0"	3'-0"	7- #7		5- #9	13- #7 @ 10" O.C.
BF #10	11D - 11E	35'-0"	10'-0"	3'-0"	7- #7		8- #9	8- #9 @ 16" O.C.
BF #12	13E - 13F	35'-0"	10'-0"	3'-0"	10- #7		9- #9	8- #9 @ 16" O.C.
BF #14	15H - 15J	35'-0"	8'-0"	3'-6"	9- #7		8- #9	9- #9 @ 14" O.C.
BF #15	17C - 17D	35'-0"	12'-0"	3'-6"	10- #7		11- #9	9- #9 @ 14" O.C.
BF #16A	17G - 17H	35'-0"	12'-0"	4'-0"	11- #7		13- #9	10- #9 @ 12" O.C.
BF #17	18D - 18E	32'-6"	12'-0"	4'-0"	11- #7		13- #9	10- #9 @ 12" O.C.
BF #18	D3 - D4	35'-0"	11'-0"	3'-6"	9- #7	#7 @ 14" O.C.	10- #9	9- #9 @ 14" O.C.
BF #19	H3 - H4	35'-0"	6'-0"	4'-0"	7- #9		10- #9	17- #7 @ 7" O.C.
BF #21	D7 - D8	42'-0"	12'-0"	3'-6"	10- #7		11- #9	9- #9 @ 14" O.C.
BF #22	K7 - K8	42'-0"	6'-6"	4'-0"	7- #9		14- #9	17- #7 @ 7" O.C.
BF #23B	H10 - H11	42'-0"	7'-0"	3'-6"	7- #9		15- #9	15- #7 @ 8" O.C.
BF #24	A10 - A11	42'-0"	11'-0"	3'-6"	9- #7		12- #9	9- #9 @ 14" O.C.
BF #25	D10 - D11	42'-0"	10'-0"	3'-0"	9- #7		11- #9	8- #9 @ 16" O.C.
BF #26	A15 - A16	42'-0"	11'-0"	3'-6"	9- #7		12- #9	9- #9 @ 14" O.C.
BF #27	D15 - D16	42'-0"	9'-6"	3'-0"	10- #7		12- #9	8- #9 @ 16" O.C.
BF #28	H15 - H16	42'-0"	8'-0"	3'-6"	8- #9		13- #9	9- #9 @ 14" O.C.
BF #29	K15 - K16	42'-0"	7'-0"	3'-6"	7- #7		9- #9	9- #9 @ 14" O.C.

EXISTING GRADE BEAM SCHEDULE

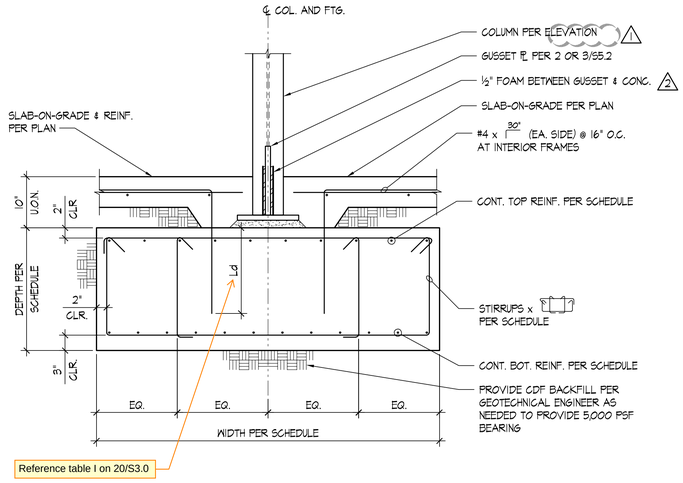
SCALE: NONE | 7

GRADE BEAM SCHEDULE

MARK	WIDTH	DEPTH	BOTTOM REINF.	TOP REINF.	STIRRUPS	REMARKS
GB8	8'-0"	3'-0"	(12) #9	(8) #7	(4) LEGS #4 @ 12" O.C.	
GB10	10'-0"	3'-6"	(16) #9	(10) #7	(4) LEGS #4 @ 10" O.C.	

NOTES:
1. AT GRADE BEAM INTERSECTION, EXTEND T&B REINF. FULL WIDTH OF INTERSECTING GRADE BEAM.
2. LAP REINF. Lb AT MID-SPAN BETWEEN COLUMNS AS REQD.

Reference table II on 20/S3.0



TYPICAL BRACED FRAME GRADE BEAM

SCALE: NONE | 9

EXISTING FOOTING SCHEDULE

TYPE	L x W	DEPTH
A	5'-6" x 5'-6"	21"
B	5'-0" x 5'-0"	19"
C	4'-6" x 4'-6"	17"
D	4'-0" x 4'-0"	16"
E	3'-6" x 3'-6"	16"
F	3'-0" x 3'-0"	14"
G	6'-6" x 6'-6"	25"
H	6'-0" x 6'-0"	33"
J	10'-0" x 10'-0"	36"

EXISTING FOOTING SCHEDULE

SCALE: NONE | 5

REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE

(FOR GRADE 60, UNCOATED BARS, NORMAL WEIGHT CONCRETE)

(I) MINIMUM STRAIGHT DEVELOPMENT LENGTH FOR BARS IN TENSION (L_d)

BAR SIZE	f'c = 3000 PSI TOP BARS	f'c = 3000 PSI OTHER BARS	f'c = 4000 PSI TOP BARS	f'c = 4000 PSI OTHER BARS	f'c = 5000 PSI TOP BARS	f'c = 5000 PSI OTHER BARS
# 3	21"	16"	18"	14"	17"	13"
# 4	28"	22"	25"	19"	22"	17"
# 5	36"	27"	31"	24"	28"	21"
# 6	43"	33"	37"	28"	33"	26"
# 7	62"	48"	54"	42"	48"	37"
# 8	71"	55"	62"	47"	55"	42"
# 9	80"	62"	70"	54"	62"	48"
# 10	90"	70"	78"	60"	70"	54"
# 11	100"	77"	87"	67"	78"	60"

NOTE:
"TOP BARS" ARE HORIZONTAL BARS w/ MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM. IF CLEAR CONCRETE COVER IS NOT GREATER THAN THE DIAMETER OF THE BAR OR THE CENTER TO CENTER SPACING IS NOT GREATER THAN 2 BAR DIAMETERS, THEN VALUES SHALL BE INCREASED BY 50%.

(II) MINIMUM CLASS "B" LAP SPLICE LENGTH FOR BARS IN TENSION (L_b)

BAR SIZE	f'c = 3000 PSI TOP BARS	f'c = 3000 PSI OTHER BARS	f'c = 4000 PSI TOP BARS	f'c = 4000 PSI OTHER BARS	f'c = 5000 PSI TOP BARS	f'c = 5000 PSI OTHER BARS
# 3	28"	21"	# 3	24"	18"	# 3	22"	17"
# 4	37"	28"	# 4	32"	25"	# 4	29"	23"
# 5	46"	36"	# 5	40"	31"	# 5	36"	28"
# 6	56"	43"	# 6	48"	37"	# 6	44"	34"
# 7	81"	62"	# 7	70"	54"	# 7	63"	49"
# 8	93"	71"	# 8	80"	62"	# 8	72"	56"
# 9	104"	80"	# 9	90"	70"	# 9	81"	63"
# 10	118"	90"	# 10	102"	78"	# 10	92"	71"
# 11	131"	100"	# 11	113"	87"	# 11	102"	78"

NOTE:
"TOP BARS" IN BEAMS ARE HORIZONTAL BARS w/ MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM. IF CLEAR CONCRETE COVER IS NOT GREATER THAN THE DIAMETER OF THE BAR OR THE CENTER TO CENTER SPACING IS NOT GREATER THAN 2 BAR DIAMETERS, THEN VALUES SHALL BE INCREASED BY 50%.

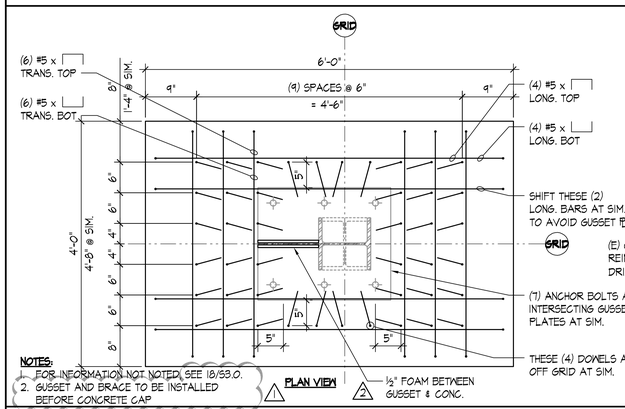
(III) MINIMUM EMBEDMENT LENGTHS FOR STANDARD END HOOKS (L_{dh})

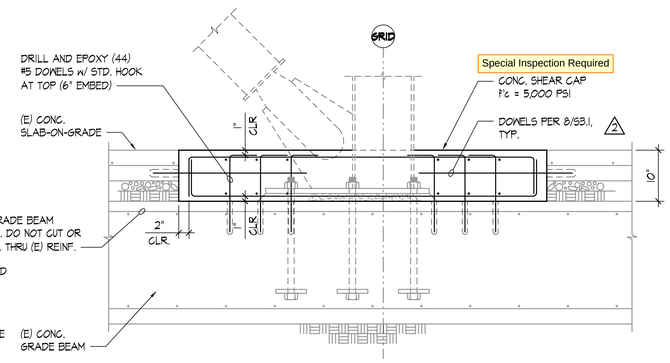
BAR SIZE	f'c = 3000 PSI ALL BARS	f'c = 4000 PSI BAR SIZE	f'c = 4000 PSI ALL BARS	f'c = 5000 PSI BAR SIZE	f'c = 5000 PSI ALL BARS
# 3	6"	# 3	6"	# 3	6"
# 4	8"	# 4	7"	# 4	6"
# 5	10"	# 5	8"	# 5	7"
# 6	12"	# 6	10"	# 6	9"
# 7	13"	# 7	12"	# 7	10"
# 8	15"	# 8	13"	# 8	12"
# 9	17"	# 9	15"	# 9	13"
# 10	19"	# 10	17"	# 10	15"
# 11	22"	# 11	19"	# 11	17"

NOTE:
IF SIDE COVER IS NOT EQUAL TO OR GREATER THAN 2½" AND/OR END COVER FOR HOOKS IS NOT EQUAL TO OR GREATER THAN 2", THEN VALUES SHALL BE INCREASED BY 43%.

TYPICAL SPLICE SCHEDULE

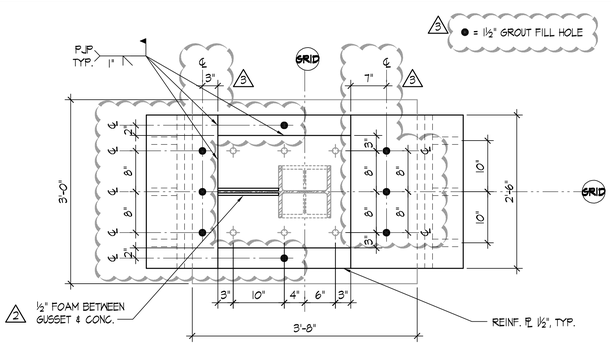
SCALE: NONE | 20



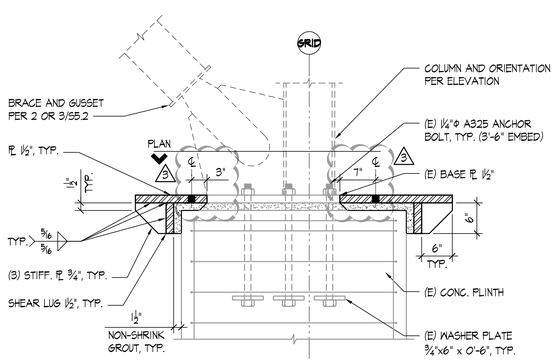


BASE PLATE RETROFIT AT EXISTING GRADE BEAM

SCALE: NONE | 13

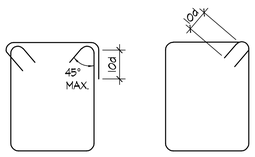


BASE PLATE PLAN

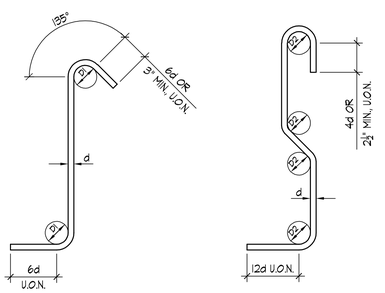


BASE PLATE SHEAR LUG RETROFIT AT EXISTING CONCRETE PLINTH

SCALE: NONE | 18



d = DIAMETER OF BAR

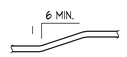


D1 = 1½" FOR #3
D1 = 2" FOR #4
D1 = 2½" FOR #5

HOOKS & BENDS FOR STIRRUPS & TIES

D2 = 6d FOR #3 TO #8
D2 = 8d FOR #9 TO #11

STD. BAR HOOKS & BENDS



BAR OFFSET

TYPICAL REBAR BENDS

SCALE: NONE | 19

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — REGISTERED PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING

1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

NO.	DESCRIPTION	DATE	BY
	PERMIT SET	12/20/24	
1	PERMIT RESUBMITTAL SET	3/14/25	
2	POST-PERMIT REVISIONS	4/23/25	
3	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ○ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

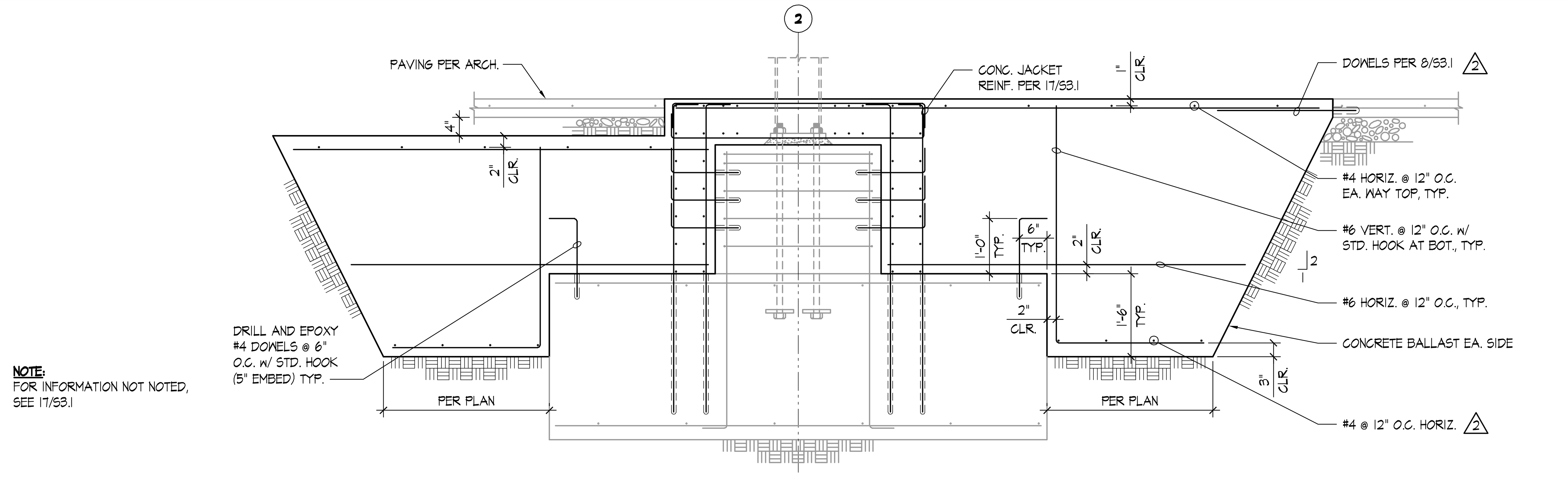
SHEET TITLE:

CONCRETE DETAILS

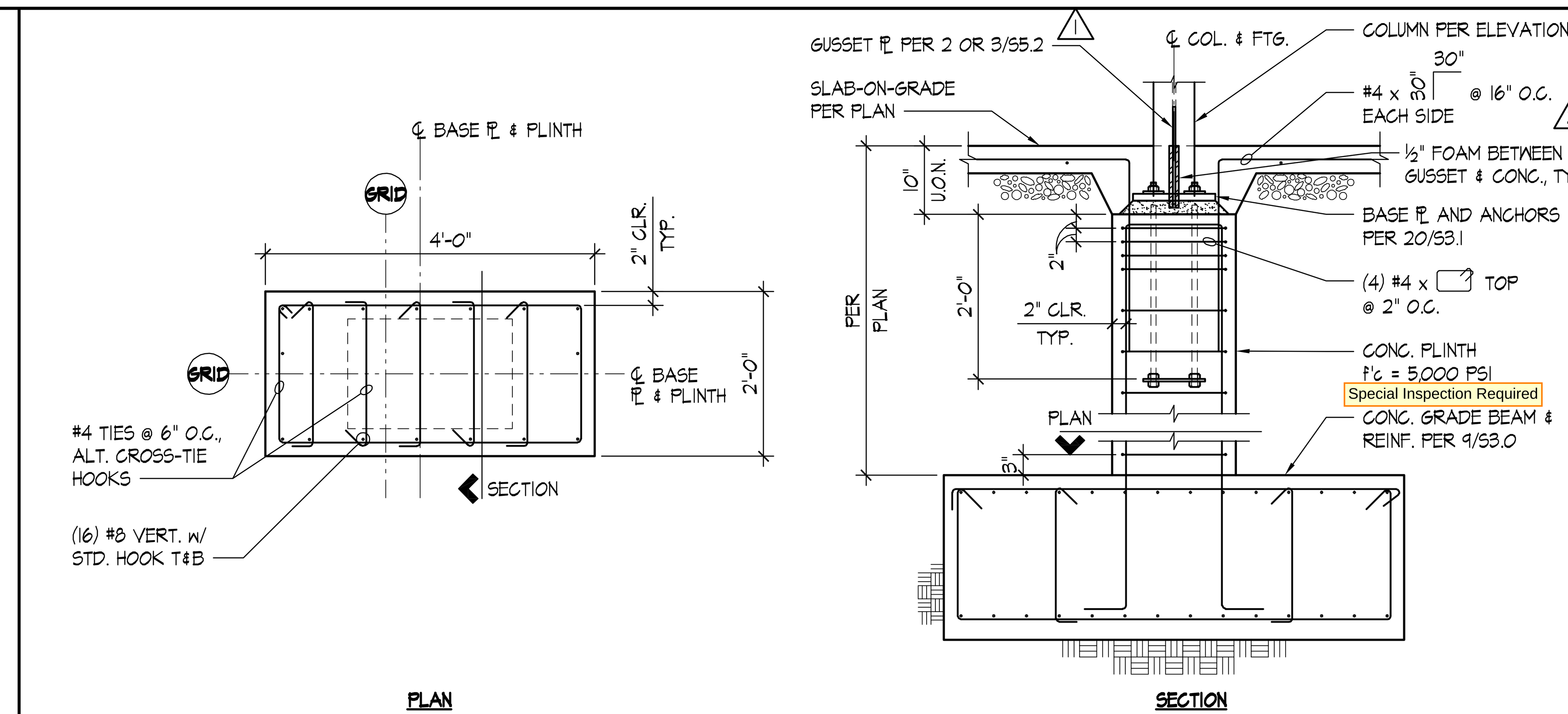
SHEET NO.

S3.0

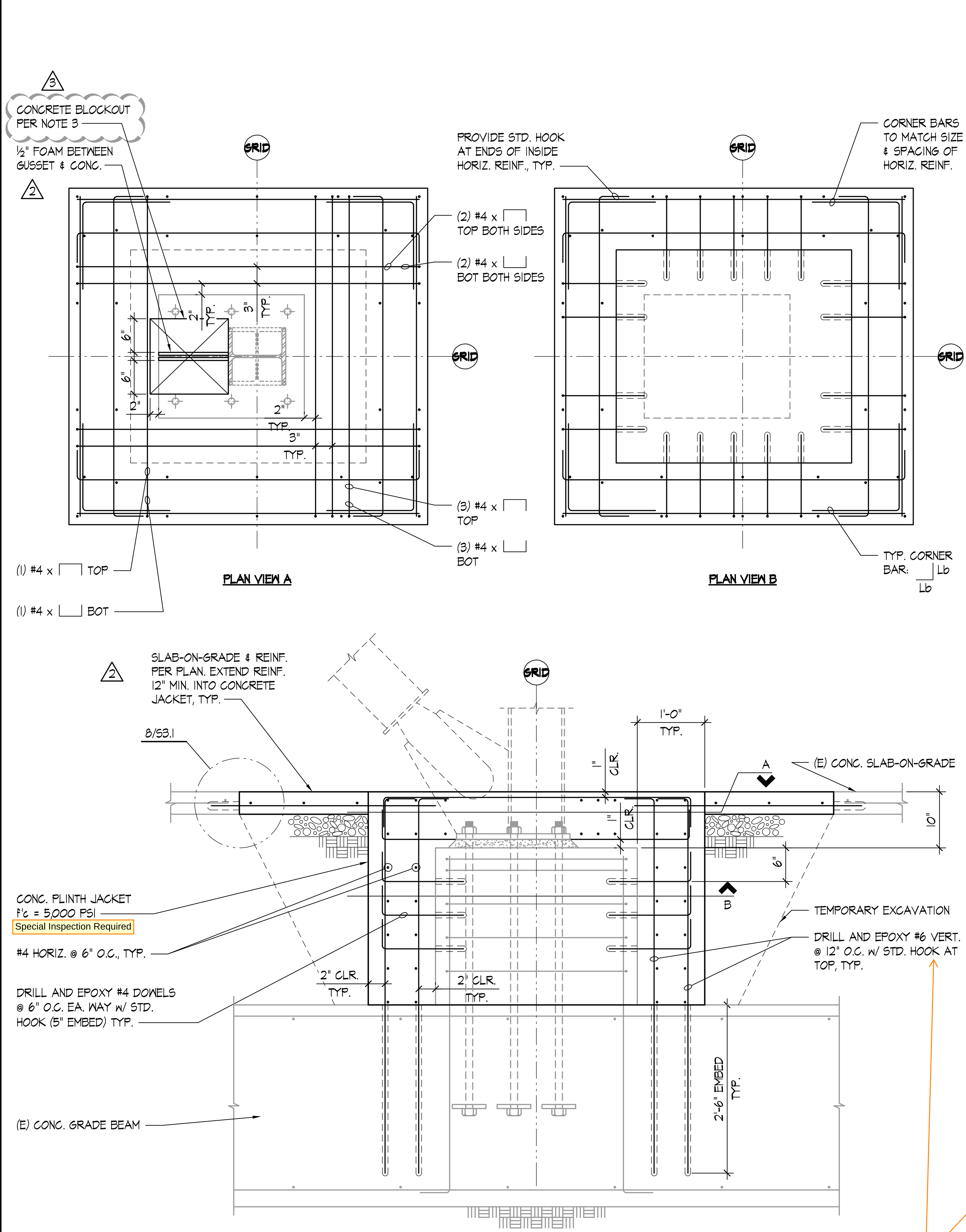
File: 305-s-S03.dwg Plotted: 06/23/25 8:52 am



BALLAST CAP AT EXISTING CONCRETE PLINTH — SCALE: NONE — 3



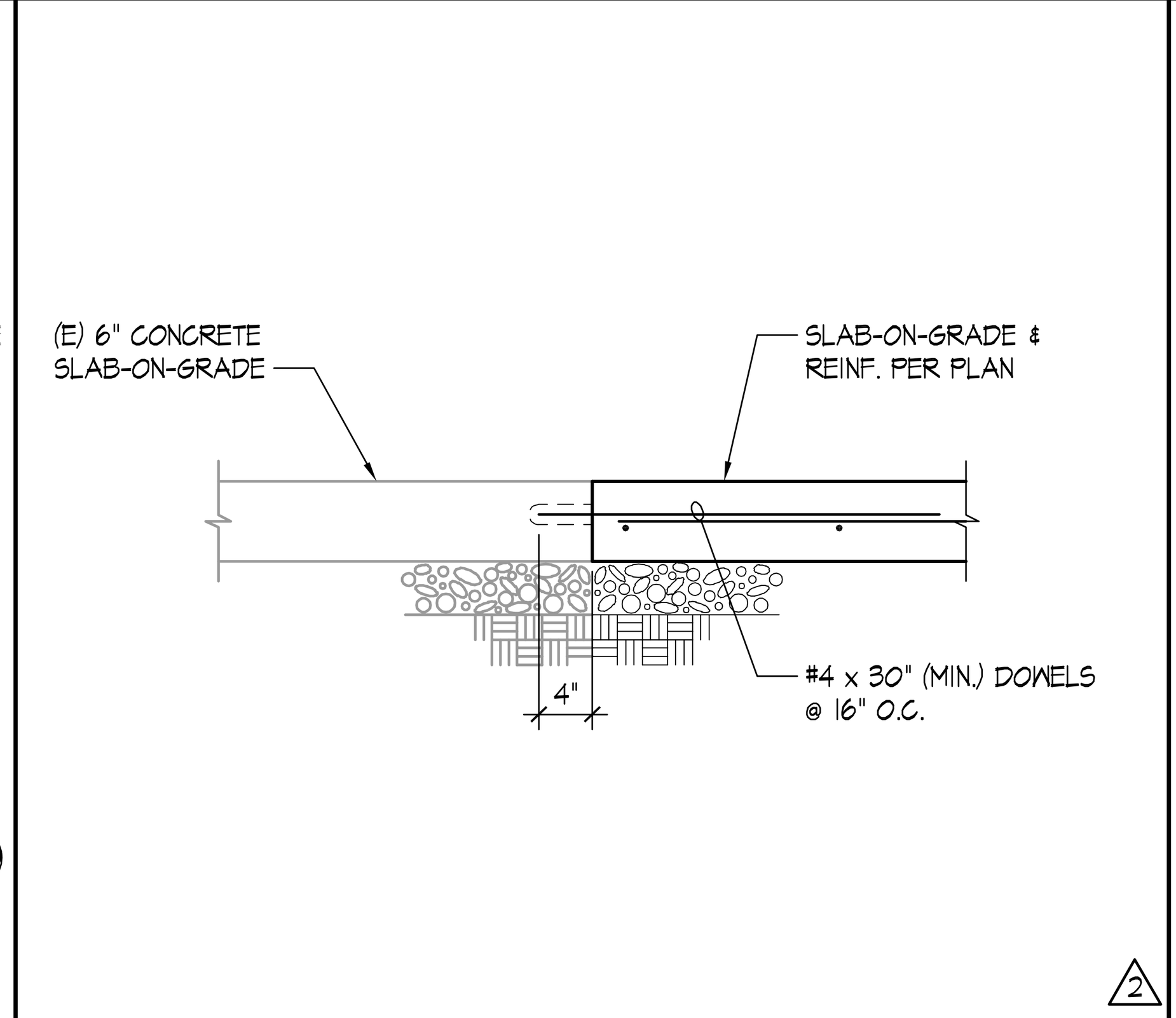
CONCRETE PLINTH AT BRACED FRAME — SCALE: NONE — 5



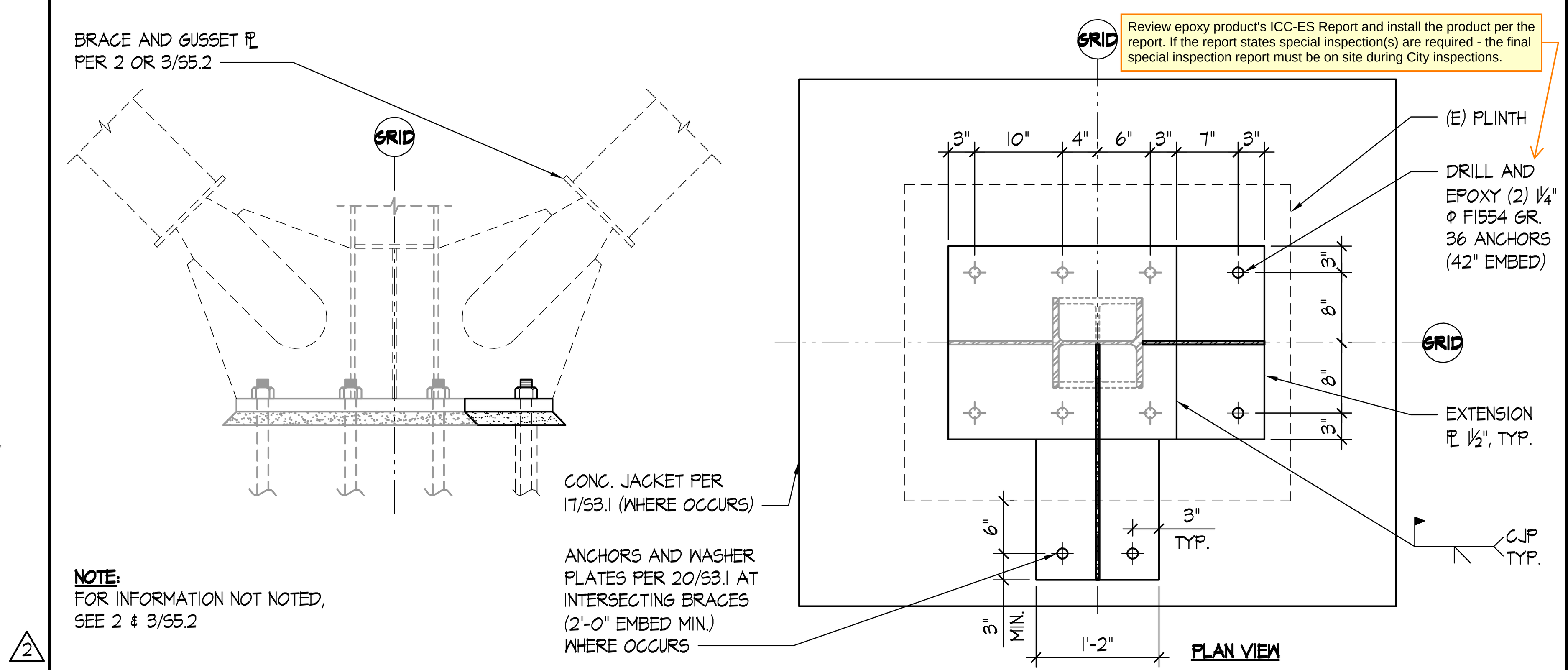
NOTES:
1. FOR INFORMATION NOT NOTED, SEE 18/S3.0. 1
2. DO NOT CUT OR DRILL THRU (E) REINF.
3. BLOCKOUT CONCRETE TO ALLOW FOR INSTALLATION OF GUSSET AND BRACE AFTER CONCRETE CAP IS INSTALLED. 3

Review epoxy product's ICC-ES Report and install the product per the report. If the report states special inspection(s) are required - the final special inspection report must be on site during City inspections, typical at similar.

BASE PLATE CONCRETE JACKET RETROFIT AT EXISTING CONCRETE PLINTH — SCALE: NONE — 17

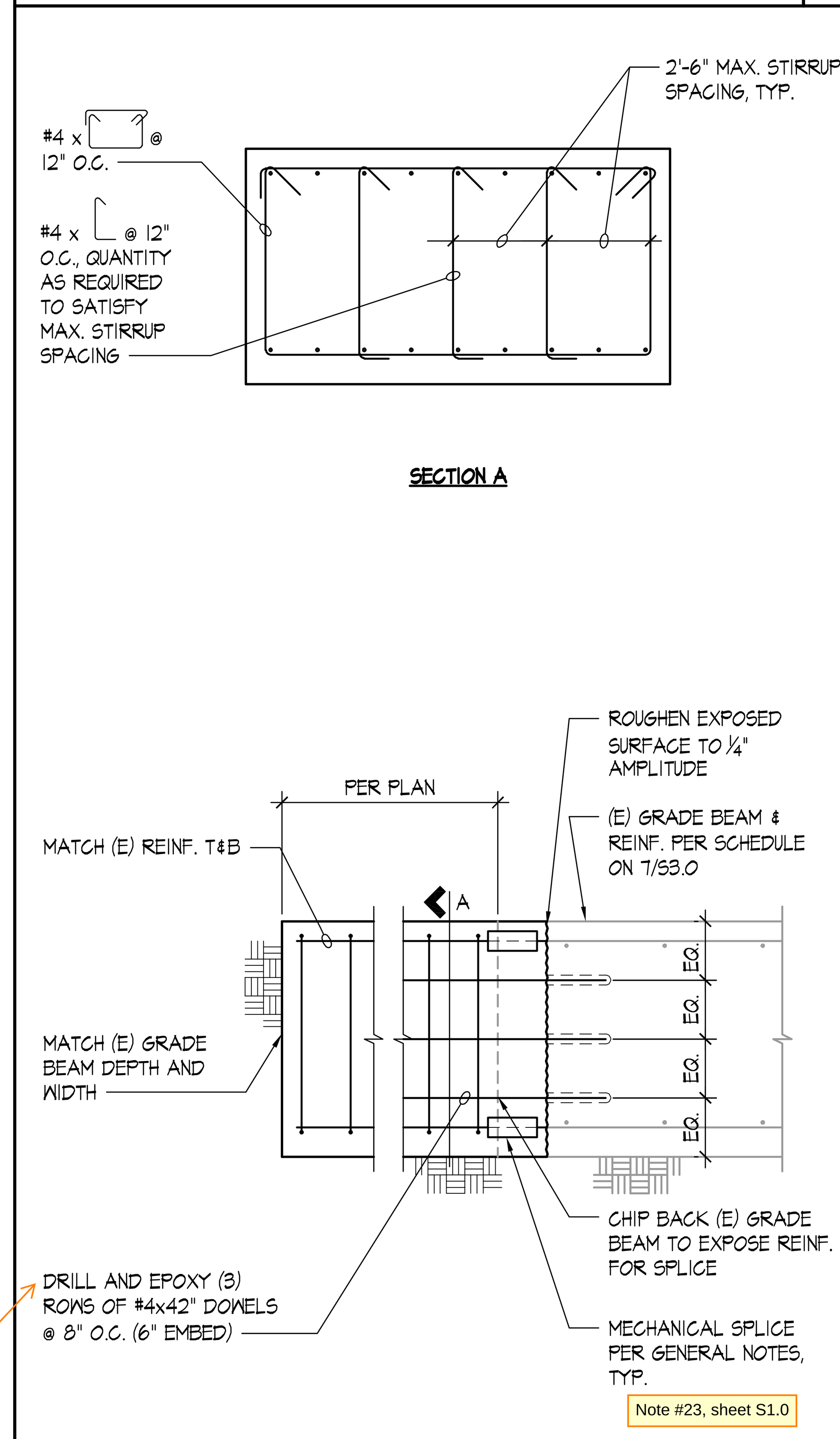


NEW SLAB-ON-GRADE TO (E) SLAB-ON-GRADE — SCALE: NONE — 8

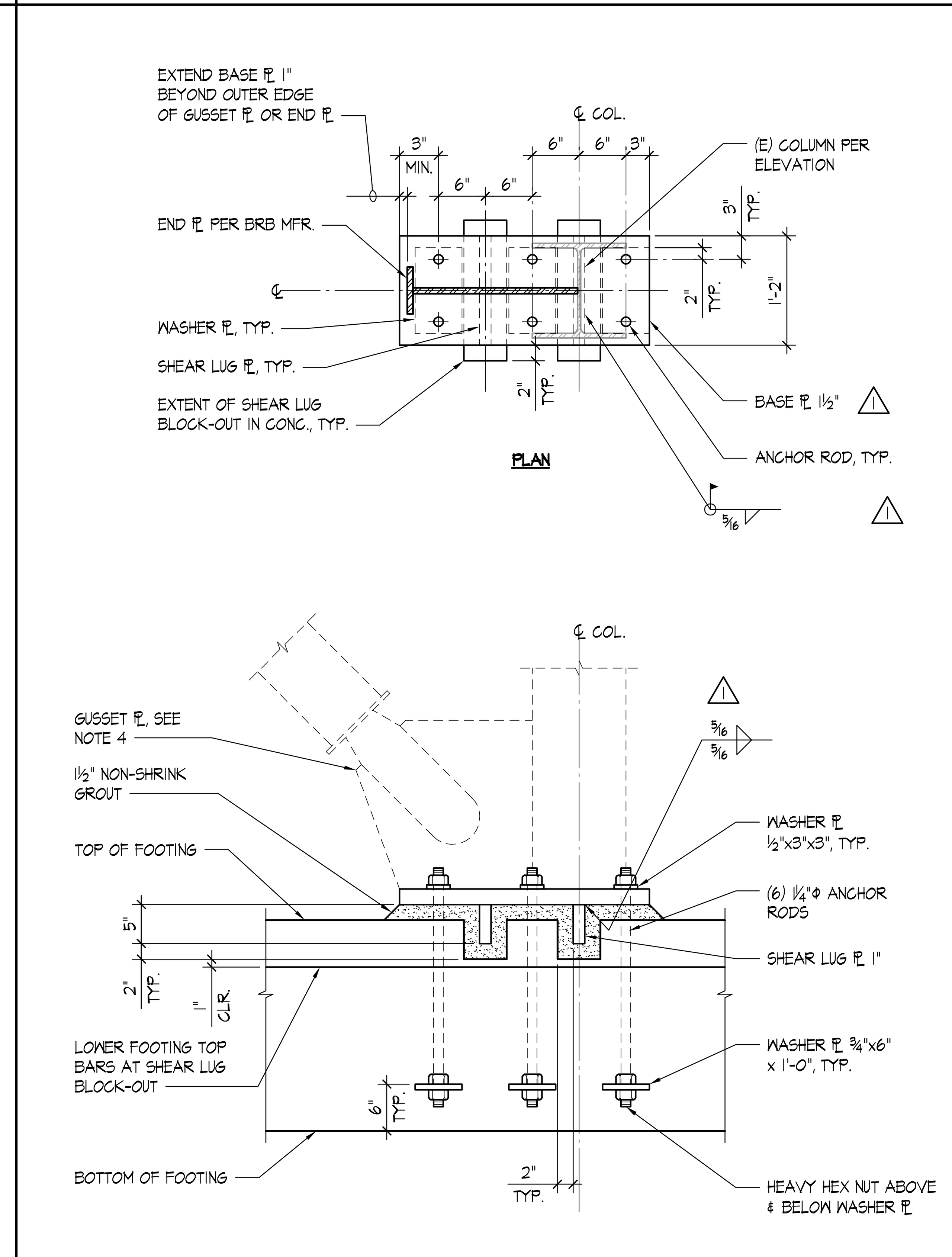


NOTE:
FOR INFORMATION NOT NOTED, SEE 2 & 3/S5.2

INTERSECTING BRACED FRAME BRACE PLATE RETROFIT — SCALE: NONE — 10



GRADE BEAM EXTENSION — SCALE: NONE — 18



NOTES:
1. BASE PLATES & SHEAR LUGS SHALL BE ASTM A36.
2. ANCHOR RODS SHALL BE ASTM F1554, GR. 36, TYP.
3. PROVIDE NOTCH TOUGHNESS TESTED WELD FILLER MATERIAL (SEE GENERAL NOTES)
4. GUSSET PLATE PER 2 & 3/S5.2. 1
5. CUT BOTTOM OF (E) COLUMN AS REQUIRED FOR NEW BASE ℗ ELEV.

BRACED FRAME BASE PLATE — SCALE: NONE — 20

File: 305-s301.dwg Plotted: 06/23/25 9:52 am

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — PROFESSIONAL ENGINEER — STRUCTURAL

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING
1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

NO.	DESCRIPTION	DATE	BY
	PERMIT SET	12/20/24	
1	PERMIT RESUBMITTAL SET	3/14/25	
2	POST-PERMIT REVISIONS	4/23/25	
3	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ○ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

SHEET TITLE:
CONCRETE DETAILS

SHEET NO.
S3.1

DETAIL SCALE: 1"=1'-0" 1

DETAIL SCALE: 1"=1'-0" 2

DETAIL SCALE: 1"=1'-0" 3

DETAIL SCALE: 1"=1'-0" 4

DETAIL SCALE: 1"=1'-0" 5

DETAIL SCALE: 1"=1'-0" 8

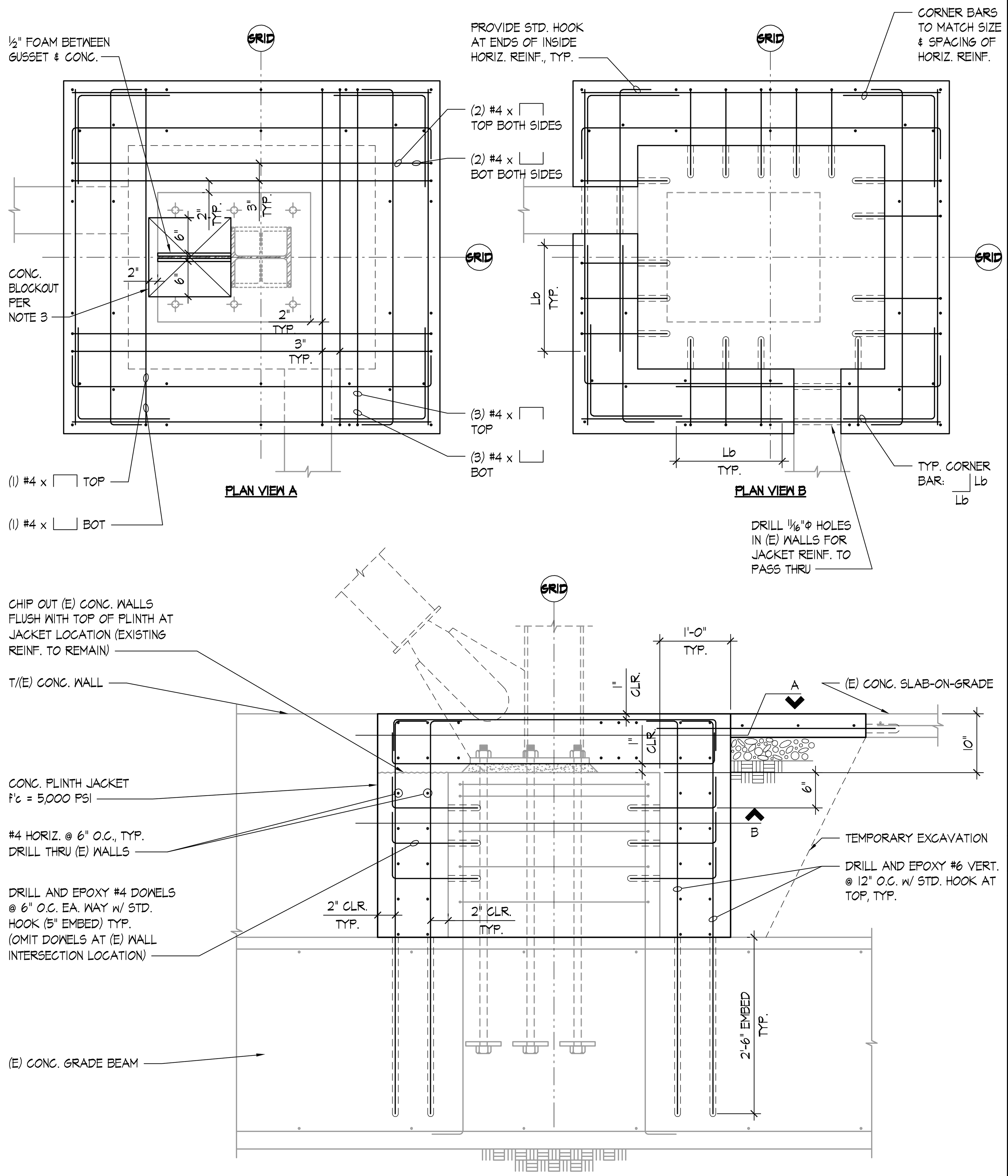
DETAIL SCALE: 1"=1'-0" 9

DETAIL SCALE: 1"=1'-0" 10

DETAIL SCALE: 1"=1'-0" 13

DETAIL SCALE: 1"=1'-0" 14

DETAIL SCALE: 1"=1'-0" 15



NOTES:

1. FOR INFORMATION NOT NOTED, SEE 18/S3.0.
2. DO NOT CUT OR DRILL THRU (E) REINF.
3. BLOCK OUT CONCRETE TO ALLOW FOR INSTALLATION OF GUSSET AND BRACE AFTER CONCRETE CAP IS INSTALLED.

Review epoxy product's ICC-ES Report and install the product per the report. If the report states special inspection(s) are required - the final special inspection report must be on site during City inspections, typical at similar.

ALTERNATE BASE PLATE CONCRETE JACKET RETROFIT AT EXISTING CONCRETE PLINTH AT GRID 2 & H SCALE: NONE 17

DETAIL SCALE: 1"=1'-0" 18

DETAIL SCALE: 1"=1'-0" 19

DETAIL SCALE: 1"=1'-0" 20

File: 305-s302.dwg Plotted: 06/23/25 9:53 am

QUANTUM
CONSULTING ENGINEERS

1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING
1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

NO.	DESCRIPTION	DATE	BY
	PERMIT SET	12/20/24	
1	PERMIT RESUBMITTAL SET	3/14/25	
2	POST-PERMIT REVISIONS	4/23/25	
3	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ○ REVISIONS: △

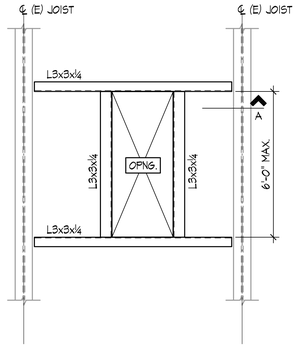
P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

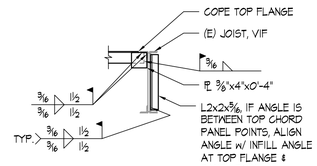
SHEET TITLE:

CONCRETE DETAILS

SHEET NO.

S3.2 3

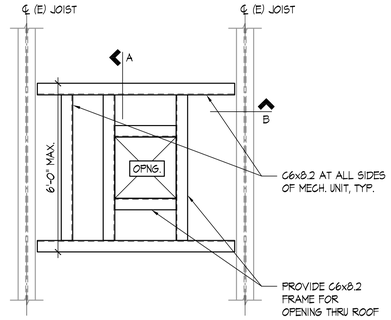




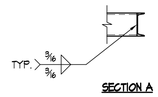
SECTION A

NOTES:
1. FOR MECHANICAL UNIT SUPPORT FRAME SEE 4/S4.0.

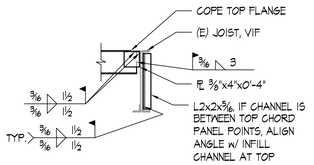
TYPICAL FRAMING AT OPENINGS IN FLOOR AND ROOF DECK — SCALE: NONE — 2



NOTE:
VERIFY SIZE AND LOCATION OF UNIT WITH MECHANICAL CONTRACTOR.

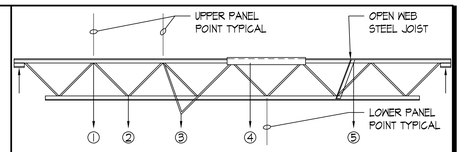


SECTION A



SECTION B

MECHANICAL UNIT SUPPORT FRAME — SCALE: NONE — 4



① HANG WITHIN 3" OF ANY UPPER PANEL POINT FOR "K" SERIES, 6" FOR "DLH" SERIES.
② HANG WITHIN 3" OF ANY LOWER PANEL POINT FOR "K" SERIES, 6" FOR "DLH" SERIES.
③ TRAPEZE BETWEEN ANY TWO PANEL POINTS.
④ ADD AN ANGLE TO STIFFEN THE TOP CHORD - CONTACT STRUCTURAL ENGINEER FOR ANGLE SIZE.
⑤ ADD AN ANGLE BETWEEN LOAD LOCATION AND LOWER CHORD PANEL POINT -CONTACT STRUCTURAL ENGINEER FOR ANGLE SIZE.

NOTES:
1. THE MAXIMUM ALLOWABLE SINGLE LOAD THAT MAY BE ADDED TO THE JOIST AT ANY ONE POINT = 225# FOR JOIST ≤ 30' AND 300# FOR JOISTS > 30'.
2. THE MAXIMUM ALLOWABLE TOTAL LOAD THAT MAY BE ADDED TO ANY ONE JOIST = 325# FOR JOIST ≤ 30' AND 500# FOR JOISTS > 30'.
3. SINGLE LOADS LESS THAN 50# MAY BE ADDED ANYWHERE ALONG THE UPPER CHORD (NOT JUST AT PANEL POINTS) WITHOUT ADDING AN ANGLE TO STIFFEN THE JOIST.
4. DO NOT CUT OR DRILL THROUGH ANY JOIST MEMBERS.
5. THIS DETAIL IS APPLICABLE TO HANGING MECHANICAL EQUIPMENT, SPRINKLER PIPES, ETC.

ALLOWABLE METHODS & LOCATIONS FOR HANGING LOADS FROM OPEN WEB STEEL JOIST — SCALE: NONE — 5

DETAIL — SCALE: NONE — 6

DETAIL — SCALE: NONE — 7

DETAIL — SCALE: NONE — 8

DETAIL — SCALE: NONE — 9

DETAIL — SCALE: NONE — 10

DETAIL — SCALE: NONE — 11

DETAIL — SCALE: NONE — 12

DETAIL — SCALE: NONE — 13

DETAIL — SCALE: NONE — 14

DETAIL — SCALE: NONE — 15

DETAIL — SCALE: NONE — 16

DETAIL — SCALE: NONE — 17

DETAIL — SCALE: NONE — 18

DETAIL — SCALE: NONE — 19

DETAIL — SCALE: NONE — 20

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING

1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

PERMIT SET	12/20/24	
1 PERMIT RESUBMITTAL SET	3/14/25	
2 POST-PERMIT REVISIONS	4/23/25	
3 CONSTRUCTION DRAWINGS	6/23/25	

NO.	DESCRIPTION	DATE	BY

ISSUES: ◯ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

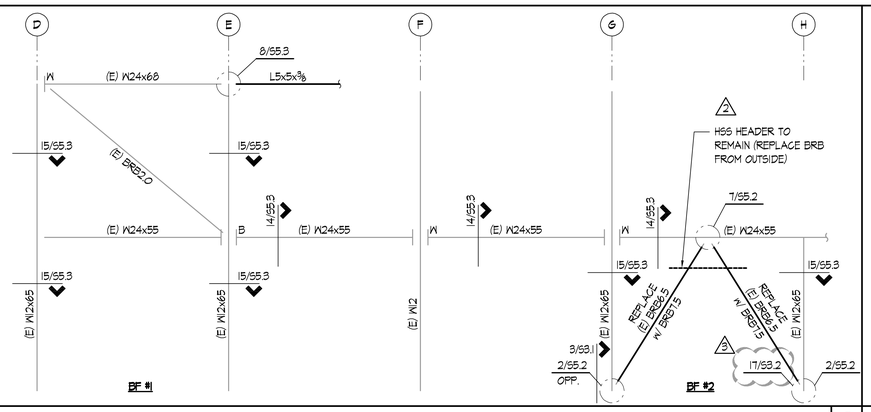
SHEET TITLE:

STEEL ROOF DETAILS

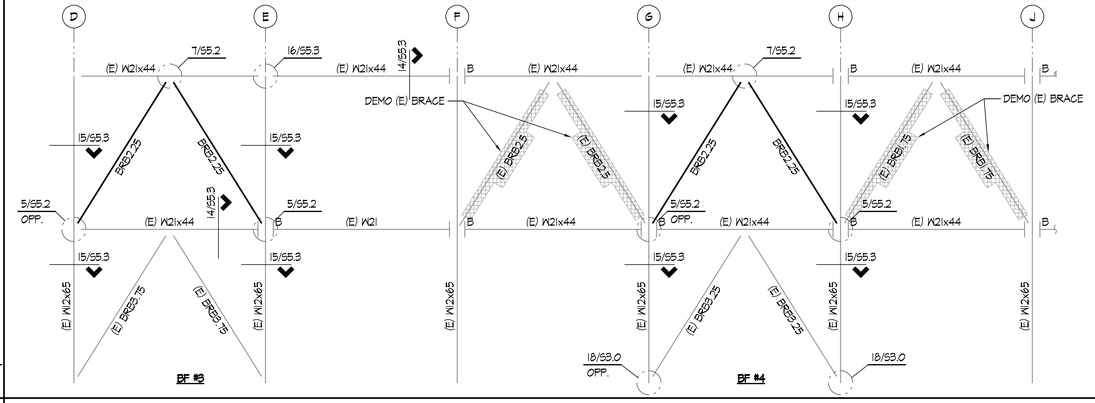
SHEET NO.

S4.0 △2

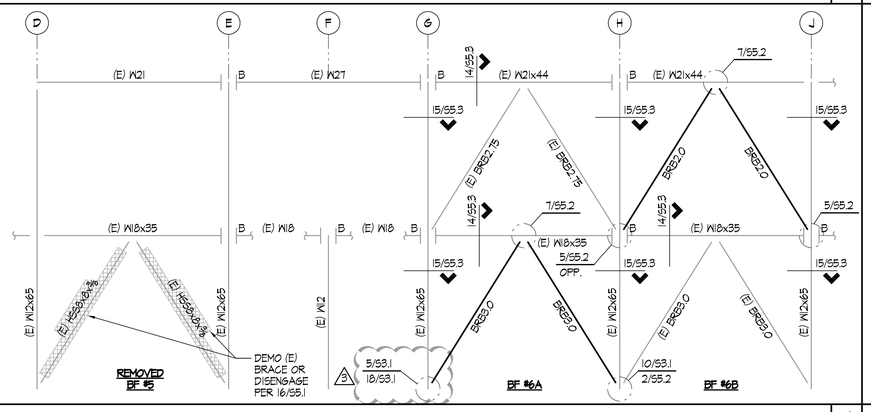
File: 305-s400.dwg Plotted: 06/23/25 9:53 am



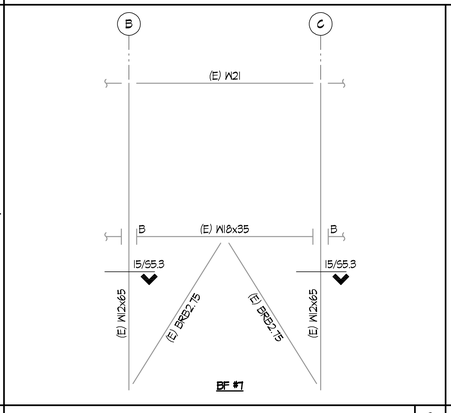
BRACED FRAME ELEVATION ON GRID LINE 2 — SCALE: NONE — 2



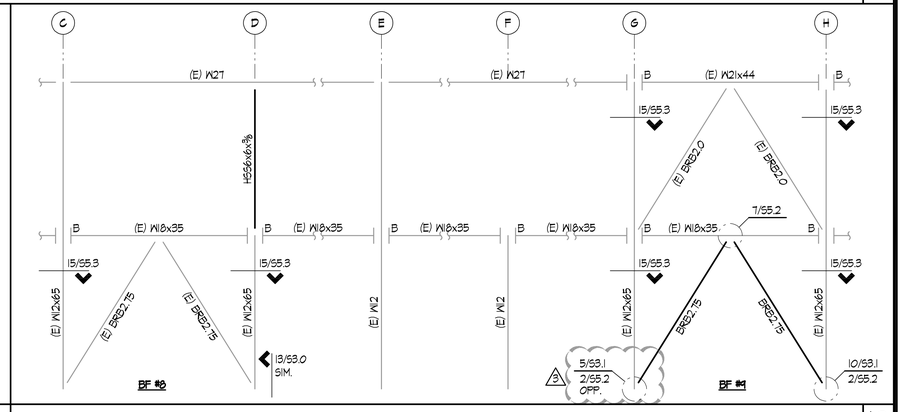
BRACED FRAME ELEVATION ON GRID LINE 6 — SCALE: NONE — 5



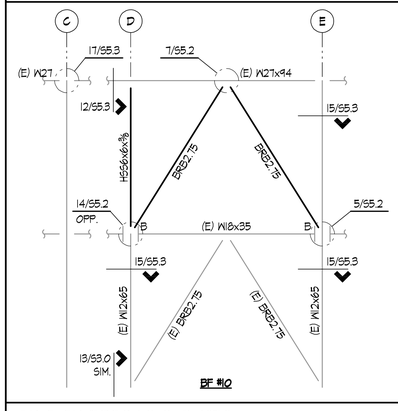
BRACED FRAME ELEVATION ON GRID LINE 8 — SCALE: NONE — 7



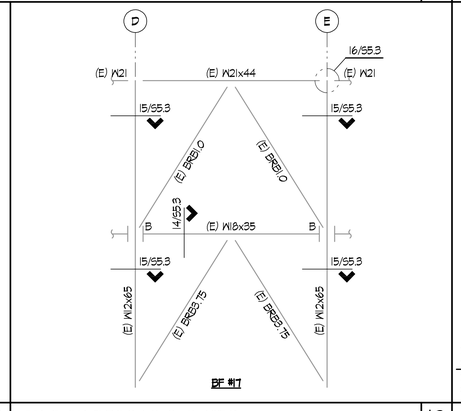
BRACED FRAME ELEVATION ON GRID LINE 9 — SCALE: NONE — 8



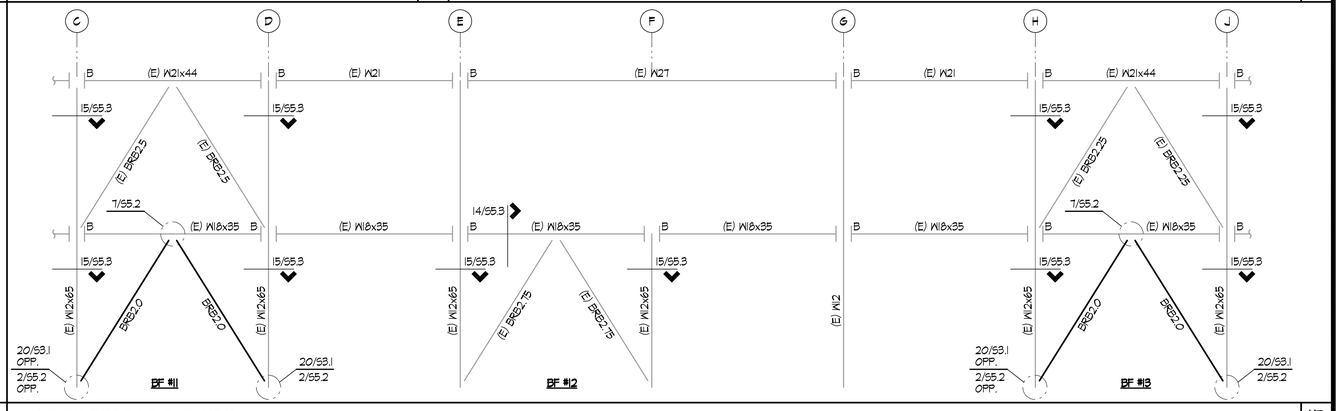
BRACED FRAME ELEVATION ON GRID LINE 10 — SCALE: NONE — 10



BRACED FRAME ELEVATION ON GRID LINE 11 — SCALE: NONE — 11

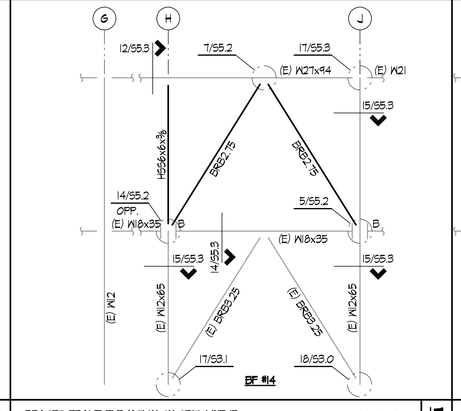


BRACED FRAME ELEVATION ON GRID LINE 18 — SCALE: NONE — 12

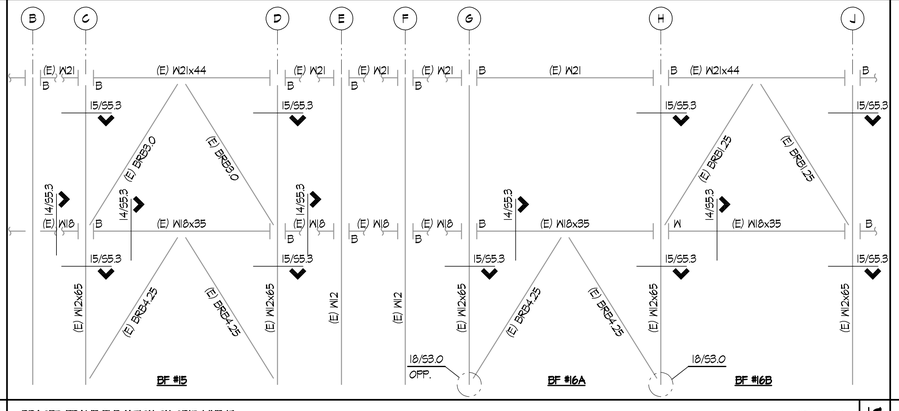


BRACED FRAME ELEVATION ON GRID LINE 13 — SCALE: NONE — 15

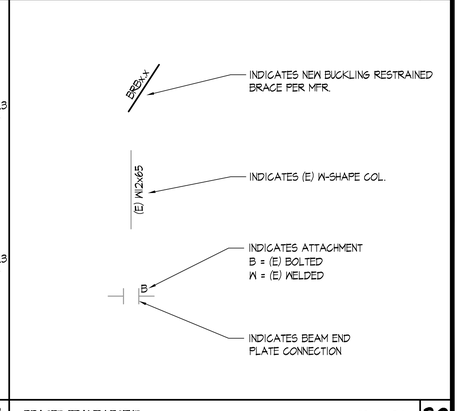
DETAIL — SCALE: 1/8"=1'-0" — 16



BRACED FRAME ELEVATION ON GRID LINE 15 — SCALE: NONE — 17



BRACED FRAME ELEVATION ON GRID LINE 17 — SCALE: NONE — 19



BRACED FRAME LEGEND — SCALE: NONE — 20

File: 305-s005.dwg Plotted: 06/23/25 9:53 am

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — REGISTERED PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING

1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

NO.	DESCRIPTION	DATE	BY
0	PERMIT SET	12/20/24	
1	PERMIT RESUBMITTAL SET	3/14/25	
2	POST-PERMIT REVISIONS	4/23/25	
3	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: 0 REVISIONS: 1

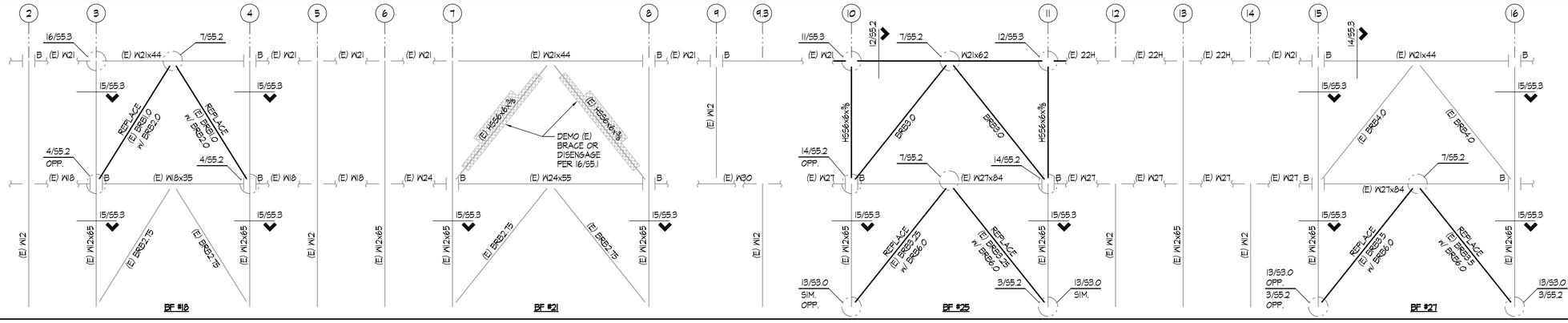
P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

SHEET TITLE:

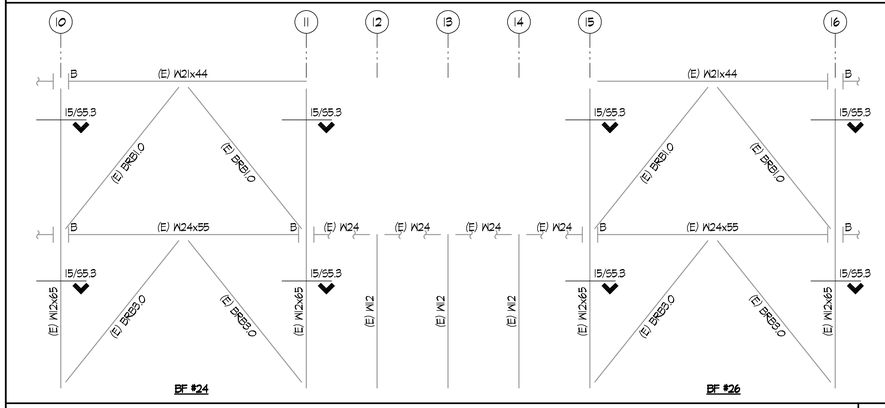
BRACED FRAME ELEVATIONS: N/S

SHEET NO.

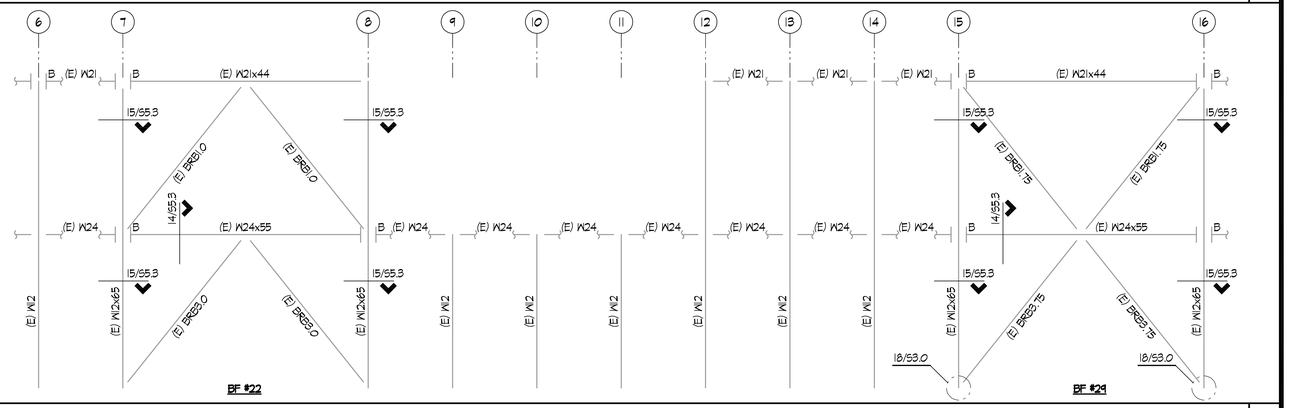
S5.0



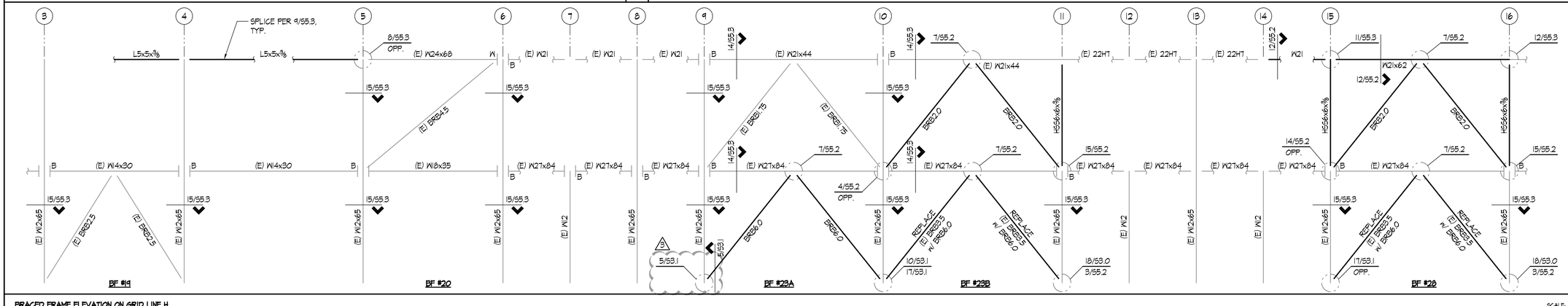
BRACED FRAME ELEVATION ON GRID LINE D — SCALE: NONE — 5



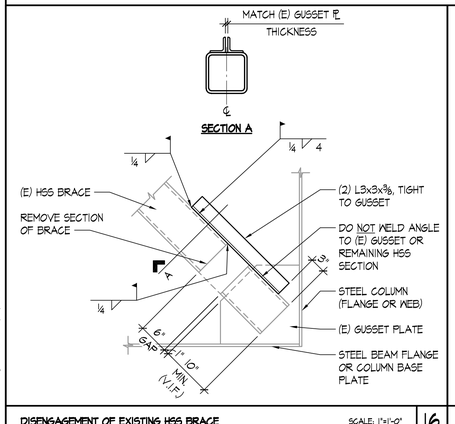
BRACED FRAME ELEVATION ON GRID LINE A — SCALE: NONE — 7



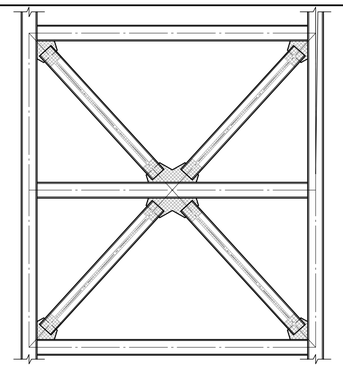
BRACED FRAME ELEVATION ON GRID LINE K — SCALE: NONE — 10



BRACED FRAME ELEVATION ON GRID LINE H — SCALE: NONE — 15



DISENGAGEMENT OF EXISTING HSS BRACE — SCALE: 1"=1'-0" — 16



BRACED FRAME PROTECTION ZONES — SCALE: NONE — 18

BRB SCHEDULE NOTES:

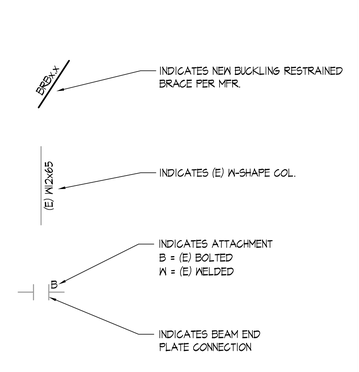
1. Fysc IS THE ACTUAL YIELD STRESS OF THE STEEL CORE AS DETERMINED BY COUPON TESTING. 38 ksi < Fysc < 46 ksi. CHARPY TESTING REQUIRED WHEN THICKNESS OF THE CORE MATERIAL EXCEEDS 2".
2. BRACE STIFFNESS kelf TO BE KF x Asc x E/Lwp-wp ±10%, WHERE THE VALUES FOR STIFFNESS MODIFICATION FACTOR (KF) ARE TAKEN FROM THE BRACED FRAME ELEVATIONS, THE VALUES FOR Asc ARE TAKEN FROM THE TABLE & Lwp-wp IS THE WORKPOINT - WORKPOINT LENGTH OF THE BRACE.
3. MAXIMUM VALUE OF Bm NOT TO EXCEED 1.99 MAXIMUM VALUE OF n NOT TO EXCEED 1.66. OVERSTRENGTH FACTORS TO BE DETERMINED AT THE GREATER OF 2x DESIGN STORY DRIFT AND 2% STORY DRIFT PER AISC 341-16.
4. EXPOSED BRACES PER BRACED FRAME ELEVATIONS SHALL BE SEALED FROM MOISTURE.
5. BRB SUPPLIER SHALL DESIGN BRACE CONNECTIONS IN ACCORDANCE WITH AISC 360-16 & 341-16.
6. MINIMUM STROKE TO OCCUR AT EACH END OF BRACE IN TENSION AND COMPRESSION DIRECTIONS. CORE EXTENSION TO REMAIN STABLE OVER 2x THIS LENGTH.
7. BUCKLING RESTRAINED BRACES ARE TO BE TESTED PER THE PROVISIONS OF THE AISC 341-16. SUPPLIER TO SUBMIT PROOF OF EACH BRACES COMPLIANCE WITH THE QUALIFIED LOAD & STRAIN RANGES.

HATCHED AREAS INDICATE PROTECTED ZONE WELDED, BOLTED, SCREWS, DRIVE PINNED OR OTHER CONNECTIONS ARE NOT PERMITTED IN PROTECTED ZONES.

ESTIMATED HSS CASING SIZES

CORE AREA	CASING	
SQ (IN)	H (IN)	W (IN)
1.00 - 3.75	8	8
4.00 - 8.00	10	10

ESTIMATED CASING SIZES — SCALE: NONE — 19



BRACED FRAME LEGEND — SCALE: NONE — 20

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — REGISTERED PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING

1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

NO.	DESCRIPTION	DATE	BY
	PERMIT SET	12/20/24	
1	PERMIT RESUBMITTAL SET	3/14/25	
2	POST-PERMIT REVISIONS	4/23/25	
3	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ◯ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

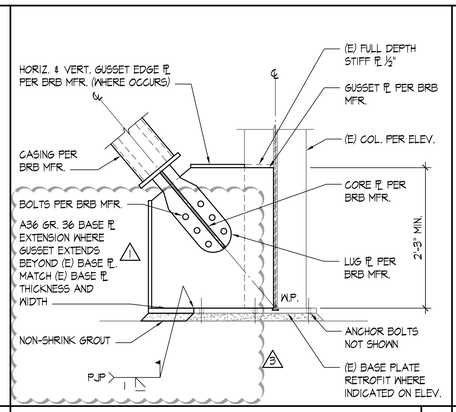
SHEET TITLE:

BRACED FRAME ELEVATIONS: E/W

SHEET NO.

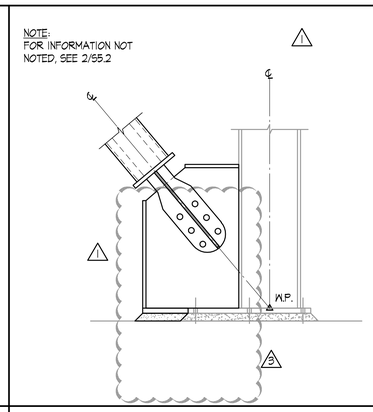
S5.1

File: S05-S501.dwg Plotted: 06/23/25 9:53 am

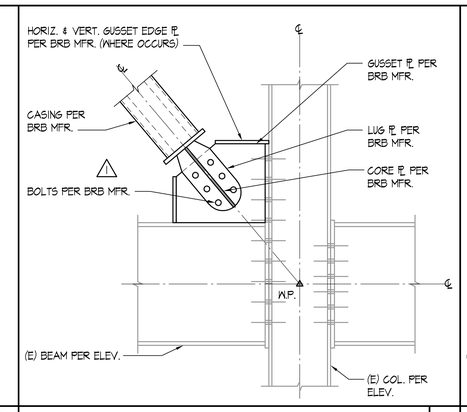


DETAIL SCALE: NONE | 1

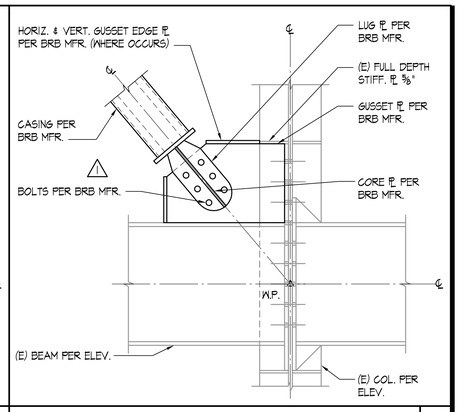
TYP. BRACE TO BASE ℄ @ COL. WEB SCALE: NONE | 2



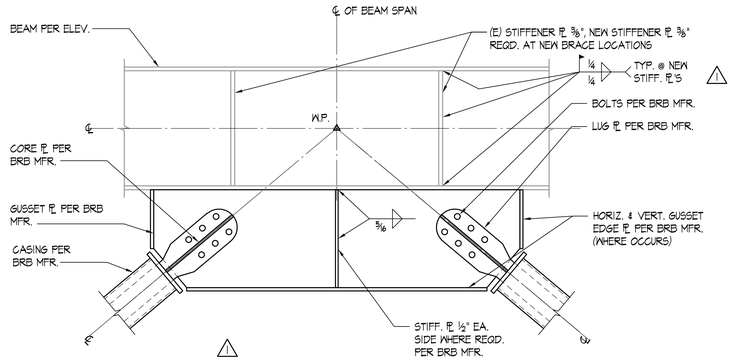
TYP. BRACE TO BASE ℄ @ COL. FLANGE SCALE: NONE | 3



TYP. BRACE TO BEAM @ COL. FLANGE (BOTTOM) SCALE: NONE | 4



TYP. BRACE TO BEAM @ COL. WEB (BOTTOM) SCALE: NONE | 5

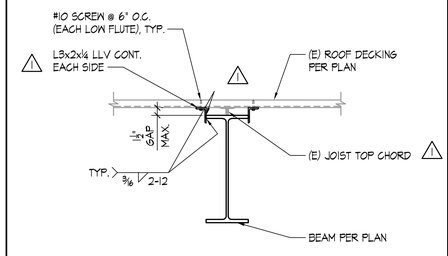


TYP. WELDED CHEVRON BRACE CONNECTIONS (TOP) SCALE: NONE | 7

DETAIL SCALE: NONE | 8

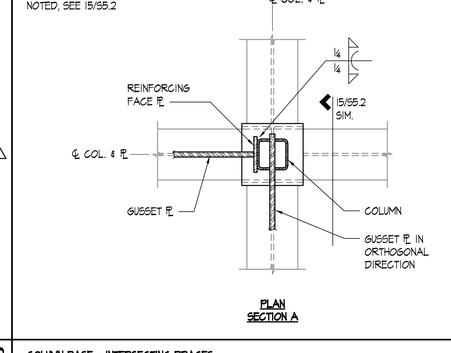
DETAIL SCALE: NONE | 9

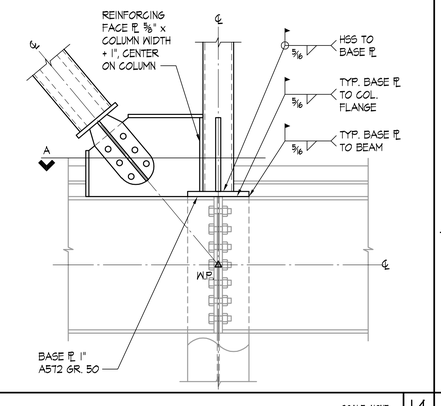
DETAIL SCALE: NONE | 10



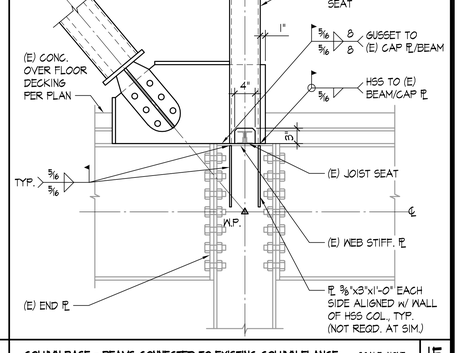
DETAIL SCALE: NONE | 11

NEW ROOF BEAM DIAPHRAGM FASTENING SCALE: NONE | 12

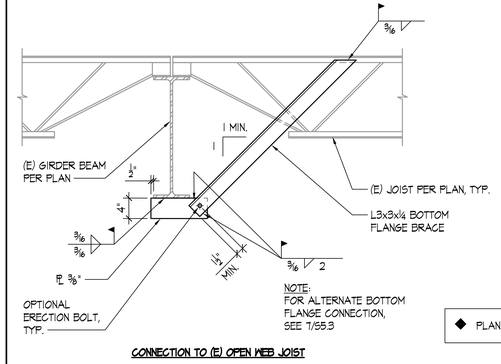




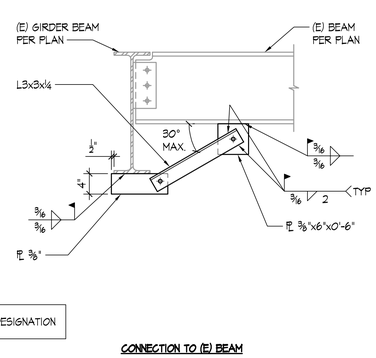
COLUMN BASE - INTERSECTING BRACES SCALE: NONE | 14



COLUMN BASE - BEAMS CONNECTED TO EXISTING COLUMN FLANGE SCALE: NONE | 15

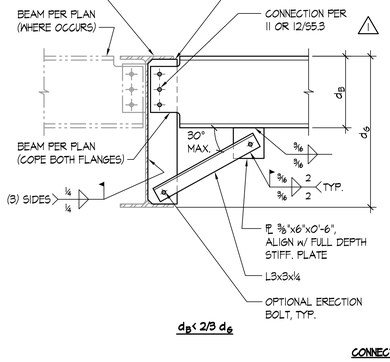


CONNECTION TO (E) OPEN WEB JOIST

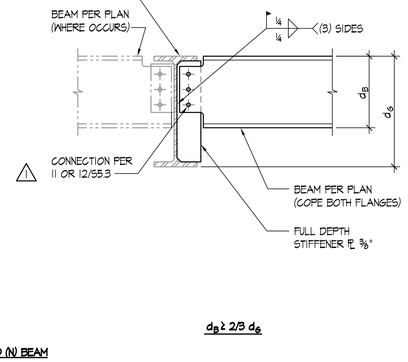


◆ PLAN DESIGNATION

CONNECTION TO (E) BEAM



$d_B < 2/3\ d_G$



$d_B \geq 2/3\ d_G$

CONNECTION TO (N) BEAM

DETAIL SCALE: NONE | 16

(E) W-SHAPE BOTTOM FLANGE BRACING AT PERPENDICULAR FRAMING SCALE: NONE | 20

File: S05-s502.dwg Plotted: 06/23/25 9:53 am

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — REGISTERED PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING

1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

	PERMIT SET	12/20/24
1	PERMIT RESUBMITTAL SET	3/14/25
2	POST-PERMIT REVISIONS	4/23/25
3	CONSTRUCTION DRAWINGS	6/23/25

NO.	DESCRIPTION	DATE	BY

ISSUES: ◯ REVISIONS: △

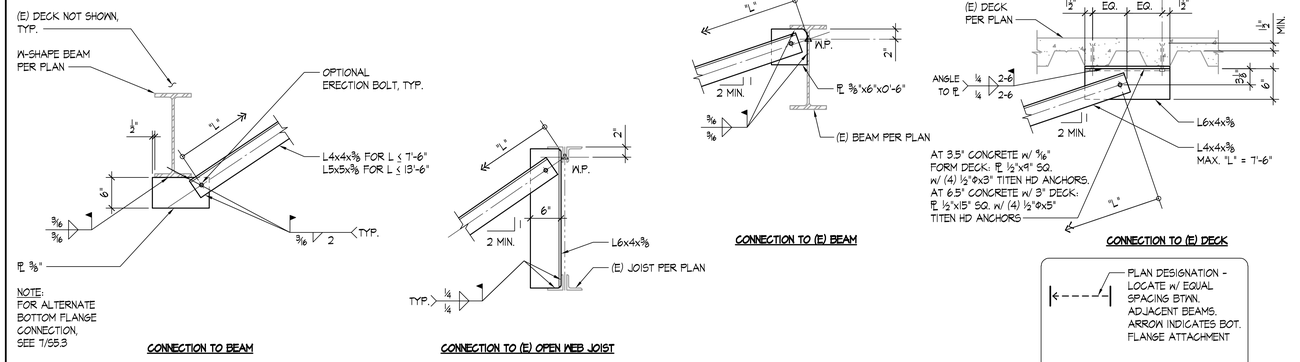
P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

SHEET TITLE:

BRACED FRAME DETAILS

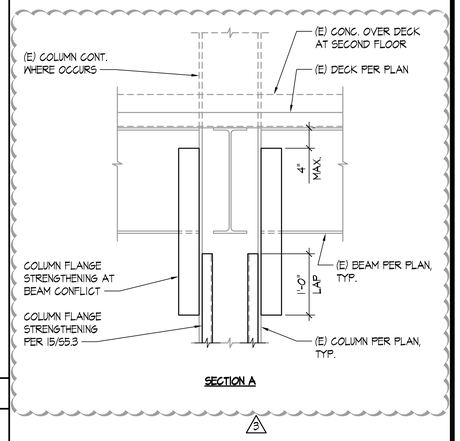
SHEET NO.

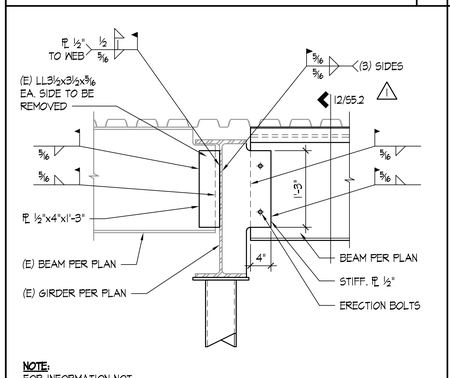
S5.2



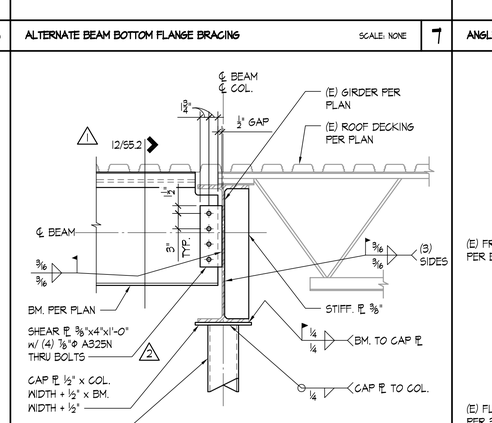
TYPICAL W-SHAPE BEAM BOTTOM FLANGE BRACING — SCALE: NONE — 3

DETAIL — SCALE: NONE — 4

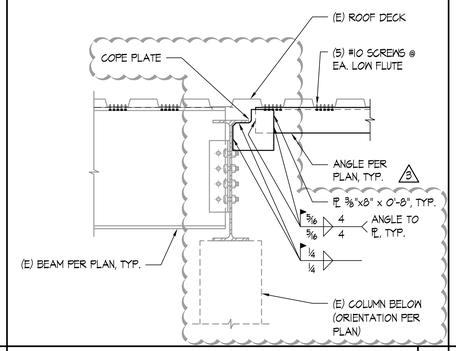




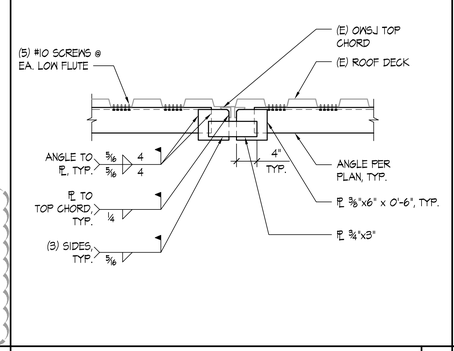
TYPICAL (E) W-SHAPE BEAM-COLUMN STRENGTHENED CONNECTION — SCALE: NONE — 6



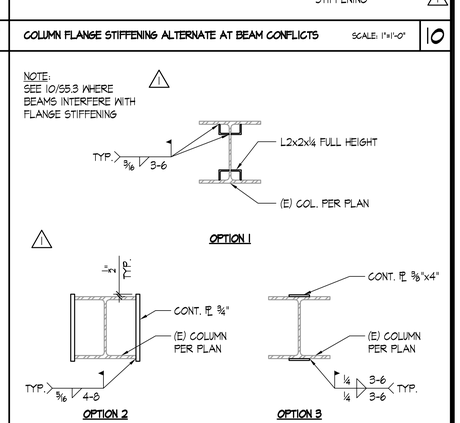
ALTERNATE BEAM BOTTOM FLANGE BRACING — SCALE: NONE — 7



ANGLE DRAG AT COLUMN — SCALE: 1"=1'-0" — 8



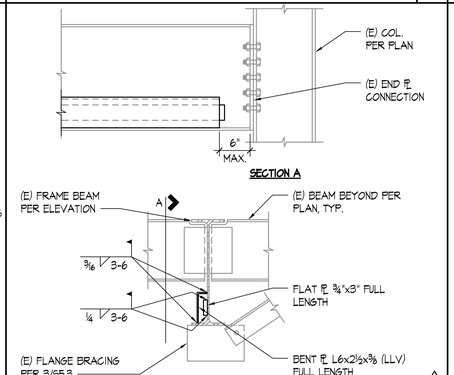
ANGLE DRAG AT ONSJ — SCALE: 1"=1'-0" — 9



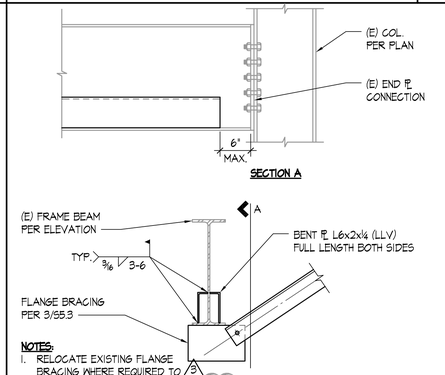
COLUMN FLANGE STIFFENING ALTERNATE AT BEAM CONFLICTS — SCALE: 1"=1'-0" — 10

DRAG BEAM CONNECTION THRU GIRDER — SCALE: 1"=1'-0" — 11

ROOF JOIST TO FRAME BEAM - HSS COL. CAP — SCALE: NONE — 12

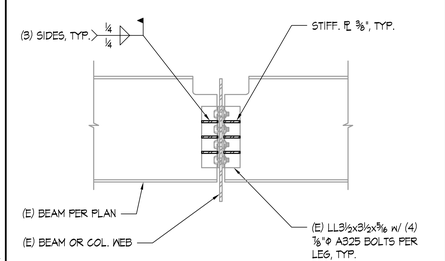


BEAM WEB STIFFENING - ONE SIDE ONLY — SCALE: NONE — 13

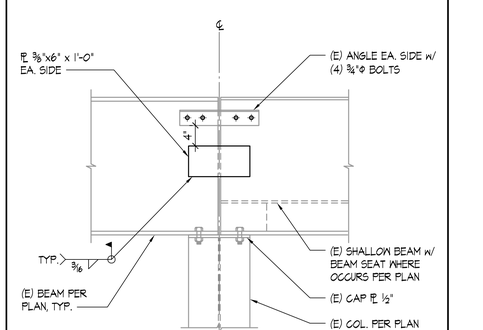


BEAM WEB STIFFENING — SCALE: NONE — 14

FRAME COLUMN FLANGE STIFFENING: PLAN VIEW — SCALE: NONE — 15



EXISTING BEAM DRAG RETROFIT CONNECTION — SCALE: 1"=1'-0" — 16



EXISTING BEAM SEAT DRAG RETROFIT CONNECTION — SCALE: 1"=1'-0" — 17

DETAIL — SCALE: NONE — 18

DETAIL — SCALE: NONE — 19

DETAIL — SCALE: NONE — 20

QUANTUM
CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER — STATE OF WASHINGTON — 36098 — REGISTERED PROFESSIONAL ENGINEER

PROJECT:

BENAROYA SHB&TC SOUTH BUILDING

1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

NO.	DESCRIPTION	DATE	BY
1	PERMIT SET	12/20/24	
2	PERMIT RESUBMITTAL SET	3/14/25	
3	POST-PERMIT REVISIONS	4/23/25	
4	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ◯ REVISIONS: △

P.M.	SHT
P.E.	TVM
DRAWN BY:	SSN
SCALE:	AS SHOWN
DATE:	12/20/24
JOB NO.	19305.04

SHEET TITLE:

BRACED FRAME DETAILS

SHEET NO.

S5.3

File: S05-S53.dwg Plotted: 06/23/25 8:53 am

CoreBrace (CB) Schedule

[redacted]

Project: **Puyallup PSB**
Location: **Puyallup, WA**

Job: **6910**

									Casing																																F_{ysc}		CB
CB-ID	**EOR-ID**	**BF**	**Line**	**Grids**	**Lvls**	**Mark**	**Qty**	L_b	L_c	**Shape**	**Profile**	H_c	W_c	t_c	W_L	W_1	L_{SL}	x_L	L_{Lg}	**a**	**c**	L_{Lc}	t_L	D_{wLg}	D_{wL}	L_{WL-i}	n_i	n_o	**g**	**s**	**e**	b_r	L_{ysc}	L''_{ysc}	W_{sc}	t_{sc}	A_{sc}	K_{eff}	K_f	P_{ysc}	**Min**	**Max**	**Wt**
#	#	#		#	#	#	#	in	in	t or p		in	in	in	in	in	in	in	in	in	in	in	in	#	#	in	#	#	in	in	in	in	in	in	in	in	in²	K/in	(K_{eff}/K_{Lwp})	kip	ksi	ksi	lb
CB-7.50	**BRB7.5**	**BF #2**	**2**	**G-G.5**	**1**	**2901**	**1**	225 6/16	177.25	t	☐	10	10	0.2500	8.88	7.44	29.81	6.49	16.81	4.00	3.00	12.49	0.75	4.00	4.00	6.49	4	0	0.00	4.00	1.63	1.26	152.78	152.78	6.000	1.25	7.50	1205	1.45	293	39	43	2422
CB-7.50	**BRB7.5**	**BF #2**	**2**	**G.5-H**	**1**	**2901**	**1**	225 6/16	177.25	t	☐	10	10	0.2500	8.88	7.44	29.81	6.49	16.81	4.00	3.00	12.49	0.75	4.00	4.00	6.49	4	0	0.00	4.00	1.63	1.26	152.78	152.78	6.000	1.25	7.50	1205	1.45	293	39	43	2422
CB-2.25	**BRB2.25**	**BF #3**	**6**	**D-D.5**	**2**	**2902**	**1**	229 7/16	196.25	t	☐	8	8	0.2500	7.38	3.72	22.35	2.46	9.35	4.00	3.00	8.46	0.50	3.00	3.00	11.46	2	0	0.00	5.00	1.63	0.96	179.83	163.58	3.000	0.75	2.25	339	1.36	88	39	43	1571
CB-2.25	**BRB2.25**	**BF #3**	**6**	**D.5-E**	**2**	**2902**	**1**	229 7/16	196.25	t	☐	8	8	0.2500	7.38	3.72	22.35	2.46	9.35	4.00	3.00	8.46	0.50	3.00	3.00	11.46	2	0	0.00	5.00	1.63	0.96	179.83	163.58	3.000	0.75	2.25	339	1.36	88	39	43	1571
CB-2.25	**BRB2.25**	**BF #4**	**6**	**G-G.5**	**2**	**2903**	**1**	229 7/16	196.25	t	☐	8	8	0.2500	7.38	3.72	22.35	2.46	9.35	4.00	3.00	8.46	0.50	3.00	3.00	11.46	2	0	0.00	5.00	1.63	0.96	179.83	163.58	3.000	0.75	2.25	339	1.37	88	39	43	1571
CB-2.25	**BRB2.25**	**BF #4**	**6**	**G.5-H**	**2**	**2903**	**1**	229 7/16	196.25	t	☐	8	8	0.2500	7.38	3.72	22.35	2.46	9.35	4.00	3.00	8.46	0.50	3.00	3.00	11.46	2	0	0.00	5.00	1.63	0.96	179.83	163.58	3.000	0.75	2.25	339	1.37	88	39	43	1571
CB-3.00	**BRB3.0**	**BF #6A**	**8**	**G-G.5**	**1**	**2904**	**1**	245 7/16	212.25	t	☐	8	8	0.2500	7.38	4.42	22.35	3.33	9.35	4.00	3.00	9.33	0.50	3.00	3.00	12.33	2	0	0.00	5.00	1.63	0.96	194.08	194.08	4.000	0.75	3.00	402	1.29	117	39	43	1683
CB-3.00	**BRB3.0**	**BF #6A**	**8**	**G.5-H**	**1**	**2904**	**1**	245 7/16	212.25	t	☐	8	8	0.2500	7.38	4.42	22.35	3.33	9.35	4.00	3.00	9.33	0.50	3.00	3.00	12.33	2	0	0.00	5.00	1.63	0.96	194.08	194.08	4.000	0.75	3.00	402	1.28	117	39	43	1683
CB-2.00	**BRB2.0**	**BF #6B**	**8**	**H-H.5**	**2**	**2905**	**1**	225 5/16	192.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	175.80	159.76	3.200	0.63	2.00	308	1.38	78	39	43	1516
CB-2.00	**BRB2.0**	**BF #6B**	**8**	**H.5-J**	**2**	**2905**	**1**	225 5/16	192.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	175.80	159.76	3.200	0.63	2.00	308	1.38	78	39	43	1516
CB-2.75	**BRB2.75**	**BF #9**	**10**	**G-G.5**	**1**	**2906**	**1**	246 7/16	213.25	t	☐	8	8	0.2500	7.38	4.12	22.35	2.96	9.35	4.00	3.00	8.96	0.50	3.00	3.00	11.96	2	0	0.00	5.00	1.63	0.96	195.82	179.45	3.667	0.75	2.75	379	1.32	107	39	43	1719
CB-2.75	**BRB2.75**	**BF #9**	**10**	**G.5-H**	**1**	**2906**	**1**	246 7/16	213.25	t	☐	8	8	0.2500	7.38	4.12	22.35	2.96	9.35	4.00	3.00	8.96	0.50	3.00	3.00	11.96	2	0	0.00	5.00	1.63	0.96	195.82	179.45	3.667	0.75	2.75	379	1.32	107	39	43	1719
CB-2.75	**BRB2.75**	**BF #10**	**11**	**D-D.5**	**2**	**2907**	**1**	213 7/16	180.25	t	☐	8	8	0.2500	7.38	4.12	22.35	2.96	9.35	4.00	3.00	8.96	0.50	3.00	3.00	11.96	2	0	0.00	5.00	1.63	0.96	162.82	146.45	3.667	0.75	2.75	448	1.41	107	39	43	1476
CB-2.75	**BRB2.75**	**BF #10**	**11**	**D.5-E**	**2**	**2907**	**1**	213 7/16	180.25	t	☐	8	8	0.2500	7.38	4.12	22.35	2.96	9.35	4.00	3.00	8.96	0.50	3.00	3.00	11.96	2	0	0.00	5.00	1.63	0.96	162.82	146.45	3.667	0.75	2.75	448	1.41	107	39	43	1476
CB-2.00	**BRB2.0**	**BF #11**	**13**	**C-C.5**	**1**	**2908**	**1**	246 5/16	213.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	196.80	180.76	3.200	0.63	2.00	277	1.33	78	39	43	1667
CB-2.00	**BRB2.0**	**BF #11**	**13**	**C.5-D**	**1**	**2908**	**1**	246 5/16	213.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	196.80	180.76	3.200	0.63	2.00	277	1.33	78	39	43	1667
CB-2.00	**BRB2.0**	**BF #13**	**13**	**H-H.5**	**1**	**2909**	**1**	246 5/16	213.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	196.80	180.76	3.200	0.63	2.00	277	1.33	78	39	43	1667
CB-2.00	**BRB2.0**	**BF #13**	**13**	**H.5-J**	**1**	**2909**	**1**	246 5/16	213.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	196.80	180.76	3.200	0.63	2.00	277	1.33	78	39	43	1667
CB-2.75	**BRB2.75**	**BF #14**	**15**	**H-H.5**	**2**	**2910**	**1**	213 7/16	180.25	t	☐	8	8	0.2500	7.38	4.12	22.35	2.96	9.35	4.00	3.00	8.96	0.50	3.00	3.00	11.96	2	0	0.00	5.00	1.63	0.96	162.82	146.45	3.667	0.75	2.75	448	1.41	107	39	43	1476
CB-2.75	**BRB2.75**	**BF #14**	**15**	**H.5-J**	**2**	**2910**	**1**	213 7/16	180.25	t	☐	8	8	0.2500	7.38	4.12	22.35	2.96	9.35	4.00	3.00	8.96	0.50	3.00	3.00	11.96	2	0	0.00	5.00	1.63	0.96	162.82	146.45	3.667	0.75	2.75	448	1.41	107	39	43	1476
CB-2.00	**BRB2.0**	**BF #18**	**D**	**3-3.5**	**2**	**2911**	**1**	223 5/16	190.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	173.80	157.76	3.200	0.63	2.00	311	1.38	78	39	43	1502
CB-2.00	**BRB2.0**	**BF #18**	**D**	**3.5-4**	**2**	**2911**	**1**	223 5/16	190.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	173.80	157.76	3.200	0.63	2.00	311	1.38	78	39	43	1502
CB-3.00	**BRB3.0**	**BF #25**	**D**	**10-10.5**	**2**	**2912**	**1**	246 7/16	213.25	t	☐	8	8	0.2500	7.38	4.42	22.35	3.33	9.35	4.00	3.00	9.33	0.50	3.00	3.00	12.33	2	0	0.00	5.00	1.63	0.96	195.08	195.08	4.000	0.75	3.00	398	1.31	117	39	43	1691
CB-3.00	**BRB3.0**	**BF #25**	**D**	**10.5-11**	**2**	**2912**	**1**	246 7/16	213.25	t	☐	8	8	0.2500	7.38	4.42	22.35	3.33	9.35	4.00	3.00	9.33	0.50	3.00	3.00	12.33	2	0	0.00	5.00	1.63	0.96	195.08	195.08	4.000	0.75	3.00	398	1.31	117	39	43	1691
CB-6.00	**BRB6.0**	**BF #25**	**D**	**10-10.5**	**1**	**2913**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
CB-6.00	**BRB6.0**	**BF #25**	**D**	**10.5-11**	**1**	**2913**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
CB-6.00	**BRB6.0**	**BF #27**	**D**	**15-15.5**	**1**	**2914**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
CB-6.00	**BRB6.0**	**BF #27**	**D**	**15.5-16**	**1**	**2914**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
CB-6.00	**BRB6.0**	**BF #23A**	**H**	**9-9.5**	**1**	**2915**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
CB-6.00	**BRB6.0**	**BF #23A**	**H**	**9.5-10**	**1**	**2915**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
CB-2.00	**BRB2.0**	**BF #23B**	**H**	**10-10.5**	**2**	**2916**	**1**	249 5/16	216.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	199.80	183.76	3.200	0.63	2.00	272	1.36	78	39	43	1689
CB-2.00	**BRB2.0**	**BF #23B**	**H**	**10.5-11**	**2**	**2916**	**1**	249 5/16	216.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	199.80	183.76	3.200	0.63	2.00	272	1.36	78	39	43	1689
CB-6.00	**BRB6.0**	**BF #23B**	**H**	**10-10.5**	**1**	**2917**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
CB-6.00	**BRB6.0**	**BF #23B**	**H**	**10.5-11**	**1**	**2917**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
CB-2.00	**BRB2.0**	**BF #28**	**H**	**15-15.5**	**2**	**2918**	**1**	247 5/16	214.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	197.80	181.76	3.200	0.63	2.00	274	1.37	78	39	43	1674
CB-2.00	**BRB2.0**	**BF #28**	**H**	**15.5-16**	**2**	**2918**	**1**	247 5/16	214.25	t	☐	8	8	0.2500	7.13	3.61	22.27	2.48	9.27	4.00	3.00	8.48	0.50	3.00	3.00	11.48	2	0	0.00	5.00	1.63	0.91	197.80	181.76	3.200	0.63	2.00	274	1.37	78	39	43	1674
CB-6.00	**BRB6.0**	**BF #28**	**H**	**15-15.5**	**1**	**2919**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
CB-6.00	**BRB6.0**	**BF #28**	**H**	**15.5-16**	**1**	**2919**	**1**	260 10/16	213.25	t	☐	10	10	0.2500	7.63	6.65	29.42	5.82	16.42	4.00	3.00	11.82	0.75	4.00	4.00	5.82	4	0	0.00	4.00	1.63	1.02	190.11	190.11	6.000	1.00	6.00	808	1.38	234	39	43	2706
							38																																				

Sum --> 73,706 lbs
Max --> 2,706 lbs

Table of Symbols

L_b = Length of CB tip to tip
L_c = Length of casing
Casing = Size & type of casing
Type = t = tube (square/rect) and p = pipe (round)
W_L = Width of Lug
W_1 = Width at Reduced Section of Lug
L_{SL} = Total Length of Lug minus Transition (xL)

x_L = Length from start of lug transition to end of lug transition
L_{Lg} = Length of Lap on Gusset
a = Gap between core and gusset
c = Core extension length out of casing
L_{Lc} = Length of Lug within Casing (incl. xL)
t_L = Thickness of lug
D_{wLg} = Size of weld at lug to core at bolt pattern # 1/16ths
D_{wL} = Size of weld at lug to core beyond bolt pattern # 1/16ths
L_{WL-i} = Weld length required at inside face of lug

n_i = Number of bolts in inner row
n_o = Number of bolts in outer row
g = Gauge between outer & inner bolt rows
s = Bolt Spacing
e = Typical bolt edge distance
b_r = Distance to start of radius from first outermost bolt.
(If negative it is towards end of CB from bolt.)
L_{ysc} = Length of yielding core w/out allowance for Cntr Stiffener

L''_{ysc} = Yield length of core - Yielding Portion Only
W_{sc} = Width of core at yield section
t_{sc} = Thickness of core
A_{sc} = Cross sectional area of core at yield section
K_{eff} = Effective Stiffness of BRB from WP to WP
K_f = Axial Stiffness Adjustment Factor
P_{ysc} = Yield force of CB (A_{sc} x F_{ysc}_min)
F_{ysc} = Specified yield stress range of core plate

6910 - Puyallup PSB

COREBRACE SCHEDULE

SCALE: NONE

1

CoreBrace (CB) Connection Schedule

[redacted]

Project: Puyallup PSB
Location: Puyallup, WA
Job: 6910

Thickness of Std Washer: 0.177
Add'l Thickness for DTI Washer: 0.000

												Hole Pattern Information							Gusset		Lug					
CB-ID	EOR-ID	BF	Line	Grids	Lvls	Mark	Qty	W_{WP}	H_{WP}	L_{bh}	L_{wp-h}	n_i	n_o	e	s	g_i	g_o	d_{hg}	t_g	$F_{y,g}$	W_L	t_L	t_s	L_{Lg}	W_{L-Alt}	L_{WL-Alt}
#	#	#		#	#	#	#	in	in	in	in	#	#	in	in	in	in	in	in	ksi	in	in	in	in	in	in
CB-7.50	BRB7.5	BF #2	2	G-G.5	1	**2901**	1	150	213 11/16	219	21	4	0	1 10/16	4.00	2 13/16	0	1 7/16	1	50	8 7/8	3/4	1 1/4	16 13/16	7/16	76
CB-7.50	BRB7.5	BF #2	2	G.5-H	1	**2901**	1	150	213 10/16	219	21	4	0	1 10/16	4.00	2 13/16	0	1 7/16	1	50	8 7/8	3/4	1 1/4	16 13/16	7/16	76
CB-2.25	BRB2.25	BF #3	6	D-D.5	2	**2902**	1	150	215 15/16	224	20	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.25	BRB2.25	BF #3	6	D.5-E	2	**2902**	1	150	215 15/16	224	20	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.25	BRB2.25	BF #4	6	G-G.5	2	**2903**	1	150 4/16	216	224	20	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.25	BRB2.25	BF #4	6	G.5-H	2	**2903**	1	150 4/16	216	224	20	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-3.00	BRB3.0	BF #6A	8	G-G.5	1	**2904**	1	149 10/16	234 14/16	240	21	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-3.00	BRB3.0	BF #6A	8	G.5-H	1	**2904**	1	149 10/16	234 8/16	240	21	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.00	BRB2.0	BF #6B	8	H-H.5	2	**2905**	1	149 13/16	212	220	20	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-2.00	BRB2.0	BF #6B	8	H.5-J	2	**2905**	1	149 13/16	212	220	20	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-2.75	BRB2.75	BF #9	10	G-G.5	1	**2906**	1	150	234 14/16	241	21	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.75	BRB2.75	BF #9	10	G.5-H	1	**2906**	1	150	234 10/16	241	21	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.75	BRB2.75	BF #10	11	D-D.5	2	**2907**	1	150	200 12/16	208	19	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.75	BRB2.75	BF #10	11	D.5-E	2	**2907**	1	150	200 12/16	208	19	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.00	BRB2.0	BF #11	13	C-C.5	1	**2908**	1	150 5/16	234 14/16	241	21	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-2.00	BRB2.0	BF #11	13	C.5-D	1	**2908**	1	150 5/16	234 14/16	241	21	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-2.00	BRB2.0	BF #13	13	H-H.5	1	**2909**	1	150	234 14/16	241	21	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-2.00	BRB2.0	BF #13	13	H.5-J	1	**2909**	1	150	234 14/16	241	21	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-2.75	BRB2.75	BF #14	15	H-H.5	2	**2910**	1	150	200 12/16	208	19	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.75	BRB2.75	BF #14	15	H.5-J	2	**2910**	1	150	200 12/16	208	19	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-2.00	BRB2.0	BF #18	D	3-3.5	2	**2911**	1	150	208 2/16	218	19	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-2.00	BRB2.0	BF #18	D	3.5-4	2	**2911**	1	150	208 2/16	218	19	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-3.00	BRB3.0	BF #25	D	10-10.5	2	**2912**	1	191 13/16	214 3/16	241	25	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-3.00	BRB3.0	BF #25	D	10.5-11	2	**2912**	1	191 13/16	214 5/16	241	25	2	0	1 10/16	5.00	2 1/16	0	1 7/16	1	50	7 3/8	1/2	3/4	9 6/16	5/16	44
CB-6.00	BRB6.0	BF #25	D	10-10.5	1	**2913**	1	192 2/16	227 13/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73
CB-6.00	BRB6.0	BF #25	D	10.5-11	1	**2913**	1	192 2/16	227 13/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73
CB-6.00	BRB6.0	BF #27	D	15-15.5	1	**2914**	1	192	227 6/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73
CB-6.00	BRB6.0	BF #27	D	15.5-16	1	**2914**	1	192	227 6/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73
CB-6.00	BRB6.0	BF #23A	H	9-9.5	1	**2915**	1	192 2/16	228 2/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73
CB-6.00	BRB6.0	BF #23A	H	9.5-10	1	**2915**	1	192 2/16	227 10/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73
CB-2.00	BRB2.0	BF #23B	H	10-10.5	2	**2916**	1	191 12/16	217 6/16	244	25	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-2.00	BRB2.0	BF #23B	H	10.5-11	2	**2916**	1	191 12/16	217 8/16	244	25	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-6.00	BRB6.0	BF #23B	H	10-10.5	1	**2917**	1	191 12/16	227 7/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73
CB-6.00	BRB6.0	BF #23B	H	10.5-11	1	**2917**	1	191 12/16	227 7/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73
CB-2.00	BRB2.0	BF #28	H	15-15.5	2	**2918**	1	191 15/16	215 12/16	242	25	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-2.00	BRB2.0	BF #28	H	15.5-16	2	**2918**	1	191 15/16	215 10/16	242	25	2	0	1 10/16	5.00	1 15/16	0	1 7/16	1	50	7 1/8	1/2	5/8	9 4/16	5/16	44
CB-6.00	BRB6.0	BF #28	H	15-15.5	1	**2919**	1	191 15/16	227 7/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73
CB-6.00	BRB6.0	BF #28	H	15.5-16	1	**2919**	1	191 15/16	227 5/16	255	18	4	0	1 10/16	4.00	2 3/16	0	1 7/16	1	50	7 5/8	3/4	1	16 7/16	7/16	73

			Bolt Size, Length & Quantities										BOTTOM OF BRACE CONNECTION												TOP OF BRACE CONNECTION				Required Stiff or Continuity Plate				Required Web Doubler Plate									
													Bm/Col Flange Bot						Bm/Col Web (90) Bot						Chev Λ				Bottom End of Brace		Top End of Brace		Bottom End of Brace				Top End of Brace				CB	Total
CB-ID	BF	Grids	d_b	G	L'	La	3.50"	3.75"	4.00"	4.25"	4.50"	4.75"	W_b	L_{wb}	W_c	L_{wc}	L_{gb}	L_{gc}	W_b	L_{wb}	W_c	L_{wc}	L_{gb}	L_{gc}	W_b	L_{wb}	L_{gb}	L_{gc}	Beam	Col	Beam	Col	Beam			Col	Beam			Col	Wt	CB Wt
#	#	#	in	in	in	in	Qty	Qty	Qty	Qty	Qty	Qty	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	Main	Main	Main	Main	t_{Dblr}	L_{Dblr}	W_{Dblr}	t_{Dblr}	t_{Dblr}	L_{Dblr}	W_{Dblr}	t_{Dblr}	lb	lb
CB-7.50	BF #2	G-G.5	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	-	-	-	-	-	-	3/8	21	3/8	30	25	32	5/16	24	25	20	-	CP	0.50"	-	-	-	-	-	-	-	-	-	2422	2422
CB-7.50	BF #2	G.5-H	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	-	-	-	-	-	-	3/8	21	3/8	30	25	32	5/16	24	25	20	-	CP	0.50"	-	-	-	-	-	-	-	-	-	2422	2422
CB-2.25	BF #3	D-D.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	5/16	11	5/16	13	13	15	-	-	-	-	-	-	5/16	18	19	14	-	-	0.50"	-	-	-	-	-	-	-	-	-	1571	1571
CB-2.25	BF #3	D.5-E	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	13	19	15	5/16	18	19	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1571	1571
CB-2.25	BF #4	G-G.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	13	19	15	5/16	18	19	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1571	1571
CB-2.25	BF #4	G.5-H	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	13	19	15	5/16	18	19	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1571	1571
CB-3.00	BF #6A	G-G.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	24	19	26	5/16	16	17	15	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1683	1683
CB-3.00	BF #6A	G.5-H	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	24	19	26	5/16	16	17	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1683	1683
CB-2.00	BF #6B	H-H.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	14	19	16	5/16	18	19	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1516	1516
CB-2.00	BF #6B	H.5-J	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	14	19	16	5/16	18	19	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1516	1516
CB-2.75	BF #9	G-G.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	24	19	26	5/16	16	17	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1719	1719
CB-2.75	BF #9	G.5-H	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	24	19	26	5/16	16	17	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1719	1719
CB-2.75	BF #10	D-D.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	5/16	12	5/16	12	16	15	-	-	-	-	-	-	5/16	21	22	14	0.50"	-	0.50"	-	-	-	-	-	-	-	-	-	1476	1476
CB-2.75	BF #10	D.5-E	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	13	19	15	5/16	21	22	14	0.50"	CP	0.50"	-	-	-	-	-	-	-	-	-	1476	1476
CB-2.00	BF #11	C-C.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	24	19	26	5/16	16	17	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1667	1667
CB-2.00	BF #11	C.5-D	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	24	19	26	5/16	16	17	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1667	1667
CB-2.00	BF #13	H-H.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	24	19	26	5/16	16	17	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1667	1667
CB-2.00	BF #13	H.5-J	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	24	19	26	5/16	16	17	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1667	1667
CB-2.75	BF #14	H-H.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	5/16	12	5/16	12	16	15	-	-	-	-	-	-	5/16	21	22	14	0.50"	-	0.50"	-	-	-	-	-	-	-	-	-	1476	1476
CB-2.75	BF #14	H.5-J	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	15	5/16	13	19	15	5/16	21	22	14	0.50"	CP	0.50"	-	-	-	-	-	-	-	-	-	1476	1476
CB-2.00	BF #18	3-3.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	14	5/16	13	19	15	5/16	18	20	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1502	1502
CB-2.00	BF #18	3.5-4	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	-	-	-	-	-	-	5/16	14	5/16	13	19	15	5/16	18	20	14	-	CP	0.50"	-	-	-	-	-	-	-	-	-	1502	1502
CB-3.00	BF #25	10-10.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	5/16	20	5/16	12	22	14	-	-	-	-	-	-	5/16	22	23	14	-	-	0.50"	-	-	-	-	-	-	-	-	-	1691	1691
CB-3.00	BF #25	10.5-11	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	5/16	17	5/16	11	22	14	-	-	-	-	-	-	5/16	22	23	14	0.50"	-	0.50"	-	-	-	-	-	-	-	-	-	1691	1691
CB-6.00	BF #25	10-10.5	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	26	19	28	-	-	-	-	-	-	5/16	28	29	20	-	-	0.50"	-	-	-	-	0.25"	-	-	-	-	2706	2706
CB-6.00	BF #25	10.5-11	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	26	19	28	-	-	-	-	-	-	5/16	28	29	20	-	-	0.50"	-	-	-	-	0.25"	-	-	-	-	2706	2706
CB-6.00	BF #27	15-15.5	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	26	19	28	-	-	-	-	-	-	5/16	28	29	19	-	-	0.50"	-	-	-	-	0.25"	-	-	-	-	2706	2706
CB-6.00	BF #27	15.5-16	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	26	19	28	-	-	-	-	-	-	5/16	28	29	19	-	-	0.50"	-	-	-	-	0.25"	-	-	-	-	2706	2706
CB-6.00	BF #23A	9-9.5	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	26	19	28	-	-	-	-	-	-	5/16	28	29	20	-	-	0.50"	-	-	-	-	0.25"	-	-	-	-	2706	2706
CB-6.00	BF #23A	9.5-10	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	27	19	29	-	-	-	-	-	-	5/16	28	29	20	-	-	0.50"	-	-	-	-	0.50"	-	-	-	-	2706	2706
CB-2.00	BF #23B	10-10.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	5/16	17	5/16	12	19	14	-	-	-	-	-	-	5/16	21	22	14	-	-	0.50"	-	-	-	-	-	-	-	-	-	1689	1689
CB-2.00	BF #23B	10.5-11	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	5/16	20	5/16	12	22	14	-	-	-	-	-	-	5/16	21	22	14	-	-	0.50"	-	-	-	-	-	-	-	-	-	1689	1689
CB-6.00	BF #23B	10-10.5	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	27	19	29	-	-	-	-	-	-	5/16	28	29	19	-	-	0.50"	-	-	-	-	0.50"	-	-	-	-	2706	2706
CB-6.00	BF #23B	10.5-11	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	26	19	28	-	-	-	-	-	-	5/16	28	29	19	-	-	0.50"	-	-	-	-	0.25"	-	-	-	-	2706	2706
CB-2.00	BF #28	15-15.5	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	5/16	17	5/16	11	22	14	-	-	-	-	-	-	5/16	22	23	14	-	-	0.50"	-	-	-	-	-	-	-	-	-	1674	1674
CB-2.00	BF #28	15.5-16	1 1/8	2.06	3.740	**3 3/4**	-	8	-	-	-	-	5/16	20	5/16	12	22	14	-	-	-	-	-	-	5/16	21	23	14	-	-	0.50"	-	-	-	-	-	-	-	-	-	1674	1674
CB-6.00	BF #28	15-15.5	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	26	19	28	-	-	-	-	-	-	5/16	28	29	19	-	-	0.50"	-	-	-	-	0.25"	-	-	-	-	2706	2706
CB-6.00	BF #28	15.5-16	1 1/8	2.56	4.240	**4 1/4**	-	-	-	16	-	-	5/16	17	5/16	26	19	28	-	-	-	-	-	-	5/16	28	29	19	-	-	0.50"	-	-	-	-	0.25"	-	-	-	-	2706	2706
							0	208	0	192	0	0																														**73,706 lbs** *36.85 Ton*

Note: May Dbl Count Stiffeners.
Indicated Thickness Each Side of Column. Weld Stiffeners to Flange Web & Gusset with 5/16" fillet welds for t ≤ 1.25", 7/16" for t ≤ 2.0", UNO
CP = Cont Plate & Guss Support Plate
"Main" Stiffener is located at gusset Free Edge in Bm or Col for Std Conn
"Main" Stiffener is located cntrd above gusset in Bm for V/Chev
All Stiffeners both sides of Bm or Col

Doublers to be full-height, UNO. May Double Count Doublers. Use larger size if Multiple Doublers Called for in Same Location.

t_{Dblr} = Doubler plate thickness 1 side of web, or 1/2 the indicated thickness both sides of web.
L_{Dblr} = Doubler plate length. Where no length is provided, length to match gusset extent.
W_{Dblr} = Doubler plate fillet weld size (in). Where no size is provided, use 3/4*t_{Dblr} (3/16" minimum).

Table of Symbols

W_{WP} = Width of frame bay workpoint (WP) to WP
H_{WP} = Height of frame bay WP to WP
L_{bh} = Length of CoreBrace between outermost holes
L_{wp-h} = Length from bottom WP to center of bottom bolt hole
n_i = Number of bolts in inner row
n_o = Number of bolts in outer row

e = Typical bolt edge distance
s = Bolt spacing in a row
g_i = Gauge inner bolt row from CL of CB
g_o = Gauge between inner and outer bolt rows
d_{hg} = Diameter of bolt hole in gusset plate
t_g = Thickness of gusset

$F_{y,g}$ = Gusset A572 grade
t_L = Thickness of Lug
t_s = Thickness of Stiffener on Lug
L_{Lg} = Expected Lap of Lug on Gusset (as Check Only)

W_{L-Alt} = Alternate continuous weld at lug to gusset
L_{WL-Alt} = Minimum total length of alternate weld of lug to gusset (1/2 of length on each side of gusset)
d_b = Bolt diameter (ASTM F3125 GrA490/F2280 SC OR ASTM F3148 TNA WITH CLASS A FAYING SURFACE)
G = Grip of bolt
L' = Length of bolt needed with F436 washer only
La = Suggested length of bolt to order, detailer to verify

W_b = Minimum size of gusset weld to beam
L_{wb} = Minimum length of beam weld
W_c = Minimum size of gusset weld to column
L_{wc} = Minimum length of column weld
L_{gb} = Approximate maximum width of gusset rounded up to nearest inch
NOT USED FOR DETAILING
L_{gc} = Approximate maximum height of gusset rounded up to nearest inch
NOT USED FOR DETAILING

6910 - Puyallup PSB

CONNECTION SCHEDULE

SCALE: NONE

2

Plotted: 06/23/25 9:53 am

QUANTUM
CONSULTING ENGINEERS

1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

PRCTI20250117 - Rev. #2

SEAL:

SCOTT H. TINKER
36098

PROJECT:

BENAROYA SHB&TC
SOUTH BUILDING
1015 39TH AVE SE
PUYALLUP, WA 98374

APPROVAL:

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

Welding to be completed by an individual or fabricator who is WABO certified or approved by the Building Official to perform the work. All welds must be inspected and approved by a WABO certified special inspector.

NO.	DESCRIPTION	DATE	BY
	PERMIT SET	12/20/24	
△1	PERMIT RESUBMITTAL SET	3/14/25	
△2	POST-PERMIT REVISIONS	4/23/25	
△3	CONSTRUCTION DRAWINGS	6/23/25	

ISSUES: ○ REVISIONS: △

P.M. SHT
P.E. TVM
DRAWN BY: SSN
SCALE: AS SHOWN
DATE: 12/20/24
JOB NO. 19305.04

SHEET TITLE:

COREBRACE SCHEDULE

SHEET NO.

S5.4 △3