

WHATCOM COUNTY
Planning & Development Services
5280 Northwest Drive,
Bellingham, WA 98226-9097
360-778-5900, TTY 800-833-6384
360-778-5901 Fax



Mark Personius, AICP
Director

PRE2023-00097 ABC Recycling

Commercial Building Permit Application Building # 5
One Structure per Permit

Permit # _____

Agent/Contact Name: _____

Mailing Address: _____ City _____

State _____ Zip Code _____ Phone # () _____

Email _____

Property Owner Name _____

Mailing Address: _____ City _____

State _____ Zip Code _____ Phone # () _____

Email _____

Contractor Name _____

Business Name: _____ License#: _____

Mailing Address: _____ City _____

State _____ Zip Code _____ Phone # () _____

Email _____

Site Information

Assessor's Parcel # _____ Div# _____ Block# _____ Lot# _____

Subdivision Name: _____

Site address _____

Number of Buildings currently on site: _____

Valuation (cost of completed project less value of land) \$ _____

Project Description (example: New 2400 sq. ft. Warehouse w/ office space)

New Addition Remodel Repair Change of Occupancy Tenant Improvement

Building Height: (in feet) _____ # of Stories: _____ # Employees: _____ # Parking Spaces: _____

Company Vehicles: _____ Note: # of employees/parking spaces & vehicles are for entire complex

Please Check Applicable Water & Sanitary Services: Water: Well Water Assoc.

Water District Name of Water Purveyor (if applicable): _____

Fees will be assessed in accordance with the Whatcom County Unified Fee Schedule (UFS) in effect at the time of application submittal. Please contact Planning and Development Services to determine project specific fees. Click [here](#) to see the 2019/2020 UFS. Per UFS 2843 all permits and applications are subject to a Technology fee. The fee is calculated on the permit/application fees due.

Septic: Yes No / Septic Installed: Yes No

Sewer: Yes No Name of Sewer Purveyor (if applicable):

Proposed Square Footages for this project (measured to outside wall):

Basement	sq.ft.	Main Floor	sq.ft.
Basement Type: <input type="checkbox"/> Heated <input type="checkbox"/> Unheated		Second Floor	sq.ft.
Other:	sq.ft.	Total Square Feet	sq.ft.

Heat Source (Check the primary fuel source for Heat / Hot Water)

Heating: Natural Gas Propane Electric Oil Geothermal Other

Hot Water: Natural Gas Propane Electric Oil Geothermal Other

Driveway Access and Utility Connection (work within the county right-of-way)

Does your project involve any work within the County road right-of-way (example: a new driveway or connection to utilities)? Yes No

If yes, please describe: _____

Please note: If upon inspection PW Encroachment staff determines an additional Encroachment Permit is required; you will be notified and received an invoice for the fees.

List materials used in the process of business activity (be specific & list quantities used or stored)

Any proposed fill, excavation or clearing must be noted below *

FILL The deposit of earth material by artificial means.						
BY FEET	Length (ft)	Width (ft)	Depth (ft)	Volume (ft ³)	÷ By 27	= Cubic Yard
Septic	X	X	=		/ 27 =	CY
Driveway/Road/Parking	X	X	=		/ 27 =	CY
Building site	X	X	=		/ 27 =	CY
Other	X	X	=		/ 27 =	CY
MATERIAL SOURCE:					TOTAL VOLUME:	CY

EXCAVATION The mechanical removal of earth materials. Grading is an excavation or filling or combination thereof. Earth material is any rock, natural soil, fill, or any combination thereof.						
BY FEET	Length (ft)	Width (ft)	Depth (ft)	Volume (ft ³)	÷ By 27	= Cubic Yard
Septic	X	X	=		/ 27 =	CY
Driveway/Road/Parking	X	X	=		/ 27 =	CY
Building site	X	X	=		/ 27 =	CY
Ditching/Trenching	X	X	=		/ 27 =	CY
Other	X	X	=		/ 27 =	CY
MATERIAL DESTINATION:					TOTAL VOLUME:	CY

* Cut/Fill for individual building permit only! All SITE cut/fill are included with permit for Building #1

CLEARING/CONVERSION	Defined as, "the destruction of vegetation by manual, mechanical, or chemical methods resulting in exposed soils. WCC20.97.053				
Required TOTAL AREA TO BE CLEARED and/or GRUBBED, IN ACRES:					
AREA OF TREE CLEARING, IN ACRES:					
TIMBER USE	Personal Use:	% Sell:	% Burn:	% Give Away:	%
FPA NUMBER (if applicable)					
If your project includes any tree cutting, a Forest Practices Application / Notification may be required. For questions related to permit requirements, contact the Washington Department of Natural Resources (DNR) at 360-856-3500.					

RECEIVED

Date: 10/24/2023 Staff: AHK

Please complete the following Agent Authorization only if an agent (someone other than the property owner) is applying for permit(s) on the property owner's behalf.

Agent Authorization

If you are authorizing an agent to apply for permits on your behalf you must complete this form and have it notarized, which will provide authorization for a designated agent to apply for permits on your behalf.

I/we, ABC RECYCLING REalty Corp., the owner(s) of the subject property, understand by completing this form I/we hereby authorize Scott Goodall to act as agent. I/we understand said agent will be authorized to submit applications on my behalf, and any fees associated with submitted applications are due to me and not to the said agent. I/we also understand once an application has been submitted all future correspondence will be directed to the agent.

ANDREW ANTHONY
Property Owner Printed Name

Property Owner Printed Name

[Signature]
Property Owner Signature

Property Owner Signature

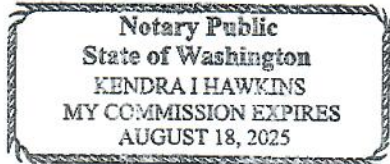
10/04/2023
Date

Date

I certify that I know or have satisfactory evidence that Andrew Anthony is/are the person(s) who appeared before me, and said person(s) acknowledged it to be his/her free and voluntary act for the uses and purposes mentioned in this instrument.

Dated 10/04/2023

[Signature]
Notary Public Signature



Kendra I Hawkins
Notary Public Printed Name

Notary Public in and for the State of Washington

Residing at Whatcom Co.

My appointment expires: Aug/ 18/ 2025

Disclaimer

- The permittee verifies, acknowledges and agrees by their signature that:
- 1) If this permit is for installation of a dwelling, the dwelling is/will be served by potable water;
 - 2) The property owner is the owner of this Whatcom County Permit;
 - 3) The signatory is the property owner or someone who has permission to represent the property owner in this transaction;
 - 4) All construction is to be done in accordance with Whatcom County codes or ordinances- *referenced codes and ordinances are available for review at Whatcom County Planning and Development Services;*
 - 5) This Whatcom County Permit does not permit or approve any violation of federal, state or local laws, codes or ordinances;
 - 6) Submission of plans or additional information and subsequent approval may be required before this application can be processed;
 - 7) Notwithstanding that this application has been submitted in the name of a company, I personally guarantee payment (or guarantee payment on behalf of the client I am representing, noted on the Agent Authorization Form above) of the fees accrued according to the terms listed in the Whatcom County Unified Fee Schedule, including the Application of Fees from Different UFS Schedule Policy PL1-74-003Z, and agree to be bound personally as a principal and not as a surety. I recognize my personal guarantee is part of the consideration for review of the application.

Scott Goodall
Print Name

[Signature]
Owner or Agent Signature

10/21/23
Date

ABC RECYCLING BUILDING 5 TWITCH

741 MARINE DRIVE, Bellingham, WA

PROJECT CRITERIA

GENERAL SITE INFORMATION:

ADDRESS: 741 MARINE DRIVE, BELLINGHAM WA
PARCEL #S: 3802231063740000

THAT PTN OF ENOCH COMPTON DON CLAIM DAF-BEG ON SLY LI OF MARIETTA RD 992.4 FT S-613.2 FT E OF NW COR SEC 23 BEING COR COMM TO SECS 14-15-22-23-TH S 25 DEG 50'00" W 1170 FT M/L TO GOVT MEANDER LI OF BELLINGHAM BAY-TH SELY FOL SD MEANDER LI TO SE COR OF NEIGHBORHOOD:
SUB AREA: 2
ZONING: HEAVY IMPACT INDUSTRIAL

PROJECT DESCRIPTION/WORK TO BE PERFORMED:

NEW CONSTRUCTION OF A PRE ENGINEERED METAL BUILDING

GENERAL BUILDING INFORMATION:

TYPE OF CONSTRUCTION: IIB
NUMBER OF STORIES: 1 STORY
OCCUPANCY CLASSIFICATION(S): F-2
MIXED OCCUPANCY
COMPLIANCE METHODS: FIRE PROTECTED SEPARATIONS
SPRINKLER SYSTEM: NOT PROVIDED
ALLOWABLE BUILDING HEIGHT: 32'-3.25"
ACTUAL BUILDING HEIGHT:
HEAT TYPE: NON HEATED

Site Coverage Information

SEE CIVIL PLANS

PARKING REQUIREMENTS: (TOTAL PROJECT)

1 PER EMPLOYEE/SHIFT = 15 PER SHIFT =15 STALLS

PARKING PROVIDED =18 STALLS INCL. 2 H.C.

DEFERRED SUBMITTAL ITEMS:

- PRE FAB STEEL BUILDING PLANS & ENGINEERING

APPLICABLE BUILDING CODES:

2018 INTERNATIONAL BUILDING CODE AND AMENDMENTS – CHAPTER 51-50 WAC
2018 INTERNATIONAL MECHANICAL CODE AND AMENDMENTS – CHAPTER 51-52 WAC
2018 INTERNATIONAL FUEL GAS CODE AND AMENDMENTS – CHAPTER 51-52 WAC
2018 INTERNATIONAL ENERGY CONSERVATION CODE (WECC) AND AMENDMENTS – CHAPTER 51-11C & 51-11R WAC
2017 NATIONAL FUEL GAS CODE (NFPA 54) – CHAPTER 51-52 WAC
2018 UNIFORM PLUMBING CODE (UPC) AND AMENDMENTS – CHAPTERS 51-56, 51-57 WAC
2020 NATIONAL ELECTRIC CODE (NFPA 70) – CHAPTER 296-46B WAC
2018 INTERNATIONAL FIRE CODE (IFC) AND AMENDMENTS – CHAPTER 51-54 WAC
THE IFC IS ADOPTED AND AMENDED PER REGULATIONS SET FORTH IN BMC 17.20.

ALLOWABLE AREA (PER IBC TABLE 506.2) (MOST RESTRICTIVE USE):

BASIC AREA ALLOWANCE NS, IIB, (F2) =23000 SF PER FLOOR

ACTUAL AREA =6294 SF

BASIC STORY ALLOWANCE NS, IIB, (F2) =2 STORIES
ACTUAL STORY =1 STORY

BUILDING COMPLIES WITH AREA AND STORIES

OCCUPANT LOADS (IBC 1004.1.2):

OCCUPANT LOAD 200 SF (GROSS) = 6294/200 =31 OCC.

DRAWING SHEET LIST

Sheet List	
Sheet Number	Sheet Name
A1.0	Cover Sheet
A1.1	General Notes
A1.3	Site Plan
A2.0	Floor Plan
A3.0	Elevations
A3.2	Perspective Views
A4.0	Building Section
A5.0	Roof & RCP Plan

STRUCTURAL SHEETS:

SEE STRUCTURAL COVER SHEET

CIVIL SHEETS:

SEE CIVIL COVER SHEET

BUILDING MANUFACTURER:

SEE MANUFACTURER COVER SHEET

PROJECT TEAM

ARCHITECT:

TRC ARCHITECTURE, LLC
ROBERT MATICHUK
PO BOX 1075
BELLINGHAM, WA 98227
p/f: 360.393.3131

BUILDING JURISDICTION:

WHATCOM COUNTY
BUILDING SERVICES
5280 NORTHWEST DR.
BELLINGHAM, WA 98226
360.778.5900

OWNER:

A B C RECYCLING REALTY CORP
2219 RIMLAND DR STE 301
BELLINGHAM, WA 98226-8759

STRUCTURAL ENGINEER:

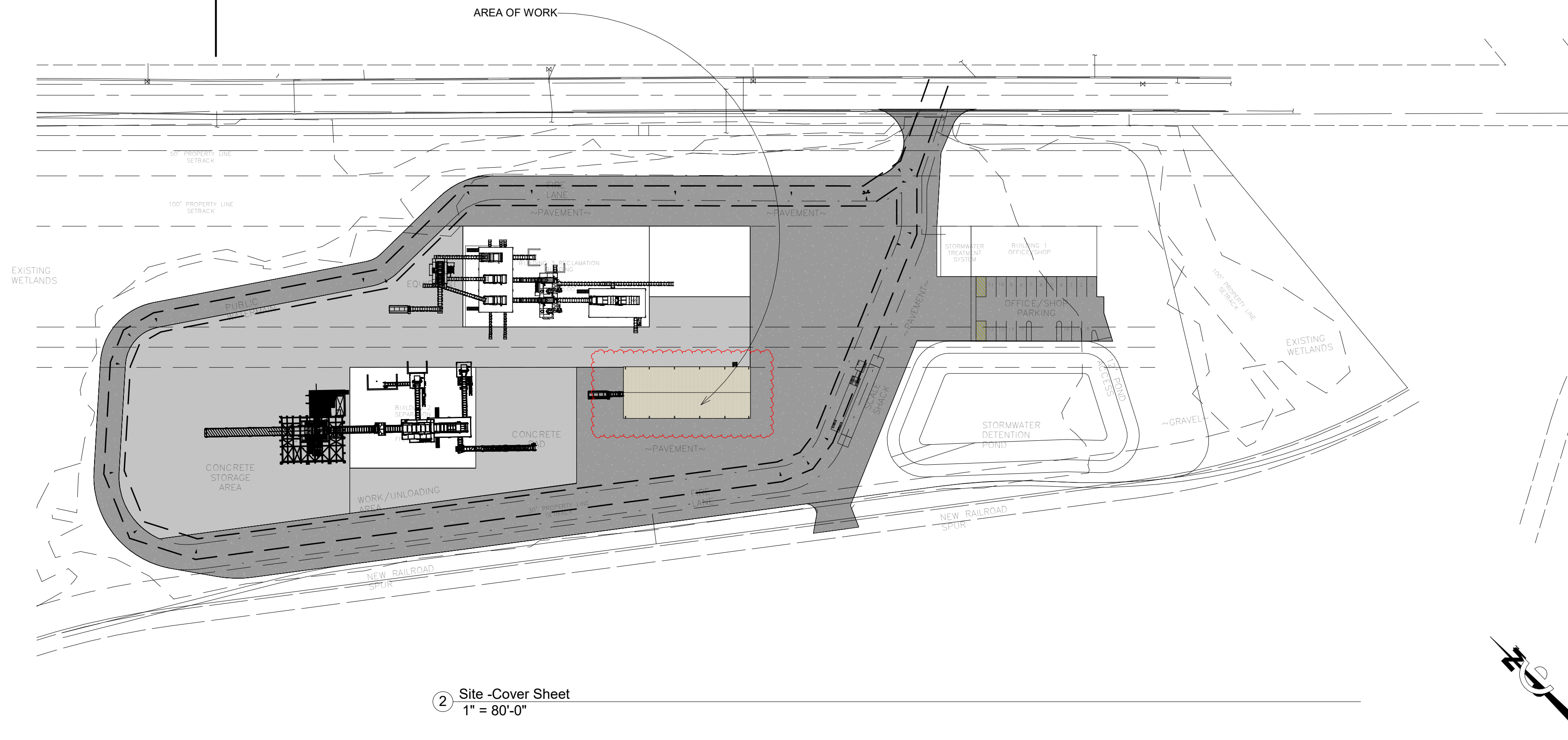
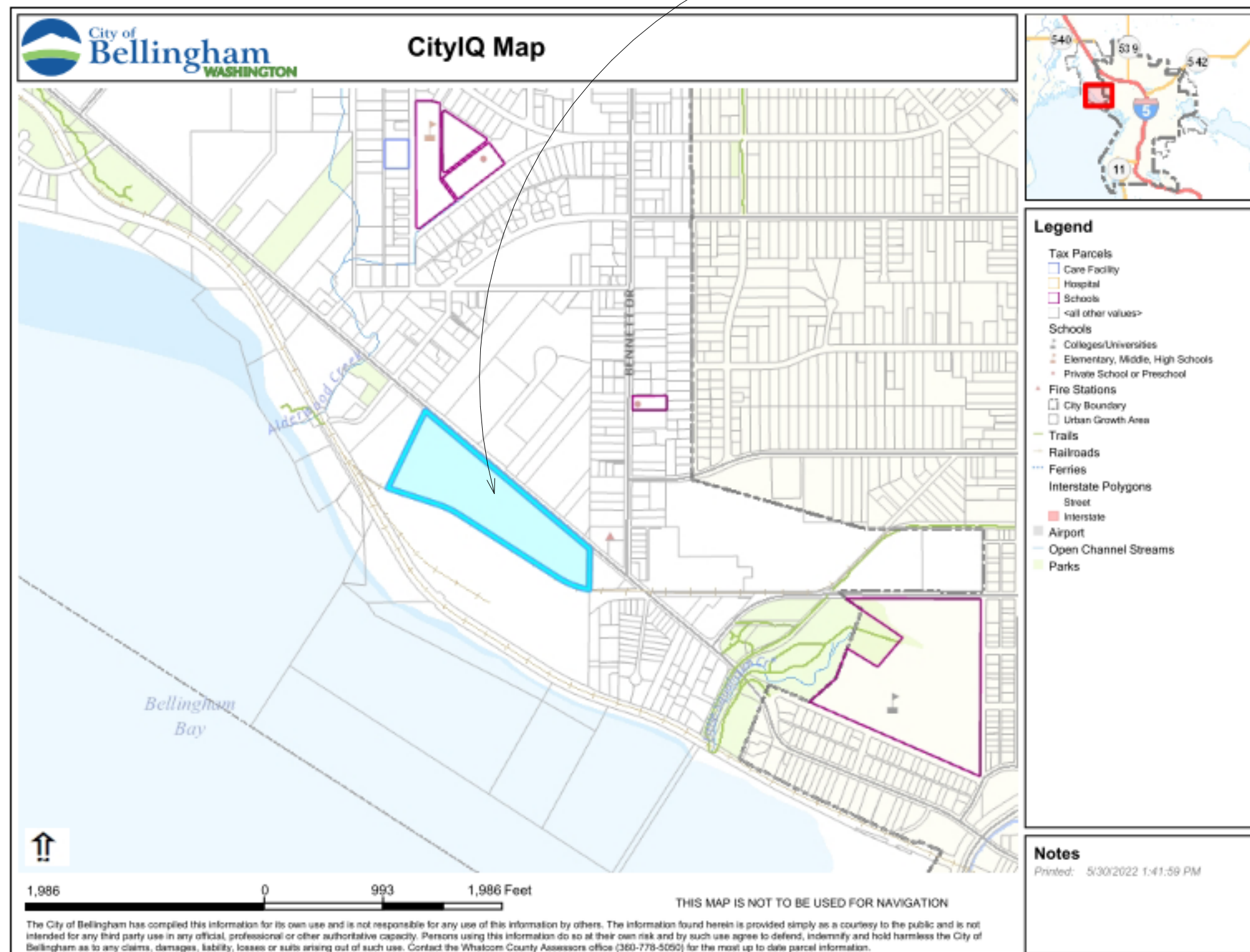
Brandon Hausmann, PE
Principal
Direct: (360) 474-7541
Office: (360) 200-8703 ex 1
203 W. Chestnut St.
Bellingham WA 98225

GENERAL CONTRACTOR:

T.B.D.

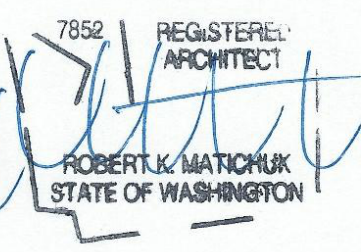
CIVIL ENGINEER:

Scott Goodall, MS, PE
Principal
Impact Design, LLC
5426 Barrett Road, Suite A103
Ferndale, WA 98248
(360) 389-8138
www.bold-impact.com



② Site -Cover Sheet
1" = 80'-0"

I HEREBY CERTIFY THAT THIS DOCUMENT, CONSISTING OF PLANS, DESIGN SPECIFICATIONS, AND CALCULATIONS, WAS PREPARED UNDER MY PERSONAL SUPERVISION AND IN ACCORDANCE WITH THE PROFESSIONAL STANDARDS OF PRACTICE WITHIN THE STATE OF WASHINGTON. ALL IDEAS, DESIGN AND PLANS INDICATED IN THESE DRAWINGS ARE OWNED BY TRC ARCHITECTURE, LLC. ANY REPRODUCTION OF THESE PLANS WITHOUT MY WRITTEN PERMISSION FROM TRC ARCHITECTURE, LLC IS STRICTLY PROHIBITED. I SHALL VERIFY DIMENSIONS IN THE FIELD AND NOTIFY TRC ARCHITECTURE OF ANY VARIATIONS. CONSTRUCTION SHALL CONFORM TO THE CURRENT EDITION OF THE IBC/IRC CODE.



Custom Design For: ABC RECYCLING
 Building 5 Twitch
 741 Marine Dr
 Bellingham WA 98226

Project number	TRC 22-001
Date	Oct 20 2023
Design	RKM
Drawn by:	RKM
Checked by:	RKM
Set Description:	Permit Set

Cover Sheet

A1.0

ABBREVIATIONS	CONSTRUCTION NOTES:	VENTILATION NOTES	GENERAL NOTES:
A ADJ A.F.F. A.F.G.	ADJACENT ABOVE FINISH FLOOR ABOVE FINISH GRADE	1203.1 GENERAL: BUILDINGS SHALL BE PROVIDED WITH NATURAL VENTILATION IN ACCORDANCE WITH SECTION 1203.4, OR MECHANICAL VENTILATION IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE.	1. ALL CONSTRUCTION SHALL COMPLY WITH THE 2018 INTERNATIONAL BUILDING CODE, WASHINGTON STATE REGULATIONS FOR BARRIER FREE DESIGN, WASHINGTON STATE ENERGY CODE, AND ALL APPLICABLE LOCAL CODES, ORDINANCES, AND STANDARDS.
B BLK B.O.	BLOCKING BOTTOM OF	MECHANICAL VENTILATION IS REQUIRED IN GROUP R OCCUPANCIES	2. CONTRACTOR IS TO VERIFY ALL EXISTING CONDITIONS, DIMENSIONAL DETAILS, ETC, AND NOTIFY THE ARCHITECT OF ANY AND ALL DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK.
C CL CLR C.L.G. CONC COL CONT CONST CTR	CENTERLINE CLEAR CEILING CONCRETE COLUMN CONTINUOUS CONSTRUCTION COUNTER	1203.2 ATTIC SPACES: ENCLOSED ATTICS AND ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF FRAMING MEMBERS SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN AND SNOW. BLOCKING AND BRIDGING SHALL BE ARRANGED SO AS NOT TO INTERFERE WITH THE MOVEMENT OF AIR. A MINIMUM OF 1 INCH OF AIRSPACE SHALL BE PROVIDED BETWEEN THE INSULATION AND THE ROOF SHEATHING. THE NET FREE VENTILATING AREA SHALL NOT BE LESS THAN 1/300 OF THE AREA OF THE SPACE VENTILATED, WITH 50 PERCENT OF THE REQUIRED VENTILATING AREA PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED AT LEAST 3 FEET ABOVE EAVE OR CORNICE VENTS WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS.	3. ALL ITEMS MARKED "N.I.C." ARE NOT PART OF THIS CONTACT.
D DTL DIM DWG	DETAIL DIMENSION DRAWING		4. ALL WORK SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S LATEST RECOMMENDED OR WRITTEN INSTRUCTIONS.
E ELEC EQ EXSTG ENG	ELECTRICAL EQUAL EXISTING ENGINEER		5. DO NOT SCALE DRAWINGS, DIMENSIONS GOVERN. THE CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF ANY AND ALL DISCREPANCIES.
F F.F. F.C.I.C F.O.I.C F.O.I.O.	FINISH FLOOR FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR FURNISHED BY OWNER INSTALLED BY CONTRACTOR FURNISHED BY OWNER		6. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE SAFETY OF THE OCCUPANTS AND WORKERS AT ALL TIMES.
F.R. F.E. FBGL F.O.W.	FIRE RESISTANT FIRE EXTINGUISHER FIBERGLASS FACE OF WALL		7. WINDOW CONSTRUCTION DETAILS ARE NOT SHOWN OR NOTED FOR ANY PART OF THE WORK, THE DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.
G GA G.C. GLAM GYBPB	GAUGE GENERAL CONTRACTOR GLUE LAMINATE GYPSUM WALL BOARD		8. WHERE DEVICES, OR ITEMS OR PARTS THEREOF ARE REFERRED TO IN SINGULAR, IT IS INTENDED THAT SUCH SHALL APPLY TO AS MANY SUCH DEVICES, ITEMS OR PARTS AS ARE REQUIRED TO PROPERLY COMPLETE THE WORK.
H HDWR HDR H.M. HGT	HARDWARE HEADER HOLLOW METAL HEIGHT		9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT AND TO PROTECT THEM FROM DAMAGE.
I INST. INSUL.	INSTALL / INSTALLED INSULATION		10. THE CONTRACTOR WILL VERIFY AND CONFORM TO ALL REQUIREMENTS OF ALL UTILITY COMPANIES UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS.
M MAT MECH MLV MIN.	MATERIAL MECHANICAL MICRO LAMINATE WOOD MINIMUM		11. EXISTING ELEVATIONS AND LOCATIONS TO BE JOINED SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION.
N N/A N.I.C. N.T.S.	NOT APPLICABLE NOT IN CONTRACT NOT TO SCALE		12. THE CONTRACTOR SHALL SECURE RELEVANT CITY AND STATE APPROVALS RELATING TO FIRE CONSTRUCTION, LABOR, HEALTH AND LICENSING.
P PL PLYWD P-LAM PT	PLATE LINE PLYWOOD PARALLEL LAMINATE WOOD PRESSURE TREATED		13. CONTRACTOR SHALL SECURE AND PROVIDE ALL PERMITS FOR OCCUPANCY, UTILITIES AND ANY OTHERS REQUIRED BY GOVERNMENT AUTHORITIES BEYOND THE BASIC BUILDING PERMIT. MAKING TIMELY APPLICATIONS AND INQUIRES, PAYING ALL FEES AND POSTING ALL BONDS TO BE RELEASED AT FT COMPLETION OF CONSTRUCTION.
R REQ'D REV.	REQUIRED REVISION/REVISED		14. CONTRACTOR SHALL PROVIDE DRAWINGS, SHOP DRAWINGS AND CALCULATIONS AS REQUIRED FOR OWNER APPROVAL AND PERMITTING OF THE FIRE ALARM / MONITORING SYSTEM, AND ALL OTHER SYSTEMS REQUIRING BIDDER DESIGN. SUCH REVIEW AND APPROVAL SHALL BE BY THE OWNER. ALLOW A MINIMUM OF TWO WEEKS FOR REVIEW.
S SCHD SIM S.O.G. SQ.FT. SUSP.	SCHEDULE SIMILAR SLAB ON GRADE SQUARE FOOT SUSPENDED		15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE BUILDING AND SITE WHILE JOB IS IN PROGRESS AND UNTIL THE JOB IS COMPLETED.
T TEMP TYP T.O.	TEMPERED TYPICAL TOP OF		16. LATHING, PLASTER, AND GYPSUM WALL BOARD SYSTEMS SHALL CONFORM TO THE 2015 INTERNATIONAL BUILDING CODE.
V V.I.F.	VERIFY IN FIELD		17. ALL EXPOSED GYPSUM BOARD TO HAVE METAL EDGES AT ALL CORNERS AND WALL INTERSECTIONS.
			18. ALL GLASS AND GLAZING SHALL COMPLY WITH SECTION 24 OF THE 2015 IBC, AND THE U.S. PRODUCT SAFETY COMMISSION, SAFETY STANDARD FOR ARCHITECTURAL GLAZING MATERIALS (42 FR 1426; 16 CFR PART 1202)
			19. THE CONTRACTOR SHALL VERIFY ALL DOOR AND WINDOW ROUGH OPENING DIMENSIONS WITH DOOR AND WINDOW MANUFACTURERS.
			20. ALL REQUIRED FIRE DOORS SHALL BEAR A LABEL FROM A RECOGNIZED AGENCY SHOWING THE SPECIFIC RATING.
			21. ELECTRICAL ROUGH-IN, AND REFLECTED CEILING PLAN ARE FOR THE GENERAL INFORMATION OF THE CONTRACTOR. EXACT LOCATIONS SHALL BE VERIFIED.
			22. EXIT DOOR SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
			23. PROVIDE PORTABLE FIRE EXTINGUISHER, EACH HAVING A MINIMUM UL CLASSIFICATION OF 2A-10B-C. EXTINGUISHER SHALL BE DISTRIBUTED THROUGHOUT PREMISES ON THE BASIS OF ONE EXTINGUISHER PER EACH 3,000 FEET OF FLOOR AREA. ALL EXTINGUISHERS SHALL BE HUNG IN CONSPICUOUS LOCATIONS SO THAT THEIR TOPS ARE NOT MORE THAN FIVE FEET A.F.F. WHERE EXTINGUISHERS ARE NOT VISIBLE IN ALL DIRECTIONS PROVIDE APPROVED INDICATING SIGNS.
			24. SOUND INSULATE ALL PLUMBING WALLS AND LINES.
			25. PROVIDE BLOCKING IN ALL WALLS TO SUPPORT CABINetry, SHELving, BATHROOM FIXTURES, DISPLAY RAILS AND ALL OTHER EQUIPMENT OR IMPROVEMENTS AS REQUIRED.
			26. THE PREMISES ADDRESS SHALL BE PROMINENTLY DISPLAYED ON OR ADJACENT TO THE MAIN ENTRANCE. NUMBERS SHALL BE A MINIMUM 8 INCHES IN HEIGHT WITH A PRINCIPAL STROKE WIDTH OF 3/4" AND SHALL PROVIDE A POSITIVE CONTRAST WITH THEIR BACKGROUND.
			27. APPROVED PLANS AND CALCULATIONS, SIGNED, SEALED AND DATED SHALL BE ON SITE AT ALL TIMES OF INSPECTION AND CONSTRUCTION.
			28. AT ALL TUB/SHOWER LOCATIONS, WALL COVERINGS SHALL BE PLASTIC OR LAMINATE TO A MINIMUM 70 INCHES ABOVE DRAIN.
			29. ALL SMOKE DETECTORS TO BE HARD WIRED WITH APPROVED BATTERY BACK-UPS ALL GAS APPLIANCES SHALL HAVE AN INTERMITTENT IGNITION DEVICE.
			30. FLASH AND COUNTER FLASH ALL ROOF TO WALL CONNECTIONS. U.N.O.
			31. WATERPROOF MATERIAL SHALL BE INSTALLED AROUND TUBS AND SHOWERS TO A MIN. HEIGHT OF SIX FEET ABOVE FINISH FLOOR.
			32. DRYERS SHALL BE VENTED TO OUTSIDE. PER LOCAL CODE.
			33. DRYERS SHALL BE VENTED TO OUTSIDE. PER LOCAL CODE.

FRAMING (STRUCTURAL NOTES TO TAKE PRIORITY)

- THIS STRUCTURE TO COMPLY WITH MINIMUM NAILING SCHEDULE PER ENG. CALCS. OR IBC TABLE 2304.6.1.
- SOLID BLOCKING REQUIRED AT ALL BEARING POINTS OF FLOOR, CEILING & ROOF SYSTEMS.
- PROVIDE APPROVED ANCHORAGE OF BEAMS OR GIRDEERS TO POSTS.
- T.J.I. OR EQUIVALENT FLOOR JOISTS. FLOOR JOIST DESIGN BY LICENSED WASH. STATE MANUFACTURER. FLOOR JOIST DESIGN AND SPECIFICATIONS INCLUDING ALL METAL CONNECTORS. HANGERS AND CLIPS TO BE ON-SITE DURING CONSTRUCTION AND INSTALLED AS PER MANF. INSTRUCTIONS.
- ALL WINDOW AND DOOR HEADERS TO BE 4x10 DF-2 IN A ONE-FLOOR OR THE TOP FLOOR OF A MULTI-FLOOR BLD. 6x10 FOR BASEMENTS AND OTHER FLOORS OTHER THAN THE TOP FLOOR. UNLESS NOTED OTHERWISE BY ENGINEER OF RECORD.
- FRAMING LUMBER: KD, 19% MAX MOISTURE CONTENT, S4S GRADE TO W/WPA, AND IRC SPECIFICATIONS. DOUGLAS FIR-LARCH: MINIMUM GRADED STRUSS VALUES: 2x STUDS @ 1200 PSI, JOISTS AND RAFTERS @ 1250 PSI, POSTS A 700 PSI, SAWN BEAMS @ 1300 PSI. NOMINAL SIZES, MAXIMUM SPANS, SPACING, BLOCKING AND OTHER DETAILING IN COMPLIANCE WITH INTERNATIONAL BUILDING CODE.
- PRESSURE TREATED LUMBER: WOLMANIZED, CCA PRESSURE TREATED LUMBER AT MUD SILLS, EXPOSED DECK FRAMING, EXTERIOR STRUCTURAL POSTS, POSTS SUPPORTING MAIN FLOOR STRUCTURE, AND OTHER WOOD / CONCRETE CONTACT LOCATIONS.
- ROOF TRUSSES: FACTORY FABRICATED GANG-NAILED WOOD TRUSSES, ENGINEERED BY MFR. FOR SITE WIND LOADING AND COMBINED NORMAL LOADS SPANS AND CONFIGURATIONS AS SHOWN ON DRAWINGS AND AS REQUIRED.
- GLUE LAMINATED BEAMS (GLB): DOUGLAS FIR, 24F-V4, BUILDING DESIGN RURAL APPEARANCE (ONLY IF EXPOSED) GRADE LEAVE PROTECTIVE WRAP IN PLACE UNTIL FINISH PROCESSES ARE UNDERWAY.
- ANCHORS: SIMPSON PLY CLIPS AT EELS, ROOF SHEATHING PANELS, MID-SPAN BETWEEN RAFTERS OR TRUSSES; TRUSS/PLATE HOLD DOWNS AT EACH BEARING AND OTHER INTERSECTION AS REQUIRED.
- STUDS: EXTERIOR WALL STUDS ARE TO BE 2"x6"s OF B FIR KILN DRIED SPACED AT 16" O.C. INTERIOR STUDS ARE TO BE 2"x4"s OF B FIR KILN DRIED SPACED AT 16" O.C. STUDS IN BEARING WALLS ARE LIMITED TO 10 FEET IN HEIGHT UNLESS APPROVED BY ENGINEER.

STAIRS:

- IBC 1005 & 1011
- IBC 1011.2 STAIRWAY WIDTH. THE WIDTH OF THE STAIRWAYS SHALL BE DETERMINED AS SPECIFIED IN SECTION 1005.1, BUT SUCH WIDTH SHALL NOT BE LESS THAN 44 INCHES. EXCEPTION: STAIRWAYS SERVING AN OCCUPANT LOAD OF LESS THAN 50 SHALL HAVE A WIDTH OF NOT LESS THAN 36 INCHES.
- IBC 1011.3 HEADROOM. STAIRWAYS SHALL HAVE A MINIMUM HEADROOM CLEARANCE OF 80 INCHES MEASURED VERTICALLY FROM A LINE CONNECTING THE EDGE OF THE NOSINGS. SUCH HEADROOM SHALL BE CONTINUOUS ABOVE THE STAIRWAY TO THE POINT WHERE THE LINE INTERSECTS THE LANDING BELOW, ONE TREAD DEPTH BEYOND THE BOTTOM RISER. THE MINIMUM CLEARANCE SHALL BE MAINTAINED THE FULL WIDTH OF THE STAIRWAY AND LANDING.
- IBC 1011.5.2 RISER HEIGHT AND TREAD DEPTH. STAIR RISER HEIGHTS SHALL BE 7 INCHES MAXIMUM AND 4 INCHES MINIMUM. THE RISER HEIGHT SHALL BE MEASURED VERTICALLY BETWEEN THE LEADING EDGES OF ADJACENT TREADS. RECTANGULAR TREAD DEPTHS SHALL BE 11 INCHES MINIMUM MEASURED HORIZONTALLY BETWEEN THE VERTICAL PLANES OF THE FOREMOST PROJECTION OF ADJACENT TREADS AND AT A RIGHT ANGLE TO THE TREAD'S LEADING EDGE. WINDER TREADS SHALL HAVE A MINIMUM TREAD DEPTH OF 11 INCHES MEASURED BETWEEN THE VERTICAL PLANES OF THE FOREMOST PROJECTION OF ADJACENT TREADS AT THE INTERSECTIONS WITH THE WALKLINE AND A MINIMUM TREAD DEPTH OF 10 INCHES WITHIN THE CLEAR WIDTH OF THE STAIR.

DECKS:

- WOOD DECK CONSTRUCTION SHALL BE OF WOLMANIZED / PRESSURE TREATED WOOD. DECKING (SEE PLANS) DECK RAILINGS (REQUIRED IF DECK IS 30" ABOVE GRADE) SHALL BE A MINIMUM OF 42" IN HEIGHT WITH A MAXIMUM OF 4" SPACING BETWEEN PICKETS. PER IBC 1015.
- METAL OR BOLT ON DECK CONSTRUCTION SHALL BE A DEFERRED SUBMITTAL IN ALL CASES.

DISCLOSURE:

- THE PLAN REVIEW GUIDE INCLUDED WITH YOUR PERMIT DOCUMENTS CONTAINS A LISTING OF COMMON CODE ERRORS AND OMISSIONS. APPROVAL OF THE PLANS DOES NOT PERMIT THE VIOLATION OF ANY BUILDING, MECHANICAL, PLUMBING, ELECTRICAL, FIRE, OR ZONING CODE OR ANY OTHER FEDERAL, STATE, OR CITY REGULATIONS.
- CONTRACTOR TO VERIFY LOCATIONS OF EXISTING SMOKE DETECTORS. ENSURE FULL COMPLIANCE WITH CURRENT FIRE CODE.
- CONTRACTOR IS TO SECURE BUILDING SITE/LOCATION. VERIFY STRUCTURAL AND NON-STRUCTURAL COMPONENTS PRIOR TO COMMENCING CONSTRUCTION.
- DO NOT SCALE THESE DRAWINGS. DISCREPANCIES WITH PROVIDED DIMENSIONS MUST BE COMMUNICATED TO THE DESIGN FIRM AT THE EARLIEST CONVENIENCE.
- TRC ARCHITECTURE (DESIGN FIRM) IS NOT RESPONSIBLE FOR EXISTING SITE CONDITIONS, DIMENSIONS, COMPLIANT OR NON-COMPLIANT CODE ISSUES, ETC.
- ALL MARKUPS BY THE BUILDING / PLANNING DEPARTMENTS MUST BE FORWARD TO THE DESIGN FIRM PRIOR TO CONSTRUCTION COMMENCING.

EARTHWORK NOTES

- BUILDING BACKFILL: CLEAN GRANULAR SOIL MATERIAL, FREE OF STICKS, DEBRIS, TURF AND ROCKS OVER 6" DIAMETER.
- GARAGE SLAB BALLAST: PIT RUN GRAVEL.
- BASEMENT SLAB BALLAST: CLEAN SAND, OR PEA GRAVEL (8" BED).
- FOOTING DRAINS: WASHED (3/4" MIN.) DRAIN ROCK, 12" MIN. COVER OVER PERIMETER DRAIN.
- CRAWL SPACE BED: PEA GRAVEL OR CLEAN SAND, 2" MIN. BED OVER VAPOR
- 6 MIL BLACK VISQUELEN BARRIER (FOR CRAWL SURFACE).
- BACKFILL: SLOPE ALL FINISH GRADES AWAY FROM BUILDING WALLS AT A 2% (MIN.)
- REFER TO SOILS REPORT FOR RECOMMENDED BACK FILL AND SOIL COMPACTION.

SEWERAGE + DRAINAGE:

- FOUNDATION DRAIN PER IBC 1805.4.2.
- RAINAGE DISCHARGE TO AN APPROVED DRAINAGE SYSTEM PER IBC 1805.4.3.

ROOF CONSTRUCTION NOTES

GENERAL:

- APPROVED ROOFING MATERIAL
- 30# FELT PAPER, COUNTER FLASHED
- 1/2" CDX PLYWOOD SHEATHING OR PER ENGINEER'S SCHEDULE, USE SIMPSON P/SL (PANEL SHEATHING CLIPS) 1 PER BAY.
- PRE-ENGINEERED TRUSSES
- R-49 INSULATION, MINIMUM.
- 2 LAYERS OF 5/8" TYPE X G.W.B. LID.
- ONE COAT VAPOR BARRIER PRIMER.
- FINISH PAINT - OWNER TO SPECIFY COLOR.
- ROOF PITCH, AS SHOWN ON PLAN.
- SIMPSON CLIPS AT EACH TRUSS/RAFTER TO PLATE CONNECTION.
- TYPICAL SOFFIT OVERHANGS, AS SHOWN ON PLAN. USE VENTED BLOCKING PER TRUSS/RAFTER BAY.
- ADEQUATE CONNECTION AND TRANSFER OF LOAD FROM ROOF SYSTEM TO BEARING WALLS REQUIRED.
- DRAFT STOPS WHERE NECESSARY PER CODE.
- ALL PERIMETER AND BEARING WALL HEADERS TO BE 4x10 DF#2, U.N.O.

TRUSSES:

- TRUSSES TO BE ENGINEERED BY LICENSED TRUSS MANUFACTURER.
- HANG TRUSSES AND RAFTERS WITH APPROVED SIMPSON HANGERS AS PER ENGINEERS SPECIFICATIONS.

FOR ADDITIONAL INFORMATION REFER TO 2015 IBC, SECTION 15, ROOF ASSEMBLIES & ROOFTOP STRUCTURES.

TYPICAL SHEET DISCLAIMER

REFER TO STRUCTURAL SHEETS (S) FOR SPECIFICATIONS & CALCULATIONS. USE ARCHITECTURAL SHEET FOR DIMENSIONAL INFORMATION ONLY.

STRUCTURAL FILL NOTES

STRUCTURAL FILL ADDED TO THIS SITE WHICH WILL SUPPORT BUILDING STRUCTURES SHALL BE APPROVED BY A GEO-TECHNICAL ENGINEER LICENSED TO WORK IN THE STATE OF WASHINGTON. A REPORT FROM SAID ENGINEER REGARDING THE SUITABILITY OF THE PREPARED SITE TO SUPPORT THE PROPOSED STRUCTURE SHALL BE SUBMITTED TO BUILDING SERVICES PRIOR TO ANY REQUESTS FOR FOUNDATION INSPECTION(S).

NOTES:

- CONTRACTOR IS TO VERIFY STRUCTURAL INFORMATION, SPECIFICATIONS AND DETAILS WITH THE STRUCTURAL ENGINEER AND/OR ATTACHED STRUCTURAL SHEET(S). FAILURE TO VERIFY MAY RESULT IN CONFLICTING INFORMATION CONTAINED ON THE ARCHITECTURAL SHEETS. THE DESIGNER DOES NOT TAKE RESPONSIBILITY FOR STRUCTURAL COMPONENTS OR CALCULATIONS.
- REFER TO STRUCTURAL SHEETS (S) FOR SPECIFICATIONS & CALCULATIONS.
- A GEO ENGINEER IS REQUIRED TO BE ONSITE FOR PLACEMENT OF ALL STRUCTURAL FILL MATERIALS.

FIRE RATED PENETRATIONS

AS PER UL LISTED SYSTEM NO. F-C-2134, USE APPROVED 3M FIRE BARRIER CP 25WB+ CAULK OR DF 150+ CAULK FOR ALL THROUGH FLOOR-WALL-CEILING PENETRATIONS. NOT TO EXCEED 1/2" DIAMETER BEAD CONTINUOUSLY AROUND PIPE.

FIRE BLOCKING NOTES

- 718.1 General.** Fireblocking and draftstopping shall be installed in combustible concealed locations in accordance with this section. Fireblocking shall comply with Section 718.2. Draftstopping in floor/ceiling spaces and attic spaces shall comply with Sections 718.3 and 718.4, respectively.
- 718.2 Fireblocking.** In combustible construction, Fireblocking shall be installed to cut off concealed draft openings (both vertical and horizontal) and shall form an effective barrier between floors, between a top story and a roof or attic space. Fireblocking shall be installed in the locations specified in Sections 718.2.2 through 718.2.7.
- 718.2.2 Concealed wall spaces.** Fireblocking shall be provided in concealed spaces of stud walls and partitions, including furred spaces, and parallel rows of studs or staggered studs, as follows:
- Vertically at the ceiling and floor levels.
 - Horizontally at intervals not exceeding 10 feet (3048 mm).
- 718.2.5 Ceiling and floor openings.** Where required by Section 712.1.7, Exception 1 of Section 714.4.1.2 or Section 714.4.2, fireblocking of the annular space around vents, pipes, ducts, chimneys and fireplaces at ceilings and floor levels shall be installed with a material specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and resist the free passage of flame and the products of combustion.

* REFER TO IBC CODE TEXT FOR MORE DETAILED INFORMATION REGARDING FIREBLOCKING

DRAFTSTOP NOTES

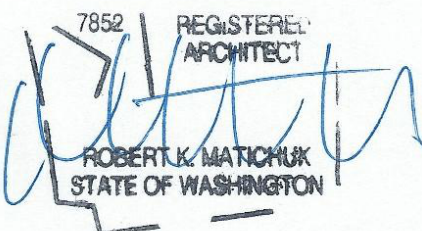
- 718.3 Draftstopping in floors.** In combustible construction, draftstopping shall be installed to subdivide floor/ceiling assemblies in the locations prescribed in Sections 718.3.2 through 718.3.3.
- 718.3.2 Groups R-1, R-2, R-3 and R-4.** Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more dwelling units, in Group R-3 buildings with two dwelling units and in Group R-4 buildings. Draftstopping shall be located above and in line with the dwelling unit and sleeping unit separations.
- Exceptions:
- Draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
 - Draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.2, provided that automatic sprinklers are also installed in the combustible concealed spaces where the draftstopping is being omitted.
- 718.4 Draftstopping in attics.** In combustible construction, draftstopping shall be installed to subdivide attic spaces and concealed roof spaces in the locations prescribed in Sections 718.4.2 and
- 718.4.2 Groups R-1 and R-2.** Draftstopping shall be provided in attics, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more dwelling units and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, sleeping unit and dwelling unit separation walls that do not extend to the underside of the roof sheathing above.
- Exceptions:
- Where corridor walls provide a sleeping unit or dwelling unit separation, draftstopping shall only be required above one of the corridor walls.
 - Draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
 - In occupancies in Group R-2 that do not exceed four stories above grade plane, the attic space shall be subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m²) or above every two dwelling units, whichever is smaller.
 - Draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.2, provided that automatic sprinklers are also installed in the combustible concealed space where the draftstopping is being omitted.

* REFER TO IBC CODE TEXT FOR MORE DETAILED INFORMATION REGARDING FIREBLOCKING

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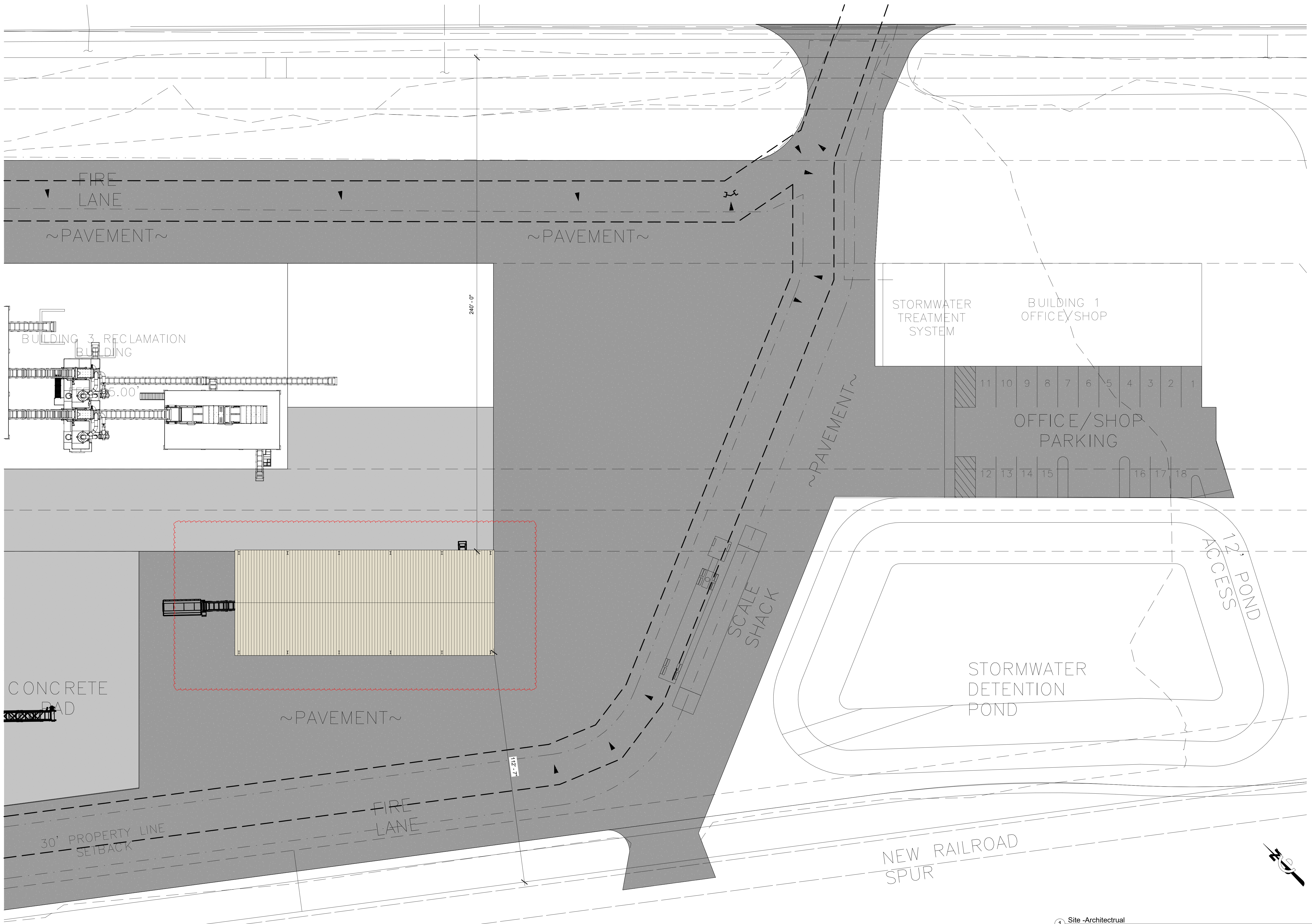


Custom Design For: ABC RECYCLING
Building 5 Twitch
741 Marine Dr
Bellingham WA 98226

Project number	TRC 22-2001
Date	Oct 20 2023
Design	RKM
Drawn by:	RKM
Checked by:	RKM
Set Description:	
Permit Set	

General Notes

A1.1



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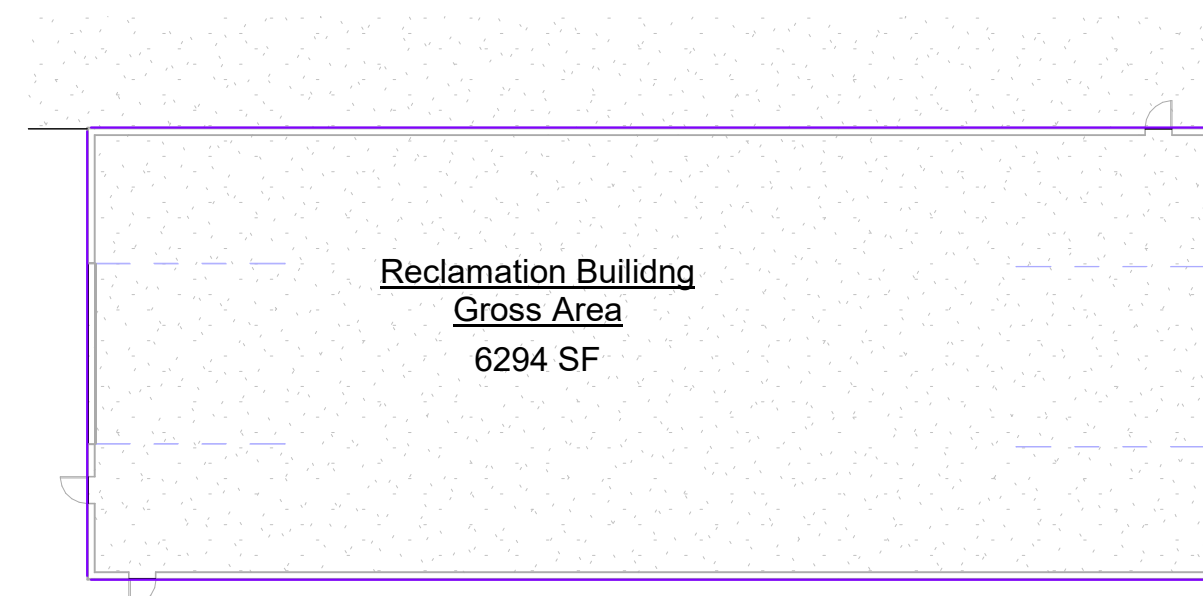
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 STATE OF WASHINGTON

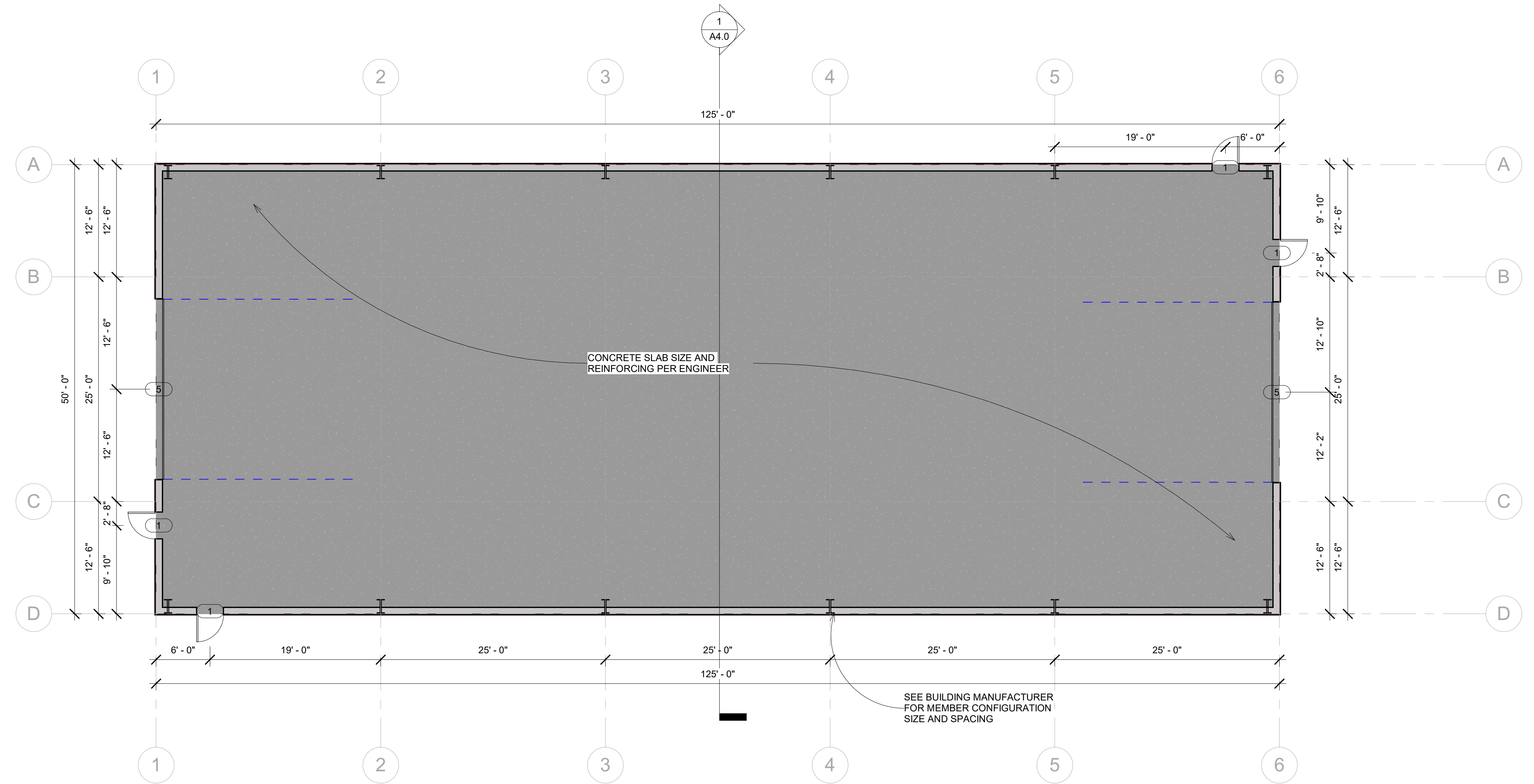
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Project number	TRC 22-001
Date	Oct 20 2023
Design	RKM
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Set Description:	Permit Set

Site Plan
A1.3



② Main Floor
3/64" = 1'-0"

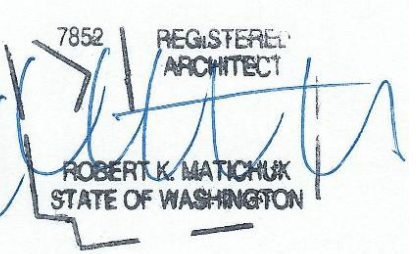


① Main Floor Plan
1/8" = 1'-0"

Door Schedule				
Door Type	Count	Function	Door Size	Type Comments
1	4	Exterior	3/0 7/0 Flush Steel	Insulated metal door and frame, key pad exterior lock, ADA lever latches required
5	2	Exterior	20' x 20' Overhead	W/Locking Pull Chain
Grand total: 6				

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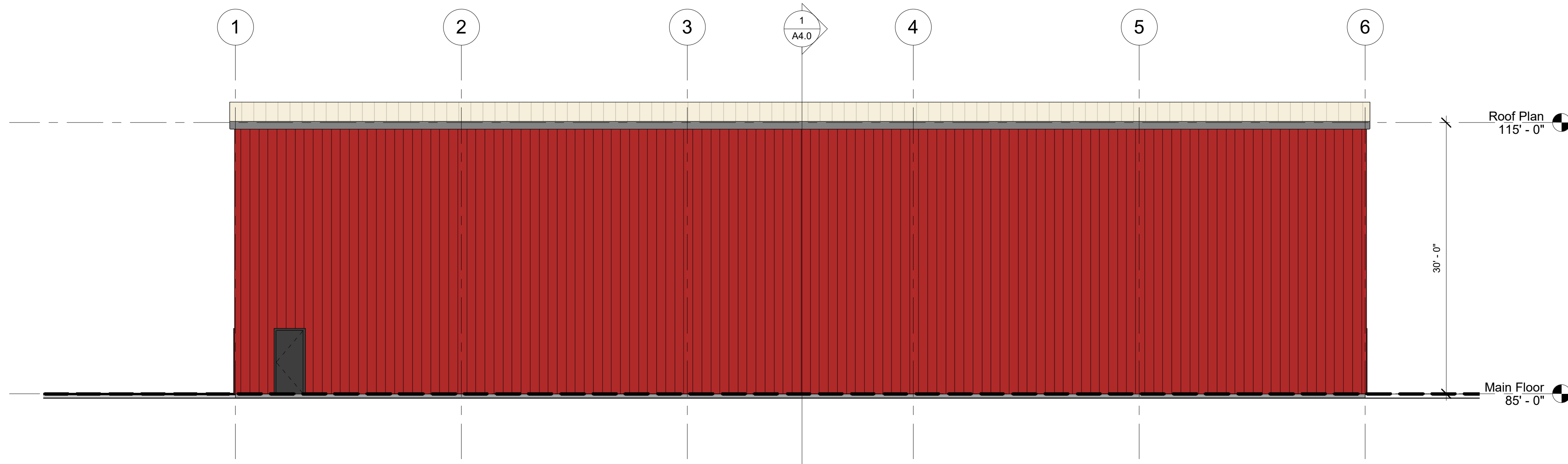
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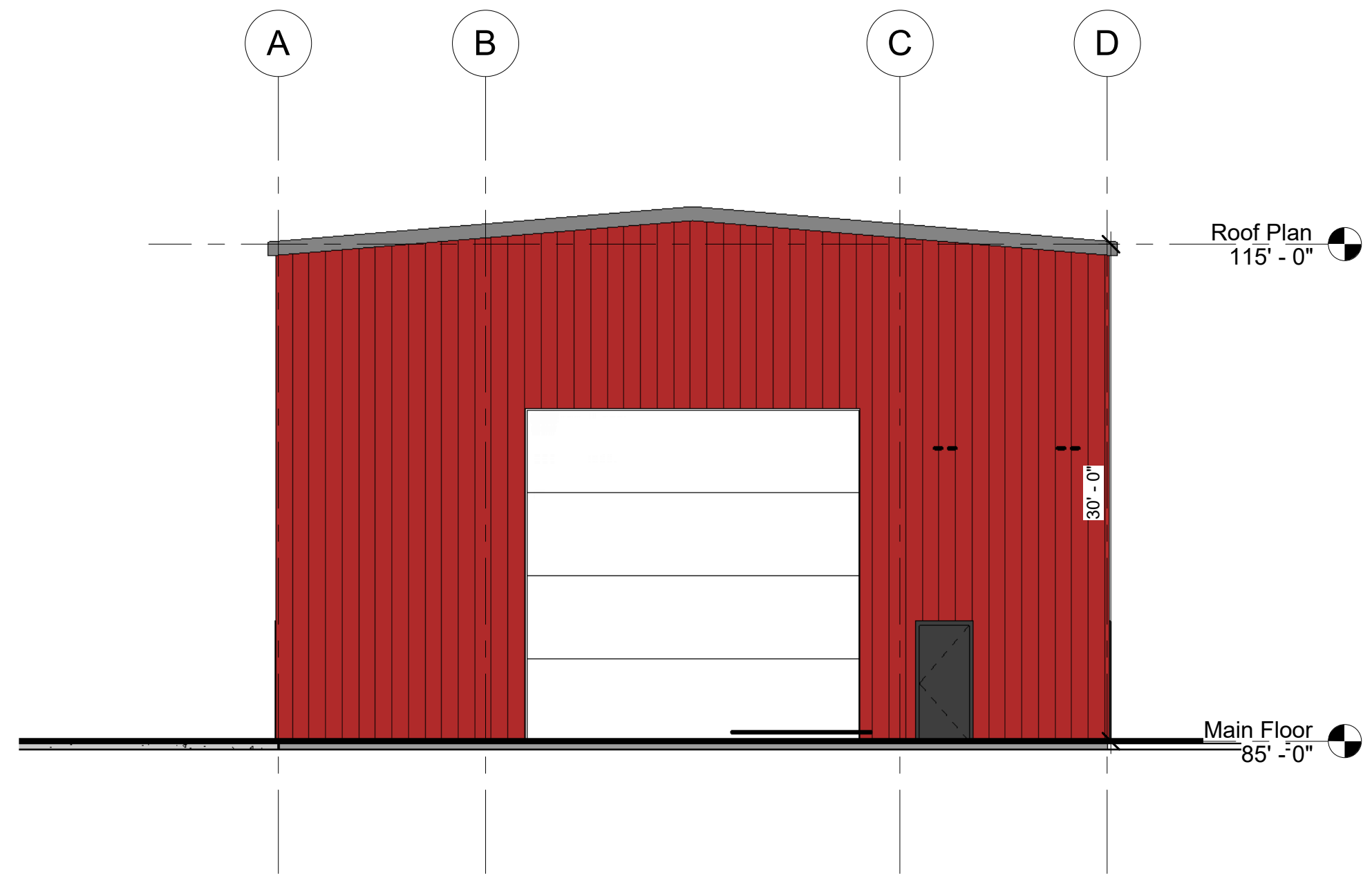
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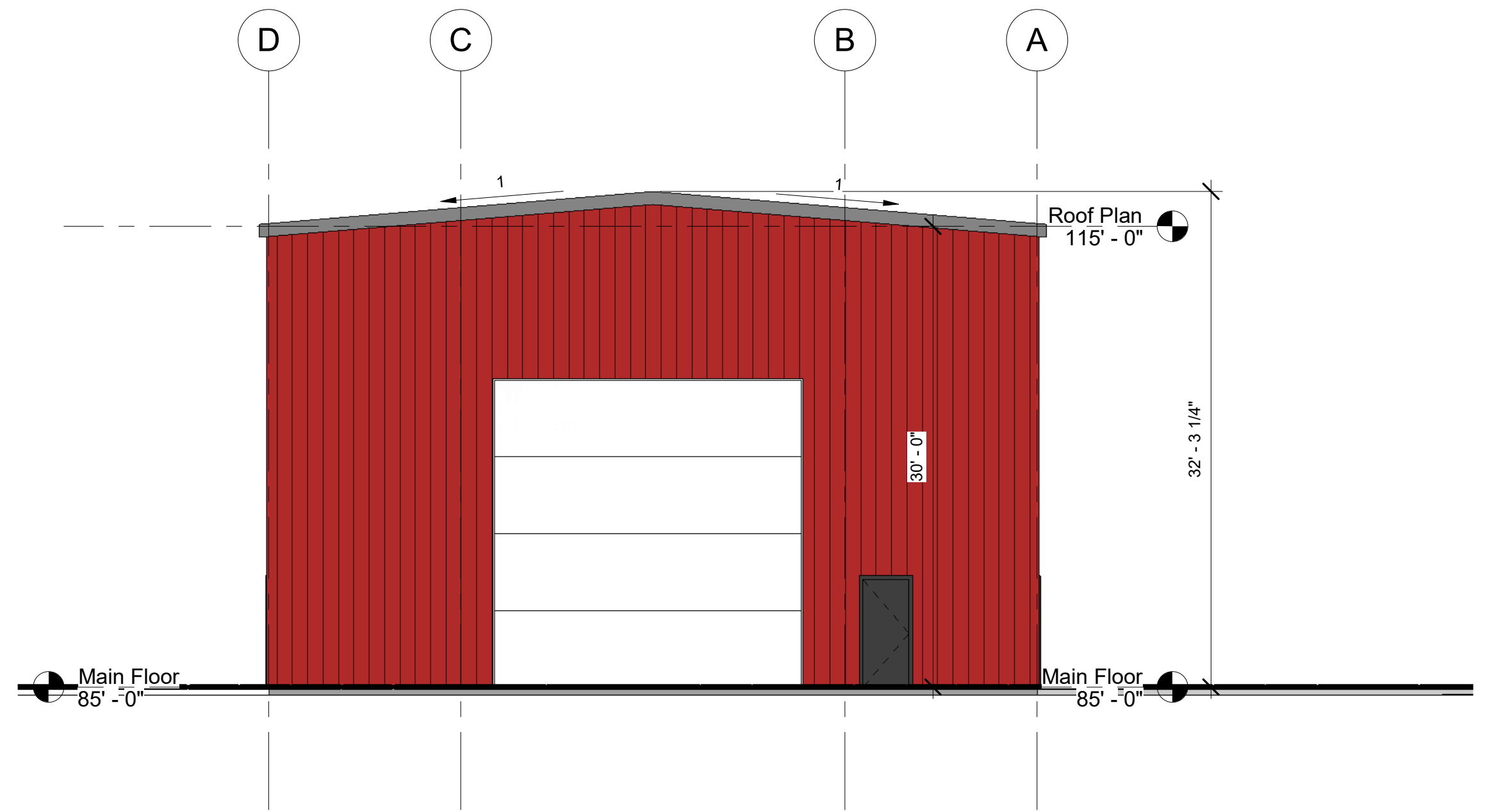
Floor Plan
A2.0



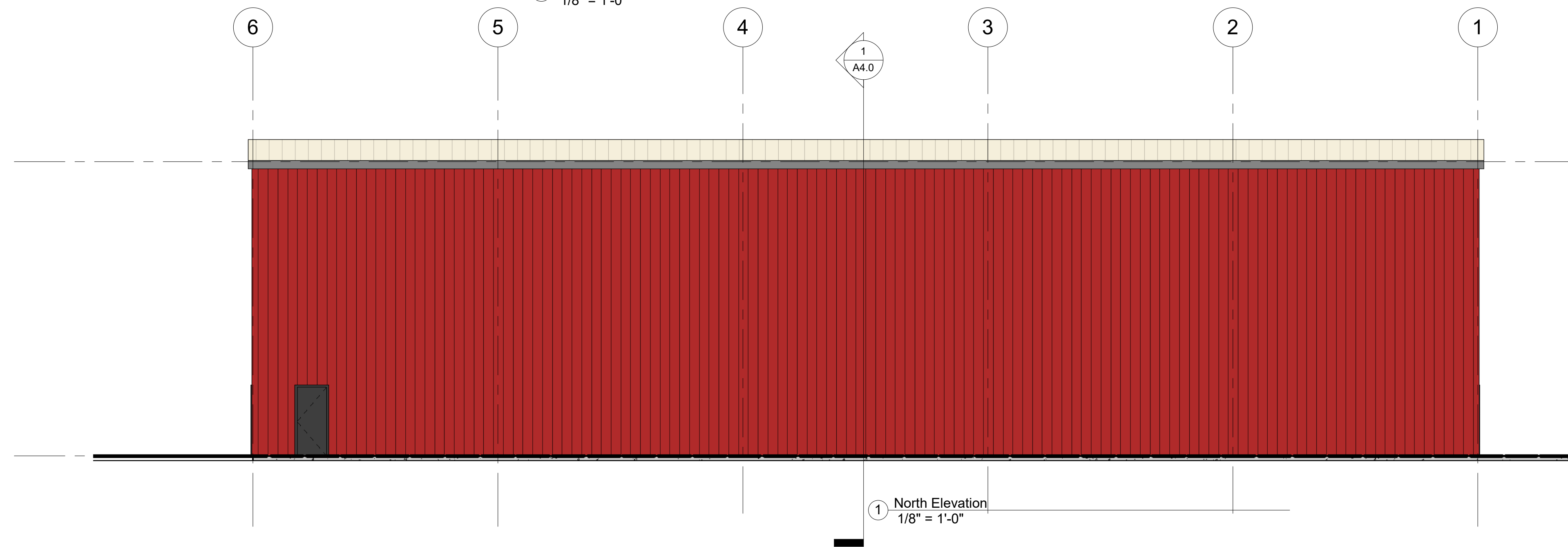
4 South Elevation
1/8" = 1'-0"



2 West Elevation
1/8" = 1'-0"



3 East Elevation
1/8" = 1'-0"



1 North Elevation
1/8" = 1'-0"

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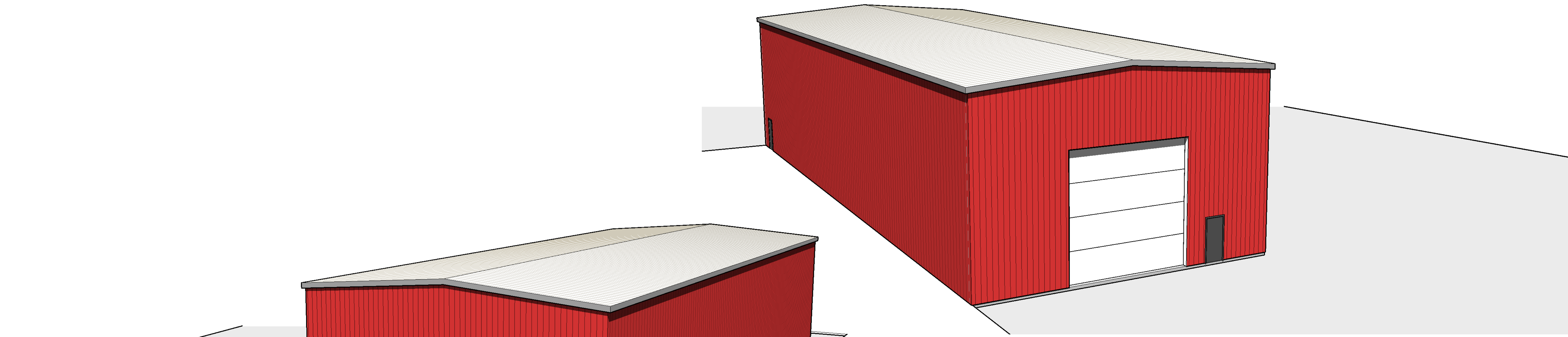
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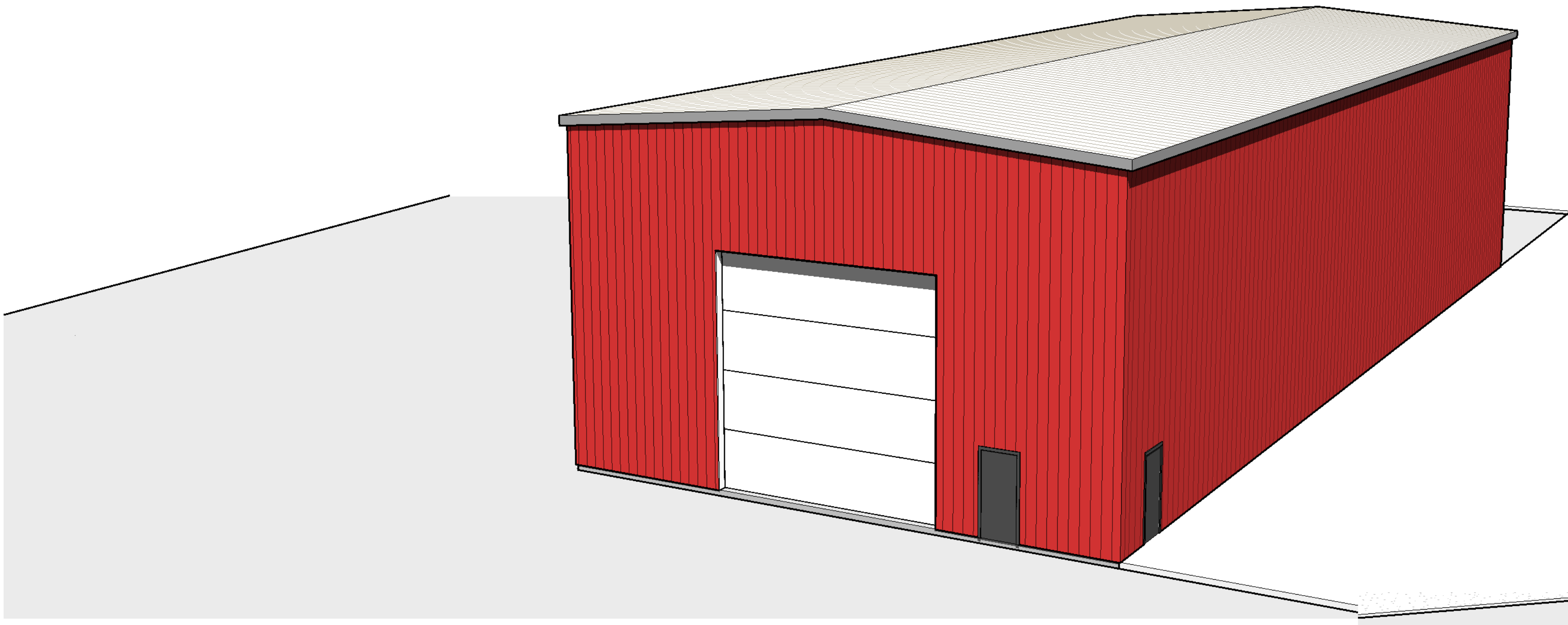
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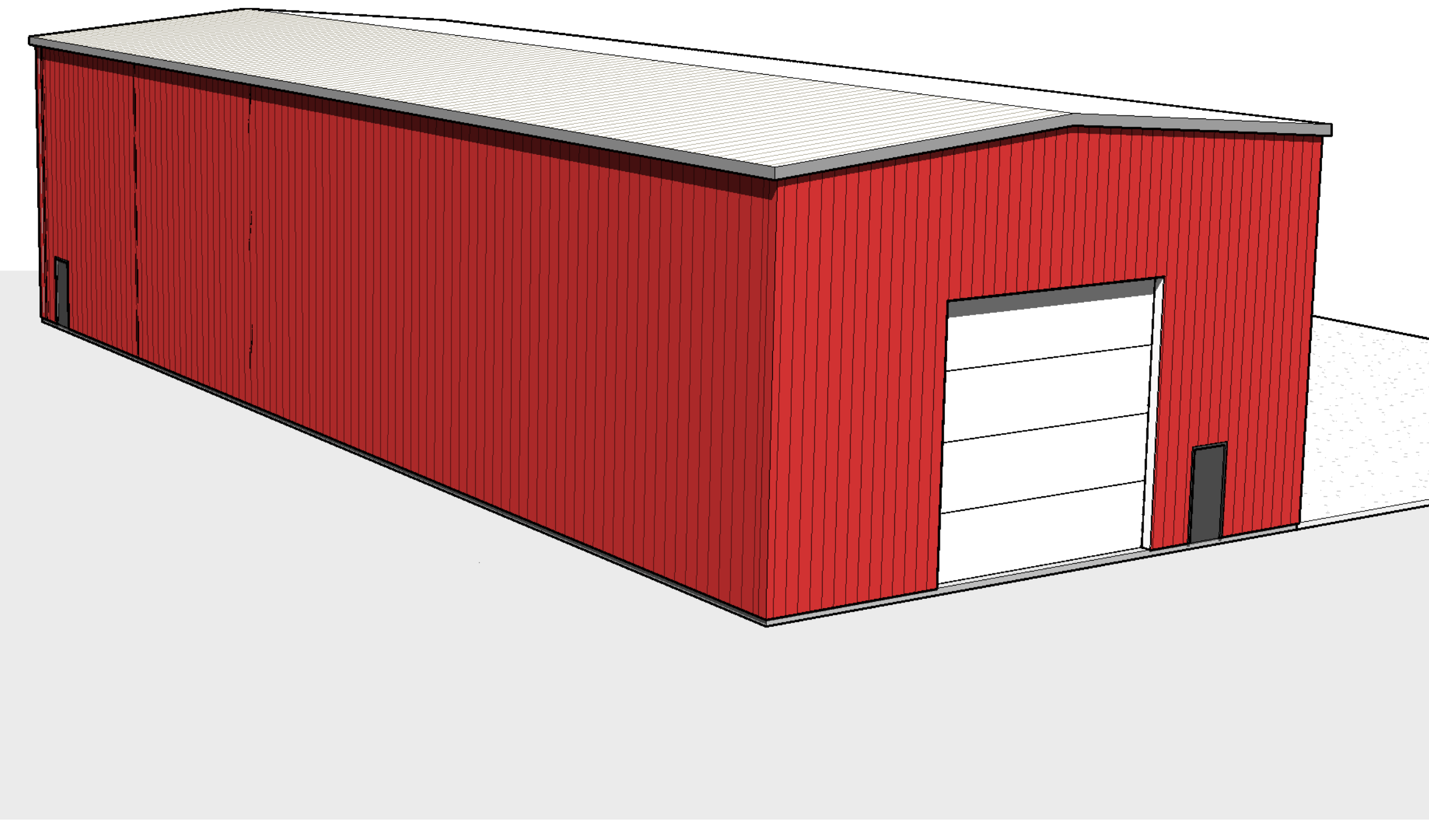
Elevations
Main Floor 85'-0"
A3.0



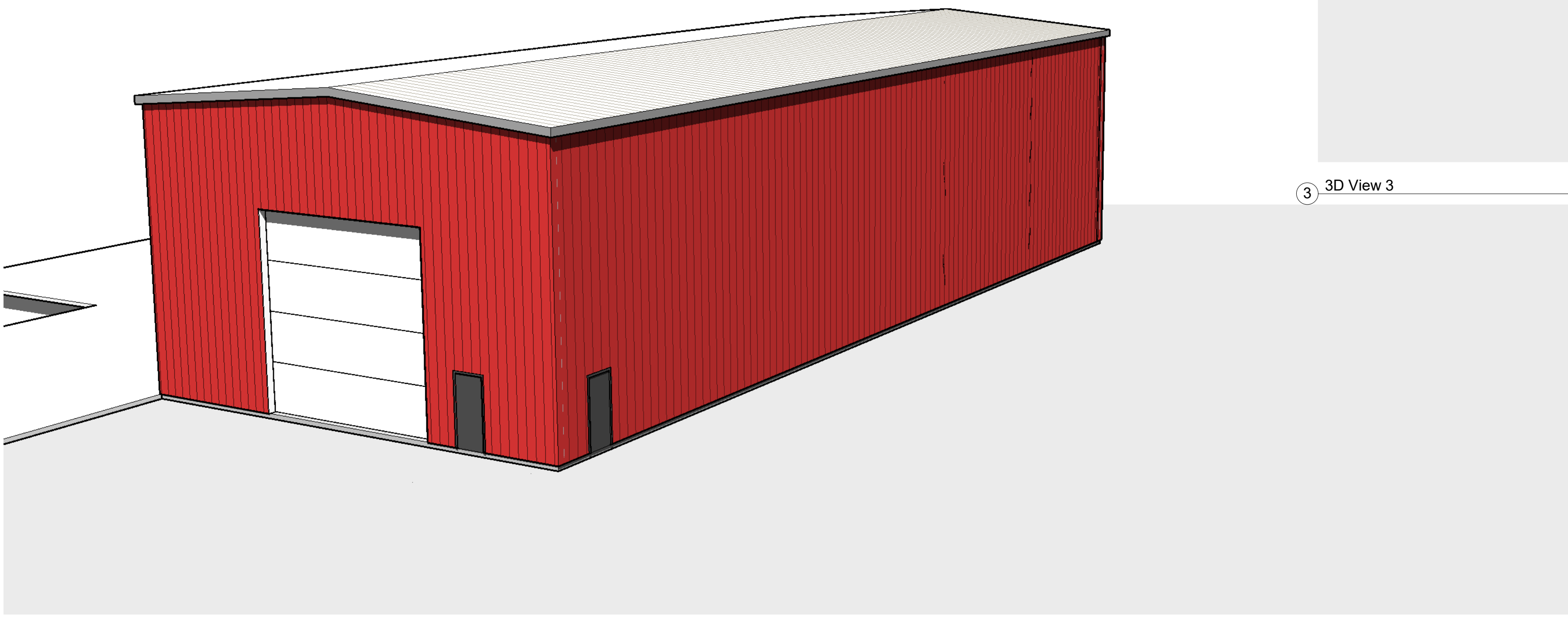
① 3D View 1



② 3D View 2



③ 3D View 3



④ 3D View 4

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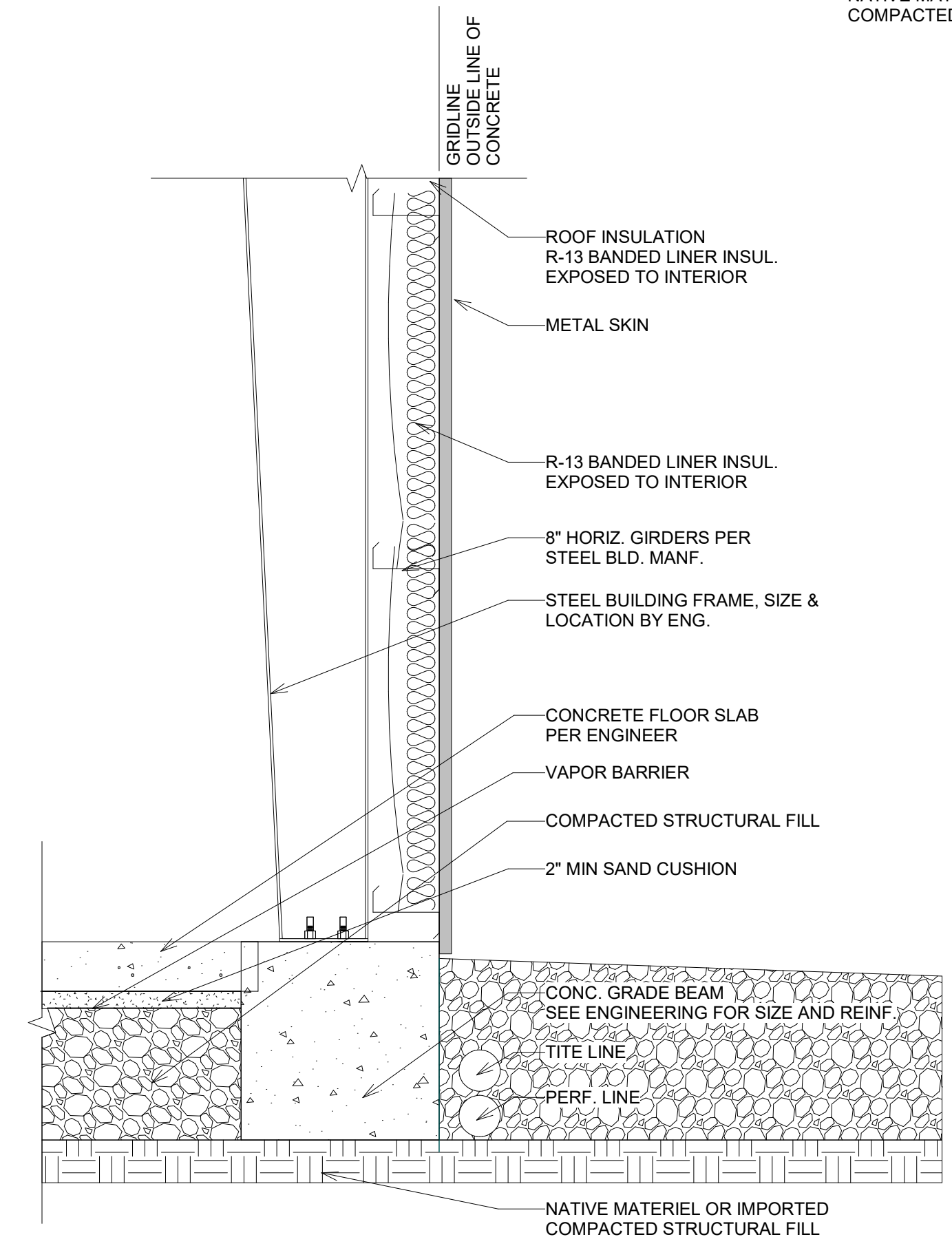
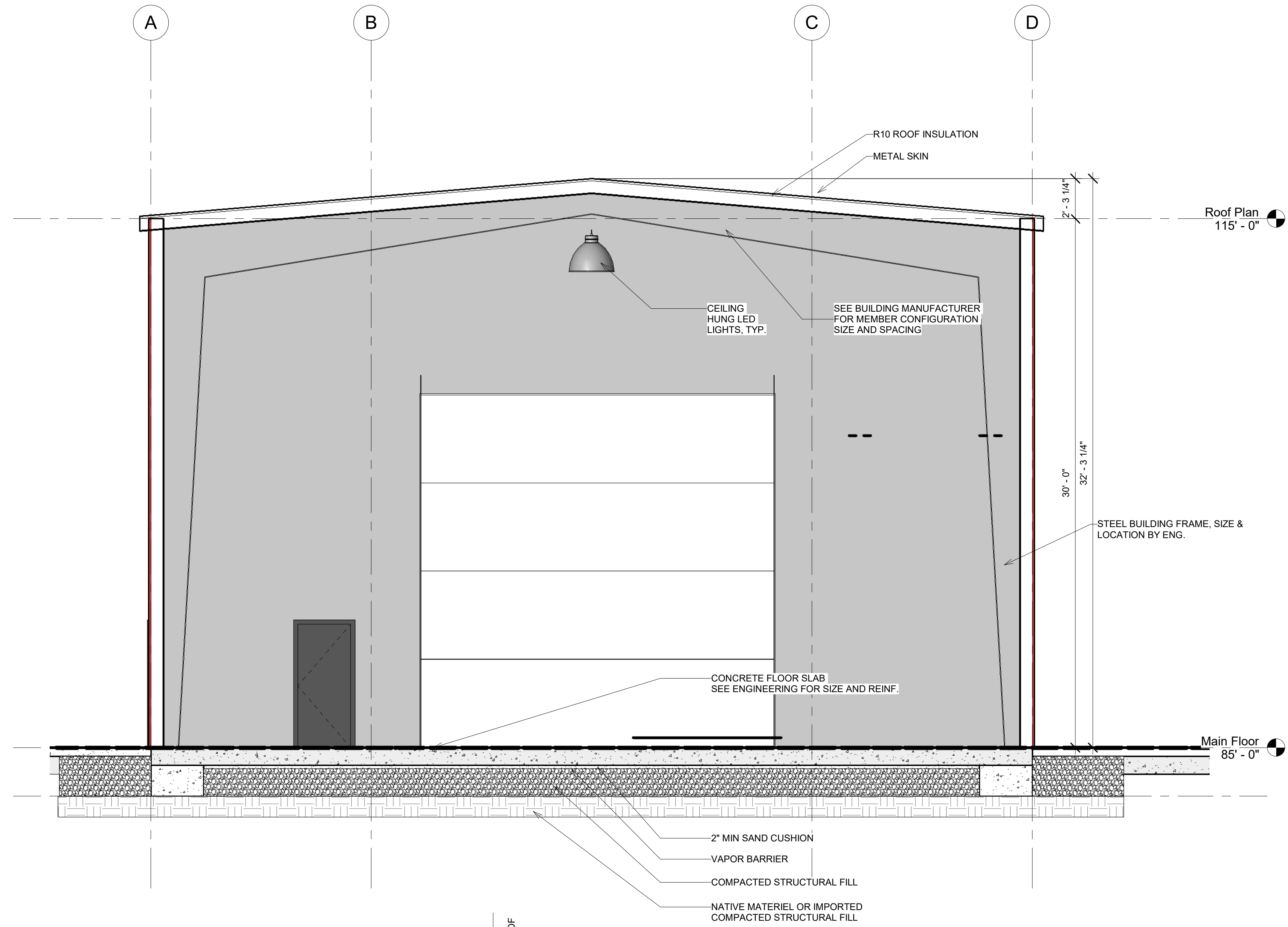
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Project number	TRC 22-001
Date	Oct 20 2023
Design	RKM
Drawn by:	RKM
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Perspective Views
A3.2



1 Section 1
1/4" = 1'-0"

2 Wall - Non Rated Exterior Main Frame
3/4" = 1'-0"

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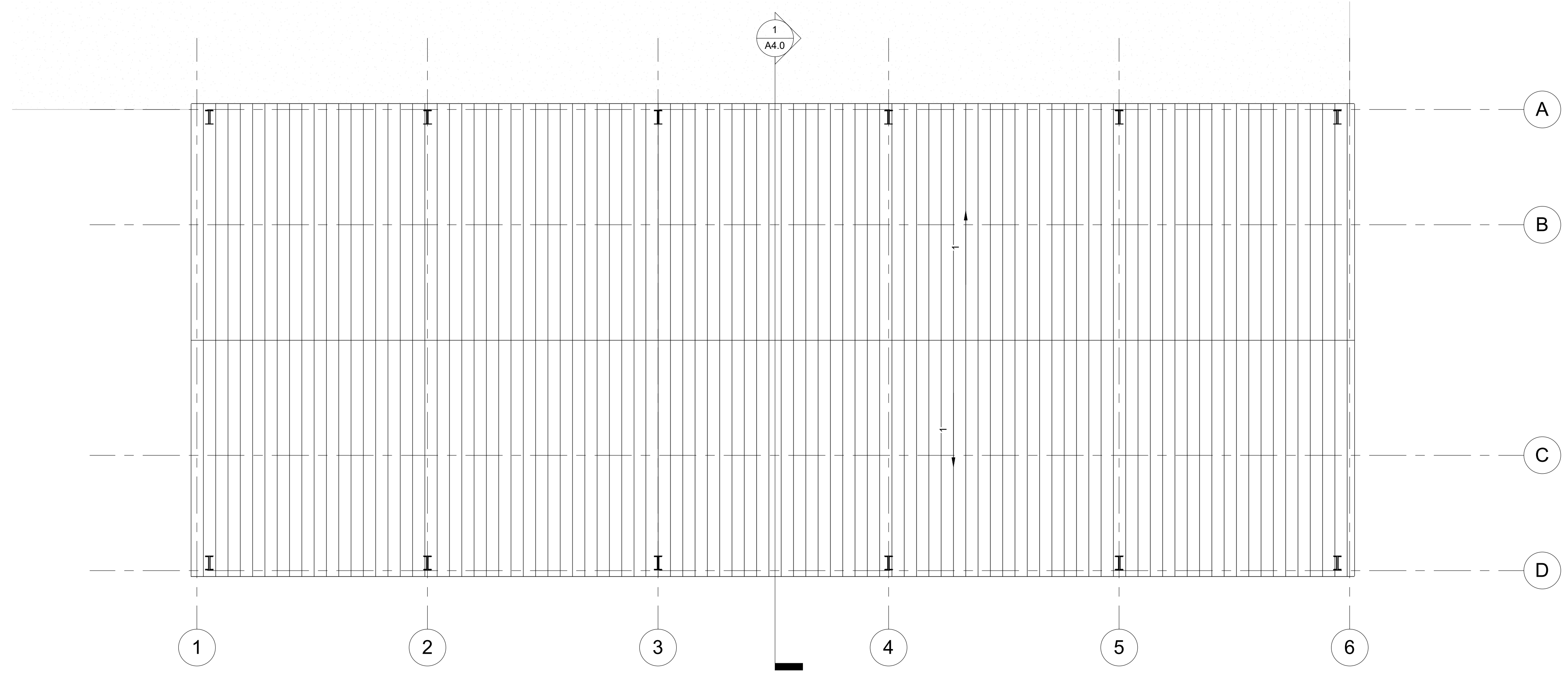
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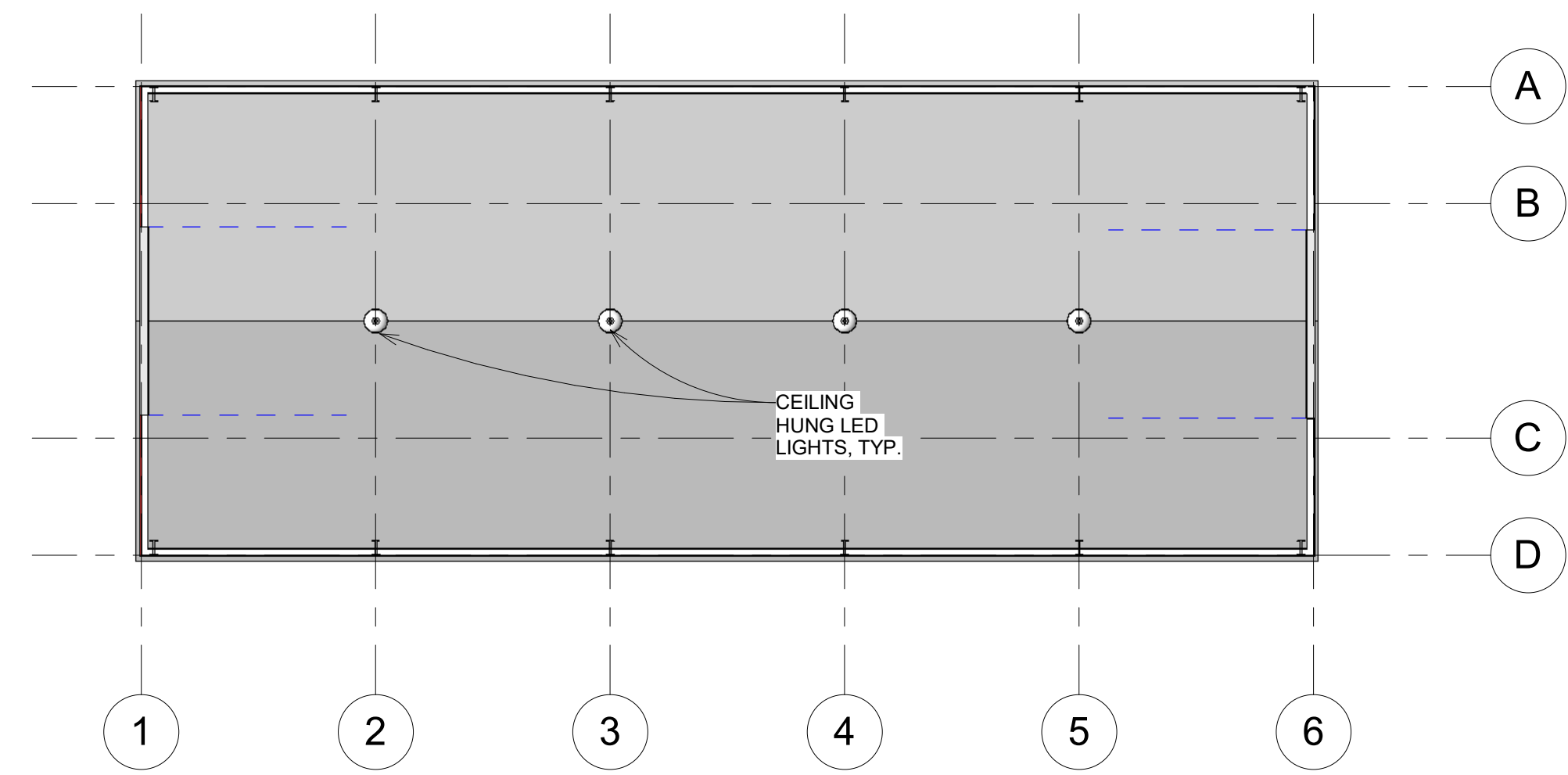
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Building Section
A4.0



① Roof Plan
1/8" = 1'-0"



② Reflected Ceiling Plan
1/16" = 1'-0"

E-HTH Series

LED Round UFO High Bay Light
Replaces up to 400W PSMH



EHTH3A-HK40UW	13000 Lumens	Neutral White (4000K)	100W	80-CRI	White	250W PSMH
---------------	--------------	-----------------------	------	--------	-------	-----------

③ Lighting - High Bay LED
12" = 1'-0"

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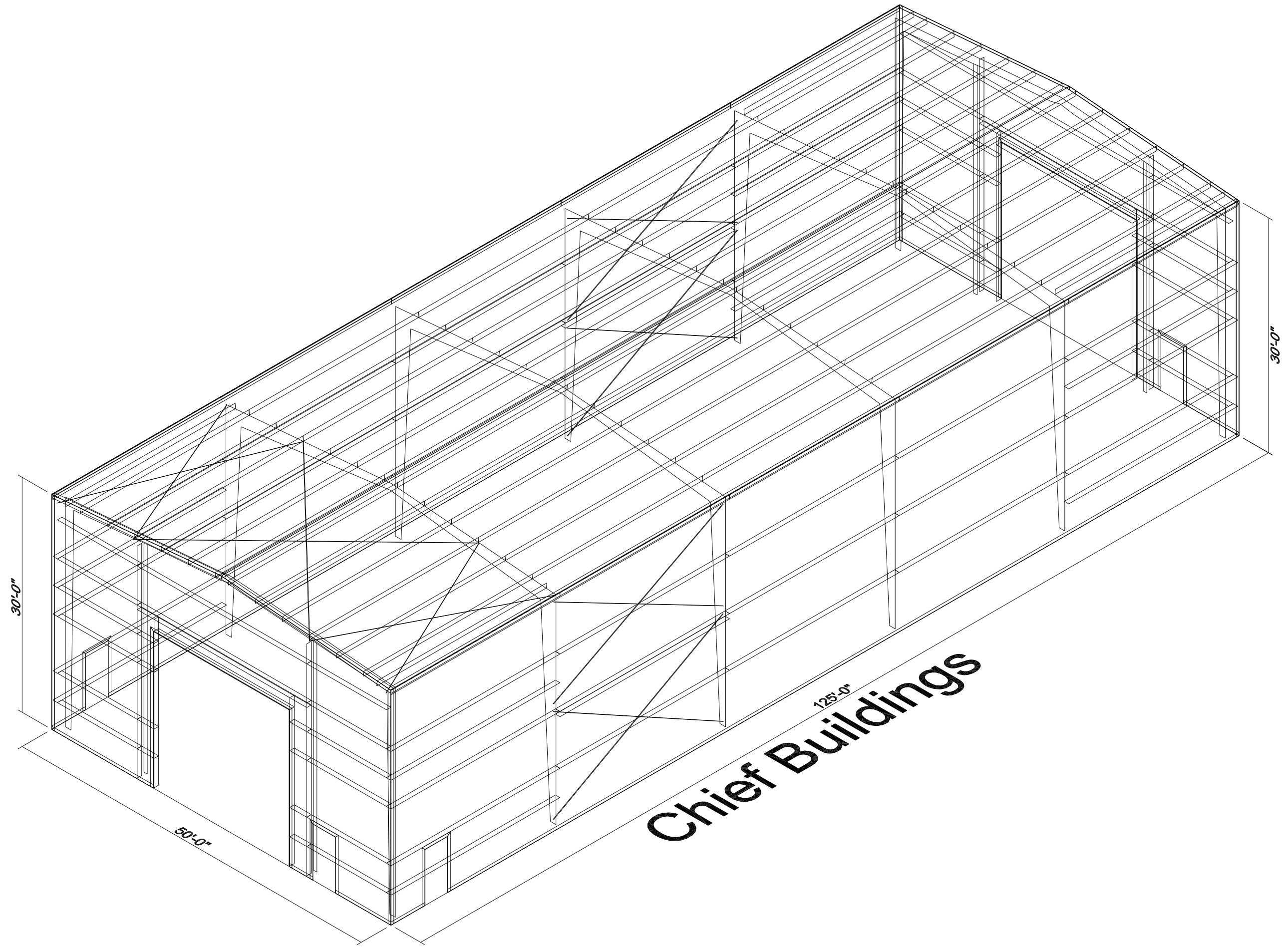


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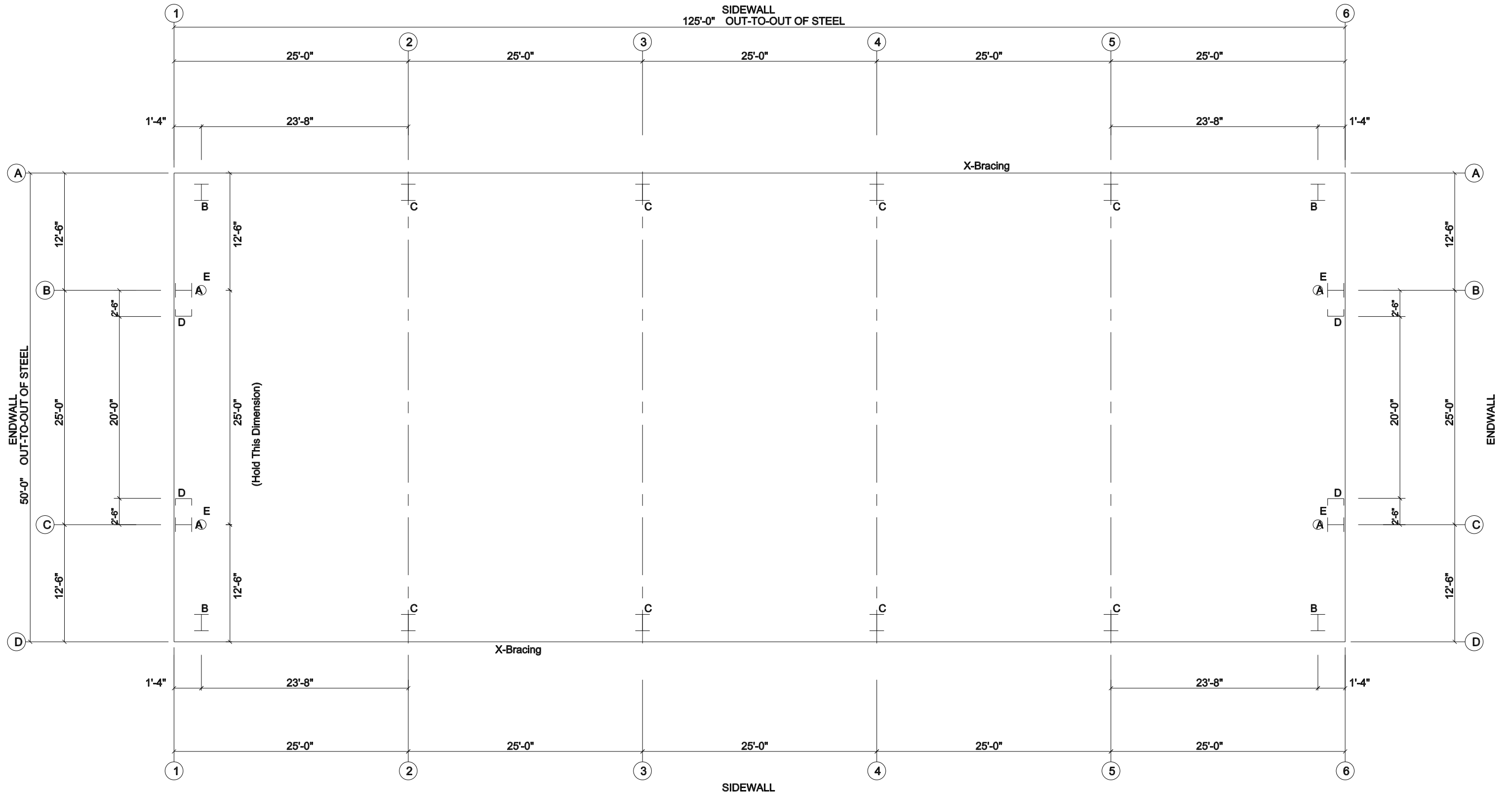
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Design	RKM
Drawn by:	RKM
Checked by:	RKM
Set Description:	Permit Set

Roof & RCP
Plan

A5.0



Chief Buildings



ANCHOR ROD PLAN
NOTE: All Base Plates @ 100'-0" (U.N.)

- REFERENCE NOTES:**
- All Anchor Rods including nuts and washers for same are not furnished by CHIEF BUILDINGS.
 - Anchor Rod material shall conform to ASTM F1554 having a yield of 36 KSI or greater.
 - Rod projections are recommended minimums based on the base plate bearing directly on the concrete pier. If the base plate is to bear on grout, the rod projection must be increased accordingly.
 - Concrete shall have a minimum strength of 3000 PSI.
 - ALL DRAWINGS ARE NOT TO SCALE.
 - Anchor Rod Summary Table
 - Quantity includes all buildings, all phases.
 - However anchor rods for Partitions and Smart Canopies are found on separate pages (when applicable).

ANCHOR ROD SUMMARY				
Qty	Locate	Dia (in)	Type	Proj (in)
● 8	Jamb	1/2"	F1554	1.50
⊕ 16	Endwall	3/4"	F1554	2.00
⊕ 64	Frame	3/4"	F1554	2.00

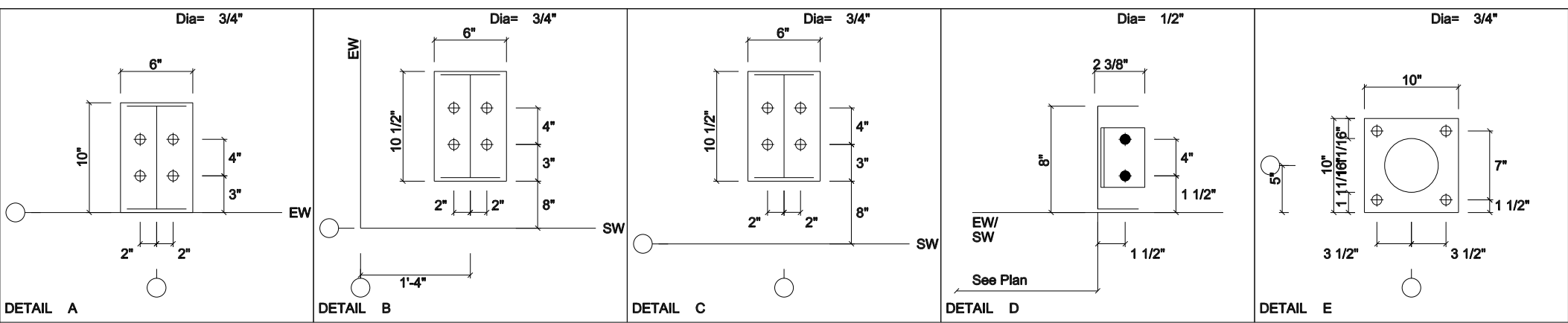
PRELIMINARY

•Preliminary drawings for sales and estimating purposes only.

•Subject to change during order process.

NOT FOR CONSTRUCTION

Drawing	ANCHOR ROD	
Buyer	Steel Buildings Northwest, Inc	
Customer	ABC Recycling Bellingham, WA 98225	
Project Name	ABC Recycling - bldg 3	
	DATE DRAWN	QUOTE NO.
CHIEF BUILDINGS	8/25/23	FQ74801A

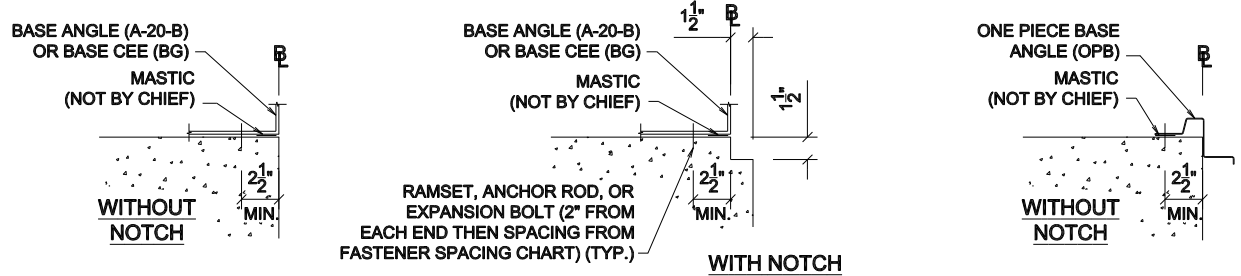


BASE ANCHORAGE SPACING FOR STANDARD BASE ANGLE, BASE CEE OR ONE PIECE BASE WITH CS OR AP WALLS

FASTENER TYPE & DIAMETER	MINIMUM EMBEDMENT	MAXIMUM SPACING
1/4" WEDGE ANCHOR ①	1 1/4"	3'-0"
1/4" SCREW TYPE ANCHOR ②	1 1/2"	3'-0"
3/8" CAST-IN ANCHOR	4" WITH HOOK OR HEAD	3'-0"
1/4" HAMMER-IN ③	1 3/8"	2'-0"
0.14 POWDER ACTUATED ④	1 1/4"	1'-6"

① HILTI KWIK BOLT®, RAMSET TRUBOLT®, POWERS POWERSTUD®, OR EQUAL
 ② CFS TAPCON®, HILTI KWIK-CON II®, POWERS WEDGE-BOLT®, OR EQUAL
 ③ POWERS ZAMAC HAMMER SCREW®, HILTI METAL HIT ANCHOR®, OR EQUAL
 ④ POWERS BALLISTIC POINT PIN, RAMSET 1500/1600 SERIES, HILTI UNIVERSAL NAIL OR EQUAL

FASTENER SPACING CHART



BASE MEMBER DETAILS
 CONTRACTOR IS RESPONSIBLE FOR ANCHORING BASE MEMBER TO CONCRETE.

REFERENCE NOTES:
 1. ACTUAL BASE PLATE DIMENSIONS MAY BE SMALLER THAN BASE PLATE DIMENSIONS SHOWN.

PRELIMINARY

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 •Subject to change during order process.

NOT FOR CONSTRUCTION

Drawing	ANCHOR ROD		
Buyer	Steel Buildings Northwest, Inc		
Customer	ABC Recycling Bellingham, WA 98225		
Project Name	ABC Recycling - bldg 3		
	DATE DRAWN	QUOTE NO.	
	8/25/23	FQ74801A	



RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	Dead	Collateral	Live	Snow	Wind Left1	Wind Right1
Line	Line	Horz	Vert	Horz	Vert	Horz	Vert
1*	A	0.0	0.6	0.0	0.1	0.0	0.5
1*	D	0.0	0.6	0.0	0.1	0.0	0.5
1*	B	0.0	1.4	0.0	0.9	0.0	3.5
1*	C	0.0	1.4	0.0	0.9	0.0	3.5

Frame Line	Column Line	Wind Left2	Wind Right2	Wind Long1	Wind Long2	Seismic Left	Seismic Right
Line	Line	Horz	Vert	Horz	Vert	Horz	Vert
1*	A	-5.9	-7.5	3.8	8.3	2.8	-3.2
1*	D	-3.8	8.3	5.9	-7.5	-2.5	-3.3
1*	B	0.0	2.2	0.0	-12.5	0.0	-4.6
1*	C	0.0	-12.5	0.0	2.2	0.0	-2.0

Frame Line	Column Line	MIN SNOW	F1PAT_LL_1	F1PAT_LL_2	F1PAT_LL_3	F1PAT_LL_4	F1UNB_SL_L
Line	Line	Horz	Vert	Horz	Vert	Horz	Vert
1*	A	0.0	0.8	0.0	0.4	0.0	-0.6
1*	D	0.0	0.8	0.0	-0.6	0.0	0.4
1*	B	0.0	5.8	0.0	3.6	0.0	2.5
1*	C	0.0	5.8	0.0	2.5	0.0	3.6

Frame Line	Column Line	F1UNB_SL_R	
Line	Line	Horz	Vert
1*	A	0.0	-0.1
1*	D	0.0	0.7
1*	B	0.0	2.6
1*	C	0.0	5.9

Frame Line	Column Line	Dead	Collateral	Live	Snow	Wind Left1	Wind Right1
Line	Line	Horz	Vert	Horz	Vert	Horz	Vert
2*	A	0.5	2.5	1.9	7.5	2.8	10.9
2*	D	-0.5	2.5	-1.9	7.5	-2.8	10.9

Frame Line	Column Line	Wind Left2	Wind Right2	Wind Long1	Wind Long2	Seismic Left	Seismic Right
Line	Line	Horz	Vert	Horz	Vert	Horz	Vert
2*	A	-10.9	-11.8	3.1	-0.4	3.3	-22.9
2*	D	-3.1	-0.4	10.9	-11.8	-2.8	-20.6

Frame Line	Column Line	Seismic Long	MIN SNOW	F2UNB_SL_L	F2UNB_SL_R
Line	Line	Horz	Vert	Horz	Vert
2*	A	0.0	-6.0	3.2	12.5
2*	D	0.0	-6.0	-3.2	12.5

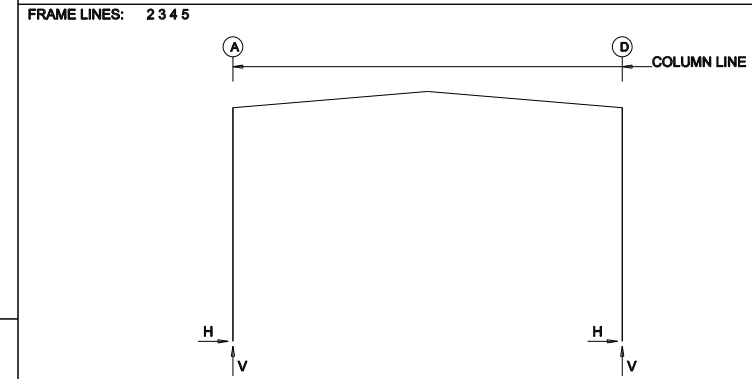
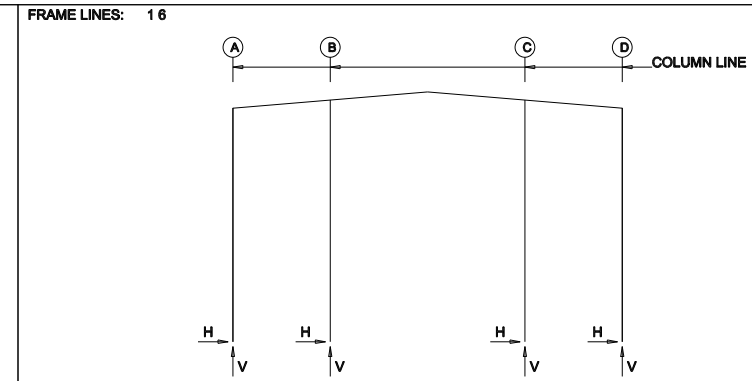
1* Frame lines: 1 6
2* Frame lines: 2 3 4 5

- CONTROLLING LOAD CASES**
- 1 Dead+0.6Wind_Left2
 - 2 Dead+0.6Wind_Right2
 - 3 Dead+Collateral+0.75Snow+0.45Wind_Left1+0.75Slide_Snow
 - 4 Dead+Collateral+0.75Snow+0.45Wind_Right1+0.75Slide_Snow
 - 5 0.6Dead+0.6Wind_Left1
 - 6 0.6Dead+0.6Wind_Right1
 - 7 0.6Dead+0.6Wind_Left2
 - 8 0.6Dead+0.6Wind_Right2
 - 9 0.6Dead+0.6Wind_Long1L
 - 10 0.6Dead+0.6Wind_Long2L
 - 11 1.07Dead+1.07Collateral+0.7Seismic_Right
 - 12 Dead+Collateral+MIN_SNOW
 - 13 Dead+Collateral
 - 14 0.6Dead+0.6Wind_Right2+0.6Wind_Suction
 - 15 0.6Dead+0.6Wind_Pressure+0.6Wind_Long2L

BUILDING BRACING REACTIONS

Wall Loc	Col Line	Reactions(k)	Panel Shear (lb/ft)	Note		
Line	Line	Wind Horz	Seismic Vert	Wind	Seis	
L_EW	1					(h)
F_SW	D	2,3	8.2 9.3	5.3	6.0	(h)
R_EW	6					(h)
B_SW	A	5,4	8.2 9.3	5.3	6.0	

(h) Rigid frame at endwall
Reactions for seismic represent shear force, Eh



RIGID FRAME: MAXIMUM REACTIONS

Frm Line	Col Line	Load Id	Column Reactions(k)				
			Hmax	V	Hmin	V	
			H	Vmax	H	Vmin	
1*	A	6	3.2	4.2	7	-3.6	-4.1
		2	2.3	5.6	5	-2.7	-5.2
1*	D	8	3.6	-4.1	5	-3.2	4.2
		1	-2.3	5.6	6	2.7	-5.2
1*	B	6	0.0	-7.6	6	0.0	-7.6
		13	0.0	8.2			
1*	C	5	0.0	-7.6	5	0.0	-7.6
		13	0.0	8.2			

1* Frame lines: 1 6

RIGID FRAME: MAXIMUM REACTIONS

Frm Line	Col Line	Load Id	Column Reactions(k)				
			Hmax	V	Hmin	V	
			H	Vmax	H	Vmin	
2*	A	4	5.4	-0.6	7	-6.2	-5.6
		12	4.2	16.9	9	2.3	-12.2
2*	D	8	6.2	-5.6	3	-5.4	9.6
		12	-4.2	16.9	10	-2.3	-12.2

2* Frame lines: 2 3 4 5

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Vert	Wind Press Horz	Wind Suct Horz	Seis Long Horz
1	B	0.4	-6.9	7.6	0.1
1	C	0.4	-6.9	7.6	0.1
6	C	0.4	-6.9	7.6	0.1
6	B	0.4	-6.9	7.6	0.1

ENDWALL COLUMN: MAXIMUM REACTIONS

Frm Line	Col Line	Load Id	Column Reactions(k)				
			Hmax	V	Hmin	V	
			H	Vmax	H	Vmin	
1	B	14	4.6	0.3	15	-4.2	0.3
		11	0.0	0.5			
1	C	14	4.6	0.3	15	-4.2	0.3
		11	0.0	0.5			
6	C	14	4.6	0.3	15	-4.2	0.3
		11	0.0	0.5			
6	B	14	4.6	0.3	15	-4.2	0.3
		11	0.0	0.5			

1. COLUMN FOOTINGS AND PIERS MUST BE DESIGNED TO WITHSTAND HORIZONTAL AND VERTICAL REACTIONS AS SHOWN ON THE ANCHOR ROD PLAN. CHIEF BUILDINGS IS NOT RESPONSIBLE FOR DESIGN OF CONCRETE FOUNDATION. CHIEF BUILDINGS RECOMMENDS THAT THE SERVICES OF A QUALIFIED ENGINEER IS OBTAINED BY THE CONTRACTOR / BUILDER TO DESIGN THE FOUNDATIONS FOR THE INDICATED REACTIONS.

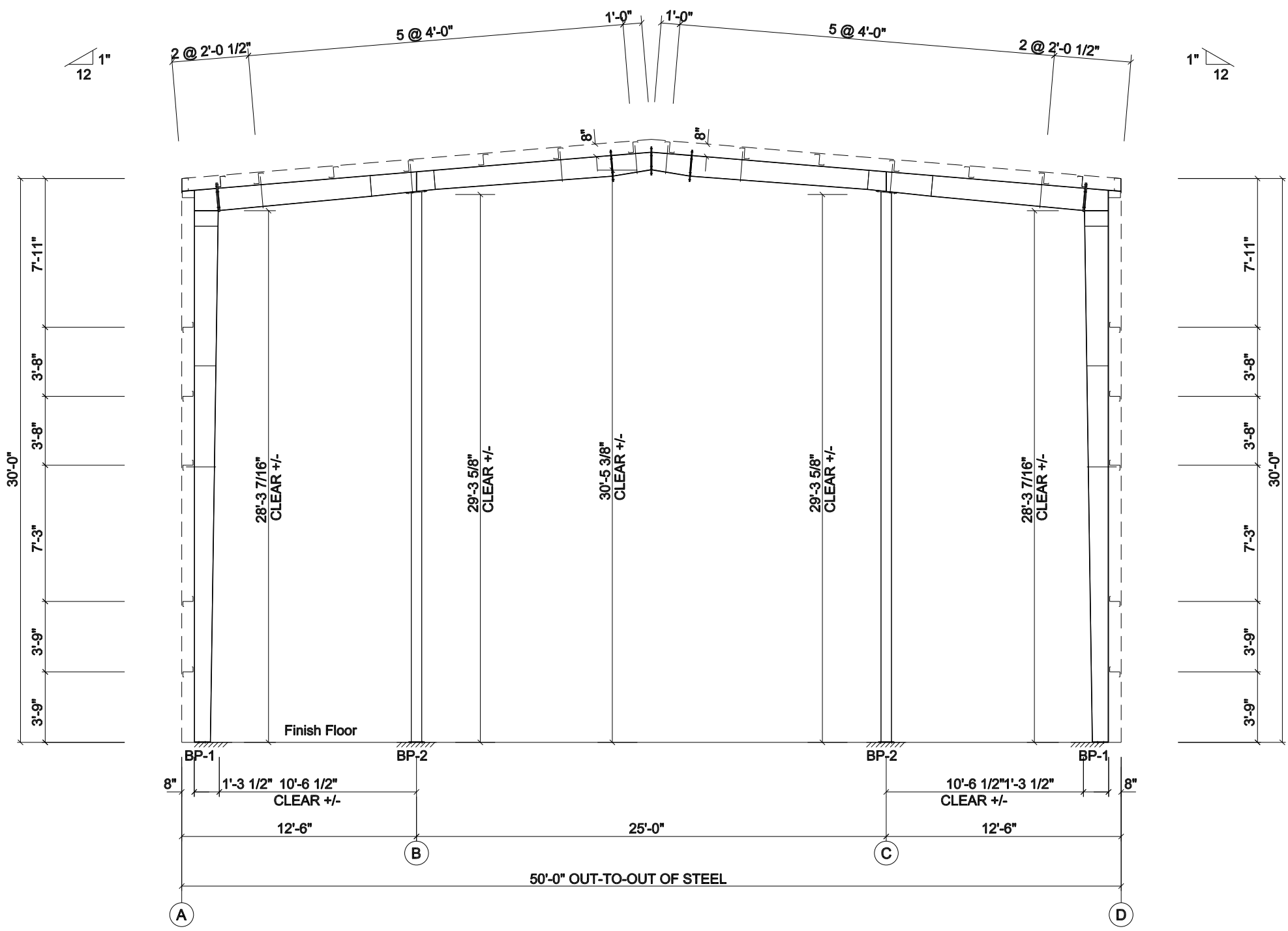
2. REACTIONS ARE GIVEN IN KIPS. (1 KIP = 1000 LBS.) MOMENTS, IF ANY, ARE GIVEN IN KIP-FT.

3. ANCHOR ROD DESIGN IS BASED ON SHEAR, TENSION, AND COMBINED TENSION AND SHEAR. CHIEF BUILDINGS IS NOT RESPONSIBLE FOR ANCHOR ROD SIZE RECOMMENDATIONS WHEN ANCHOR ROD CONFIGURATION PLACES THE RODS IN A BENDING MODE. WHEN THE COLUMN BASE PLATE BEARS ON GROUT, THE CONTRACTOR / BUILDER OR FOUNDATION ENGINEER SHALL INVESTIGATE BENDING IN THE ANCHOR RODS AND PROVIDE A SHEAR KEY FOR THE COLUMN BASE TO THE PIER WHEN THE ANCHOR RODS ARE NOT ADEQUATE IN BENDING ABOUT THE PIER.

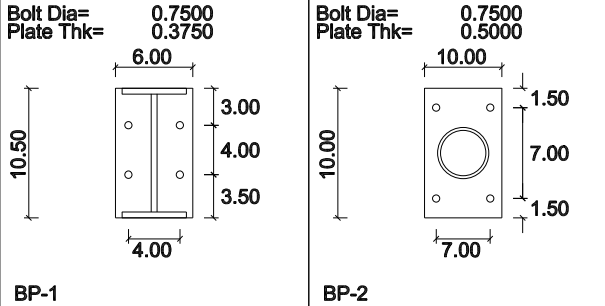
DESCRIPTIONS OF REACTION ABBREVIATIONS

DEAD	DEAD
CL	COLLATERAL
CL ON DEAD	COLLATERAL
LC	LOAD
SL	SLIDE
SNOW	SNOW
SWAY	SWAY
SLIDE	SLIDE
WIND LEFT	WIND 1 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L1	WIND 1 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R1	WIND 1 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L2	WIND 2 LEFT PATH NEGATIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R2	WIND 2 RIGHT PATH NEGATIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L3	WIND 3 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R3	WIND 3 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L4	WIND 4 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R4	WIND 4 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L5	WIND 5 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R5	WIND 5 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L6	WIND 6 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R6	WIND 6 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L7	WIND 7 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R7	WIND 7 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L8	WIND 8 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R8	WIND 8 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L9	WIND 9 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R9	WIND 9 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L10	WIND 10 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R10	WIND 10 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L11	WIND 11 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R11	WIND 11 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L12	WIND 12 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R12	WIND 12 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L13	WIND 13 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R13	WIND 13 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L14	WIND 14 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R14	WIND 14 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L15	WIND 15 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R15	WIND 15 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L16	WIND 16 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R16	WIND 16 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L17	WIND 17 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R17	WIND 17 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L18	WIND 18 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R18	WIND 18 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L19	WIND 19 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R19	WIND 19 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L20	WIND 20 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R20	WIND 20 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L21	WIND 21 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R21	WIND 21 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L22	WIND 22 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R22	WIND 22 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L23	WIND 23 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R23	WIND 23 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L24	WIND 24 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R24	WIND 24 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L25	WIND 25 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R25	WIND 25 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L26	WIND 26 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R26	WIND 26 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L27	WIND 27 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R27	WIND 27 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L28	WIND 28 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R28	WIND 28 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L29	WIND 29 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R29	WIND 29 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L30	WIND 30 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R30	WIND 30 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L31	WIND 31 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R31	WIND 31 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L32	WIND 32 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R32	WIND 32 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L33	WIND 33 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R33	WIND 33 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L34	WIND 34 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R34	WIND 34 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L35	WIND 35 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R35	WIND 35 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L36	WIND 36 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R36	WIND 36 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L37	WIND 37 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R37	WIND 37 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L38	WIND 38 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R38	WIND 38 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L39	WIND 39 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R39	WIND 39 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L40	WIND 40 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R40	WIND 40 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L41	WIND 41 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R41	WIND 41 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L42	WIND 42 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R42	WIND 42 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L43	WIND 43 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R43	WIND 43 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L44	WIND 44 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R44	WIND 44 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L45	WIND 45 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R45	WIND 45 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L46	WIND 46 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R46	WIND 46 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L47	WIND 47 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R47	WIND 47 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L48	WIND 48 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
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WIND ON WIND_R50	WIND 50 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L51	WIND 51 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R51	WIND 51 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L52	WIND 52 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R52	WIND 52 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L53	WIND 53 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R53	WIND 53 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L54	WIND 54 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R54	WIND 54 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L55	WIND 55 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R55	WIND 55 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L56	WIND 56 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
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WIND ON WIND_L57	WIND 57 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R57	WIND 57 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L58	WIND 58 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R58	WIND 58 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L59	WIND 59 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R59	WIND 59 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
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WIND ON WIND_R61	WIND 61 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
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WIND ON WIND_R62	WIND 62 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
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WIND ON WIND_L75	WIND 75 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
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WIND ON WIND_R77	WIND 77 RIGHT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_L78	WIND 78 LEFT PATH POSITIVE INTERNAL PRESSURE, -WIND
WIND ON WIND_R78	WIND 78 RIGHT PATH POSITIVE INTERNAL PRESSURE, -W

STIFFENER TABLE				
Mark	Stiff Mark	Plate Size		Length
		Width	Thick	
RF1-1	ST1	2.750	0.250	14.94
RF1-2	ST2	2.750	0.250	12.31



RIGID FRAME ELEVATION: FRAME LINE 1 6



PRELIMINARY

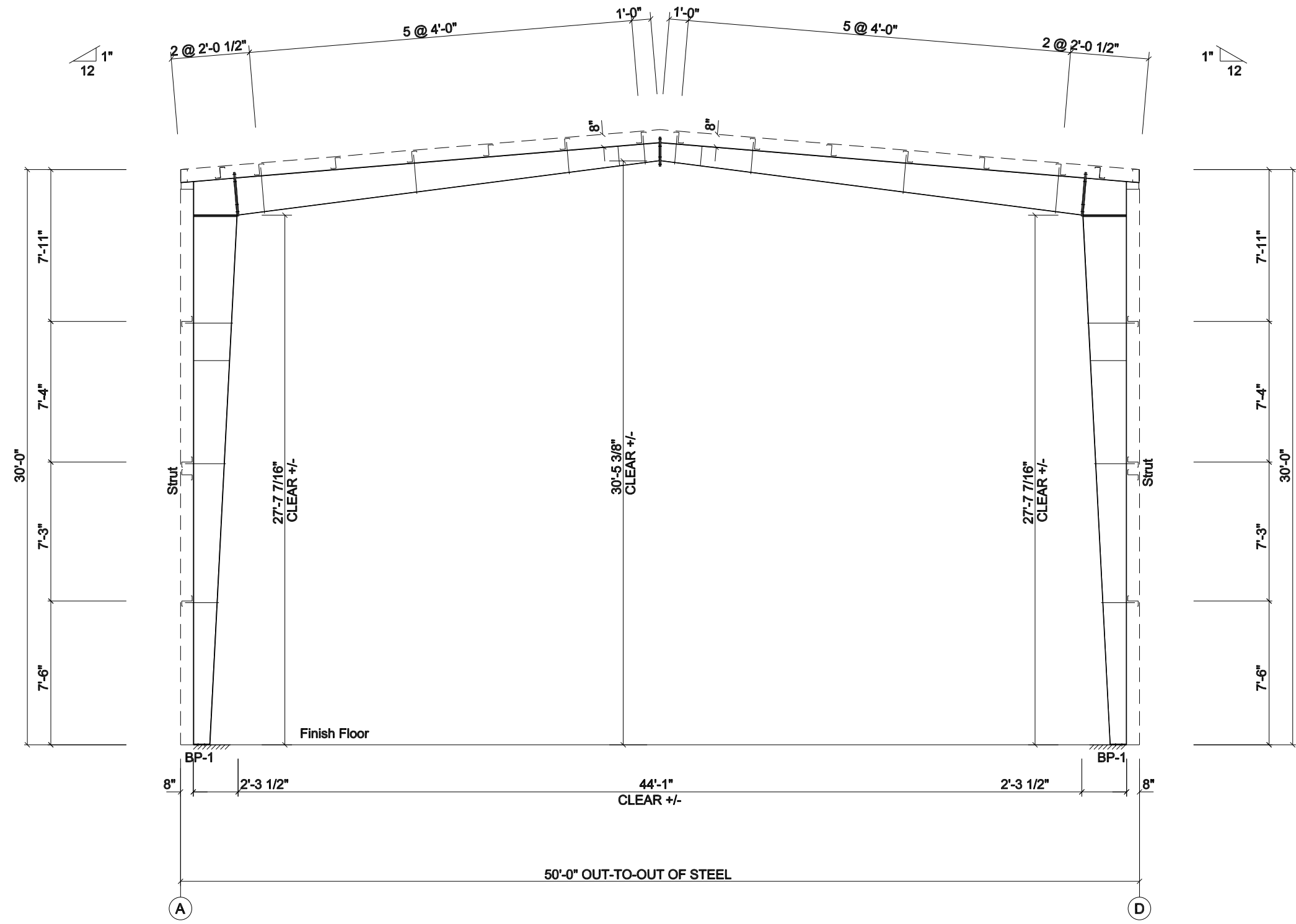
- Preliminary drawings for sales and estimating purposes only.
- Subject to change during order process.

NOT FOR CONSTRUCTION

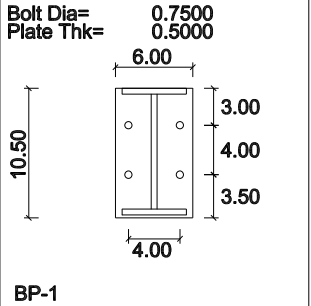
Drawing	CROSS SECTION	
Buyer	Steel Buildings Northwest, Inc	
Customer	ABC Recycling Bellingham, WA 98225	
Project Name	ABC Recycling - bldg 3	
	DATE DRAWN	QUOTE NO.
	8/25/23	FQ74801A



STIFFENER TABLE				
Mark	Stiff Mark	Plate Size		Length
		Width	Thick	
RF2-1	ST1	2.750	0.250	26.94



RIGID FRAME ELEVATION: FRAME LINE 2 3 4 5

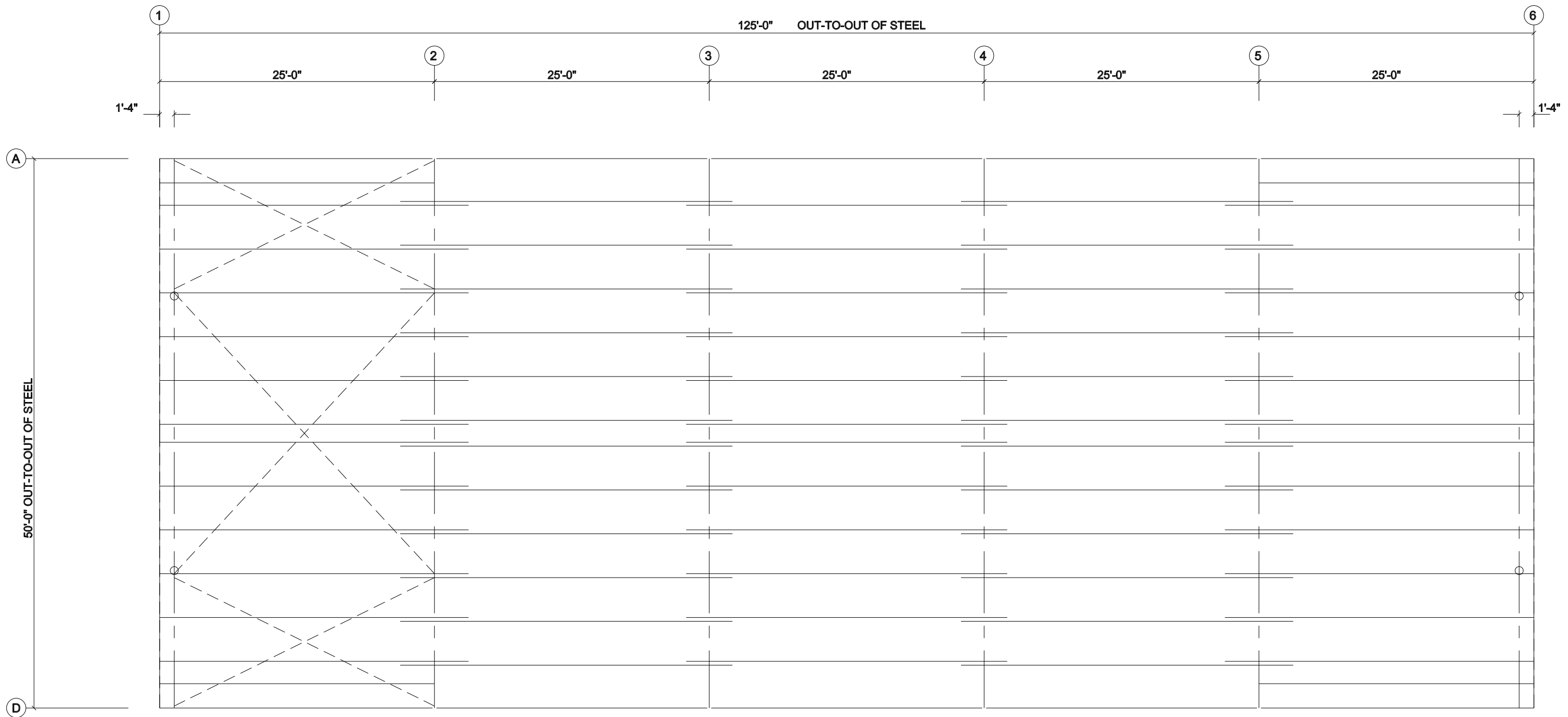


PRELIMINARY

- Preliminary drawings for sales and estimating purposes only.
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NOT FOR CONSTRUCTION

Drawing	CROSS SECTION	
Buyer	Steel Buildings Northwest, Inc	
Customer	ABC Recycling Bellingham, WA 98225	
Project Name	ABC Recycling - bldg 3	
	DATE DRAWN	QUOTE NO.
	8/25/23	FQ74801A

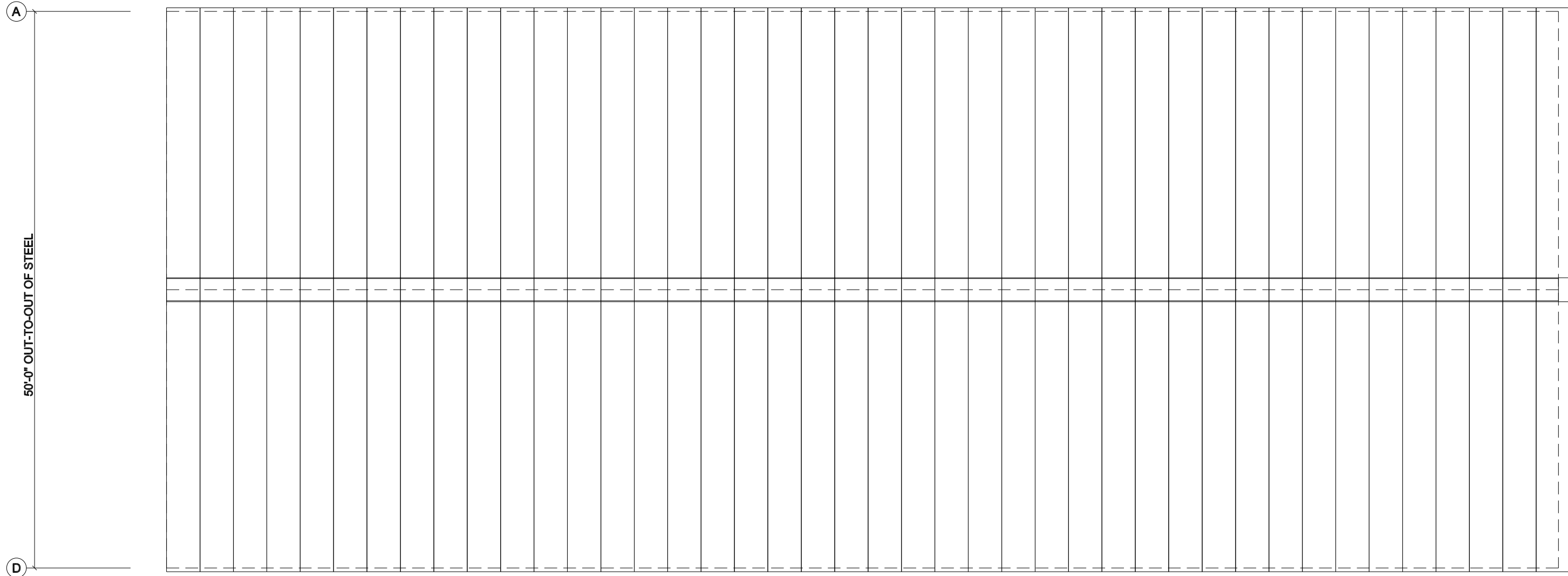
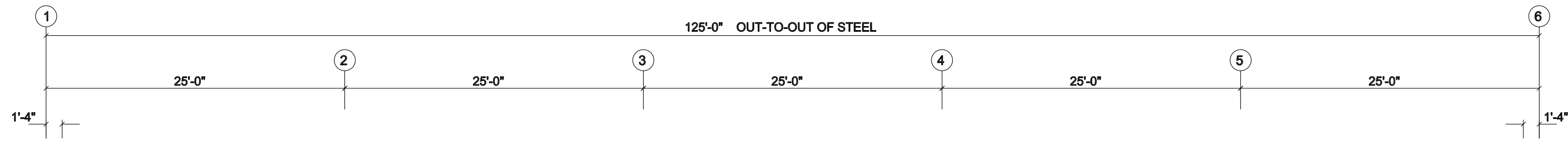


ROOF FRAMING PLAN

PRELIMINARY
 • Preliminary drawings for sales and estimating purposes only.
 • Subject to change during order process.
NOT FOR CONSTRUCTION

Drawing	ROOF FRAMING	
Buyer	Steel Buildings Northwest, Inc	
Customer	ABC Recycling Bellingham, WA 98225	
Project Name	ABC Recycling - bldg 3	
	DATE DRAWN	QUOTE NO.
	8/25/23	FQ74801A



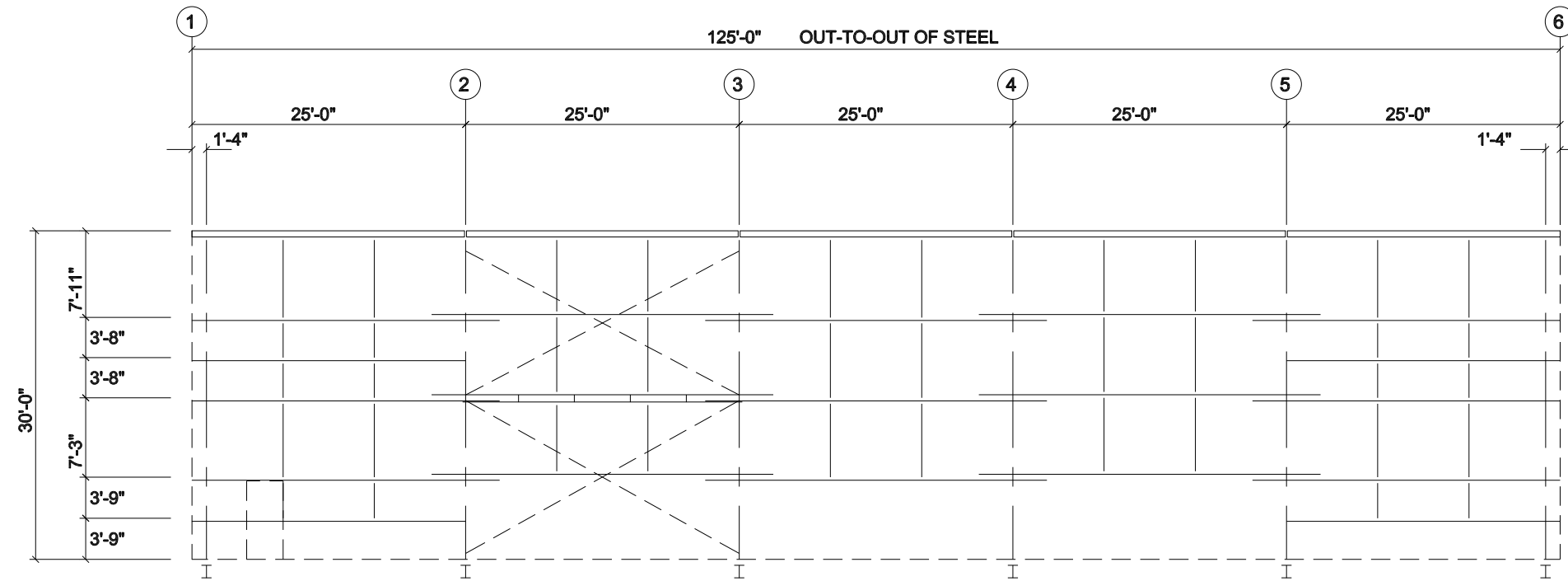


ROOF SHEETING PLAN
 PANELS: 26 Ga. CS - Std.PVDF-FEVE Finish

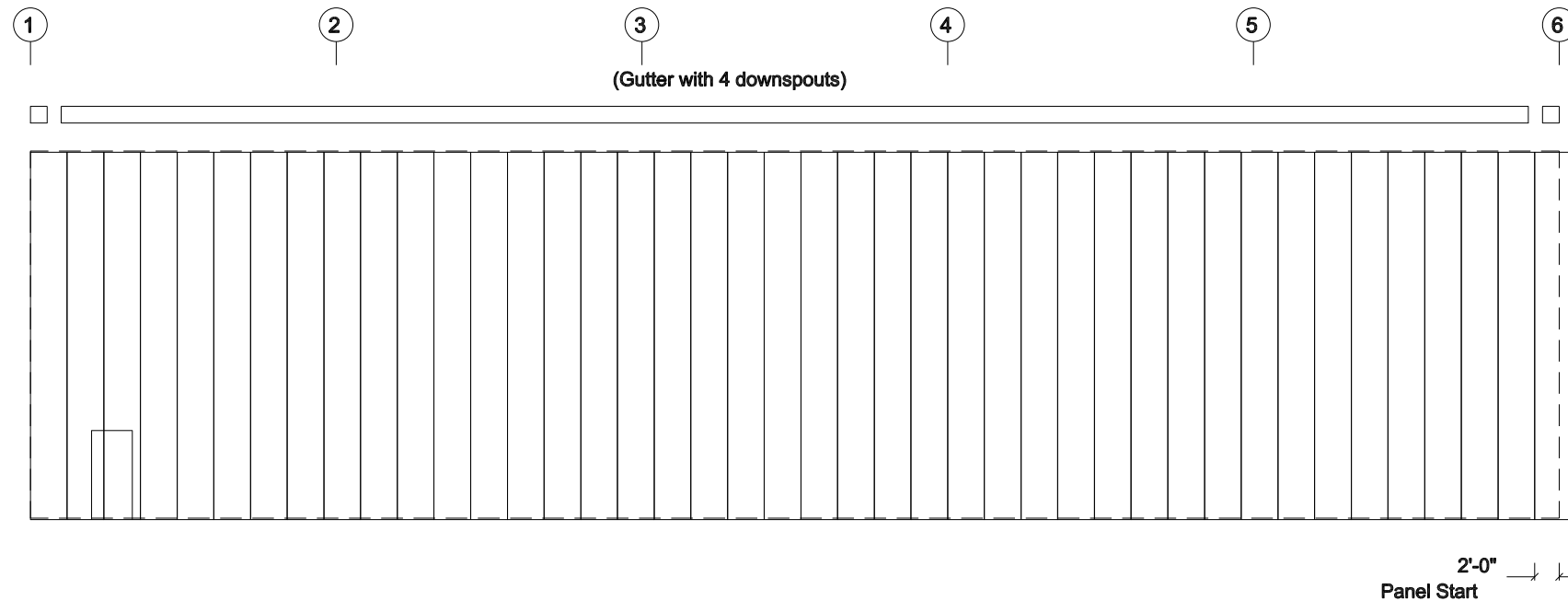
PRELIMINARY
 •Preliminary drawings for sales and estimating purposes only.
 •Subject to change during order process.
NOT FOR CONSTRUCTION

Drawing	ROOF SHEETING	
Buyer	Steel Buildings Northwest, Inc	
Customer	ABC Recycling Bellingham, WA 98225	
Project Name	ABC Recycling - bldg 3	
	DATE DRAWN	QUOTE NO.
	8/25/23	FQ74801A





SIDEWALL FRAMING: FRAME LINE D



SIDEWALL SHEETING & TRIM: FRAME LINE D

PANELS: 26 Ga. TBD - Std. SMP Finish

GIRT DEPTH: 8.00

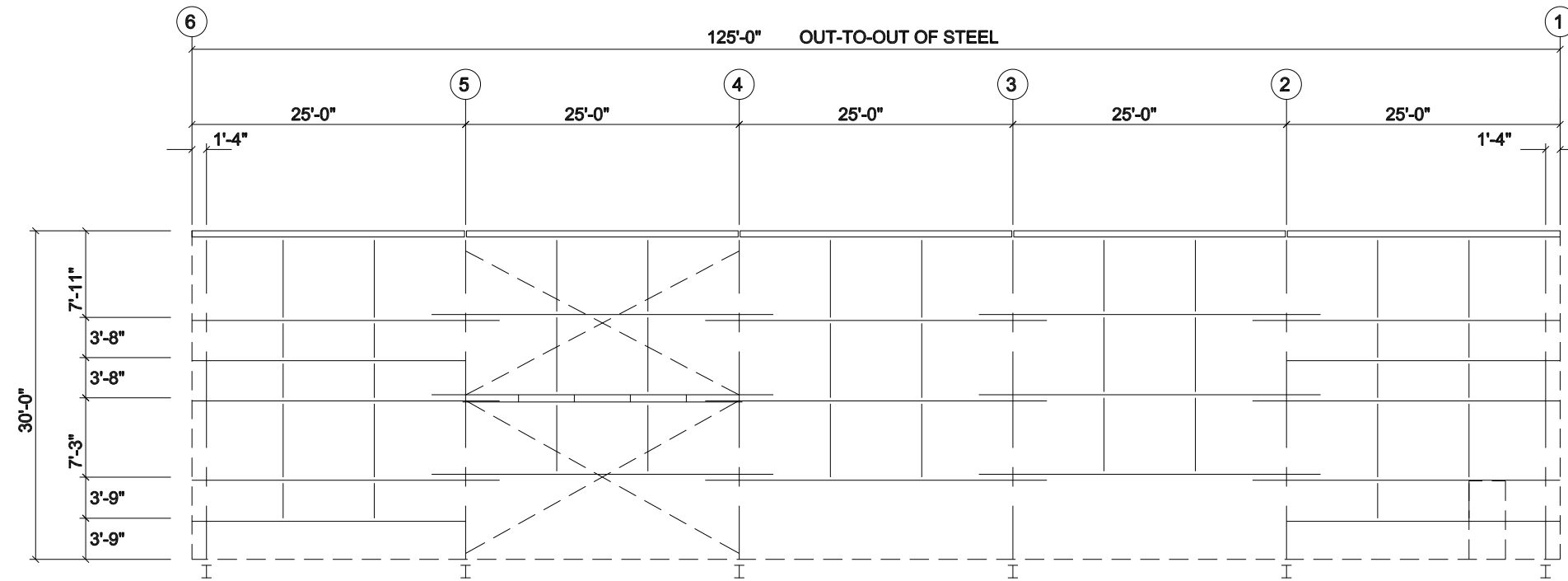
PRELIMINARY

- Preliminary drawings for sales and estimating purposes only.
- Subject to change during order process.

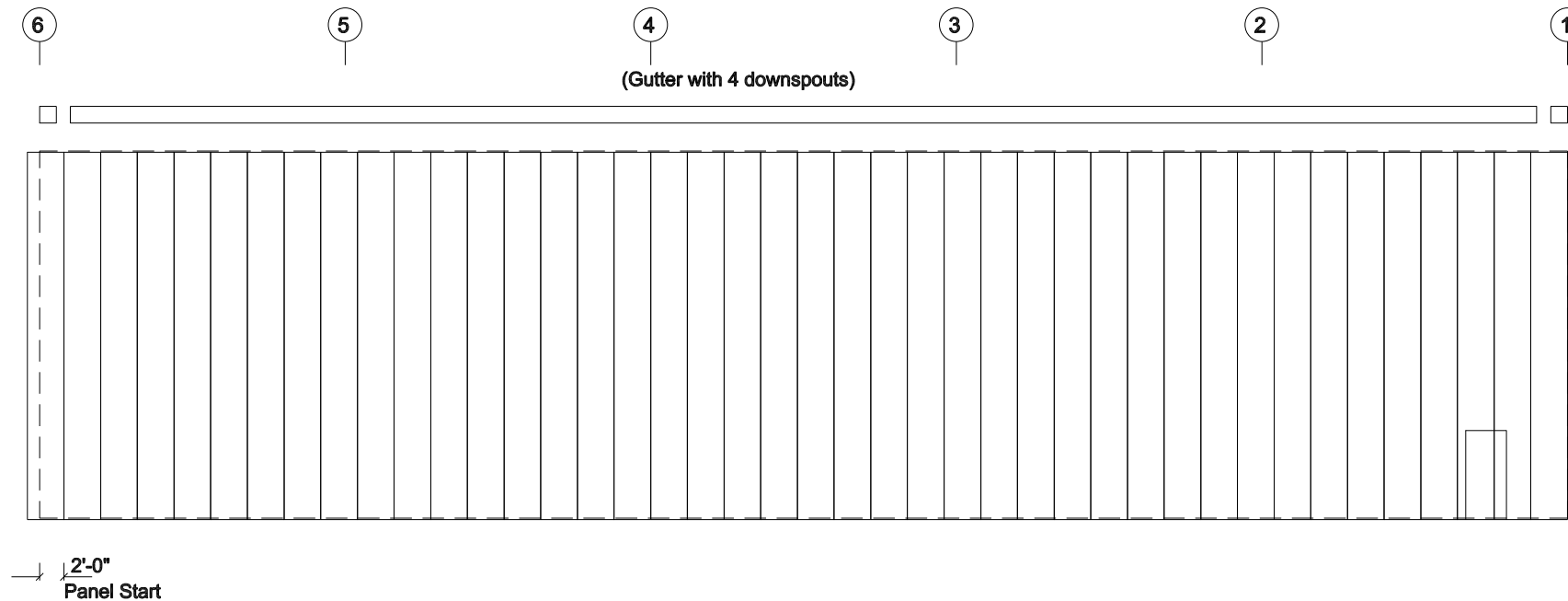
NOT FOR CONSTRUCTION

Drawing	SIDEWALL DRAWING	
Buyer	Steel Buildings Northwest, Inc	
Customer	ABC Recycling Bellingham, WA 98225	
Project Name	ABC Recycling - bldg 3	
	DATE DRAWN	QUOTE NO.
	8/25/23	FQ74801A





SIDEWALL FRAMING: FRAME LINE A



SIDEWALL SHEETING & TRIM: FRAME LINE A

PANELS: 26 Ga. TBD - Std. SMP Finish

GIRT DEPTH: 8.00

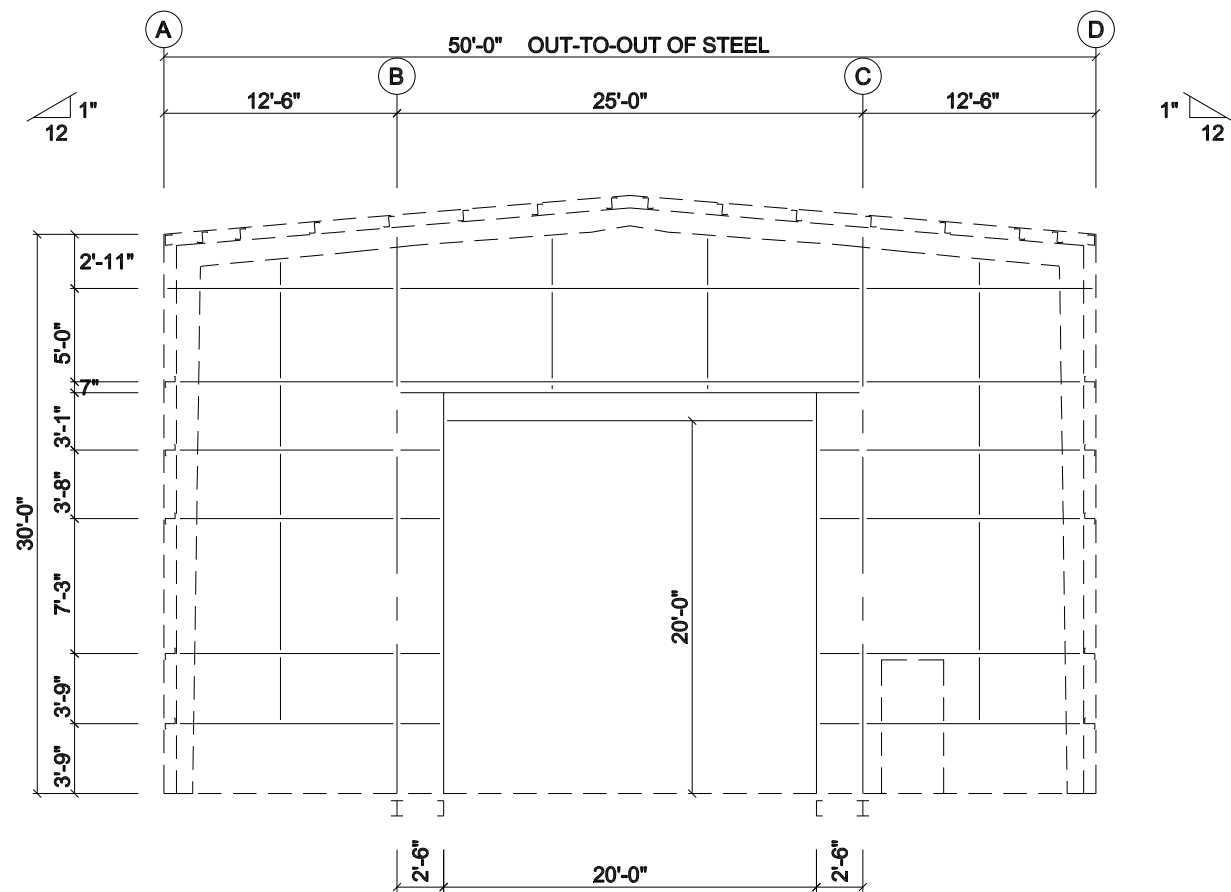
PRELIMINARY

- Preliminary drawings for sales and estimating purposes only.
- Subject to change during order process.

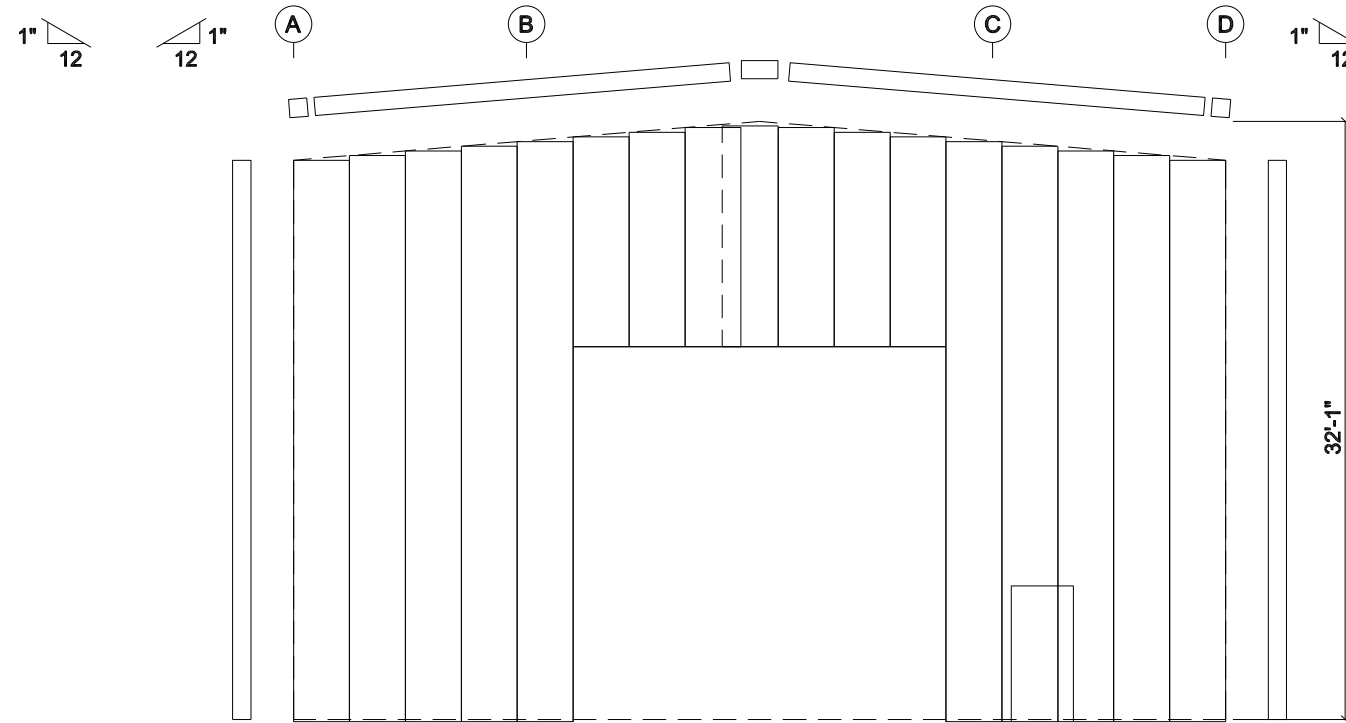
NOT FOR CONSTRUCTION

Drawing	SIDEWALL DRAWING	
Buyer	Steel Buildings Northwest, Inc	
Customer	ABC Recycling Bellingham, WA 98225	
Project Name	ABC Recycling - bldg 3	
	DATE DRAWN	QUOTE NO.
	8/25/23	FQ74801A





ENDWALL FRAMING: FRAME LINE 1



ENDWALL SHEETING & TRIM: FRAME LINE 1

PANELS: 26 Ga. TBD - Std. SMP Finish

GIRT DEPTH: 8.00

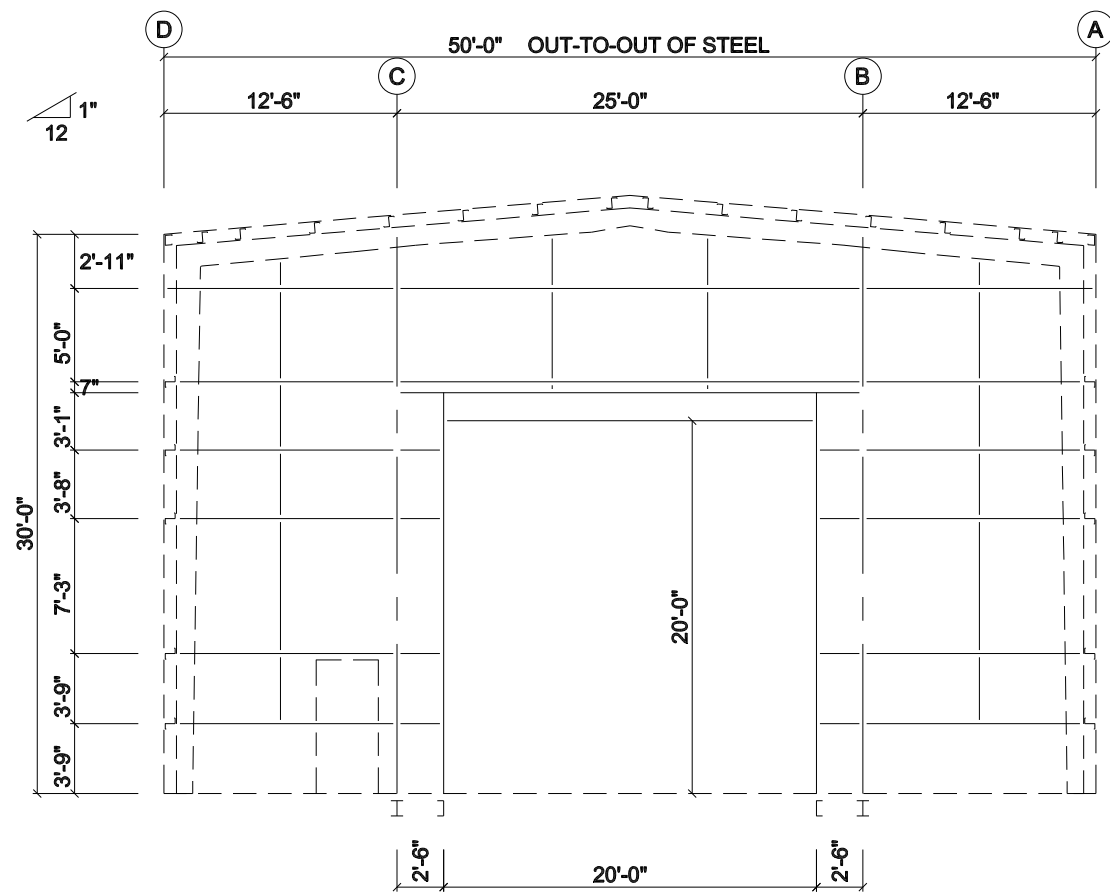
PRELIMINARY

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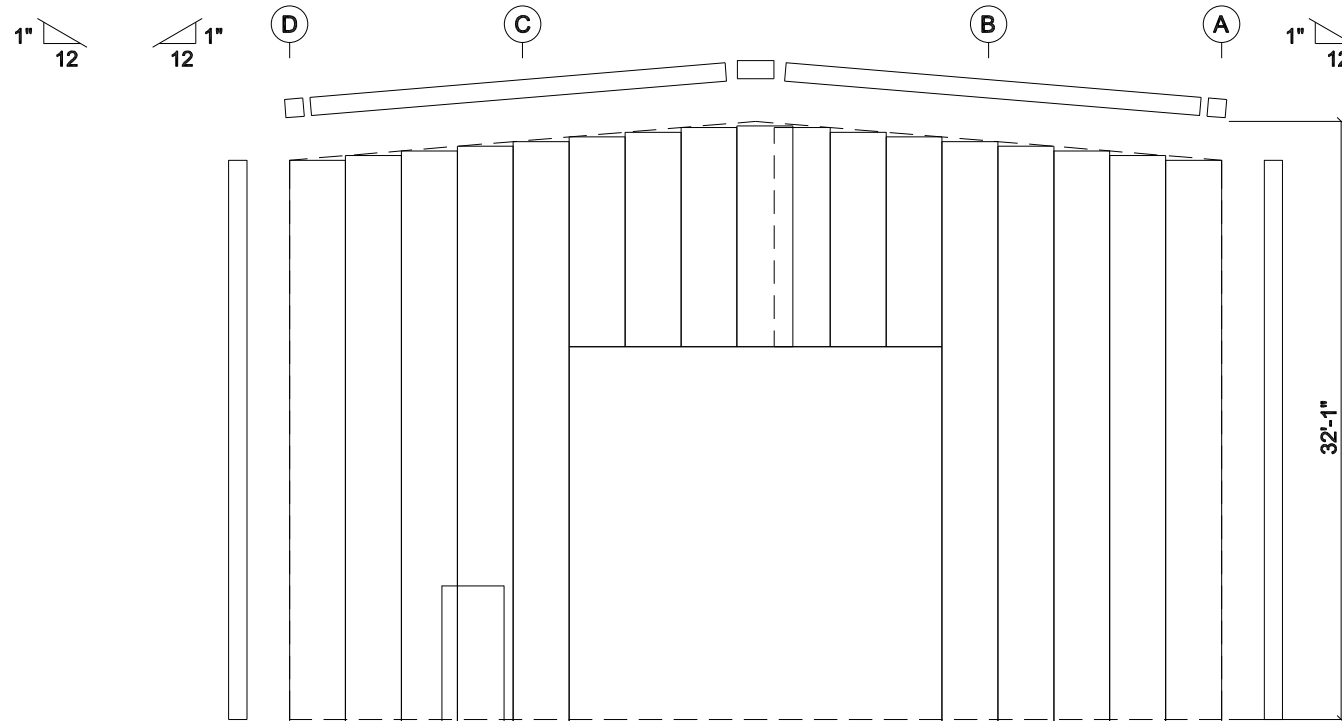
NOT FOR CONSTRUCTION

Drawing	ENDWALL DRAWING	
Buyer	Steel Buildings Northwest, Inc	
Customer	ABC Recycling Bellingham, WA 98225	
Project Name	ABC Recycling - bldg 3	
	DATE DRAWN	QUOTE NO.
	8/25/23	FQ74801A





ENDWALL FRAMING: FRAME LINE 6



ENDWALL SHEETING & TRIM: FRAME LINE 6

PANELS: 26 Ga. TBD - Std. SMP Finish

GIRT DEPTH: 8.00

PRELIMINARY

- Preliminary drawings for sales and estimating purposes only.
- Subject to change during order process.

NOT FOR CONSTRUCTION

Drawing	ENDWALL DRAWING	
Buyer	Steel Buildings Northwest, Inc	
Customer	ABC Recycling Bellingham, WA 98225	
Project Name	ABC Recycling - bldg 3	
	DATE DRAWN	QUOTE NO.
	8/25/23	FQ74801A



SPECIFICATIONS

GENERAL NOTES

- The following notes, details, schedules & specifications shall apply to all phases of this project unless specifically noted otherwise. Notes and details on the structural plans shall take precedence over general notes and typical details. Where no details are given, construction shall be as shown for similar work.
- All drawings are considered to be part of the contract documents. The Contractor shall be responsible for the review and coordination of all drawings and specifications prior to the start of construction. Any discrepancies shall be brought to the attention of the Engineer prior to the start of construction so that a clarification can be issued. Any work performed in conflict with the contract documents or any applicable code requirements shall be corrected by the Contractor at no expense to the Owner or Engineer.
- All information on existing conditions shown on the structural plans are based on best present knowledge available, but without guarantee of accuracy. The Contractor shall be responsible for the verifications of all dimension and conditions at the site. Any discrepancies between actual site conditions and information shown on the drawings or in the specifications shall be brought to the attention of the EOR prior to the start of construction.
- Refer to the Architectural plans for the following:
 - Dimensions
 - Size and location of all interior and exterior wall locations.
 - Size and location of all floor, roof and wall openings
 - Size and location of all drains, slopes, depressions, steps, etc.
 - Specification of all finishes & waterproofing
 - All other non-structural elements
- Refer to the mechanical, electrical and plumbing plans for the following:
 - Size and location of all equipment
 - Pipe runs, sleeves, hangers and trenches
 - All other mechanical, electrical or plumbing related elements
- DO NOT** scale structural plans. Contractor shall use all written dimensions on Architectural plans.
- Construction materials shall be uniformly spread out if placed on floor or roof so as to not overload the framing. Load shall not exceed the design live load per square foot. It is the Contractor's responsibility to provide adequate shoring and/or bracing as required.
- Specifications and detailing of all waterproofing and drainage items, while sometimes shown on the structural plans for general information purposes only, are solely the design responsibility of others.
- The Engineer will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the construction delineated by these plans. It should be understood that the Contractor or his/her agent(s) shall supervise and direct all work and shall be solely and completely responsible for all construction means, methods, techniques, sequences, procedures and conditions on the job site, including safety of all persons and property during the entire period of construction. Periodic observations by the Engineer, his staff or representatives are not intended to include verification of dimensions or review the adequacy of the Contractor's safety measures on or near the construction site.
- Modifications to the plans, notes, details and specifications shall not be permitted without prior approval from the Engineer.
- All workmanship shall conform to the best practice prevailing in the various trades performing the work. The Contractor shall be responsible for coordinating the work of all trades.
- It is the Contractor's responsibility to ensure that only approved structural plans are used during the course of construction. The use of unapproved documents shall be at the contractor's own risk. Corrections of all work based on such documents shall be performed at the Contractor's expense.
- These plans and specifications represent the structural design only. No information nor warranty is provided for the work of any other Consultant (Architect, Mechanical, Electrical, etc.). This includes, but is not limited to, waterproofing, drainage, ventilation, accessibility, or dimensions.

FOUNDATIONS

- Refer to Structural Design Parameters section on sheet S-1.1 for all soil design values used in calculations.
- Soils values per to be confirmed by Geotechnical during construction.
- It is the Contractor's responsibility to obtain a copy of the soils report from the Owner. A copy of the soils report shall be on the job site during the course of construction.
- Unexpected Soil Conditions: Allowable values and subsequent foundation designs are based on soil conditions which are shown by test borings. Actual soil conditions which deviate appreciably from that shown in the test borings shall be reported to the Engineer immediately.
- All compaction, fill, backfilling and site preparation shall be performed in accordance with project soils report or the Governing Building Code Chapter 18 & Appendix J. All such work shall be performed per the recommendations of the project soils engineer.
- Excavate to required depths and dimensions (as indicated in the drawings), cut square and smooth with firm level bottoms. Care shall be taken not to over-excavate foundation at lower elevation and prevent disturbance of soils around high elevation.
- Foundations shall be poured in neat excavations.
- Excavate all foundations to required depths into compacted fill or natural soil (as per plans and details) and as verified by the building official and/or soils engineer.
- All foundations shall be inspected and approved by the appropriate building official and/or a representative of the soils engineer prior to forming and placement of reinforcing or concrete.
- Foundations shall not be poured until all required reinforcing steel, framing hardware, sleeves, inserts, conduits, pipes, etc. and formwork is properly placed and inspected by the appropriate building official/inspector(s).
- It is the responsibility of the contractor in charge of framing to properly position all holdown bolts, anchor bolts, column bases, and all other cast-in-place hardware. Refer to typical details. All hardware to be secured prior to foundation inspections.
- The sides and bottoms of dry excavations must be moistened just prior to placing concrete. Conversely, de-water footings as required to remove standing water and to maintain optimum working conditions.
- The Contractor shall be solely responsible for all excavation procedures including lagging, shoring, and the protection of adjacent property, structures, streets, and utilities in accordance with all federal, state and local safety ordinances. The Contractor shall provide for the design and installation of all cribbing, bracing and shoring required.

CONCRETE

- All concrete shall have:
 - an ultimate compressive strength (f_c) of 3,000 psi at 28 days (UNO).
 - a maximum slump of 5" at point of placement
 - a W/C ratio of 0.55 or less for all slabs, walls, and columns, and 0.60 or less for all foundations.
 - a normal dry-weight density (UNO).
- Testing of materials used in concrete construction must be performed as noted on structural plans or at the request of the Building Department to determine if materials are quality specified. Tests of materials and of concrete shall be made by an approved agency and at the expense of the contractor; such tests shall be made in accordance with the standards listed in the Governing Building Code, Table 1704.4. When testing of concrete is required, four (4) test cylinders shall be taken from each 150 yards, or fraction thereof, poured in any one day. One (1) cylinder shall be tested at seven (7) days; two (2) at 28 days; one (1) shall be held in reserve. If Contractor elects to have additional tests performed for "early-break" results, additional test cylinders must be taken. At no time shall the Contractor instruct the testing agency to perform tests on a schedule different than above without the prior authorization of the Engineer. Contractor is responsible for complying with applicable testing requirements of the Building Department. Copies of all test reports shall be provided to Engineer and Building Department for review in a timely manner.
- The Contractor shall remove and replace any concrete which fails to attain specified 28 day compressive strength if so directed by the Engineer. Any defects in the hardened concrete shall be repaired to the satisfaction of the Engineer and/or Architect or the hardened concrete shall be replaced at the Contractor's expense.
- All concrete work shall conform with the Governing Building Code, Chapter 19.
- All cement shall be Portland Cement Type I or II and shall conform to ASTM C 150.
- All aggregates shall conform to ASTM C33. Maximum aggregate sizes:
 - Footings: 1-1/2"
 - All other work: 3/4"
- Where not specifically detailed, the minimum concrete cover on reinforcing steel shall be:
 - Permanently exposed to earth or weather
 - Cast against earth: 3"
 - Cast against forms: 2"
 - Not exposed to earth or weather
 - Slabs, walls, joists: 3/4"
 - Beams, girders, columns: 1-1/2"
- The minimum lap splice length for all reinforcing steel shall be as noted in the typical details on sheet S-1.1. All lap splices to be staggered.
- All reinforcing steel, anchor bolts, dowels, inserts, and any other hardware to be cast in concrete shall be well secured in position prior to foundation inspection. All hardware to be installed in accordance with respective manufacturer's specifications. Refer to architectural and structural plans for locations of embedded items.
- Locations of all construction joints, other than specified on the structural plans, shall be approved by the Architect and Engineer prior to forming. Construction joints shall be thoroughly air and water cleaned and heavily roughened so as to expose coarse aggregates. All surfaces to receive fresh concrete shall be maintained continuously wet at least three (3) hours in advance of concrete placement. Unless specifically detailed or otherwise noted, construction and control joints shall be provided in all concrete slabs-on-grade. Joints shall be located such that the area does not exceed 400 sq. feet.
- The Architect, Engineer and appropriate inspectors shall be notified in a timely manner for a formwork inspection prior to the placement of any concrete.
- The Contractor shall obtain approval from the Architect and the Engineer prior to placing sleeves, pipes, ducts, chases, coring and opening on or through structural concrete beams, walls, floors, and roof slabs unless specifically detailed or noted on the plans. All piles or conduits passing through concrete members shall be sleeved with standard steel pipe sleeves.
- The Contractor is responsible for design, installation, maintenance and removal of all formwork. Forms shall be properly constructed, sufficiently tight to prevent leakage, sufficiently strong, and braced to maintain their shape and alignment until no longer needed for concrete support. Joints in formwork shall be tightly fitted and blocked, and shall produce a finished concrete surface that is true and free from blemishes. Forms for exposed concrete shall be pre-approved by the Architect to ensure conformance with design intent.
- Remove form work in accordance with the following schedule:
 - Forms at slab edge: 1 day
 - Side forms at footings: 2 days
 - All other vertical surfaces: 7 days
 - Beams, columns, girders: 15 days
 - Elevated slabs: 28 days
 Engineer reserves the right to modify removal schedule above based on field observations, concrete conditions, and/or concrete test results.
- All concrete (except slabs-on-grade 6" or less) shall be mechanically vibrated as it is placed. Vibrator to be operated by experienced personnel. The vibrator shall be used to consolidate the concrete. The vibrator shall not be used to convey concrete, nor shall it be placed on reinforcing and/or forms.
- Concrete shall be maintained in a moist condition for a min. of five (5) days after placement.
- Concrete shall not be permitted to free fall more than six (6) feet. For heights greater than six (6) feet, use tremie, pump or other method consistent with applicable standards.
- When specified ultimate compressive strength is greater than 2500 psi, Contractor shall submit mix designs to Architect and Engineer for approval seven (7) days prior to placement. Mix designs shall be prepared by an approved testing laboratory. Sufficient data must be provided for all admixtures.
- Refer to Architectural plans for locations of all dimensions, slab depressions, slopes, drains, curbs, and control joints.

REINFORCEMENT

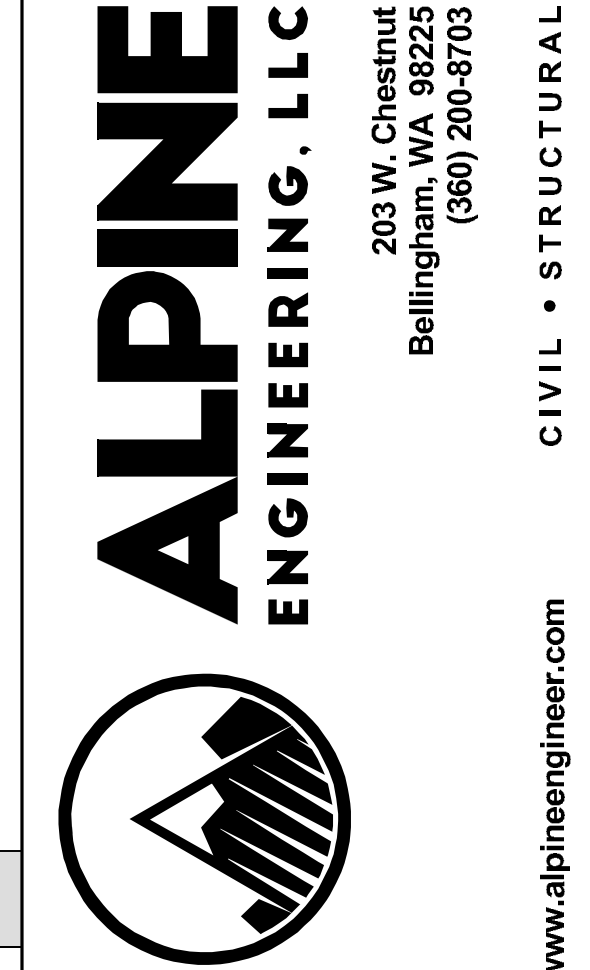
- Reinforcing steel shall be to deformed, clean, free of rust, grease or any other material likely to impair concrete bond.
- All bars shall conform to ASTM A615, Grade 60 minimum (UNO on structural plans). All weld wire fabric (WWF) shall conform to ASTM A185.
- Reinforcing steel that is to be welded shall conform to ASTM A706. All welding of reinforcement shall be subject to special inspection.
- Contractor shall take necessary steps (standard ties, anchorage devices, etc.) to secure all reinforcing steel in their true position and prevent displacement during concrete placement.
- Fabrication, placement and installation of reinforcing steel shall conform to:
 - Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice
 - the Governing Building Code, Section 1907.
- Shop drawings for fabrication of reinforcing steel shall be approved by the Contractor and submitted to the Architect and Engineer for review and approval prior to fabrication. Shop drawings are not required for slabs-on-grade or foundations unless specifically noted on the structural plans.
- Heating of reinforcing steel to aid in bending and shaping of bars is not permitted. All bends in reinforcing steel are to be made cold. All bend radii shall conform to CRSI Manual of Standard Practice.
- Refer to Concrete and Masonry notes for specific minimum splice length and splice staggering requirements. Lap welded wire fabric (WWF) reinforcement two (2) modules minimum (UNO). All splices are to be staggered.

ABC Recycling

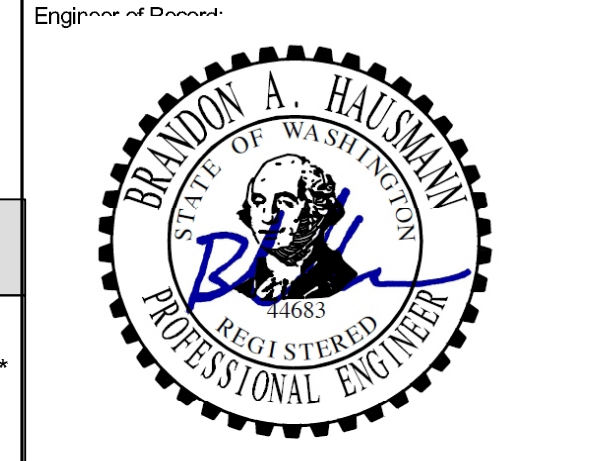
Building 5 Twitch

741 Marine Drive

Bellingham, Washington



The use of these plans and specifications shall be restricted to the original site for which they were prepared and publication thereof is expressly limited to such use. Reproduction or publication by any method, in whole or in part, is prohibited. Title to these plans and specifications remain with Alpine Engineering, LLC, without prejudice. Visual contact with these plans and specifications shall constitute prima facie evidence of the acceptance of these restrictions.



STANDARD DETAILS

1 TYPICAL REINFORCING BAR BENDS

STANDARD TIES & STIRRUPS

Bar Size	D	H (Approx.)
#3	1-1/2"	3"
#4	2"	3"
#5	2-1/2"	3-3/4"
#6	4-1/2"	4-1/2"
#7	5-1/4"	5-1/4"
#8	6"	6"

STANDARD END HOOKS

Bar Size	D	J
#3	2-1/4"	3"
#4	3"	4"
#5	3-3/4"	5"
#6	4-1/2"	6"
#7	5-1/4"	7"
#8	6"	8"

Note:
 All Bar Bend Diameters & End Lengths Must Conform to the CRSI Manual of Standard Practice

2 STD. DEVELOPMENT LENGTHS & LAP SPLICES

CONCRETE

Bar Size	Length of Lap, L _v	Embed. of Hook, L _{eh}
#3	16"	21"
#4	22"	28"
#5	27"	35"

3 TYP. PENETRATION THROUGH FOUNDATION

DO NOT Locate Pen. w/in 24" of Any Holdowns

Ties:
 Fig. Reinf. = (1) Bar T&B, Use #3 Vert. w/ 180° Hook ea. End
 Fig. Reinf. > (1) Bar T&B, Use #3 Stirrup w/ 135° Hooks @ Top

4 TYPICAL CONCRETE SLAB JOINTS

COLD JOINT

SAWCUT JOINT

Notes:
 1. Pour Slab in Alt. Bays, 12'-0" Sq. Max.
 2. Slab May be Poured Monolithically if Sawcut @ 12'-0" Max. Ea. Way
 3. Exp. Joints per Plan.

ABBREVIATIONS

AB	Anchor Bolt	Mas.	Masonry
A&B	Above and Below	Max.	Maximum
Abv.	Above	MB	Machine Bolt
Adn.	Addition (al)	MF	Moment Frame
Adj.	Adjacent, Adjustable	Mfr.	Manufacture(r)
Alt.	Alternate (ive)	Min.	Minimum, Minute
Appd.	Approved	Mod.	Modif(y), (ication)
Arch.	Architectural	Mtr.	Metal
Avg.	Average	(N)	New
Bdy.	Boundary	N/A	Not Applicable
Bldg.	Building	Nat.	Natural
Bk(g)	Block (ing)	NTS	Not to Scale
Bm.	Beam	o/	Over
BN	Boundary Nailing	oc	On Center
BO	Bottom of	OD	Outside Diameter
BO	By Others	Opng.	Opening
Bot.	Bottom	Opp.	Opposite
Brg.	Bearing	Opt.	Optional
Btwn.	Between	Para.	Parallel
BW	Both Ways	PCF	Lbs per Cubic Ft.
Can.	Can/lever(ed)	Pen.	Penetrate, (tion)
CMU	Cast in Place	Perf.	Perforated
CJ	Ceiling Joist	Perim.	Perimeter
CJP	Complete Joint	Perp.	Perpendicular
	Penetration	PI	Panel Index
CL	Center Line	PJP	Partial Joint Pen.
Cig.	Ceiling	PL	Plate
CMU	Conc. Masonry Unit	PLF	Lbs per Linear Ft.
Col.	Column	PLY	Ply
Com.	Common	Pl.	Plate
Comp.	Component	Prep.	Prepare, (tion)
Conc.	Concrete	Press.	Pressure
Conn.	Connection	Proj.	Project
Const.	Construction	Prop.	Property
Cont.	Continue (ous)	PSF	Lbs per Square Ft.
Cr.	Crack	PSI	Lbs per Square In.
d	Penny	PT	Pressure-Treated
Dbl.	Double	R	Radius
Defl.	Deflection	Rec(s)	Recommendation(s)
Deg.	Degree	Rect.	Rectangular
Demo.	Demolish (ton)	Ref.	Reference
Dep.	Depress(ed)	Reinf.	Reinforce(d), (ment)
DF	Douglas Fir	(ng)	(ing)
Dia.	Diameter	Req(d), Require(d)	Requirement(s)
Diaph.	Diaphragm	Reqs.	Requirements
Dir.	Different	Ret.	Retain(ing)
Dim.	Dimension	RJ	Roof Joist
Dist.	Distance	RR	Roof Rafter
DJ	Deck Joist	RW	Redwood
DL	Dead Load	SAD	See Arch Dwg's
Dwg.	Drawing	Sched.	Schedule
(E)	Existing	Sgl.	Single
Ea.	Each	Shtg.	Sheathing
EF	Each Face	Sim.	Similar
EFP	Equivalent Fluid	SIP	Str. Insulated Panel
Eq.	Equivalent	SM	Sheet Metal
Eng.	Engineer	SMS	Sheet Metal Screw
EOR	Engineer of Record	SOG	Slab on Grade
Eq.	Equal, Equivalent	Spec.	Specif(ied), (cations)
ES	Each Side	Std.	Standard
EW	Each Way	Struc.	Structure, (al)
Exp.	Expand, Expansion	SW	Shear Wall
Ext.	Exterior	Sym.	Symmet(ry), (rical)
Fdn.	Foundation	T&B	Top and Bottom
FF	Finished Floor	T&G	Tongue and Groove
FJ	Floor Joist	Temp.	Temporary
Flr(g)	Floor (ing)	Thk.	Thick(ness)
FOC	Face of Concrete	Thru	Through
FOM	Face of Masonry	TN	Toe-Nail
FOS	Face of Studs	TP	Top Plate
FOW	Face of Wall	T-O	Top of
Frmg.	Framing	TOB	Top of Beam
FT.	Foot, Feet	TOC	Top of Concrete
Ft.	Footings	TOG	Top of Grade
Ga.	Gage, Gauge	TOM	Top of Masonry
Galv.	Galvanized	TOS	Top of Steel
GB	Grade Beam	TOW	Top of Wall
GC	General Contractor	TRU	To Remain Unchanged
Gyp.	Gypsum	Trmr.	Trimmer Stud
Hldn.	Holdown	Typ.	Typical
Hdr.	Header	UNO	Unless Noted Otherwise
Hdw.	Hardware		
Hgr.	Hanger	Vert.	Vertical
Hor(iz).	Horizontal	VIF	Verify in Field
Ht.	Height	VVA	Verify with Arch
ID	Inside Diameter	w/	With
In.	Inch(es)	w/in	Within
Insp.	Inspect(ion)	w/o	Without
Int.	Interior	WS	Wood Screw
Inv.	Invert, Inverted	Wndw.	Window
Jst.	Joist	Wt.	Weight
K	Kips (1,000 pounds)	WWF	Welded Wire Fabric
KLF	Kips per Linear Ft.	Yd.	Yard
K	King Stud		
KP	King Post	@	At
KSF	Kips per Square Ft.	°	Degrees
KSI	Kips per Square In.	>	Greater Than
Lb(s).	Pound(s)	<	Less Than
LL	Live Load	#	Number, Pound(s)
Loc.	Location	/	Per
LW	Light Weight	%	Percent(age)
		±	Plus or Minus

PROJECT INFORMATION

CLIENT:
 ABC Recycling
 Steven Shim
 661 Cornwall Ave.
 Bellingham, WA 98225
 (360) 472-2880

ARCHITECT / DESIGNER:
 Steel Buildings Northwest, Inc.
 North Plains, Oregon
 (530) 624-7185

SOILS/GEO. ENGINEER:
 N/A

DESIGN PARAMETERS

GENERAL PARAMETERS

Building Code: 2018 IBC*

Foundation details are subject to change based on the Mfr.'s supplied reactions (Pacific Building Systems, Job # 22-8800, Dated 10/12/2022).

Use of supplied loads & reactions may not be construed as approval of their accuracy or applicability.

No analyses of the pre-engineered metal building (PEMB) members or systems have been performed.

SOILS VALUES

Bearing Pressure (Total Load) * 2000 psf
 * To Be Field Verified By Geotechnical

WIND DESIGN BASIS

Wind force analysis has not been performed.

Structural Calculations are based on the Mfr.'s supplied reactions.

SEISMIC DESIGN BASIS

Seismic force analysis of the PEMB has not been performed.

Structural Calculations are based on the Mfr.'s supplied reactions.

* The 2018 International Building Code (IBC) is the governing code in the State of Washington.

SHEET INDEX

S-1.1	Structural Title Sheet
S-2.1	Foundation Plan

Revision:

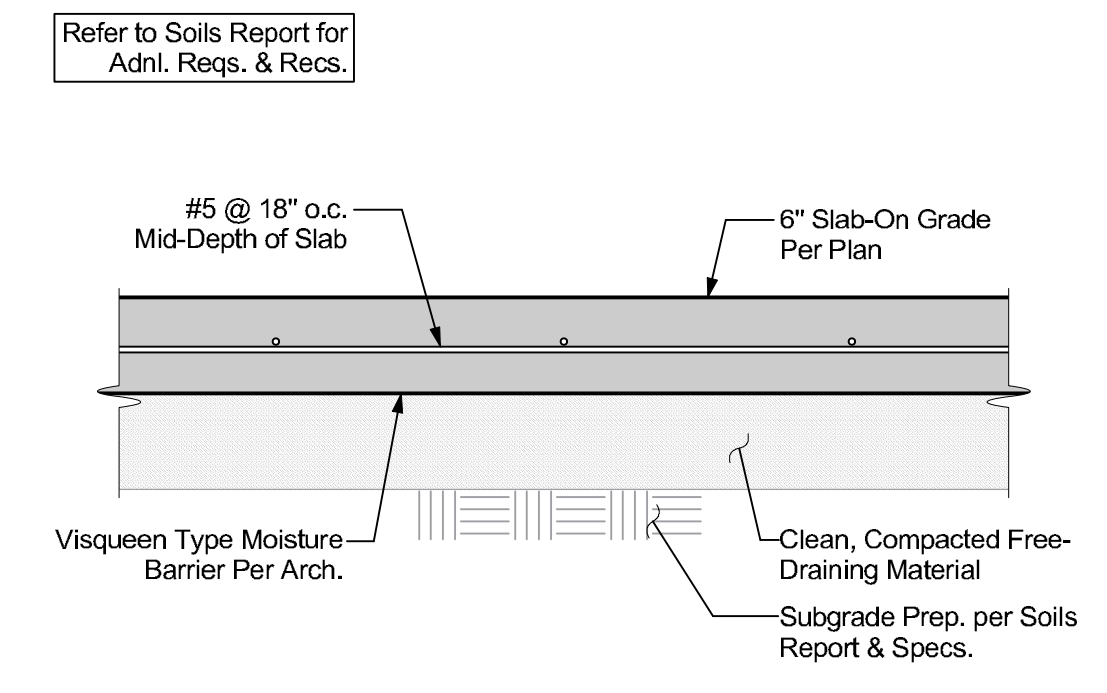
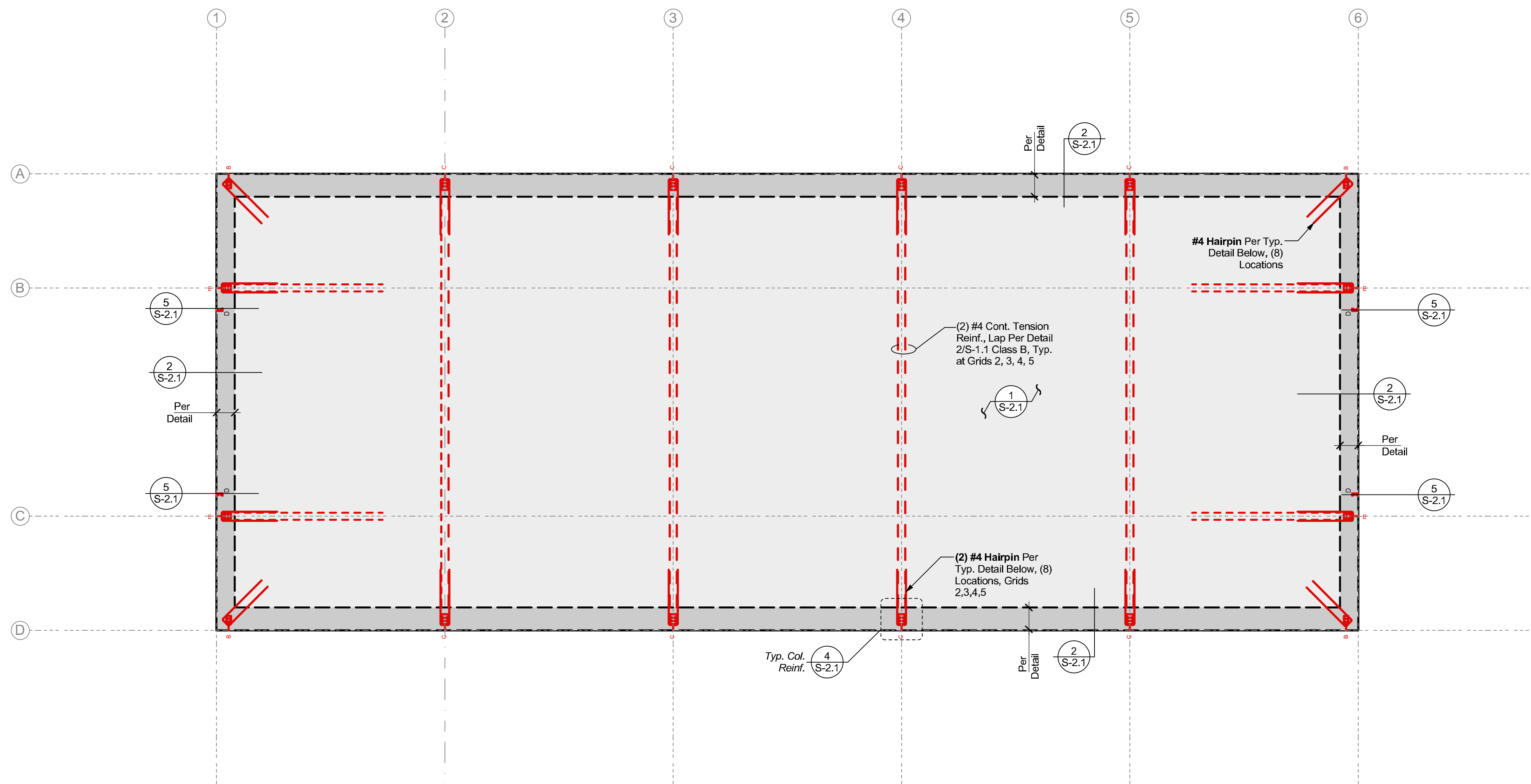
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Proj. Engr.: S. Williamson
 Proj. Mngr.: B. Hausmann
 Date: 05 Oct. 2023 | Scale: NTS
 Alpine Eng. Job No.: No. 20004

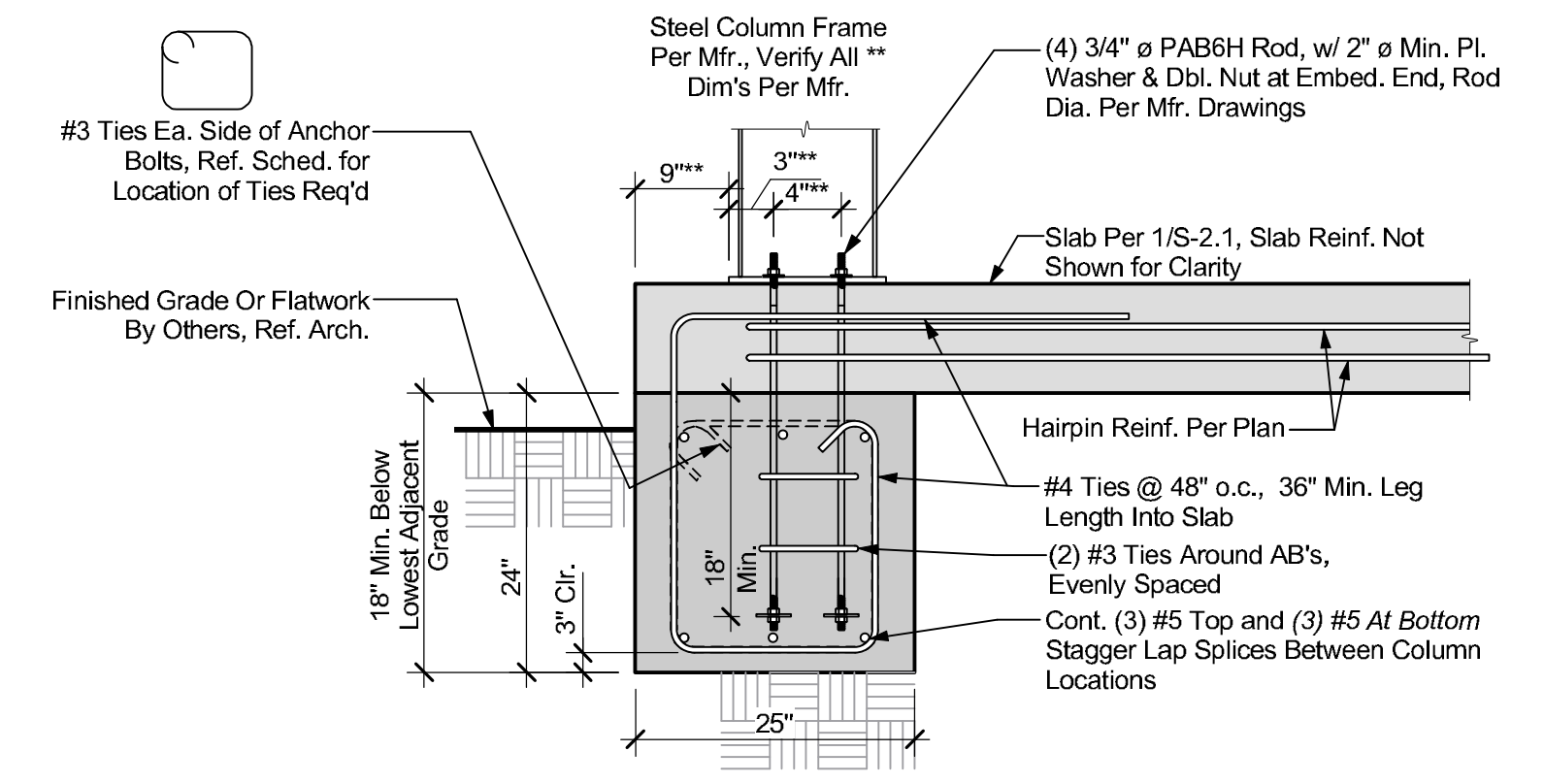
STRUCTURAL TITLE SHEET

S-1.1

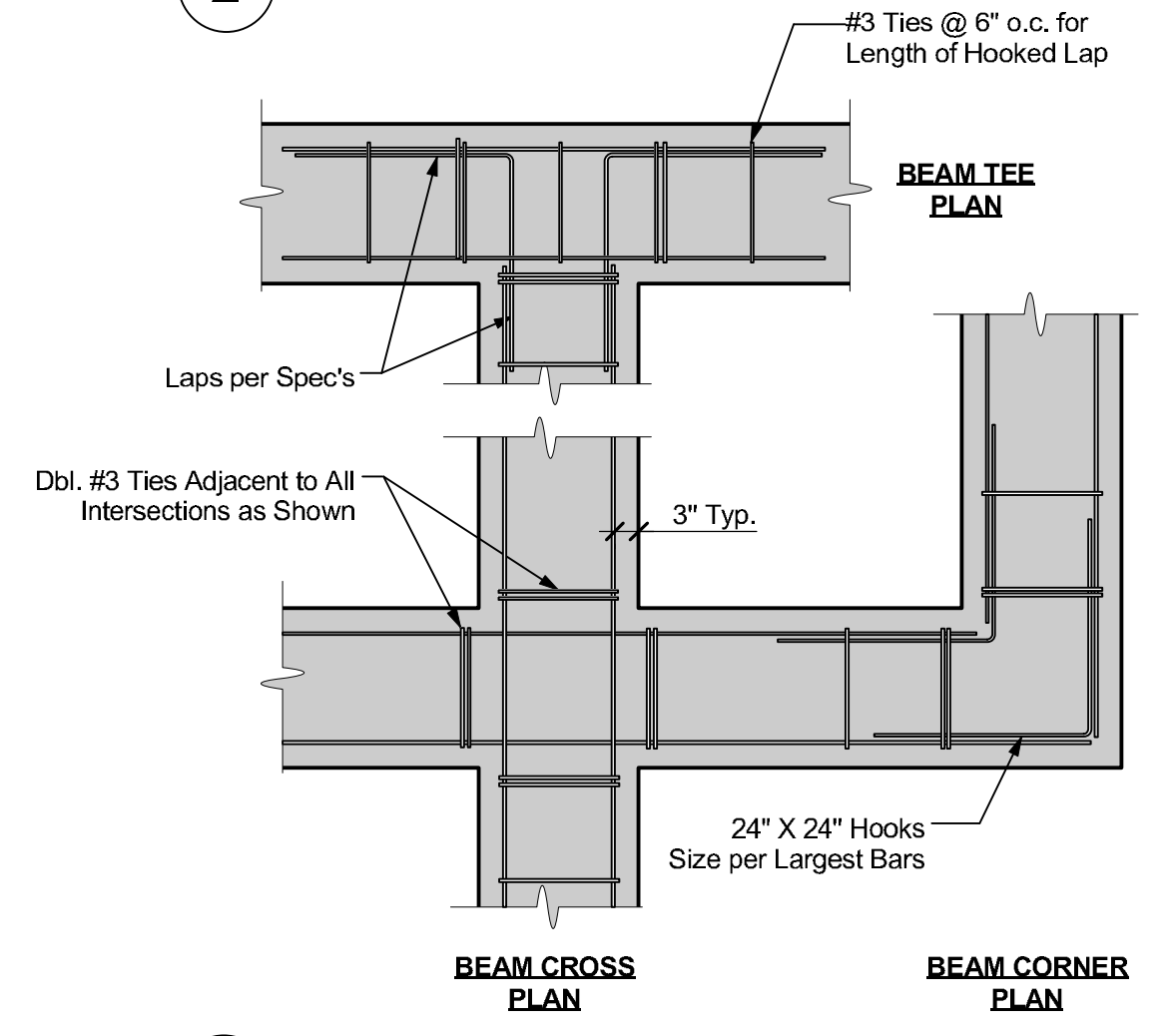
DO NOT SCALE THESE DRAWINGS. Refer to Architectural plans for all dimensions.



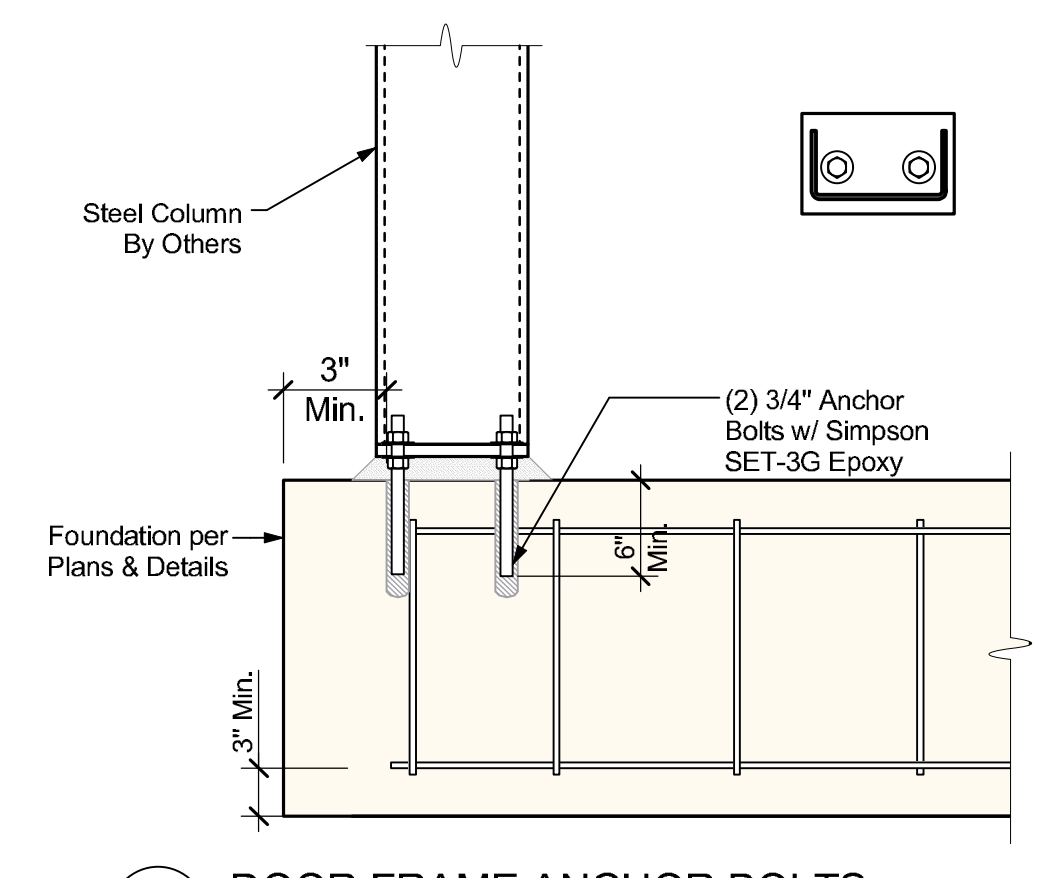
1 TYPICAL SLAB ON GRADE



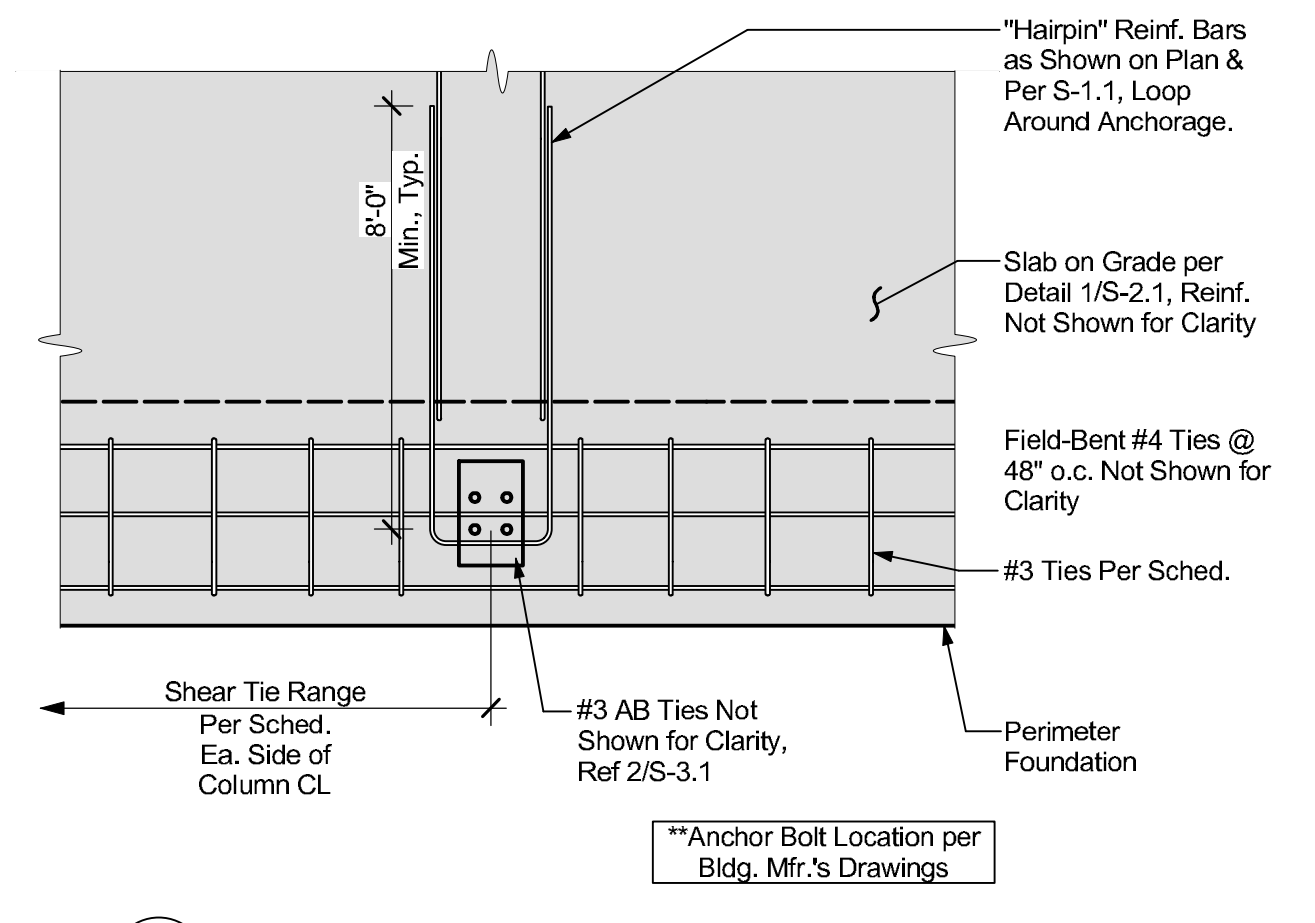
2 EXTERIOR GRADE BEAM FOUNDATION



3 TYPICAL BEAM TO BEAM CONNECTIONS



5 DOOR FRAME ANCHOR BOLTS



4 TYPICAL PERIMETER COL. REINF. PLAN

GENERAL FOUNDATION NOTES

Please see Geotech Recommendations for additional specifications and recommendations. It is the contractor's responsibility to obtain a copy of all geotech info. from the owner or owners representative.

Prior to the contractor requesting a Building Department foundation inspection, the Soils Engineer shall advise the building inspector in writing that:

- Building pad was prepared in accordance with recommendations
- Utility trenches have been properly backfilled and compacted, and
- Foundation excavations, the soil's expansive characteristics and bearing capacity conform to the recommendations

See General Notes & Specifications for additional requirements and material specifications.
 All dimensions per Architectural plans
 Contractor to VERIFY all dimensions w/ Architectural plans PRIOR to commencement of construction.

Hairpin Reinf. - #5(U)O

Foundation per Details

Grade Beam w/ Conc. Ret. Wall

Grade Beam

6" Slab-on-Grade w/ #5 @ 18" oc, per Details

Add Reinf. At Mid-Depth of Slab Per Plan

SHEAR TIE GRID LOCATIONS

Grid	Tie Spacing & Range
A-2,3,4,5	6" o.c., 2'-0" Ea. Side AB
D-2,3,4,5	6" o.c., 2'-0" Ea. Side AB

Note: All Shear Ties to be #3

Refer to Soils Report for Adnl. Reqs. & Recs.

ALPINE ENGINEERING, LLC

203 W. Chestnut
 Bellingham, WA 98225
 (360) 200-8703

CIVIL • STRUCTURAL

www.alpineengineer.com

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Engineer of Record

ABC Recycling

Building 5 Twitch
 741 Marine Drive
 Bellingham, Washington

Revision:

Proj. Engr.: S. Williamson
 Proj. Mngr.: B. Hausmann
 Date: 05 Oct. 2023 Scale: NTS
 Alpine Eng. Job No.: No. 20004

STRUCTURAL DETAILS

S-3.1

DO NOT SCALE THESE DRAWINGS. Refer to Architectural plans for all dimensions.



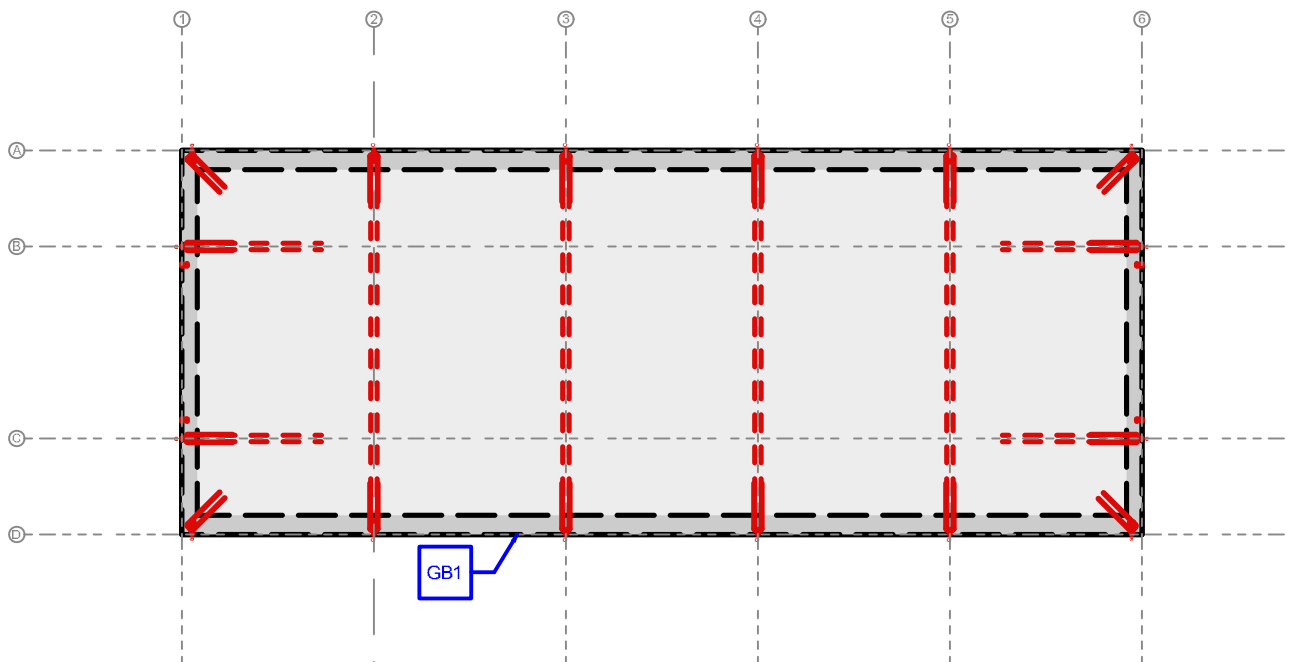
ALPINE
ENGINEERING, LLC

ABC Recycling

Building 5 Twitch
741 Marine Drive
Bellingham, Washington

Job No.: No. 20004

Foundation Layout



PROJECT:	BLDG. I OFFICE SHOP
LOCATION:	BELLINGHA, WA
CLIENT:	TRC
ENGR:	BAH
JOB #:	20004
DATE:	10/3/2023



ALPINE
ENGINEERING, LLC

STRUCTURAL DESIGN CRITERIA

STRUCTURAL L ABSTRACT / SCOPE OF WORK:

STRUCTURAL ENGINEERING IS PROVIDED FOR THE ABC RECYCLING BUILDING No.5 "TWITCH" LOCATED IN WHATCOM COUNTY WA. THE STRUCTURE IS A I-STORY PRE-ENGINEERED METAL BUILDING (PEMB). FOUNDATION IS A CONTINUOUS PERIMETER CONCRETE GRADE BEAM, PAD AND INTERIOR SLAB-ON-GRADE. FOUNDATION DESIGN IS BASED ON ARCHITECTURAL PLANS PROVIDED BY TRC ARCHITECTS (PROJECT #22-001, DATED SEPT. 29 2023) AND STEEL BUILDINGS NORTHWEST INC. (QUOTE # FQ74801A, DATED 8/25/23.). THE STRUCTURAL SCOPE OF WORK IS FOR THE FOUNDATION ONLY, NO ANALYSIS OF THE SUPERSTRUCTURE OR FUTURE TENANT IMPROVEMENT HAS BEEN PERFORMED; ALL COLUMN REACTIONS ARE PROVIDED BY THE PEMB MANUFACTURER.

GRADE BEAM CALCULATIONS AT GRID L ARE SHOWN AS 3 SEPARATE CALCULATIONS: COMPOSITE SECTION, POSITIVE BENDING AND NEGATIVE BENDING. THE POSITIVE AND NEGATIVE BENDING CALCULATIONS ARE SHOWN FOR REFERENCE AND ARE NOT FAILING AS INDICATED IN THE CALCULATIONS. THE MODELING LIMITATIONS CANNOT SHOW THE COMPLETE PICTURE, AND ARE USED TO GRAPH THE BENDING MOMENTS AT THE WORST CASE POSITIVE (AT THE COLUMN POINT LOADS) AND NEGATIVE (MID WAY BETWEEN COLUMNS) MOMENTS TO DESIGN FOR THE MINIMUM AMOUNT OF REINFORCEMENT REQUIRED AT THOSE POINTS.

GENERAL:

BUILDING DEPARTMENT:	WHATCOM Co.
APPLICABLE BUILDING CODE:	2018 IBC
IMPORTANCE CATEGORY:	II

GRAVITY LOADING:

PER MFR. REACTIONS

SOILS DATA:

GEOTECHNICAL ENGINEER:	NA	
ALLOWABLE BEARING PRESSURE:	2000 PSF	**FIELD VERIFIED
MIN. FROST EMBEDMENT:	18 "	(PER WHATCOM Co.)

PROJECT:	BLDG. 1 OFFICE SHOP
LOCATION:	BELLINGHA, WA
CLIENT:	TRC
ENGR:	BAH
JOB #:	20004
DATE:	10/3/2023



ALPINE
ENGINEERING, LLC

Design Parameters

Code: 2018 IBC

** Please Refer to Structural Specification on S-1.1 for more detailed information*

Foundations:	Concrete	3000 psi
	Rebar (#5 & larger)	60 ksi
	Rebar (#3 & #4)	40 ksi

Note:

The intent of lateral design is to prevent structural failures in the event of seismic activities or high winds, but not to prevent the damage of architectural finishes or systems. The lateral calculations herein conform to the specifications of the current International Building Code (IBC).

These calculations, specifications, details and drawings are instruments of service and are the property of Alpine Engineering, LLC. The information contained herein is for use on the specific project referenced above and shall not be used otherwise without the written authorization of Alpine Engineering, LLC.

Beam on Elastic Foundation

Project File: ABC Bldg 5 Twitch - [125x50].ec6

LIC# : KW-06012917, Build:20.23.08.30

Alpine Engineering, LLC

(c) ENERCALC INC 1983-2023

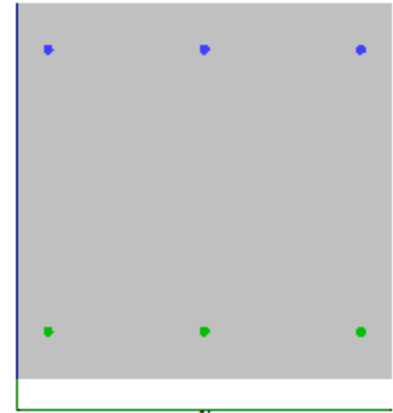
DESCRIPTION: Grid A & D - Composite Section

CODE REFERENCES

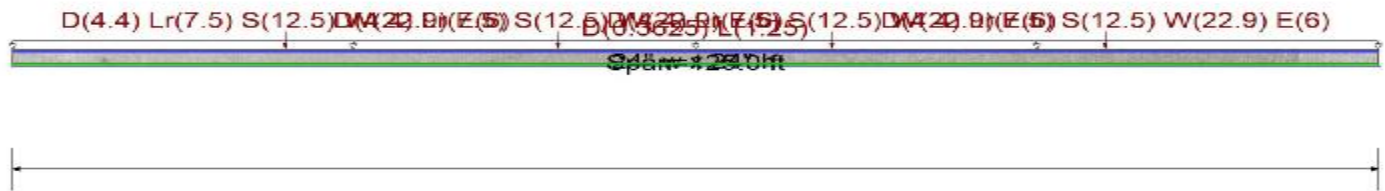
Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : ASCE 7-16

Material Properties

f'c	=	2.50 ksi	φ Phi Values	Flexure :	0.90
fr = f'c ^{1/2}	=	375.0 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β ₁	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi			
Soil Subgrade Modulus	=	250.0 psi / (inch deflection)			
Load Combination	ASCE 7-16				
fy - Main Rebar	=	60.0 ksi	Fy - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2



Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 24.0 in, Height = 24.0 in
 Span #1 Reinforcing....

3-#5 at 3.0 in from Top, from 0.0 to 125.0 ft in this span

3-#5 at 3.0 in from Bottom, from 0.0 to 125.0 ft in this s

Service loads entered. Load Factors will be applied for calculations.

Applied Loads

Beam self weight calculated and added to loads

- Point Load : D = 4.40, Lr = 7.50, S = 12.50, W = 22.90, E = 6.0 k @ 25.0 ft
- Point Load : D = 4.40, Lr = 7.50, S = 12.50, W = 22.90, E = 6.0 k @ 50.0 ft
- Point Load : D = 4.40, Lr = 7.50, S = 12.50, W = 22.90, E = 6.0 k @ 75.0 ft
- Point Load : D = 4.40, Lr = 7.50, S = 12.50, W = 22.90, E = 6.0 k @ 100.0 ft
- Uniform Load : D = 0.07250, L = 0.250 ksf, Tributary Width = 5.0 ft, (slab)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.720 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	64.546 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	89.697 k-ft	Max Downward Total Deflection	0.047 in
Load Combination	+1.20D+1.60S+0.50W	Max Upward Total Deflection	0.005 in
Location of maximum on span	###.### ft		
Span # where maximum occurs	Span # 1		
Maximum Soil Pressure =	1.697 ksf	at	23.61 ft
Allowable Soil Pressure =	2.0 ksf	OK	LdComb: +D+0.750L+0.750S+0.4

Shear Stirrup Requirements

- Between 0.00 to 23.53 ft, Vu < PhiVc/2, Req'd Vs = Not Reqd, use stirrups spaced at 0.000 in
- Between 25.00 to 25.00 ft, PhiVc/2 < Vu <= PhiVc, Req'd Vs = Min 11.5.6.3, use stirrups spaced at 7.333 in
- Between 26.47 to 48.53 ft, Vu < PhiVc/2, Req'd Vs = Not Reqd, use stirrups spaced at 0.000 in
- Between 50.00 to 50.00 ft, PhiVc/2 < Vu <= PhiVc, Req'd Vs = Min 11.5.6.3, use stirrups spaced at 7.333 in
- Between 51.47 to 98.53 ft, Vu < PhiVc/2, Req'd Vs = Not Reqd, use stirrups spaced at 0.000 in
- Between 100.00 to 100.00 ft, PhiVc/2 < Vu <= PhiVc, Req'd Vs = Min 11.5.6.3, use stirrups spaced at 7.333 in
- Between 101.47 to 122.06 ft, Vu < PhiVc/2, Req'd Vs = Not Reqd, use stirrups spaced at 0.000 in

Beam on Elastic Foundation

Project File: ABC Bldg 5 Twitch - [125x50].ec6

LIC# : KW-06012917, Build:20.23.08.30

Alpine Engineering, LLC

(c) ENERCALC INC 1983-2023

DESCRIPTION: Grid A & D - Composite Section

Maximum Forces & Stresses for Load Combinatio

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope						
Span # 1		1	###.###	64.55	89.70	0.72
+1.40D						
Span # 1		1	###.###	10.65	89.70	0.12
+1.20D+0.50Lr+1.60L						
Span # 1		1	###.###	15.35	89.70	0.17
+1.20D+1.60L+0.50S						
Span # 1		1	###.###	19.76	89.70	0.22
+1.20D+1.60Lr+L						
Span # 1		1	###.###	30.03	89.70	0.33
+1.20D+1.60Lr+0.50W						
Span # 1		1	###.###	50.45	89.70	0.56
+1.20D+1.60Lr-0.50W						
Span # 1		1	###.###	10.09	89.70	0.11
+1.20D+L+1.60S						
Span # 1		1	###.###	44.13	89.70	0.49
+1.20D+1.60S+0.50W						
Span # 1		1	###.###	64.55	89.70	0.72
+1.20D+1.60S-0.50W						
Span # 1		1	###.###	24.19	89.70	0.27
+1.20D+0.50Lr+L+W						
Span # 1		1	###.###	55.85	89.70	0.62
+1.20D+0.50Lr+L-W						
Span # 1		1	###.###	4.40	89.70	0.05
+1.20D+L+0.50S+W						
Span # 1		1	###.###	60.26	89.70	0.67
+1.20D+L+0.50S-W						
Span # 1		1	###.###	3.54	89.70	0.04
+0.90D+W						
Span # 1		1	###.###	47.17	89.70	0.53
+0.90D-W						
Span # 1		1	###.###	6.36	89.70	0.07
+1.20D+L+0.20S+E						
Span # 1		1	###.###	23.86	89.70	0.27
+1.20D+L+0.20S-E						
Span # 1		1	###.###	2.71	89.70	0.03
+0.90D+E						
Span # 1		1	###.###	17.38	89.70	0.19
+0.90D-E						
Span # 1		1	###.###	0.56	89.70	0.01

Overall Maximum Deflections - Unfactored Lr

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.0471	23.611		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+0.50Lr+1.60L	1	0.00	21.00	2.15	2.15	0.00	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+1.60L	1	1.47	21.00	2.04	2.04	0.10	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	2.94	21.00	1.97	1.97	0.40	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	4.41	21.00	2.06	2.06	0.85	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	5.88	21.00	2.13	2.13	1.44	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	7.35	21.00	2.15	2.15	2.11	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	8.82	21.00	2.13	2.13	2.83	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	10.29	21.00	2.05	2.05	3.51	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+1.60L	1	11.76	21.00	2.03	2.03	3.32	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	13.24	21.00	2.22	2.22	4.44	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	14.71	21.00	2.69	2.69	12.12	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	16.18	21.00	4.01	4.01	10.62	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	17.65	21.00	5.73	5.73	7.17	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	19.12	21.00	7.88	7.88	1.19	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	20.59	21.00	10.46	10.46	7.95	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	22.06	21.00	13.43	13.43	20.88	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	23.53	21.00	16.77	16.77	40.99	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	25.00	21.00	20.35	20.35	64.55	1.00	39.40	PhiVc/2 < Vu <= PhiVc	Min 11.5.6.3	0.00	7.33
+1.20D+1.60S+0.50W	1	26.47	21.00	-12.94	12.94	39.36	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00

Beam on Elastic Foundation

Project File: ABC Bldg 5 Twitch - [125x50].ec6

LIC# : KW-06012917, Build:20.23.08.30

Alpine Engineering, LLC

(c) ENERCALC INC 1983-2023

DESCRIPTION: Grid A & D - Composite Section

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60S+0.50W	1	27.94	21.00	-9.83	9.83	19.24	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	29.41	21.00	-7.14	7.14	3.68	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	30.88	21.00	-4.90	4.90	7.92	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	32.35	21.00	3.11	3.11	5.64	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	33.82	21.00	2.54	2.54	7.76	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	35.29	21.00	2.07	2.07	9.05	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	36.76	21.00	2.23	2.23	8.91	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	38.24	21.00	2.76	2.76	25.31	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	39.71	21.00	3.91	3.91	23.70	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	41.18	21.00	5.27	5.27	20.41	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	42.65	21.00	6.93	6.93	15.11	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	44.12	21.00	8.96	8.96	7.36	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	45.59	21.00	11.39	11.39	3.37	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	47.06	21.00	14.19	14.19	17.67	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	48.53	21.00	17.41	17.41	38.76	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	50.00	21.00	20.84	20.84	63.27	1.00	39.40	PhiVc/2 < Vu <= PhiVc	Min 11.5.6.3	0.00	7.33
+1.20D+1.60S+0.50W	1	51.47	21.00	-12.59	12.59	38.81	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	52.94	21.00	-9.59	9.59	19.20	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	54.41	21.00	-7.00	7.00	4.00	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	55.88	21.00	-4.83	4.83	7.39	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	57.35	21.00	3.10	3.10	5.41	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	58.82	21.00	2.55	2.55	7.52	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	60.29	21.00	2.08	2.08	8.81	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+1.60L	1	61.76	21.00	2.22	2.22	6.95	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	63.24	21.00	2.71	2.71	24.83	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	64.71	21.00	3.86	3.86	23.30	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	66.18	21.00	5.22	5.22	20.08	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	67.65	21.00	6.89	6.89	14.85	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	69.12	21.00	8.92	8.92	7.17	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	70.59	21.00	11.36	11.36	3.51	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	72.06	21.00	14.16	14.16	17.76	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	73.53	21.00	17.38	17.38	38.81	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	75.00	21.00	-15.92	15.92	63.27	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	76.47	21.00	-12.62	12.62	38.76	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	77.94	21.00	-9.63	9.63	19.11	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	79.41	21.00	-7.04	7.04	3.85	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	80.88	21.00	-4.87	4.87	7.60	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	82.35	21.00	3.12	3.12	5.51	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	83.82	21.00	2.57	2.57	7.65	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	85.29	21.00	2.10	2.10	8.98	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+1.60L	1	86.76	21.00	2.20	2.20	7.07	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	88.24	21.00	2.67	2.67	25.38	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	89.71	21.00	3.84	3.84	23.90	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	91.18	21.00	5.24	5.24	20.70	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	92.65	21.00	6.96	6.96	15.44	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	94.12	21.00	9.06	9.06	7.66	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	95.59	21.00	11.58	11.58	3.21	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	97.06	21.00	14.49	14.49	17.79	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	98.53	21.00	17.87	17.87	39.36	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	100.00	21.00	21.46	21.46	64.55	1.00	39.40	PhiVc/2 < Vu <= PhiVc	Min 11.5.6.3	0.00	7.33
+1.20D+1.60S+0.50W	1	101.47	21.00	-11.80	11.80	40.99	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	102.94	21.00	-8.64	8.64	22.54	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	104.41	21.00	-5.89	5.89	8.74	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	105.88	21.00	-3.59	3.59	1.01	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	107.35	21.00	2.62	2.62	2.31	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+L-W	1	108.82	21.00	2.09	2.09	3.71	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50Lr+1.60L	1	110.29	21.00	2.22	2.22	3.59	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	111.76	21.00	2.44	2.44	4.44	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	113.24	21.00	2.70	2.70	11.29	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	114.71	21.00	2.92	2.92	9.76	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	116.18	21.00	2.99	2.99	7.91	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	117.65	21.00	2.93	2.93	5.97	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	119.12	21.00	2.78	2.78	4.11	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+L+0.50S+W	1	120.59	21.00	2.55	2.55	2.47	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	122.06	21.00	2.44	2.44	0.45	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	123.53	21.00	2.30	2.30	0.12	1.00	39.40	Vu < PhiVc/2	Not Reqd	0.00	0.00

PROJECT:	ABC BUILDING 5 TWITCH
LOCATION:	WHATCOM COUNTY, WA
CLIENT:	TRC
ENGR:	BAH
JOB #:	20004
DATE:	10/5/2023



PEMB Column Reactions & Load Combinations

Load Combinations per ASCE 7-10

ASD Load Combinations		LRFD Load Combinations		PEMB Reaction definitions																											
1	D	1	1.4D	D + Coll	Total Dead Load																										
2	D+L	2	1.2D+1.6L+0.5(Lr or S or R)	W+	Wind acting inward																										
3	D+(Lr or S or R)	3	1.2D+1.6(Lr or S or R)+(L or 0.5W)	W-	Wind acting outward (suction)																										
4	D+0.75L+0.75(Lr or S or R)	4	1.2D+1.0W+L+0.5(Lr or S or R)	E+	Seismic acting inward																										
5	D+(0.6W or 0.7E)	5	1.2D+1.0E+L+0.2S	E-	Seismic acting outward																										
6a	D+0.75L+0.75(0.6W)+0.75(Lr or S or R)	6	0.9D+1.0W	W (max)	Total concurrent Wind Loading, worst case																										
6b	D+0.75L+0.75(0.6E)+0.75S	7	0.9D+1.0E																												
7	0.6D+0.6W																														
8	0.6D+0.7E																														
		Horiz								Vert								Out-of-plane		ASD load combos											
Grid		D	Coll	Snow	L	E	W (max)	RS	LS	D	Coll	Snow	L	E	W (max)	RS	LS	E	W (max)	1	2	3	4	5	6a	6b	7	8	Max	Max	Max
1	A	0	0	0	0	0	-4.4	0.2	0.2	0.6	0.1	0.7	0.5	-1.5	-9.3	0.8	2.2	0	0	0	0	0.2	0.15	2.64	2.13	0.15	2.64	0	2.6	6.5	0.0
1	B	0	0	0	0	0	0	0	0	1.4	0.9	5.1	3.5	-1.7	-14	1.2	4.7	0	-7	0	0	0	0	0	0	0	0	0	0.0	12.4	4.2
1	C	0	0	0	0	0	0	0	0	1.4	0.9	5.1	3.5	-1.4	-14	1.4	4.5	0	-8.1	0	0	0	0	0	0	0	0	0.0	12.4	4.9	
1	D	0	0	0	0	0	0	0	0	0.6	0.1	0.7	0.5	1.5	6.4	1.4	4.7	0	-9.2	0	0	0	0	0	0	0	0	0.0	7.1	5.5	
2*	A	0.5	2.5	2.8	1.9	-1	-18.1	8.2	8.2	2.5	1.9	10.9	7.5	1.1	-18.1	5.1	17.4	-5.3	8.2	3	3	11.2	9.15	13.86	17.3	9.6	12.7	2.5	17.3	25.6	4.9
2*	D	-0.5	-0.5	-2.8	-1.9	-1	10.9	0	0	2.5	1.9	10.9	7.5	-0.2	-22.9	29.6	29.6	-5.3	8.2	-1	-1	-1	-1	5.54	3.91	-0.55	5.94	0.1	5.9	36.9	4.9

2* Corresponds to Frames at Grids 2,3,4,5

1* Corresponds to Frames at Grids 1,6

PROJECT:	ABC BUILDING 5 TWITCH
LOCATION:	WHATCOM COUNTY, WA
CLIENT:	TRC
ENGR:	BAH
JOB #:	20004
DATE:	10/3/2023



ALPINE
ENGINEERING, LLC

Wind & Seismic Uplift Calculations:

Grid	PEMB		UPLIFT		ASD UPLIFT		LRFD UPLIFT			Down +	lateral
	D+Coll	E	W		SEIS	WIND	SEIS	WIND			
1	A	0.7	-1.5	-9.3	12.6	7.9	18.7	10.9	OK	7.9	4.4
2*	A	4.4	1.1	-18.1	15.0	4.8	22.4	5.4	OK	4.8	25
2*	D	4.4	-0.2	-22.9	15.6	2.0	23.3	0.6	OK	2.0	15.4

Conc. Unit Weight	145 lb/cf
Fdn. Trib Length	25 ft
Fdn. Depth	24 in
Fdn. Width	24 in
Slab Trib. Area	100 sf
Slab Thickness	6 in
Total Trib. Fdn. Weight =	21.8 kips

2* Corresponds to Frames at Grids 2,3,4,5

1* Corresponds to Frames at Grids 1,6

Hairpin Tension Calculations:

fy hairpin =	60 ksi	Area Req'd =	0.463 in ²
Max Horiz. Force	25 kip		

USE:

#5 Hairpin OR (2) #4 Hairpins



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Address:			
Phone:			
E-mail:			

1. Project information

Customer company:
Customer contact name:
Customer e-mail:
Comment:

Project description:
Location:
Fastening description:

2. Input Data & Anchor Parameters

General

Design method: ACI 318-14
Units: Imperial units

Anchor Information:

Anchor type: Cast-in-place
Material: AB_H
Diameter (inch): 0.750
Effective Embedment depth, h_{ef} (inch): 18.000
Anchor category: -
Anchor ductility: Yes
 h_{min} (inch): 20.25
 C_{min} (inch): 1.63
 S_{min} (inch): 3.00

Base Material

Concrete: Normal-weight
Concrete thickness, h (inch): 24.00
State: Cracked
Compressive strength, f'_c (psi): 3000
 $\Psi_{c,v}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental edge reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: Yes
Build-up grout pad: No

Base Plate

Length x Width x Thickness (inch): 10.50 x 6.00 x 0.38

Recommended Anchor

Anchor Name: PAB Pre-Assembled Anchor Bolt - PAB6H (3/4"Ø)



Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.



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E-mail:			

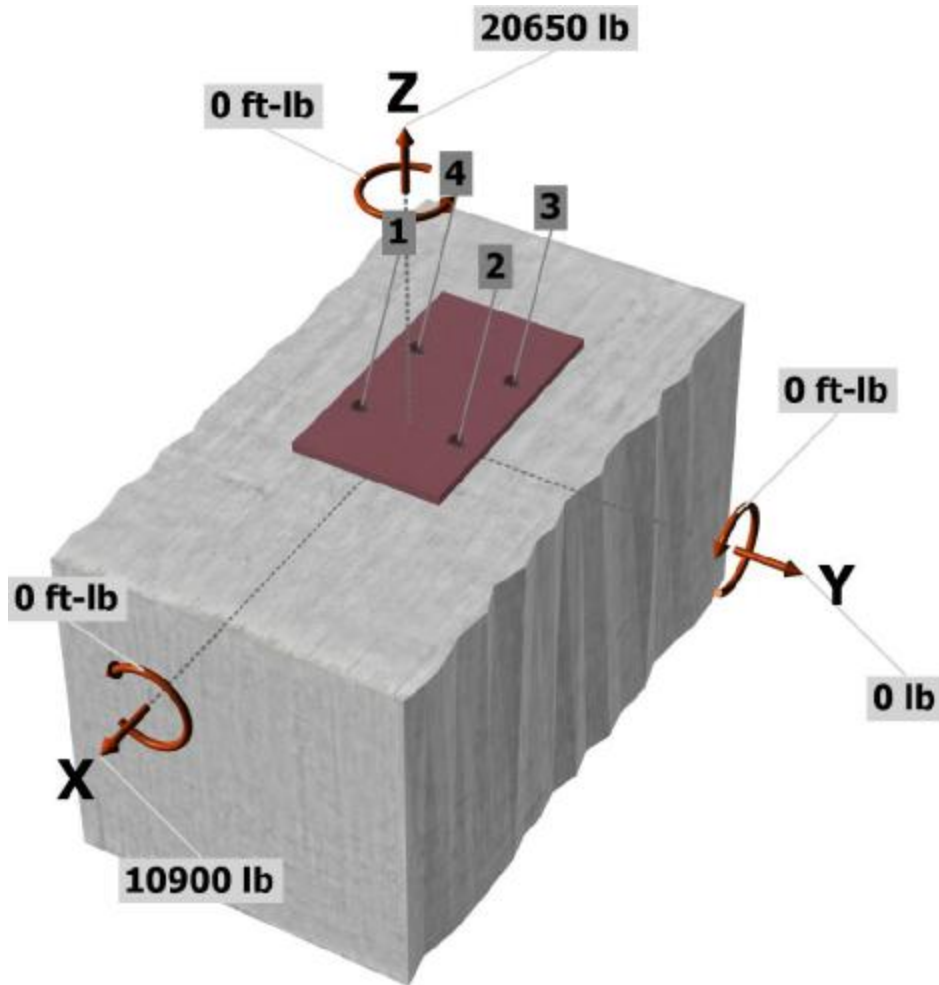
Load and Geometry

Load factor source: ACI 318 Section 5.3
 Load combination: not set
 Seismic design: No
 Anchors subjected to sustained tension: Not applicable
 Apply entire shear load at front row: No
 Anchors only resisting wind and/or seismic loads: No

Strength level loads:

N_{ua} [lb]: 20650
 V_{uax} [lb]: 10900
 V_{uay} [lb]: 0
 M_{ux} [ft-lb]: 0
 M_{uy} [ft-lb]: 0
 M_{uz} [ft-lb]: 0

<Figure 1>



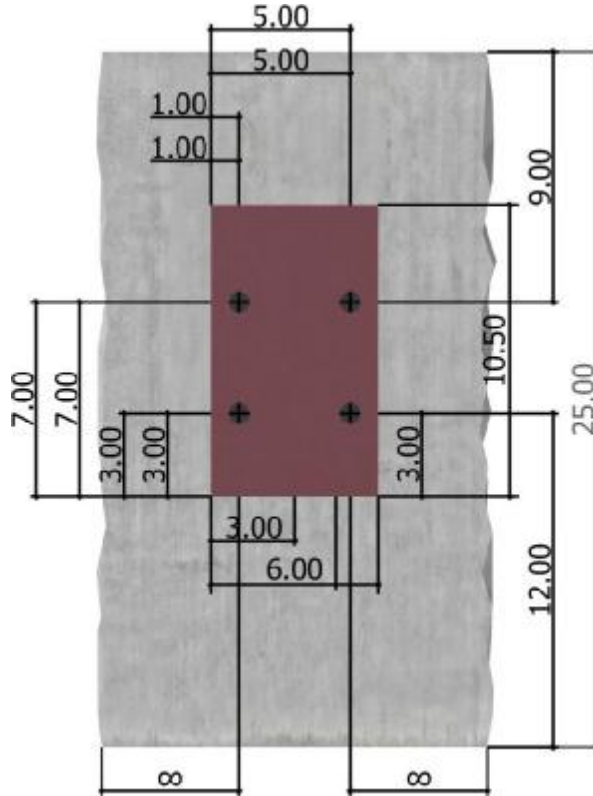
Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.



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<Figure 2>





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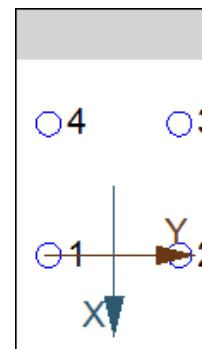
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3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2 + (V_{uay})^2}$ (lb)
1	9046.7	2725.0	0.0	2725.0
2	9046.7	2725.0	0.0	2725.0
3	2987.6	2725.0	0.0	2725.0
4	2987.6	2725.0	0.0	2725.0
Sum	24068.7	10900.0	0.0	10900.0

Maximum concrete compression strain (%): 0.17
Maximum concrete compression stress (psi): 746
Resultant tension force (lb): 24069
Resultant compression force (lb): 3419
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 1.01
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
40080	0.75	30060

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$$N_b = 16\lambda_a \sqrt{f_c} h_{ef}^{5/3} \text{ (Eq. 17.4.2.2b)}$$

λ_a	f_c (psi)	h_{ef} (in)	N_b (lb)
1.00	3000	18.000	108343

$$\phi N_{cbg} = \phi (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b \text{ (Sec. 17.3.1 \& Eq. 17.4.2.1b)}$$

A_{Nc} (in ²)	A_{Nco} (in ²)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕN_{cbg} (lb)
1506.25	2916.00	9.00	0.964	0.800	1.00	1.000	108343	0.70	30213

6. Pullout Strength of Anchor in Tension (Sec. 17.4.3)

$$\phi N_{pn} = \phi \Psi_{c,P} N_p = \phi \Psi_{c,P} 8 A_{brg} f_c \text{ (Sec. 17.3.1, Eq. 17.4.3.1 \& 17.4.3.4)}$$

$\Psi_{c,P}$	A_{brg} (in ²)	f_c (psi)	ϕ	ϕN_{pn} (lb)
1.0	3.53	3000	0.70	59371

Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.



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8. Steel Strength of Anchor in Shear (Sec. 17.5.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
24050	1.0	0.65	15633

9. Concrete Breakout Strength of Anchor in Shear (Sec. 17.5.2)

Shear perpendicular to edge in x-direction:

$$V_{bx} = \min[7(l_e/d_a)^{0.2}\sqrt{d_a}\lambda_a\sqrt{f'_c}c_{a1}^{1.5}; 9\lambda_a\sqrt{f'_c}c_{a1}^{1.5}] \text{ (Eq. 17.5.2.2a \& Eq. 17.5.2.2b)}$$

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{bx} (lb)
6.00	0.750	1.00	3000	16.00	31549

$$\phi V_{cbgx} = \phi (A_{Vc} / A_{Vco}) \Psi_{ec,V} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{bx} \text{ (Sec. 17.3.1 \& Eq. 17.5.2.1b)}$$

A_{Vc} (in ²)	A_{Vco} (in ²)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{bx} (lb)	ϕ	ϕV_{cbgx} (lb)
1248.00	1152.00	1.000	1.000	1.000	1.000	31549	0.70	23925

10. Concrete Pryout Strength of Anchor in Shear (Sec. 17.5.3)

$$\phi V_{cbpg} = \phi k_{cp} N_{cbg} = \phi k_{cp} (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b \text{ (Sec. 17.3.1 \& Eq. 17.5.3.1b)}$$

k_{cp}	A_{Nc} (in ²)	A_{Nco} (in ²)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cbpg} (lb)
2.0	1506.25	2916.00	1.000	0.800	1.000	1.000	108343	0.70	62680

11. Results

Interaction of Tensile and Shear Forces (Sec. R17.6)

Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status	
Steel	9047	30060	0.30	Pass	
Concrete breakout	24069	30213	0.80	Pass (Governs)	
Pullout	9047	59371	0.15	Pass	
Shear	Factored Load, V_{ua} (lb)	Design Strength, ϕV_n (lb)	Ratio	Status	
Steel	2725	15633	0.17	Pass	
T Concrete breakout x+	10900	23925	0.46	Pass (Governs)	
Pryout	10900	62680	0.17	Pass	
Interaction check	$(N_{ua}/\phi N_{ua})^{5/3}$	$(V_{ua}/\phi V_{ua})^{5/3}$	Combined Ratio	Permissible	Status
Sec. R17.6	0.68	0.27	95.4%	1.0	Pass

PAB6H (3/4"Ø) with hef = 18.000 inch meets the selected design criteria.

12. Warnings

- Minimum spacing and edge distance requirement of 6da per ACI 318 Sections 17.7.1 and 17.7.2 for torqued cast-in-place anchor is waived per designer option.

- Designer must exercise own judgement to determine if this design is suitable.

Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.

Simpson Strong-Tie Company Inc. 5956 W. Las Positas Boulevard Pleasanton, CA 94588 Phone: 925.560.9000 Fax: 925.847.3871 www.strongtie.com