GENERAL STRUCTURAL NOTES - DC RIDING ARENA - METAL BUILDING FOUNDATION - CLARK, COLORADO

A. GENERAL:

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND JOB SITE CONDITIONS BEFORE COMMENCING WORK AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER.

2. USE WRITTEN DIMENSIONS. DO NOT USE SCALED DIMENSIONS. WHERE NO DIMENSION IS PROVIDED, CONSULT THE ARCHITECT OR ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.

3. THE DESIGN, ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND HAS NOT BEEN CONSIDERED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE PRIOR TO THE COMPLETION OF ALL SHEAR WALLS, ROOF DIAPHRAGMS AND FINISH MATERIALS.

4. ECLIPSE ENGINEERING, INC. HOLDS NO LIABILITY FOR UNAUTHORIZED CHANGES MADE TO THE CONSTRUCTION DOCUMENTS THAT RESULT IN DAMAGES. ECLIPSE ENGINEERING, INC. IS NOT RESPONSIBLE FOR DAMAGES THAT RESULT FROM UNAUTHORIZED CHANGES MADE BY THE OWNER, A CONTRACTOR OR A BUILDING OFFICIAL, ETC.

B. DESIGN CRITERIA PER METAL BUILDING DRAWINGS:

1. CODE: INTERNATIONAL BUILDING CODE, 2018 EDITION.

2. ROOF SNOW LOADS:
   - GROUND SNOW, Pg - 93 PSF
   - FLAT ROOF SNOW LOAD, Pf - 72 PSF
   - SNOW LOAD IMPORTANCE FACTOR, Is - 1.0
   - THERMAL FACTOR, Ct - 1.1

3. WIND DESIGN DATA:
   - BASIC WIND SPEED - 115 MPH
   - WIND EXPOSURE - C
   - WIND IMPORTANCE FACTOR, Iw - 1.0

4. SEISMIC DESIGN DATA:
   - SEISMIC IMPORTANCE FACTOR, IE - 1.00
   - SEISMIC USE GROUP - II
   - SPECTRAL ACCELERATIONS - SS = 0.594, S1 = 0.103
   - SITE CLASS - D
   - SEISMIC DESIGN CATEGORY - D
   - BASIC SEISMIC-FORCE RESISTING SYSTEM: PRE METAL BUILDING DWGS - PER METAL BUILDING DWGS

   USE EQUIVALENT LATERAL FORCE PROCEDURE PER IBC SECTION 1617.4

5. ALLOWABLE SOIL BEARING PRESSURE:
   ASSUMED - 3000 PSF.

FOUNDATION NOTES:

A. THE FOUNDATIONS FOR THE PROJECT HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT BY NORTHWEST COLORADO CONSULTANTS, INC - DATED APRIL 16TH, 2021.

B. EXTEND ALL EXTERIOR FOOTINGS AND ALL FOOTINGS SUSCEPTIBLE TO FROST HEAVE A MINIMUM OF 4'-0" BELOW GRADE (FROST DEPTH).

SLAB JOINTS

A. CONCRETE SLAB JOINTS SHALL BE PROVIDED AT COLUMN LINES WITH ISOLATION JOINTS.

B. SLAB JOINTS SHALL DIVIDE THE LARGER SLAB AREA INTO RELATIVELY SMALL RECTANGULAR SUB-PANELS. SUB-PANELS SHALL BE AS NEARLY SQUARE AS PRACTICAL. THE LONGER SIDE OF ANY RECTANGULAR SUB-PANEL SHALL BE NO LONGER THAT 1 1/2 TIMES AS LONG AS THE SHORT SIDE.

C. INTERIOR SLAB JOINTS SHALL BE SPACED NO MORE THAN 12'-0" APART.

D. REFERENCE THE DRAWINGS FOR THE SPECIFIC SLAB JOINT DETAIL.

E. IF SITUATIONS OCCUR WHERE THE REQUIREMENTS OF THIS SPECIFICATION CANNOT BE MET, CONSULT THE ENGINEER FOR A SPECIFIC SLAB JOINT LAYOUT.

CAST-IN-PLACE CONCRETE

A. CONCRETE:

1. F'C = 3000 PSI AT 28 DAYS, NORMAL WEIGHT, FOR FOUNDATION WALLS, PIERS, AND FOOTINGS
2. MAX. SLUMP = 3" FOR SLABS AND FOOTINGS, 4" FOR WALLS, COLUMNS AND BEAMS.
3. CURING COMPOUND: ASTM C309, TYPE 2, CLASS B.
4. CONSTRUCTION TO BE IN ACCORDANCE WITH ACI 318-11.
5. LOCATION OF CONSTRUCTION OR POUR JOINTS MUST BE APPROVED BY THE ENGINEER UNLESS OTHERWISE SHOWN ON THESE DRAWINGS.
6. CONCRETE SHALL BE AIR-ENTRAINED AND SHALL CONFORM TO SECTION 3.4.1 OF ACI 301-84 FOR DURABILITY.

B. REINFORCING STEEL:

1. USE ASTM A615 - GRADE 40 FOR #3 REINFORCING BARS, GRADE 60 FOR #4 AND LARGER REINFORCING BARS.
2. PROVIDE CLEARANCE AND COVER OF REBAR AS DESIGNATED IN ACI-318.

STRUCTURAL STEEL

A. MATERIAL

1. SHAPES, PLATES AND BARS (EXCEPT W-SHAPES): ASTM A36, FY = 36 KSI
2. W-SHAPES: ASTM A992, FY = 50 KSI
3. TUBES (INCLUDING HSS): ASTM A500, GRADE B, FY = 46 KSI OR GREATER.

B. BOLTS

1. ANCHOR RODS ARE ASTM F1554 GR. 36 U.N.O. ON METAL BUILDING DRAWINGS
2. EXPANSION BOLTS (E.B): "HILTI KWIK BOLT" OR APPROVED EQUAL.
3. ADHESIVE ANCHORS: "SIMPSON EPOXY TIE" OR APPROVED EQUAL.

C. WELDING ELECTRODES OR WIRES

1. AWS A5.1 OR A5.5, E70XX: AWS A5.18, E70S-X.
2. WELDING SHALL CONFORM TO AWS " CODE FOR ARC AND GAS WELDING IN BUILDINGS".
3. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER.

D. ERECTION

1. ERECTION AND FABRICATION SHALL BE IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."

PREFABRICATED METAL BUILDING STRUCTURE

A. METAL BUILDING FRAMING, INCLUDING RIGID FRAMES, PURLINS, RAFTER BEAMS, GIRTS, LATERAL BRACING AND METAL ROOFING AND SIDING SHALL BE DESIGNED FOR THE VERTICAL AND LATERAL LOADS INDICATED ON THESE DRAWINGS. MINIMUM COLLATERAL DEAD LOAD SHALL BE 5 PSF.

B. A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON SHALL COMPLETE THE DESIGN OF THE STRUCTURE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE.

SPECIAL INSPECTIONS

A. THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL, IN RESPONSIBLE CHARGE, ACTING AS THE OWNER'S AGENT, SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PROVIDE INSPECTIONS DURING CONSTRUCTION ON THE TYPE OF WORK LISTED BELOW.

B. SPECIAL INSPECTIONS AND SUBSEQUENT REPORTS SHALL BE PREPARED IN CONFORMANCE WITH IBC SECTION 1704 AND THE PROJECT SPECIFICATIONS. THE SPECIAL INSPECTOR SHALL FURNISH SIGNED INSPECTION REPORTS TO THE BUILDING OFFICIAL AND THE ENGINEER AND/OR ARCHITECT OF RECORD.

C. SPECIAL INSPECTION SHALL BE REQUIRED FOR THE FOLLOWING ITEMS (AS APPLICABLE):

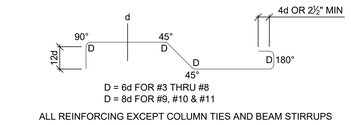
1. ALL CONCRETE WORK WHERE CONCRETE DESIGN STRENGTH EXCEEDS 2500 PSI AT 28 DAYS (1704.4)
2. ALL HIGH-STRENGTH BOLTING (1704.3.3)
3. PRESTRESSED STEEL TENDONS (1704.4) (NOT APPLICABLE)
4. STRUCTURAL MASONRY (AS APPLICABLE, SEE STRUCTURAL DRAWINGS) (1704.5) (NOT APPLICABLE)
5. CAST-IN-PLACE DRILLED PIERS, PILES, OR CAISSONS (1704.9) (NOT APPLICABLE)
6. SHOTCRETE (1704.4) (NOT APPLICABLE)
7. NON-CEMENTITIOUS GROUTING (NOT APPLICABLE)
8. ADHESIVE ANCHOR INSTALLATION AT ENGINEERED CONNECTIONS

D. STRUCTURAL OBSERVATION SHALL BE REQUIRED BY THE ENGINEER.

1. THE OWNER SHALL EMPLOY THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, OR ANOTHER ENGINEER OR ARCHITECT DESIGNATED BY THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, TO PERFORM STRUCTURAL OBSERVATION IN CONFORMANCE WITH IBC SECTION 1709. OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, SPECIAL INSPECTOR, CONTRACTOR, AND THE BUILDING OFFICIAL. THE STRUCTURAL OBSERVER SHALL SUBMIT A WRITTEN STATEMENT TO THE BUILDING OFFICIAL INDICATING THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFYING ANY REPORTED DEFICIENCIES WHICH TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

Structural observation shall be as required by this section (load testing) and 1704.6. Structural observation shall be submitted to Routt County Regional Building Department (RCRBD) prior to Final Building Inspections.

When special inspection is required the architect or engineer shall prepare an inspection program which shall be submitted to the building official or his authorized representative for approval prior to issuance of the building permit. The inspection program shall designate the portions of the work that require special inspection and the name or names of the individuals or firms who are to perform the special inspections, and indicate the duties of the special inspectors. Special inspectors shall be employed by the owner, the architect or engineer responsible for the design, or an agent of the owner, but NOT by the contractor or any other person responsible for the work. The special inspections for installation and verifications for steel construction, concrete construction shall be as required by this section and Tables 1704.3 and 1704.4. Final special inspection reports shall be submitted to Routt County Regional Building Department (RCRBD) prior to Rough Building Inspections.



D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10 & #11

ALL REINFORCING EXCEPT COLUMN TIES AND BEAM STIRRUPS

D = 4d FOR #3, #4 & #5
D = 6d FOR #6, #7 & #8

BEAM OR COLUMN CROSS-TIES
BEAM STIRRUPS & COLUMN TIES

d = BAR DIAMETERS, D = BEND DIAMETER

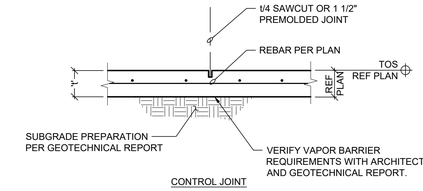
NOTE:
FOR REVISIONS TO STANDARD HOOKS & BENDS, REFERENCE CURRENT ACI.

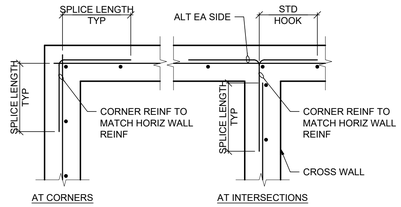
1 STANDARD HOOKS & BENDS
STIRRUPS AND COLUMN TIES
3/4" = 1'-0" SCALE

TYPICAL REBAR LAP SPLICE AND DEVELOPMENT SCHEDULE			
BAR SIZE	MISCELLANEOUS BARS		
	L_D (IN)	CLASS A SPLICE (IN)	CLASS B SPLICE (IN)
f'c = 3,000 P.S.I.			
#3	17	17	23
#4	22	22	29
#5	28	28	37
#6	33	33	43
#7	48	48	63
#8	55	55	72
#9	62	62	81

NOTES:
1. VALUES LISTED ARE FOR UNCOATED REINFORCING IN NORMAL WEIGHT CONC.
2. UNLESS OTHERWISE NOTED, ALL LAPS SHALL BE MIN. CLASS "B"

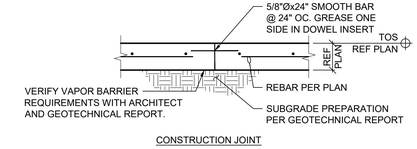
2 TYPICAL LAP SPLICE SCHEDULE
SCALE: NA





NOTES:
1. FOR SPLICE LENGTHS, REFERENCE LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE ON DTL 2/S1
2. FOR WALL REINFORCING, REFERENCE PLAN.
3. AT FOOTING AND STEM WALLS, CORNER REINFORCING TO MATCH FOOTING AND STEM WALL HORIZONTAL REINFORCING.

3 REBAR CORNERS
SCALE: 3/4" = 1'-0"



NOTES:
1. CONSTRUCTION / CONTROL JOINT LOCATIONS AT CONTRACTORS DISCRETION UNLESS NOTED OTHERWISE ON PLANS. MAXIMUM ENCLOSED SQUARE FOOTAGE AREA TO BE 144 SQUARE FEET, WITH MAXIMUM PANEL ASPECT RATIO OF 1.3 TO 1.0
2. USE "EARLY ENTRY DRY-CUT SAW" AS SOON AS POSSIBLE WITHOUT CAUSING RAVELING OF CONCRETE EDGES. SAWCUT ALONG SHORT DIRECTION OF POUR FIRST

4 SLAB JOINTS W/ REINFORCING
SCALE: 3/4" = 1'-0"

ABBREVIATIONS

AB	ANCHOR BOLT	(E)	EXISTING	OPN'G	OPENING	UNO	UNLESS NOTED
ABV	ABOVE	FND	FOUNDATION	OPP	OPPOSITE		OTHERWISE
ARCH'L	ARCHITECTURAL	FTG	FOOTING	PLCS	PLACES	VIF	VERIFY IN FIELD
BLW	BELOW	FW	FOUNDATION WALL	PL	PLATE	VERT	VERTICAL
BTWN	BETWEEN	GC	GENERAL	REF	REFERENCE		
BTM	BOTTOM		CONTRACTOR	REQ'D	REQUIRED		
CANT	CANTILEVER	GA	GAUGE	SIM	SIMILAR		
℄ / CL	CENTERLINE	GN	GENERAL NOTES	STD	STANDARD		
COL	COLUMN	HAS	HEADED ANCHOR	STRUCT'L	STRUCTURAL		
CONC	CONCRETE		STUD	TO	TOP OF		
CP	CONCRETE PIER	HAB	HEADED ANCHOR	TOF	TOP OF FOOTING		
CONN	CONNECTION		BOLT		ELEVATION		
DP	DEEP	HORIZ	HORIZONTAL	TOP	TOP OF PIER		
DBL	DOUBLE	MFR	MANUFACTURER		ELEVATION		
EA	EACH	MECH'L	MECHANICAL	TOS	TOP OF SLAB		
EW	EACH WAY	NTS	NOT TO SCALE		ELEVATION		
ELEV	ELEVATION	(N)	NEW	TYP	TYPICAL		
		OC	ON CENTER				

PLAN LEGEND

- TO / TOG — TOP OF ELEVATION; TOP OF GRADE ELEVATION
- Px — DENOTES CONCRETE PIER SIZE. REF SCHEDULE ON FOUNDATION PLAN
- F1 — DENOTES FOOTING SIZE & REINFORCEMENT. REFERENCE SCHEDULE ON FOUNDATION PLAN
- SLAB JOINT IN CONC SLAB-ON-GRADE. REF DTL 4/S1
- REFERENCE METAL BUILDING MANUFACTURERS DRAWINGS FOR BASE PLATE SIZE AND ANCHOR BOLT SIZE AND SPACING. ALL ANCHOR BOLTS SHALL HAVE A MINIMUM 3" PROJECTION. REFER TO METAL BUILDING DRAWINGS FOR ACTUAL PROJECTION.

SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
S1	GENERAL NOTES, TYPICAL DETAILS, PLAN LEGEND, & ABBREVIATIONS
S2	FOUNDATION PLAN
S3	DETAILS

REVIEWED FOR CODE COMPLIANCE
01/27/2022

PERMIT FOR CONSTRUCTION

COLORADO LICENSED
JOSEPH ERNEST MORRIS
0051926
2021.09.23
PROFESSIONAL ENGINEER

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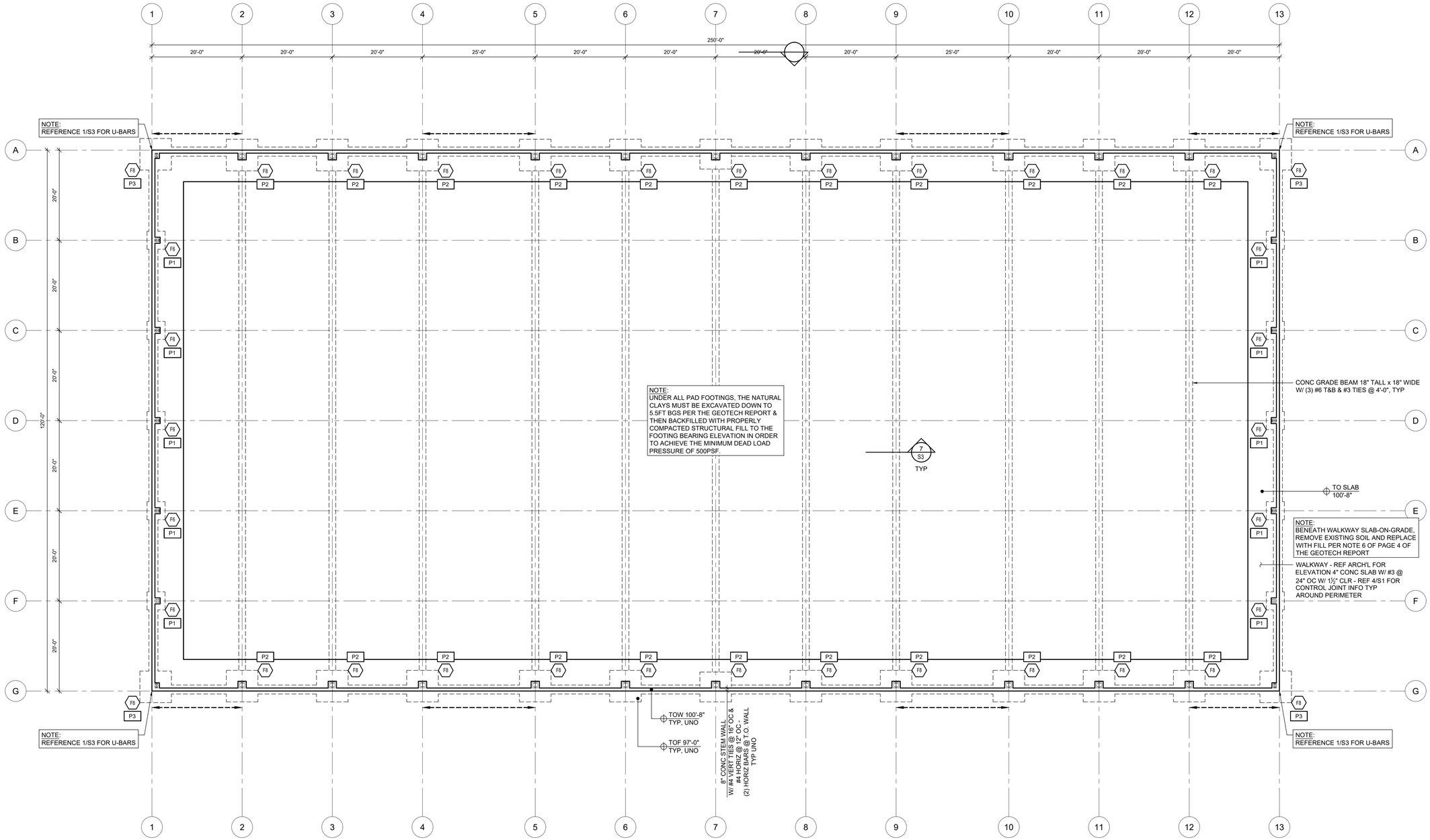
2140 SW JEFFERSON ST. SUITE 100
PORTLAND, OR 97201
ECLIPSE-ENGINEERING.COM
(503) 395-1229

MCFARLANE ARENA
54880 CR 129
CLARK, CO 80428

REVISIONS

GENERAL NOTES, TYPICAL DETAILS, PLAN LEGEND, & ABBREVIATIONS

PROJ. #: 21-03-064
CHECKED BY: PG
DRAWN BY: TTH
DATE: 9.23.21
SHEET
S1



FOUNDATION PLAN

SCALE: NTS

FOUNDATION PLAN NOTES:

1. FOR STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS & LEGEND, REF SHEET S1
2. VERIFY ALL DIMENSIONS, ELEVATIONS AND OPENING LOCATIONS WITH THE METAL BUILDING MANUFACTURER.
3. TOP OF GRADE (TOG) ELEVATION ASSUMED 100'-0". FOR ACTUAL TOS ELEVATION, REFER TO CIVIL AND/OR ARCHITECTURAL DRAWINGS.
4. ALL EXTERIOR FOOTINGS TO BEAR A MINIMUM AS NOTED ON GENERAL NOTES. CONTRACTOR TO VERIFY ACTUAL SITE CONDITIONS WITH PROPOSED TOP OF FOOTING CALLOUTS.
5. ALL FOOTINGS AND SLABS TO BEAR ON COMPETENT, NATIVE SOIL AND/OR STRUCTURAL FILL.
6. REFERENCE TYPICAL DETAILS FOR STANDARD FRAMING CONDITIONS, AS FOLLOWS:
   - 4 / S1 • TYP CONTROL JOINTS
   - 3 / S1 • TYP CORNER BARS

PLAN LEGEND:

DENOTES X BRACE

FOOTING SCHEDULE		
MARK	FOOTING SIZE	REINFORCING
F6	6'-0" SQ x 14" THICK PAD FOOTING	(6) #5 HORIZ REINF EW BTM
F8	8'-0" SQ x 14" THICK PAD FOOTING	(8) #6 HORIZ REINF EW BTM

ALL PIERS SCHEDULE			
MARK	PIER SIZE	VERT REINF	TIES
P1	1'-10" x 1'-4"	REF DETAIL 4/S3	REF DETAIL 4/S3
P2	2'-4" x 1'-10"	REF DETAIL 2/S3	REF DETAIL 2/S3
P3	2'-4" x 1'-10"	REF DETAIL 1/S3	REF DETAIL 1/S3

REVIEWED FOR CODE COMPLIANCE
01/27/2022

PERMIT FOR CONSTRUCTION

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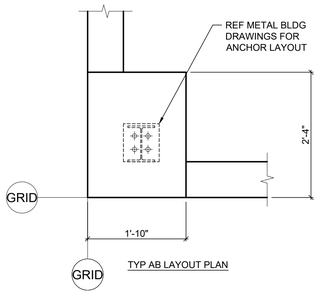
MCFARLANE ARENA
54880 CR 129
CLARK, CO 80428

REVISIONS

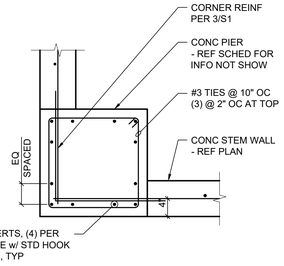
FOUNDATION PLAN

PROJ. #: 21-03-064
CHECKED BY: PG
DRAWN BY: TTH
DATE: 9.23.21

SHEET
S2



TYP AB LAYOUT PLAN

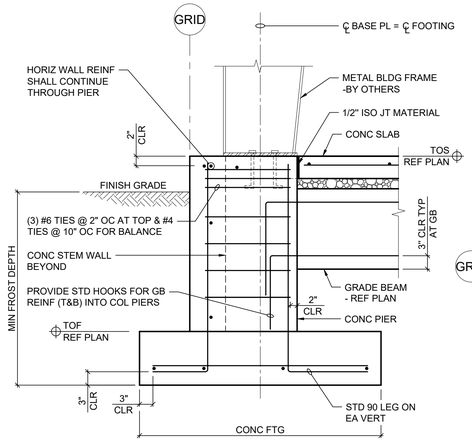


TYP REINF PLAN

NOTES:
1. REFERENCE METAL BUILDING MANUFACTURERS DRAWINGS FOR BASE PLATE SIZE & ANCHOR BOLT SIZE & SPACING. ALL ANCHOR BOLTS SHALL HAVE A MINIMUM OF 20" EMBEDMENT.
2. AT BRACED FRAMES ON CORNER PIERS, PROVIDE (2) #4 U-BARS TIED TO ANCHOR BOLTS W/ 24" LEGS (DOWN) & 1½" CLR W/ TOP OF PIER

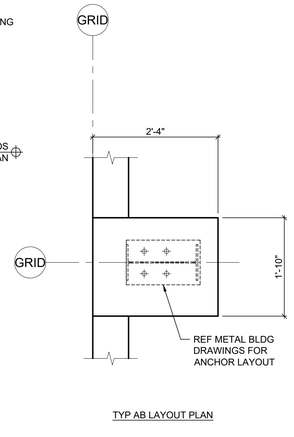
2.The metal building designer responsible for construction reactions and calculations using bolt diameter values in the steel base plate relies on the engineer responsible for the design of foundation and slab. Submit calculations to demonstrate the connections to foundations comply with ACI 318-14 to include provisions from 17.1 and 16.3?Connections to foundations with complete bolt dimensions including bolt spacing are submitted to RCRBD for review and approval prior to installation or inspection.

1 CORNER PIER DETAIL
SCALE: 3/4" = 1'-0"

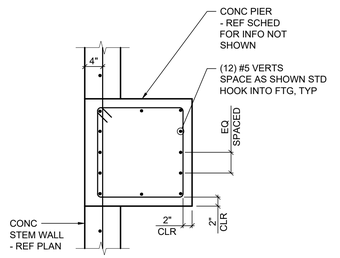


NOTE:
REFERENCE METAL BUILDING MANUFACTURERS DRAWINGS FOR BASE PLATE SIZE & ANCHOR BOLT SIZE & SPACING. ALL ANCHOR BOLTS SHALL HAVE A MINIMUM OF 20" EMBEDMENT.

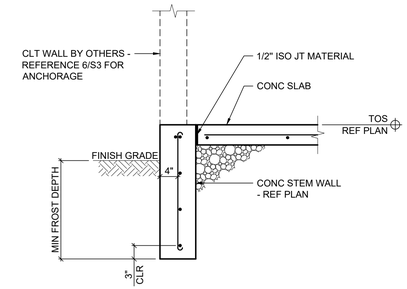
2 SIDEWALL PIER DETAIL
3/4" = 1'-0" SCALE



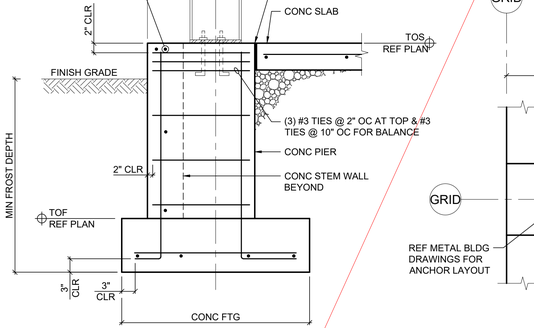
TYP AB LAYOUT PLAN

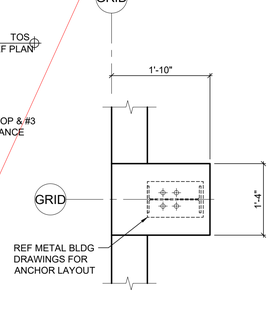


TYP REINF PLAN

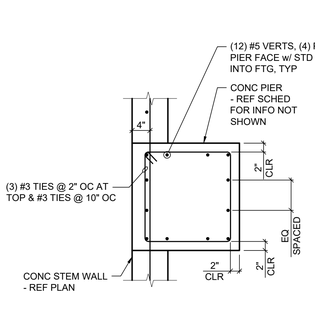


3 FOUNDATION WALL SECTION
SCALE: 3/4" = 1'-0"





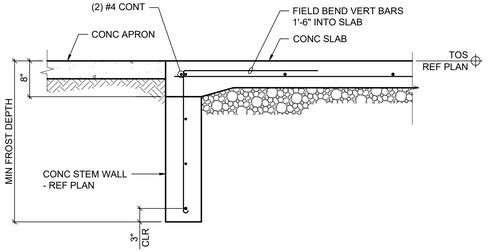
TYP AB LAYOUT PLAN



TYP REINF PLAN

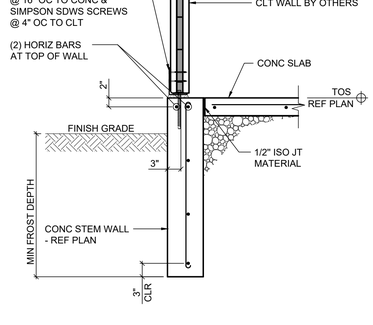
NOTE:
REFERENCE METAL BUILDING MANUFACTURERS DRAWINGS FOR BASE PLATE SIZE & ANCHOR BOLT SIZE & SPACING. ALL ANCHOR BOLTS SHALL HAVE A MINIMUM OF 12" EMBEDMENT.

4 ENDWALL PIER DETAIL
3/4" = 1'-0" SCALE

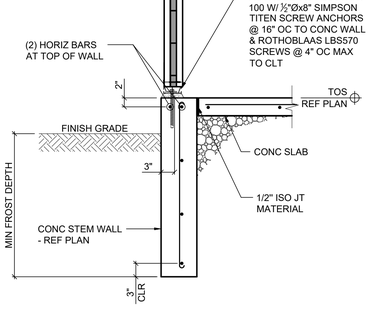


NOTE:
BENEATH WALKWAY SOG, REMOVE EXISTING SOIL & REPLACE WITH FILL PER NOTE 6 OF PAGE 4 OF THE GEOTECH REPORT - CONTRACTOR'S OPTION TO PROVIDE THE SAME SOIL TREATMENT BENEATH CONC APRON LEADING TO OPENINGS

5 FOUNDATION WALL @ OPENINGS
SCALE: 3/4" = 1'-0"

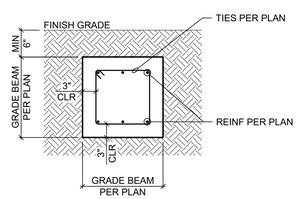


OPTION 1



OPTION 2

6 CLT WALL ANCHORAGE
SCALE: 3/4" = 1'-0"



7 TYPICAL GRADE BEAM SECTION
3/4" = 1'-0" SCALE

Provide copy of Reactions Report from metal building supplier with reactions used in calculating the foundation connection(s).

REVIEWED FOR CODE COMPLIANCE 01/27/2022

PERMIT FOR CONSTRUCTION

COLORADO LICENSED PROFESSIONAL ENGINEER
JOSEPH ERNEST KIRBY
0051926
2021.09.23

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REVISIONS

DETAILS

PROJ. #: 21-03-064
CHECKED BY: PG
DRAWN BY: TTH
DATE: 9.23.21
SHEET
S3