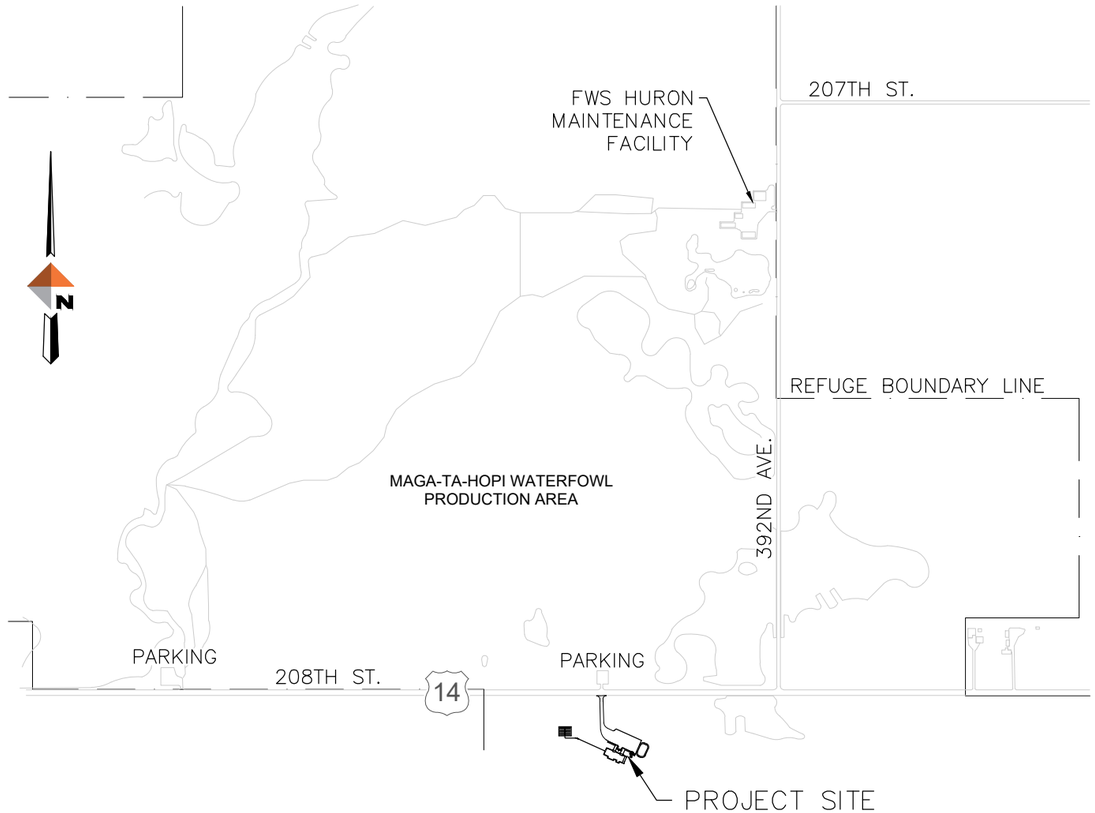
U.S. FISH & WILDLIFE SERVICE

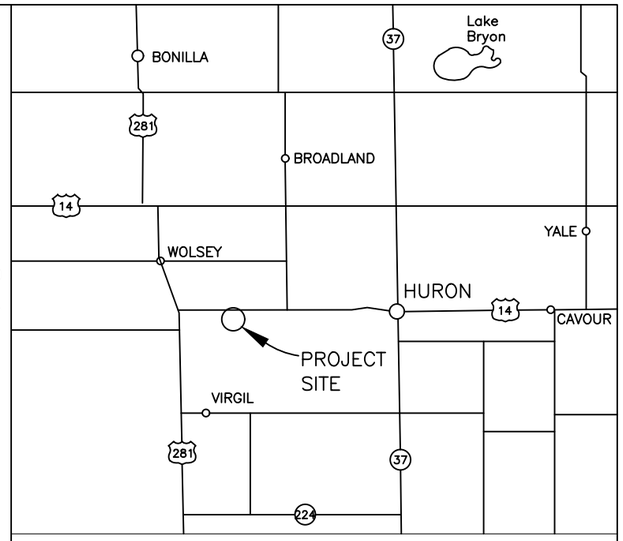
HURON WMD

MULTIPURPOSE BUILDING AND VISITOR CENTER

CONSTRUCTION DOCUMENTS

SHEET INDEX





VICINITY MAP

NO SCALE

APPROVAL SIGNATURES

REGIONAL ENGINEER	DATE
PROGRAM SUPERVISOR	DATE
ASS'T. REGIONAL DIR.	DATE
FACILITIES	DATE
SAFETY	DATE
CULTURAL RESOURCES	DATE

NOTE TO BIDDERS:

ANY PRINT ACCOMPANYING THIS INVITATION TO BID MAY BE A REDUCED REPRODUCTION OF THE WORKING DRAWINGS. IF LINE BELOW DOES NOT MEASURE SIX INCHES IN LENGTH, THE INDICATED SCALES ARE TO BE ADJUSTED ACCORDINGLY.

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

REGION 6 ENGINEERING - DENVER, COLORADO

HURON

WMD

BEADLE COUNTY, SOUTH DAKOTA

MULTIPURPOSE BUILDING AND VISITOR CENTER

COVER SHEET

REVISIONS			
REV	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER — REG. NO. 15419 — MARK HINES — SOUTH DAKOTA — 4/19/2022

DESIGNED: MH	DRAWN: JB	CHECKED: BD	
DATE: 2022.04.29			SHEET 1 OF 74

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GENERAL NOTES

1. THE UTILITIES SHOWN IN PLAN AND PROFILE ARE INDICATED IN ACCORDANCE WITH AVAILABLE RECORDS. (ALL UTILITIES MAY NOT BE SHOWN.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES FROM THE OWNERS OF RESPECTIVE UTILITIES. ALL UTILITIES SHALL BE NOTIFIED AT LEAST 72 HOURS PRIOR TO EXCAVATION.
2. ALL MINOR OBSTRUCTIONS MAY NOT BE SHOWN ON PLANS. THE CONTRACTOR SHALL VISIT THE SITE AND DETERMINE THE ACTUAL CONDITIONS WITH REGARD TO THE EXISTENCE OF FENCES, DRIVEWAYS, TREES, SIDEWALKS, CULVERTS, UTILITIES AND OTHER MISCELLANEOUS OBSTACLES THAT MAY INTERFERE WITH CONSTRUCTION PRIOR TO SUBMITTING BIDS.
3. PROTECT OR RESTORE ALL LOT CORNERS AND SURVEY MONUMENTS.
4. SYMBOLS ON THE DRAWINGS (BECAUSE OF THEIR SIZE) MAY NOT REPRESENT THE EXACT LOCATION OF EITHER PROPOSED OR EXISTING UTILITIES. (EX. GATE VALVES & HYDRANTS)
5. ALL UNITS ARE IN FEET, UNLESS OTHERWISE NOTED.
6. IF INSTALLATION DETAILS AND MANUFACTURER'S INSTALLATION REQUIREMENTS DO NOT MATCH, THE PROJECT OWNER SHALL BE CONSULTED ON DISCREPANCIES.

CIVIL SITE LEGEND

PROPOSED	EXISTING	PROPOSED	EXISTING
W WATER LINE	w w w WATER LINE	CS CURB STOP	W WATER METER
S SEWER LINE	s s s SEWER LINE	SANITARY SEWER CLEAN OUT	WATER VALVE
STORM	SD SD SD STORM	TRANSFORMER	UTILITY POLE
E UNDERGROUND ELECTRIC CONDUIT	E E E UNDERGROUND ELECTRIC CONDUIT	GRADING LIMIT	B-1 BORE HOLE LOCATION
G GAS LINE	G G G GAS LINE	TRAFFIC SIGN	
FO FIBER OPTIC	FO FO FO FIBER OPTIC	CONCRETE	
1400 MAJOR CONTOUR	1400 MAJOR CONTOUR	RIPRAP	
1401 MINOR CONTOUR	1401 MINOR CONTOUR	CP-102 REBAR CONTROL POINT	
CURB AND GUTTER		x x x FENCE	
DITCH/SWALE		LIGHT POLE OR FLOOD LIGHT	
EDGE OF GRAVEL	EDGE OF GRAVEL		

UTILITIES

ELECTRIC:
NORTHWESTERN ENERGY
600 MARKET STREET W
HURON, SD 57350
CONTACT: KIRBY WICKS
PHONE: 605-352-8411

WATER:
MID DAKOTA RURAL WATER SYSTEM
608 W 14TH STREET
MILLER, SD 57362-0318
CONTACT: DEANN HARGENS
PHONE: 605-853-3159

COMMUNICATIONS:
SANTEL COMMUNICATIONS
308 SOUTH DUMONT AVE
WOONSOCKET, SD 57385
CONTACT: PAM KOPFMAN
PHONE: 605-796-4411

SD DEPARTMENT OF TRANSPORTATION
HURON AREA OFFICE
901 DAKOTA AVE N
HURON, SD 57350
CONTACT: BRAD LETCHER
PHONE: 605-353-7140

FWS WETLAND DISTRICT MANAGER:
HURON WMD
PO BOX 1377
HURON, SD 57350
CONTACT: MATTHEW GRUNIG
PHONE: 605-354-0533

CONTACTS

FWS ENGINEERING:
REGIONAL OFFICE 6
134 UNION BLVD
LAKEWOOD, CO 80228
CONTACT: MICHAEL LEMIEUX
TELE: 303-236-4474

CIVIL ENGINEER:
DOWL
1833 S. SHERIDAN AVE.
SHERIDAN, WY 82801
CONTACT: MARK HINES, P.E.
TELE: 307-257-8667

ARCHITECT:
STANLEY CONSULTANTS INC.
225 IOWA AVENUE
MUSCATINE, IA 52761
CONTACT: CHAD CHAMBERLIN, A.I.A.
TELE: 563-264-6671

ELECTRICAL ENGINEER:
ASSOCIATED CONSTRUCTION ENGINEERING (ACE)
2040 HARNISH BLVD.
BILLINGS, MT 59101
CONTACT: CHRIS GREEN, P.E.
TELE: 406-245-0136

MECHANICAL/PLUMBING ENGINEER
ASSOCIATED CONSTRUCTION ENGINEERING (ACE)
2040 HARNISH BOULEVARD
BILLINGS, MT 59101
CONTACT: AARON SADOWSKI, P.E.
TELE: 406-245-0136

STRUCTURAL ENGINEER:
DOWL
222 NORTH 32ND STREET, SUITE 700
BILLINGS, MT 59101
CONTACT: MATTHEW METTLER, P.E.
TELE: 406-869-6384

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15419
MARK HINES
SOUTH DAKOTA
4/19/2022

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HURON WMD
CIVIL NOTES AND LEGEND
MULTIPURPOSE BUILDING AND VISITOR CENTER

DESIGNED	DRAWN	CHECKED	DATE		SUB-SHEET
MH	JB	BD	2022.04.29		C002
					SHEET 2 OF 74

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE DEMOLITION, TEMPORARY RELOCATIONS, ETC. WITH NEW CONSTRUCTION AS REQUIRED.
2. CONTRACTOR TO BACKFILL DEMOLISHED AREAS WITH COMPACTED SOIL FILL OR TOPSOIL FROM APPROVED SOURCE TO MATCH ADJACENT GRADES.
3. CONTRACTOR TO VERIFY ALL UTILITIES ARE DISCONNECTED PRIOR TO DEMOLITION. CONTRACTOR SHALL VERIFY EXTENT OF DEMOLITION IN THE FIELD, MARK AND PROTECT EXISTING UTILITIES FOR FUTURE CONNECTION. CONTRACTOR TO COORDINATE WITH UTILITY COMPANIES AND FWS AS NEEDED.
4. REMOVE EXISTING SURFACING AND TOPSOIL AS REQUIRED.
5. ALL DEMOLISHED STRUCTURES AND DEMOLITION DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE NOTED. ALL MATERIALS AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT A PERMITTED LANDFILL FACILITY.

DEMOLITION KEYNOTES

1. DEMOLISH AND REMOVE EXISTING GRAVEL APPROACH.
2. SAWCUT EXISTING ASPHALT SHOULDER TO CLEAN VERTICAL EDGE.
3. REMOVE ANY EXISTING CULVERT ENCOUNTERED.
4. REMOVE GATE AND 60' FENCING.

208TH STREET

APPROXIMATE LIMITS HISTORIC BORROW AREA

APPROXIMATE HIGH WATER LINE

CP-100 CP-101 CP-102

P-1 P-2 P-3 B-1 B-2 B-3 B-4 B-5 B-6

N

40 0 40 80
SCALE IN FEET

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15419
MATTHEW HINES
SOUTH DAKOTA
4/19/2022

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HURON WMD					SUB-SHEET
DEMOLITION PLAN					C101
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED	DRAWN	CHECKED	DATE		SHEET
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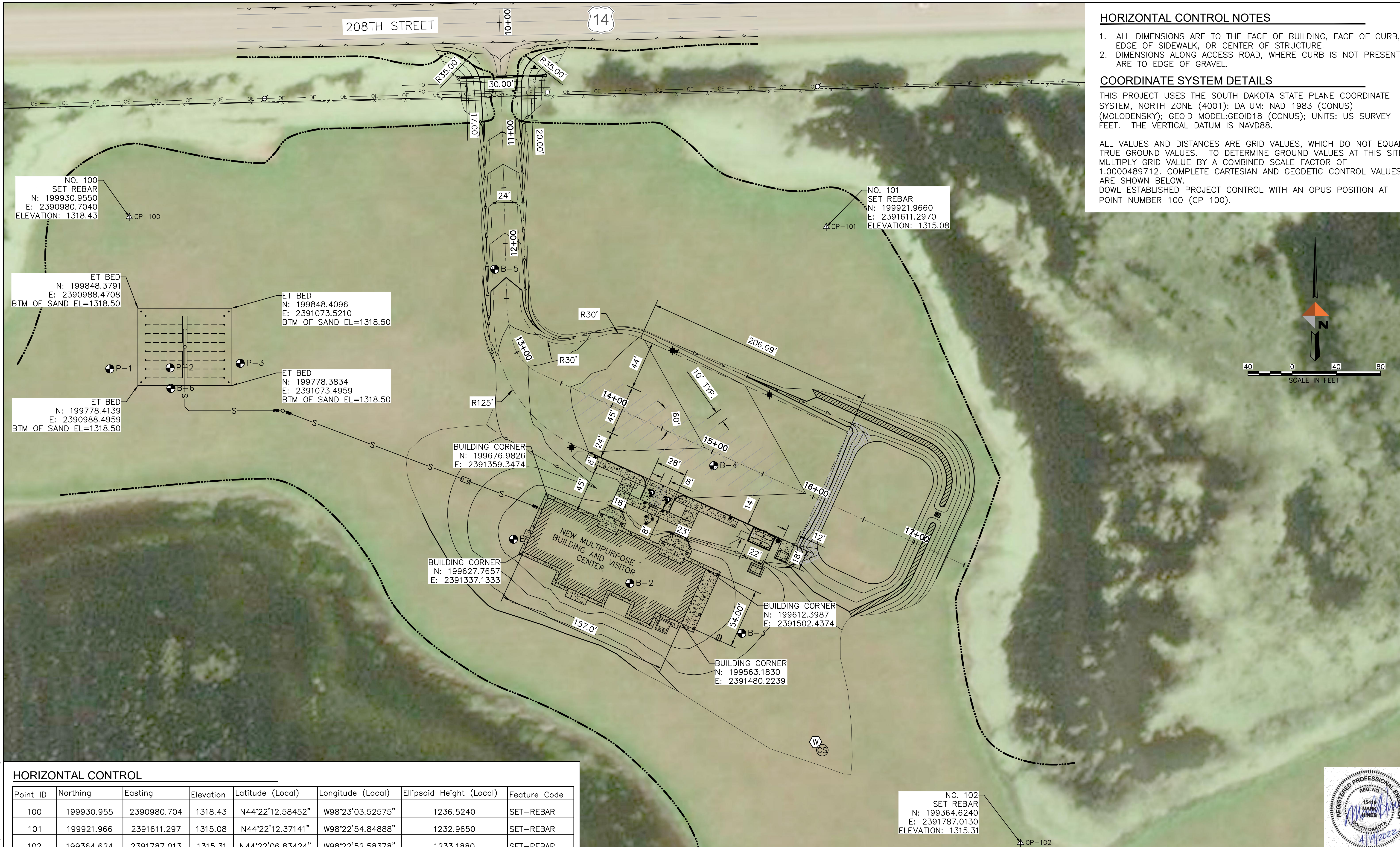

HORIZONTAL CONTROL NOTES

1. ALL DIMENSIONS ARE TO THE FACE OF BUILDING, FACE OF CURB, EDGE OF SIDEWALK, OR CENTER OF STRUCTURE.
2. DIMENSIONS ALONG ACCESS ROAD, WHERE CURB IS NOT PRESENT, ARE TO EDGE OF GRAVEL.

COORDINATE SYSTEM DETAILS

THIS PROJECT USES THE SOUTH DAKOTA STATE PLANE COORDINATE SYSTEM, NORTH ZONE (4001): DATUM: NAD 1983 (CONUS) (MOLODENSKY); GEOID MODEL:GEOID18 (CONUS); UNITS: US SURVEY FEET. THE VERTICAL DATUM IS NAVD88.

ALL VALUES AND DISTANCES ARE GRID VALUES, WHICH DO NOT EQUAL TRUE GROUND VALUES. TO DETERMINE GROUND VALUES AT THIS SITE, MULTIPLY GRID VALUE BY A COMBINED SCALE FACTOR OF 1.0000489712. COMPLETE CARTESIAN AND GEODETIC CONTROL VALUES ARE SHOWN BELOW.
DOWL ESTABLISHED PROJECT CONTROL WITH AN OPUS POSITION AT POINT NUMBER 100 (CP 100).

HORIZONTAL CONTROL

Point ID	Northing	Easting	Elevation	Latitude (Local)	Longitude (Local)	Ellipsoid Height (Local)	Feature Code
100	199930.955	2390980.704	1318.43	N44°22'12.58452"	W98°23'03.52575"	1236.5240	SET-REBAR
101	199921.966	2391611.297	1315.08	N44°22'12.37141"	W98°22'54.84888"	1232.9650	SET-REBAR
102	199364.624	2391787.013	1315.31	N44°22'06.83424"	W98°22'52.58378"	1233.1880	SET-REBAR

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HURON WMD

HORIZONTAL CONTROL PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

DESIGNED	DRAWN	CHECKED	DATE	SUB-SHEET	SHEET
MH	JB	BD	2022.04.29	C201	4 OF 74

REGISTERED PROFESSIONAL ENGINEER REG. NO. 15419 MARK HINES SOUTH DAKOTA 4/19/2022

KEYNOTES

1. 8" AGGREGATE SURFACE COURSE OVER GEOGRID OVER 12" SUBGRADE COMPACTED TO 95% OF STANDARD PROCTOR. WIDTH VARIES 24' TO 112'. CONTRACTOR SHALL BUILD, COMPACT AND MAINTAIN SUBGRADE AND POSITIVE DRAINAGE DURING CONSTRUCTION. AGGREGATE SURFACE COURSE AND GEOGRID FURNISHED AND INSTALLED BY OTHERS (NOT IN CONTRACT). SEE SHEET C507 NOTES.
2. 6" CLASS B CONCRETE OVER 6" AGGREGATE BASE COMPACTED TO 95% OF STANDARD PROCTOR, OVER SEPARATION FABRIC, OVER 12" SUBGRADE COMPACTED TO 95% OF STANDARD PROCTOR. WIDTH AND JOINTING AS NOTED ON PLANS AND DETAILS.
3. 4" CLASS B CONCRETE SIDEWALK OVER 12" SUBGRADE COMPACTED TO 95% OF STANDARD PROCTOR. WIDTH AND JOINTING AS NOTED ON PLANS AND DETAILS.
4. SIDEWALK RAMP.
5. SIDEWALK DRAINAGE CHASE.
6. 6" TYPE B CONCRETE CURB.
7. DUPLEX LIFT STATION. SEE UTILITY SHEET AND DETAILS
8. SEPTIC TANK. SEE UTILITY SHEEET AND DETAILS
9. PROPANE ENCLOSURE AND CONCRETE PAD. SEE DETAIL 5, SHEET C504
10. TRASH ENCLOSURE ON CONCRETE PAD. SEE DETAIL 5, SHEET C504
11. BACKUP GENERATOR ON CONCRETE PAD.
12. EVAPOTRANSPIRATION BED. SEE UTILITY PLAN AND DETAILS
13. RETENTION BASIN
14. "ACCESSIBLE PARKING SPACE" SIGN IN CONCRETE BOLLARDS.
15. "NO PARKING" SIGN.
16. RIPRAP
17. 18" CMP CULVERT WITH SLOPED END SECTIONS AND SAFETY BARS. SEE UTILITY PLAN
18. 30' FLAG POLE, 4" CONCRETE APRON AND FLAG POLE LIGHTS. SEE ELECTRICAL PLANS.
19. STOP SIGN FURNISHED AND INSTALLED BY OTHERS (NOT IN CONTRACT)
20. DOWNSPOUT EXTENSION AND PRECAST CONCRETE SPLASH PAD
21. PARKING STALLS SHOWN FOR REFERENCE ONLY (NO MARKINGS).
22. NORTH AREA OF PARKING LOT TO SERVE AS PULL–THRU PARKING FOR BUSES, RVS, ETC. AND AS FLEX PARKING AREA FOR VISITORS.
23. FURNISH AND INSTALL NEW BRACE POST ASSEMBLIES (2) AND LINE POSTS PER SOUTH DAKOTA DOT SPECIFICATIONS. RE–STRING AND CONNECT EXISTING FENCE WIRE TO NEW POSTS.
24. "OVERSIZE VEHICLE" PARKING SIGN

208TH STREET

NEW MULTIPURPOSE BUILDING AND VISITOR CENTER

CP–100

CP–101

9+50 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

40 0 40 80
SCALE IN FEET

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15419
MARK HINES
SOUTH DAKOTA
4/19/2022

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HURON WMD					SUB-SHEET
CIVIL SITE PLAN					C301
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED MH	DRAWN JB	CHECKED BD	DATE 2022.04.29		SHEET 5 OF 74

GRADING PLAN NOTES

1. SURFACE CONTOURS BASED ON TOPOGRAPHICAL SURVEY PERFORMED BY DOWL OCTOBER 2021
2. FINISH CONTOURS ARE TO TOP OF FINISHED GRADE.
3. CURB ELEVATIONS ARE FLOW LINE (FL) OR TOP BACK OF CURB (TBC) AS LABELED.
4. TOP OF CURB IS 6" ABOVE CURB FLOW LINE UNLESS OTHERWISE NOTED.
5. DISTURBED AREAS SHALL BE PREPARED FOR SEEDING. RE-SEEDING SHALL BE CONDUCTED BY USFWS PERSONNEL.

N

40 0 40 80
SCALE IN FEET

208TH STREET

14

9+50 10+00 11+00 12+00 13+00 14+00 15+00 16+00

1316.31 1315.69 1312.33FL 1314.56FL 1312.05FL 1314.57FL 1316.03 1320.53 1319.25FL 1319.16FL 1321.27FL 1323.04 1320.69FL 1321.43 1322.00FL 1322.27 1323.73 1323.76 1323.35 1323.69 1321.64 1323.01 1323.67 1322.27 1323.44 1322.00FL 1323.44 1323.44 1323.44 1323.44 1323.68 1323.68 1323.50 1318.95FL 1320.98 1317.00FL 1321.88 1320.95FL 1317.00FL 1321.49FL 1322.50

CP-100 CP-101

NEW MULTIPURPOSE BUILDING AND VISITOR CENTER F.F. ELEV=1324.00

4' WIDE SPILLWAY ELEV.=1318.50

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HURON WMD					SUB-SHEET
GRADING PLAN					C401
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED	DRAWN	CHECKED	DATE		SHEET
MH	JB	BD	2022.04.29		6 OF 74

SCALE IN FEET

NEW MULTIPURPOSE BUILDING
AND VISITOR CENTER
F.F. ELEV=1324.00

CONCRETE JOINT
TYPICAL

CONCRETE JOINT
TYPICAL

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15419
MARK
HINES
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HURON WMD					SUB-SHEET
GRADING DETAIL					C402
MULTIPURPOSE BUILDING AND VISITOR CENTER					
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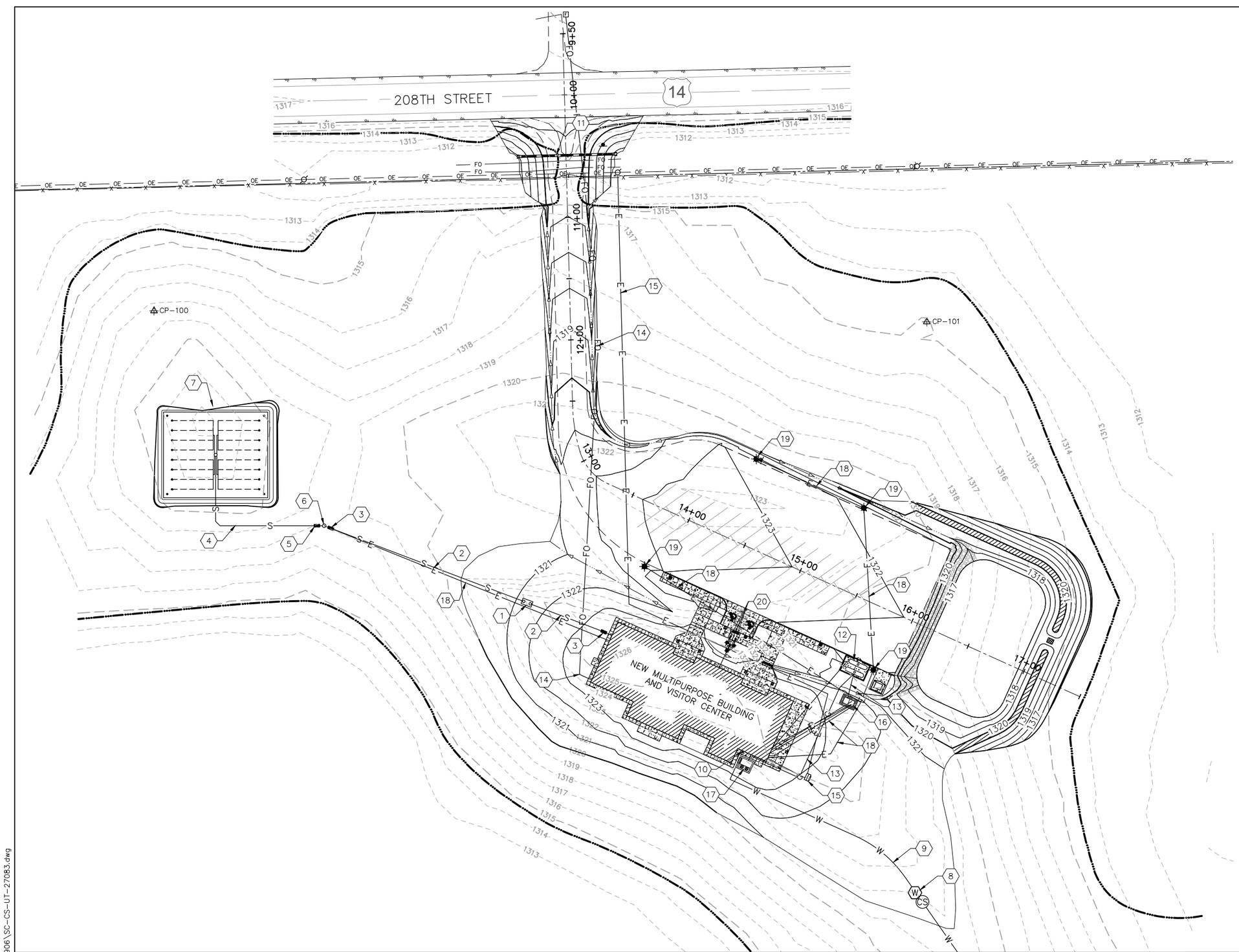
KEYNOTES

1. 1500 GALLON SEPTIC TANK PER UTILITY DETAILS SHEET.
2. 4" SCH40 SANITARY SEWER LINE. CONNECT TO BUILDING SANITARY SEWER, SEE PLUMBING PLANS.
3. 4" X 2–WAY SANITARY CLEANOUT PER DETAIL 3, SHEET C503.
4. 2" SCH40 SANITARY SEWER FORCE MAIN.
5. 2" x 2–WAY SANITARY SEWER CLEANOUT WITH BALL VALVES PER DETAIL 4, SHEET C503.
6. DUPLEX LIFT STATION AND CONTROL PANEL PER DETAIL 2, SHEET C503. SEE ELECTRICAL PLANS
7. EVAPOTRANSPIRATION TREATMENT BED PER DETAILS ON SHEET C502.
8. WATER MAIN, CURB STOP AND METER PIT. CONTRACTOR TO COORDINATE WITH MID–DAKOTA RURAL WATER DISTRICT AS NECESSARY.
9. 2" DR 11 HDPE WATER SERVICE FROM METER PIT TO BUILDING WATER SERVICE. FURNISH AND INSTALL TRANSITION FITTINGS AT CONNECTION POINTS.
10. CONNECT TO BUILDING WATER PER PLANS
11. 18" CMP CULVERT WITH SLOPED ENDS AND SAFETY BARS. SEE SHEET C507.
12. TWO – 1,000 GALLON PROPANE TANKS. SEE PLUMBING PLANS.
13. GAS LINE FROM PROPANE TANK TO GENERATOR AND MECHANICAL ROOM. LENGTH PER PLAN. SEE PLUMBING PLANS FOR BUILDING CONNECTION LOCATION AND STRUCTURAL PLANS FOR PROPANE SLAB PENETRATION.
14. FIBER OPTIC COMMUNICATION SERVICE. CONNECT TO EXISTING CONDUIT AND EXTEND TO IT ROOM PER ELECTRICAL SHEETS. CONTRACTOR TO COORDINATE WITH SANTEL AS NECESSARY FOR FIBER INSTALLATION.
15. ELECTRICAL SERVICE. SEE ELECTRICAL SHEETS FOR PRIMARY ELECTRICAL AND TRANSFORMER LOCATION. CONTRACTOR TO COORDINATE WITH NORTHWESTERN ENERGY AS NECESSARY.
16. BACKUP GENERATOR. SEE ELECTRICAL PLANS.
17. AIR HANDLING UNIT. SEE MECHANICAL PLANS.
18. UNDERGROUND ELECTRICAL. SEE ELECTRICAL SHEETS.
19. LIGHT POLE. SEE ELECTRICAL SHEETS.
20. FLOOD LIGHT. SEE ELECTRICAL SHEET.



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HURON WMD					SUB-SHEET
UTILITY PLAN					C501
MULTIPURPOSE BUILDING AND VISITOR CENTER					
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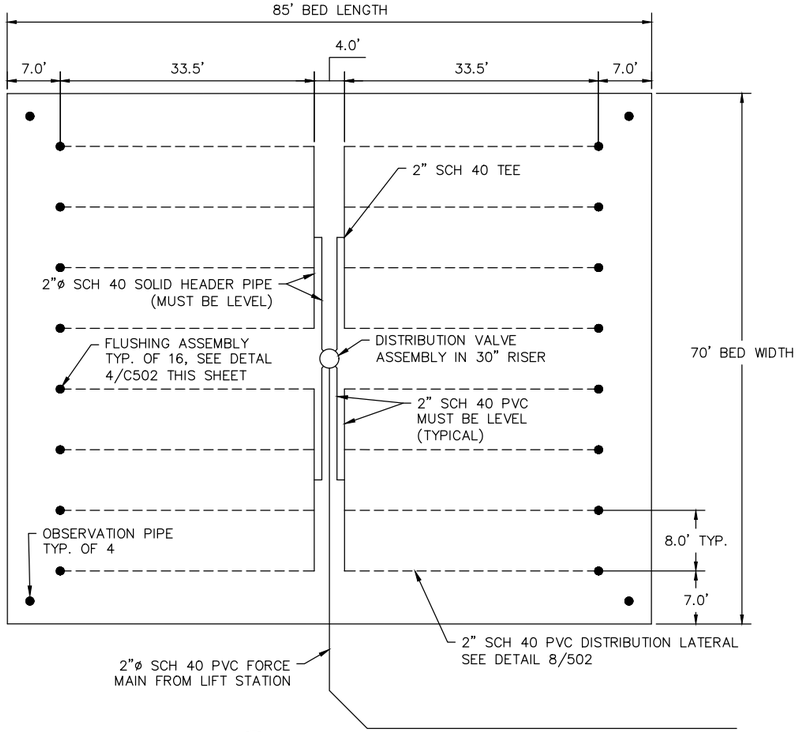
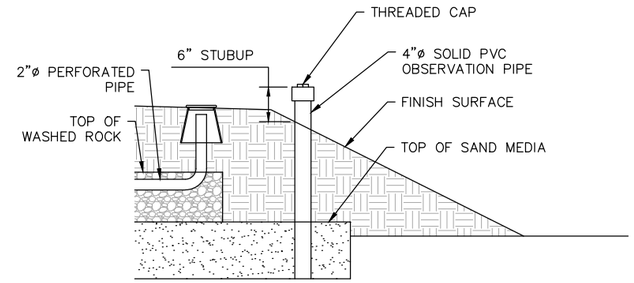
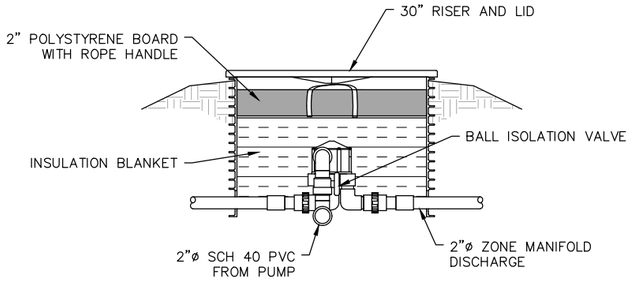


1 C502 **E.T. BED PLAN**
NOT TO SCALE

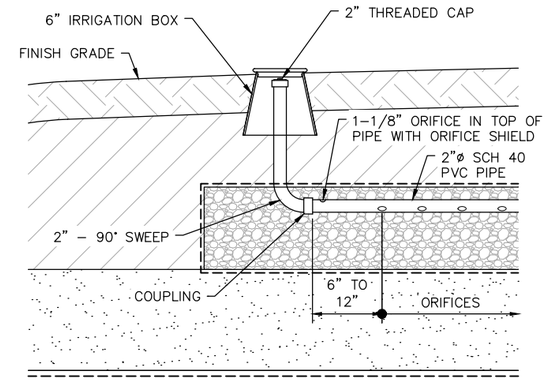


2 C502 **OBSERVATION PIPE DETAIL**
NOT TO SCALE

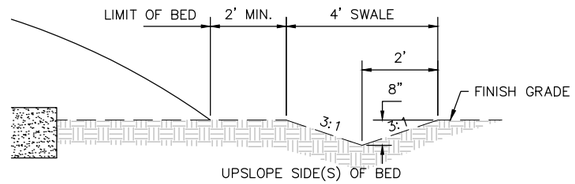


ZOELLER MULTIZONE VALVE 4000
SERIES ASSEMBLY, WITH 4
OUTLETS OR APPROVED EQUAL

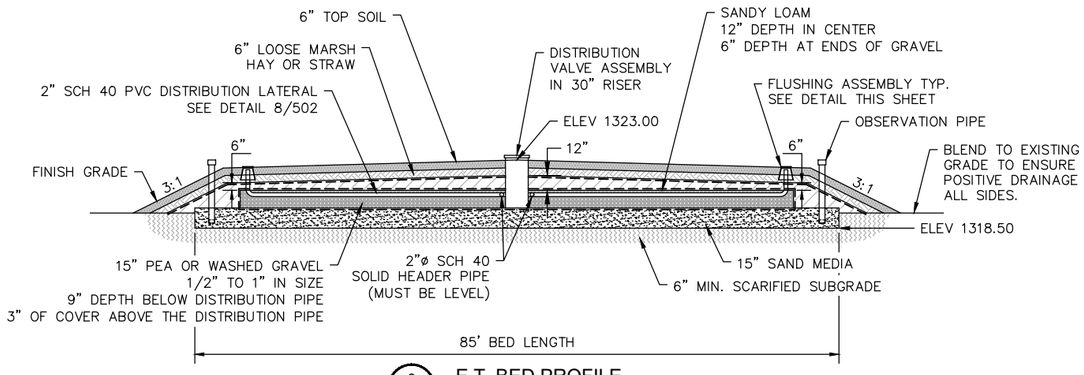
3 C502 **DISTRIBUTION VALVE ASSEMBLY**
NOT TO SCALE



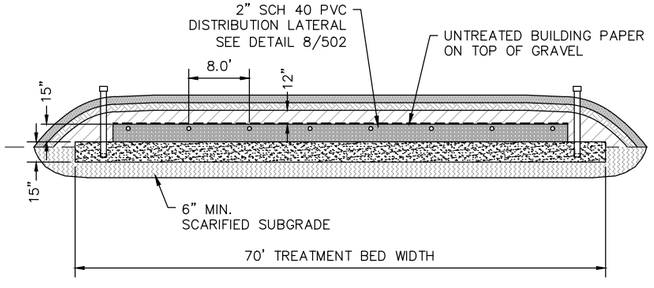
4 C502 **FLUSHING ASSEMBLY DETAIL**
NOT TO SCALE



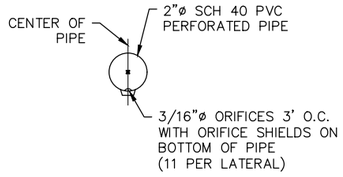
5 C502 **DIVERSION SWALE DETAIL**
NOT TO SCALE



6 C502 **E.T. BED PROFILE**
NOT TO SCALE



7 C502 **E.T. BED SECTION**
NOT TO SCALE



8 C502 **DISTRIBUTION LATERAL DETAIL**
NOT TO SCALE

EVAPOTRANSPIRATION (ET) BED NOTES:

1. CONTRACTOR SHALL VERIFY ET BED LAYOUT AND FINISH FLOOR ELEVATIONS WITH ENGINEER PRIOR TO EXCAVATION. TREATMENT BEDS TO BE CONSTRUCTED ON TEST PIT SITES AND MAY ONLY BE MOVED WITH ENGINEER'S APPROVAL.
2. SCARIFY BOTTOM OF ET BED TO A DEPTH OF 6 INCHES, HAND RAKE AND LEVEL SCARIFIED AREA.
3. EXCAVATION SHALL BE PROTECTED FROM ALL PEDESTRIAN, VEHICULAR, AND OTHER ACTIVITY THAT COULD CAUSE COMPACTION OF SOILS.
4. PLACEMENT OF SAND AND GRAVEL MATERIALS SHOULD BE FROM EDGES TOWARD CENTER OF ET BED.
5. TREATMENT BED SHALL BE PARALLEL TO CONTOURS; BOTTOM OF BED(S) AND PIPES MUST BE LEVEL.
6. ROUTE SURFACE DRAINAGE AWAY FROM BED AREA.
7. IRRIGATION WITHIN 50 FEET OF ET BED AREA SHOULD BE AVOIDED AS THIS MAY ADVERSELY IMPACT THE SYSTEM EFFICIENCY.
8. PLANTING IN THE BED AREA SHALL BE DEEP-ROOTED, DROUGHT-RESISTANT NATIVE TYPE GRASSES REQUIRING MINIMAL WATERING.
9. FINAL CONSTRUCTION SHALL BE PROTECTED FROM ALL VEHICULAR ACTIVITY AND ANY DISTURBANCE.

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HURON WMD					SUB-SHEET
UTILITY DETAILS					C502
MULTIPURPOSE BUILDING AND VISITOR CENTER					
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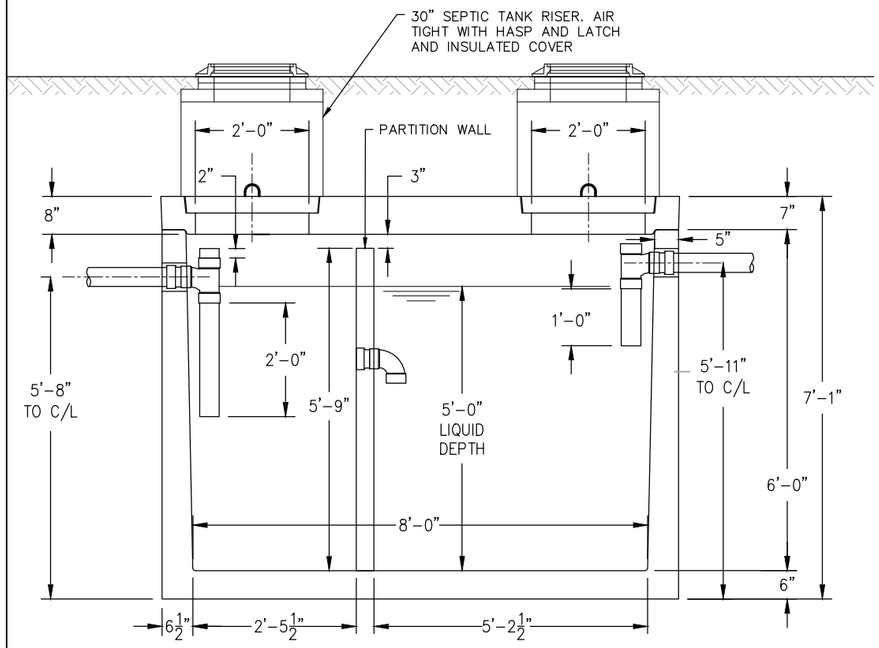
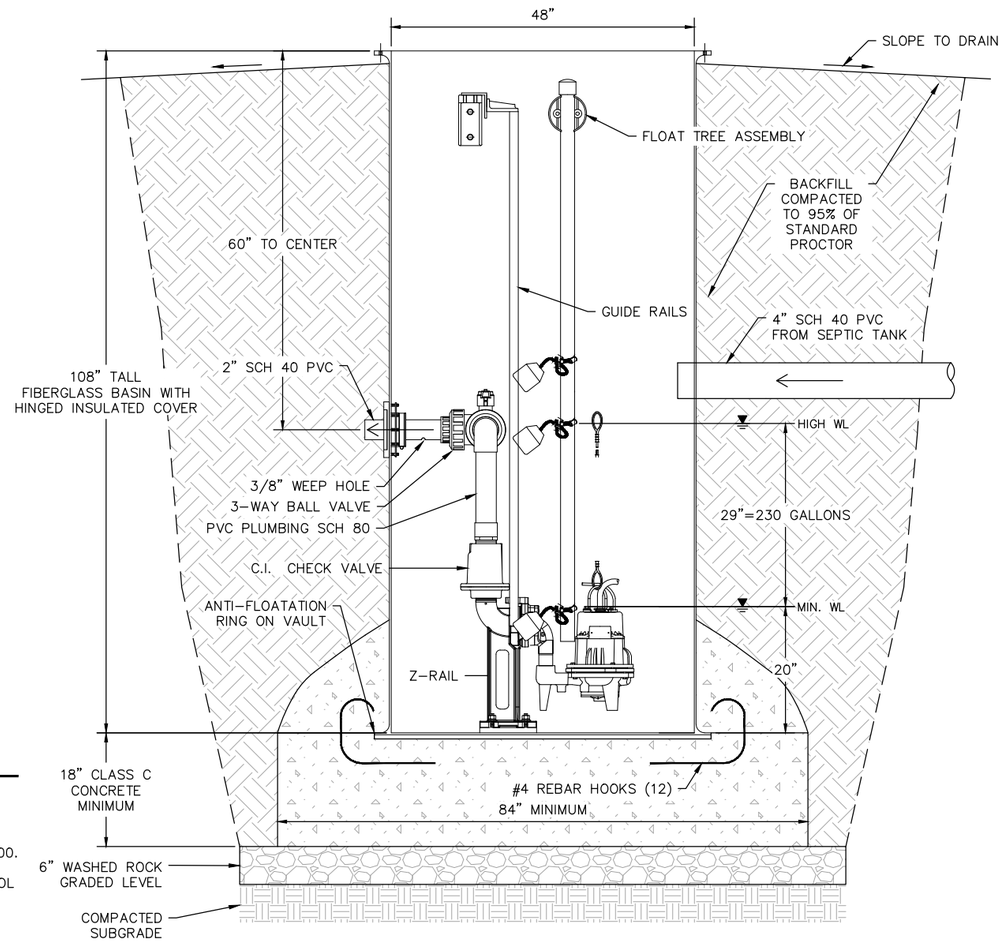


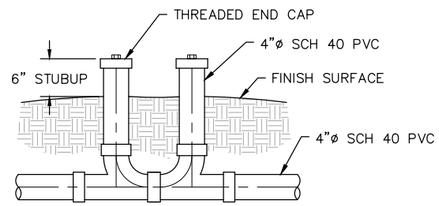
1 C503 **1500 GALLON SEPTIC TANK DETAIL**
NOT TO SCALE

SEPTIC TANK AND LIFT STATION NOTES:

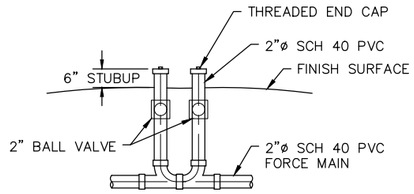
1. CONTRACTOR SHALL VERIFY FINAL LOCATION AND ELEVATION OF SEPTIC TANK AND LIFT STATION PRIOR TO ORDERING COMPONENTS AND INSTALLATING THEM AT THE SITE.
2. SEPTIC TANK SHALL BE BALLASTED AS NECESSARY TO AVOID BOUYANCY DUE TO HIGH GROUNDWATER AT ELEVATION 1315.00.
3. LIFT STATION VAULT SHALL BE BALLASTED TO AVOID BOUYANCY DUE TO HIGH GROUNDWATER AT ELEVATION OF 1315.00.
4. DUPLEX LIFT STATION SHALL BE ZOELLER QLS SERIES DUPLEX 48" X 108" LIFT STATION WITH Z-RAIL, TWO ZOELLER 153, 0.5 HP, SINGLE PHASE, 60HZ PUMPS, OR APPROVED EQUAL. SYSTEM SHALL INCLUDE EXTERIOR RATED CONTROL PANEL WITH THREE FLOAT CONTROL SYSTEM, ALTERNATING LEAD/LAG OPERATION AND ALARM LIGHT.
5. FORCE MAIN SHALL BE INSTALLED WITH POSITIVE SLOPE THROUGHOUT ITS LENGTH WITH NO HIGH POINTS.
6. CONTRACTOR SHALL PRESSURE TEST FORCE MAIN BETWEEN LIFT STATION AND DISTRIBUTION VALVE AT 50 PSI FOR A MINIMUM OF ½ HOUR. IF PRESSURE DROPS MORE THAN 3 PSI, CONTRACTOR SHALL REPAIR AS REQUIRED AND RE-TEST.
7. CONTRACTOR SHALL PROVIDE NON-POTABLE WATER AND SHALL TEST OPERATION OF COMPLETED LIFT STATION, DISTRIBUTION VALVE AND PIPING. CYCLE THROUGH EACH ZONE A MINIMUM OF 3 TIMES AND VERIFY FLOW AT FLUSHING ASSEMBLIES.
8. CONTRACTOR SHALL PROVIDE LIFT STATION START UP, 1-DAY TRAINING OF OWNER PERSONNEL AND A LETTER CERTIFYING PROPER OPERATION AND INSTALLATION ALL PROVIDED BY MANUFACTURER'S AUTHORIZED REPRESENTATIVE.



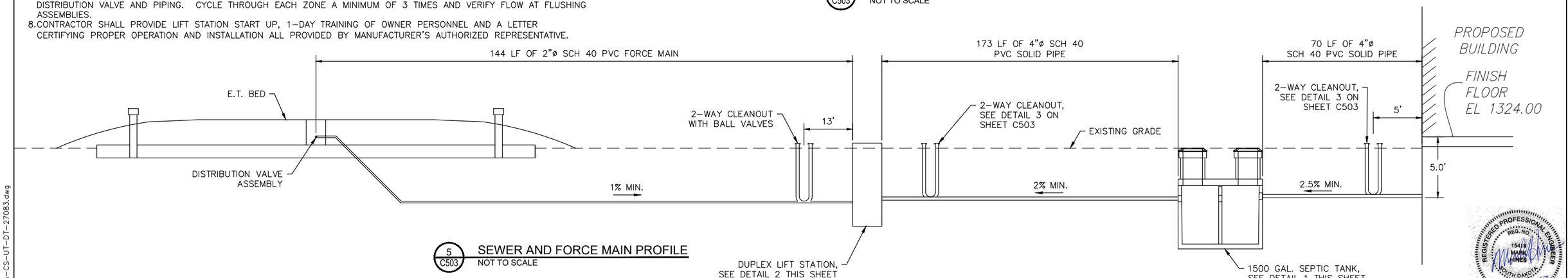
2 C503 **DUPLEX LIFT STATION**
NOT TO SCALE



3 C503 **2-WAY 2-PORT CLEANOUT DETAIL**
NOT TO SCALE



4 C503 **2-WAY 2-PORT CLEANOUT WITH BALL VALVES DETAIL**
NOT TO SCALE



5 C503 **SEWER AND FORCE MAIN PROFILE**
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15419
MARK HINES
SOUTH DAKOTA
4/19/2023

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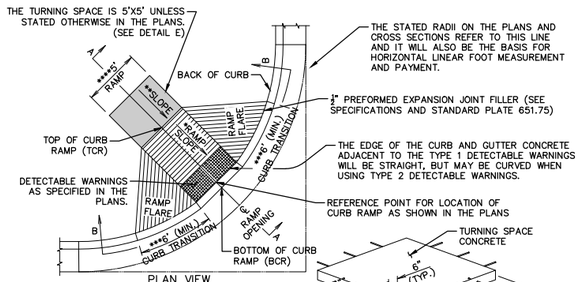
HURON WMD					SUB-SHEET
UTILITY DETAILS					C503
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED	DRAWN	CHECKED	DATE		SHEET
MH	JB	BD	2022.04.29		10 OF 74



1 C504 TYPE 1 CURB RAMP
(PERPENDICULAR CURB RAMP)
NTS

CURB RAMP SLOPES ARE DESIGNATED AT 7.5% UNLESS STATED OTHERWISE IN THE PLANS. THE CURB RAMP MAY HAVE A MAXIMUM SLOPE OF 8.3% AND WILL NOT EXCEED 15' IN LENGTH UNLESS STATED OTHERWISE IN THE PLANS.

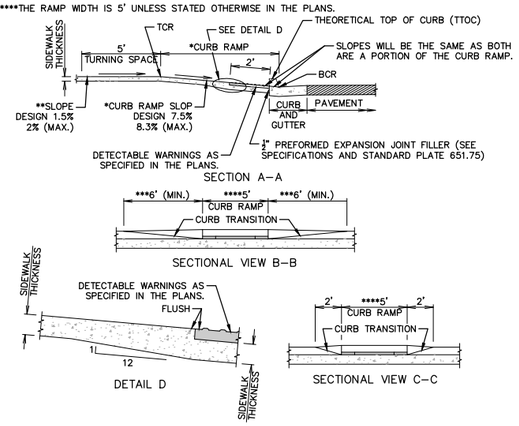
THE CURB RAMP LENGTH MAY BE COMPUTED BASED ON THE INTERSECTION OF A CONTINUOUS 1.5% THEORETICAL SLOPE FROM THE THEORETICAL TOP OF CURB (TTOC) WITH THE CURB RAMP USING A CONTINUOUS 7.5% CURB RAMP SLOPE. THE ELEVATION OF POINT TCR WILL ALWAYS BE HIGHER THAN THE ELEVATION OF POINT TTOC UNLESS SPECIFIED OTHERWISE IN THE PLANS. THE CURB RAMP LENGTH DIMENSION AS SHOWN IN THE PLANS WILL BE ADJUSTED AS NECESSARY TO MEET ALL SLOPE AND LENGTH REQUIREMENTS BASED ON FIELD GEOMETRICS.

THE CROSS SLOPE OF THE RAMP WILL NOT BE STEEPER THAN 2% PLANS ARE DESIGNED USING A 1.5% SLOPE UNLESS STATED OTHERWISE IN THE PLANS.

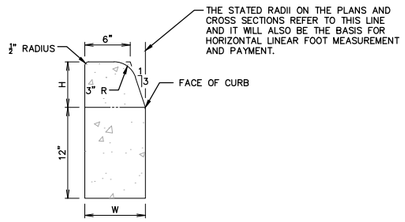
**THE SLOPE IN THE TURNING SPACE WILL NOT BE STEEPER THAN 2% IN ANY DIRECTION OF PEDESTRIAN TRAVEL.PLANS ARE DESIGNED USING A 1.5% SLOPE UNLESS STATED OTHERWISE IN THE PLANS.

***THE CURB TRANSITION WILL BE A MINIMUM OF 6' LONG, A MAXIMUM OF 10' LONG, AND THE CURB TRANSITION SLOPE WILL NOT BE STEEPER THAN 10% UNLESS STATED OTHERWISE IN THE PLANS. THE CURB TRANSITION LENGTH WILL BE ADJUSTED AS NECESSARY TO MEET SLOPE AND LENGTH REQUIREMENTS BASED ON FIELD GEOMETRICS.

****THE RAMP WIDTH IS 5' UNLESS STATED OTHERWISE IN THE PLANS.



2 C504 TYPE I CURB RAMP
(PERPENDICULAR CURB RAMP)
NTS



TYPE B CONCRETE CURB				
TYPE	H (INCHES)	W (INCHES)	CU. YD. PER LIN. FT.	LIN. FT. PER CU. YD.
B6	6	8	0.0353	28.4
B7	7	8-3/8	B6	26.1
B8	8	8-5/8	B6	24.1
B9	9	9	B6	22.3
B10	10	9-3/8	0.0485	20.6

GENERAL NOTES:

THE CONCRETE FOR THE TYPE B CONCRETE CURB WILL COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR CLASS M6 CONCRETE.

A 1/2" PREFORMED EXPANSION JOINT FILLER WILL BE PLACED TRANSVERSELY IN THE FOLLOWING LOCATIONS:
1. AT EACH JUNCTION BETWEEN THE RADIUS RETURN OF CURB AND CURB WHICH IS PARALLEL TO THE PROJECT CENTERLINE.
2. AT EACH JUNCTION BETWEEN THE EXISTING CURB AND NEW CURB OR CURB AND GUTTER.
3. AT EACH JUNCTION BETWEEN THE CURB AND EXISTING SIDEWALK TO THE DEPTH OF THE SIDEWALK.

SEE STANDARD PLATE 650.90 FOR CONTRACTION JOINTS IN THE CURB.

4 C504 TYPE B CONCRETE CURB
NTS

GENERAL NOTES:

FOR ILLUSTRATIVE PURPOSE ONLY, TYPE I DETECTABLE WARNINGS ARE SHOWN IN THE DRAWINGS.

FOR ILLUSTRATIVE PURPOSE ONLY, PCC FILLET SECTIONS ARE SHOWN IN THE DRAWINGS. THE CURB RAMP DEPICTED ON THIS STANDARD PLATE MAY BE USED WITH A PCC FILLET SECTION OR CURB AND GUTTER.

FOR ILLUSTRATIVE PURPOSE ONLY, THE CURB RAMP LOCATION IS SHOWN AT THE CENTER OF A PCC FILLET SECTION. THE CURB RAMP WILL BE PLACED AT THE LOCATION STATED IN THE PLANS.

SIDEWALK WILL NOT BE PLACED ADJACENT TO THE CURB RAMP FLARES WHEN A 2-FOOT CURB TRANSITION IS USED UNLESS SHOWN OTHERWISE IN THE PLANS.

*CARE WILL BE TAKEN TO ENSURE A UNIFORM GRADE ON THE CURB RAMP, FREE OF SAGS AND SHORT GRADE CHANGES.

SURFACE TEXTURE OF THE CURB RAMP WILL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE CURB RAMP.

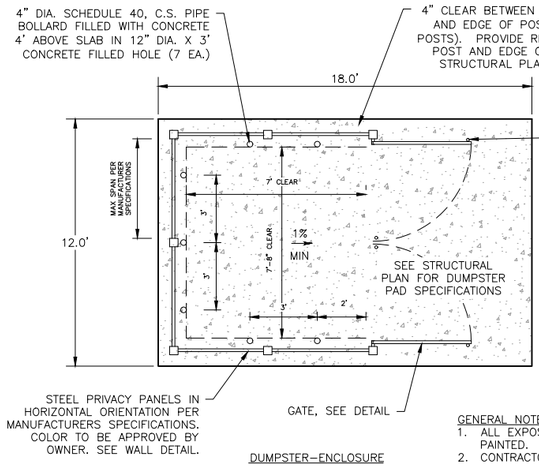
THE NORMAL GUTTER LINE PROFILE WILL BE MAINTAINED THROUGH THE AREA OF THE RAMP OPENING.

JOINTS WILL BE SAWED OR TOOLED INTO THE CONCRETE ADJACENT TO THE DETECTABLE WARNINGS TO ALLEVIATE POSSIBLE CORNER CRACKING.

CARE WILL BE TAKEN TO ENSURE THAT THE SURFACE OF THE DETECTABLE WARNINGS ARE CLEAN AND MAINTAINS A UNIFORM COLOR.

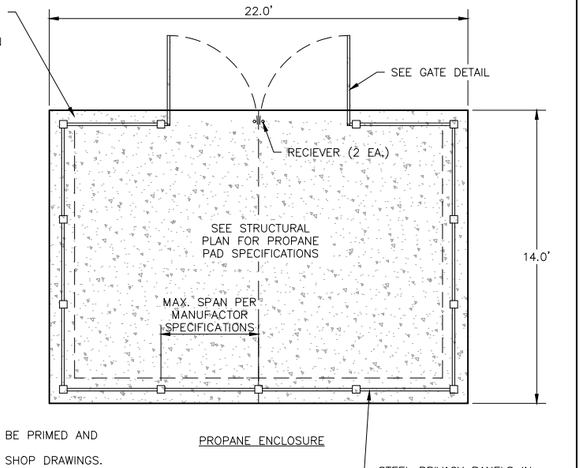
THE DETECTABLE WARNINGS WILL BE CUT AS NECESSARY TO FIT THE PLAN SPECIFIED LIMITS OF THE DETECTABLE WARNINGS.

3 C504 TYPE I CURB RAMP
(PERPENDICULAR CURB RAMP)
NTS

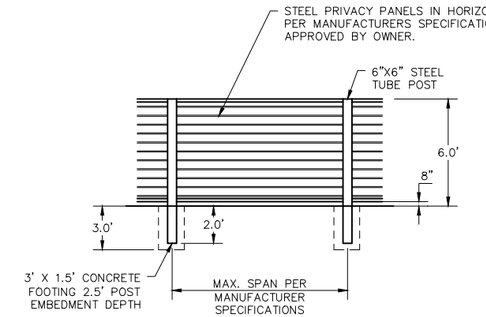


DUMPSTER–ENCLOSURE

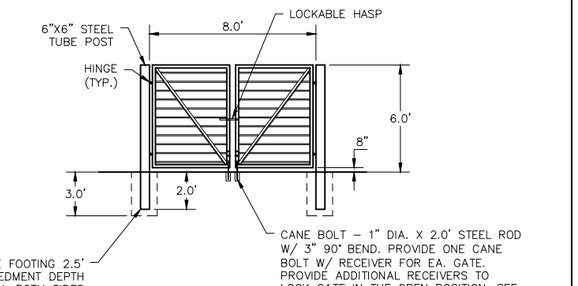
GENERAL NOTES:
1. ALL EXPOSED METAL TO BE PRIMED AND PAINTED.
2. CONTRACTOR TO SUBMIT SHOP DRAWINGS.



PROPANE ENCLOSURE

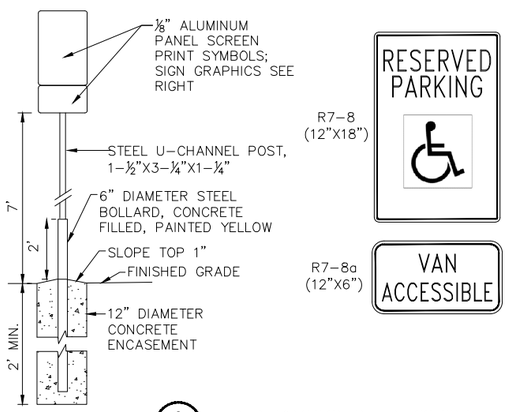


WALL DETAIL

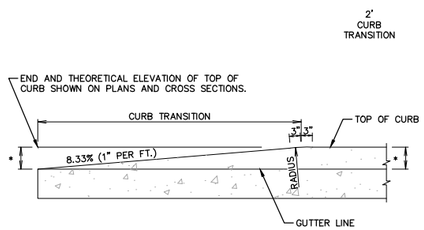


GATE DETAIL

5 C504 SCREEN WALL DETAIL
NOT TO SCALE



6 C504 ADA PARKING SIGNAGE-VAN ACCESSIBLE
NTS



LONGITUDINAL SECTION
(CONCRETE CURB TAPER)

7 C504 CONCRETE CURB TAPER
NTS

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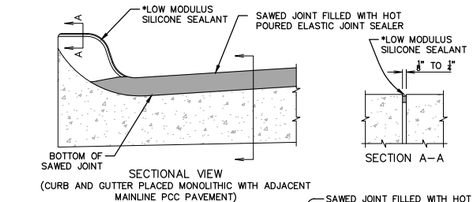
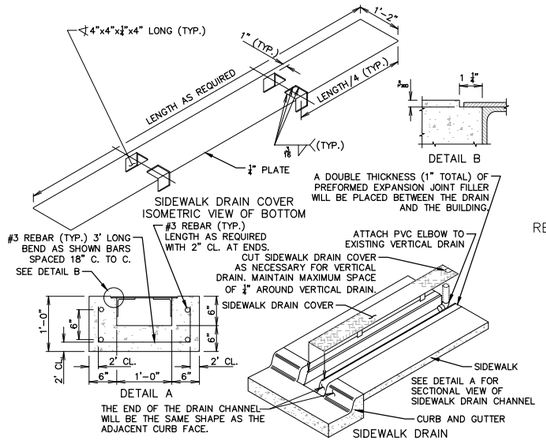
HURON WMD					SUB-SHEET
SITE DETAILS					C504
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED MH	DRAWN JB	CHECKED BD	DATE 2022.04.29		SHEET 11 OF 74



*THE SILICONE SEALANT WILL BE PLACED SUCH THAT IS COMPLETELY SEALS THE JOINT AND IS BONDED TO THE SIDES OF THE CLEAN JOINT AS APPROVED BY THE ENGINEER.

1 / C505 JOINTS IN CONCRETE CURB AND GUTTER
NTS



GENERAL NOTES:

CONCRETE WILL BE CLASS M6 IN ACCORDANCE WITH SSDOT SPECIFICATIONS.

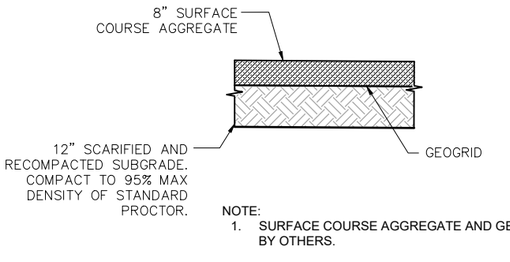
REINFORCING STEEL WILL CONFORM TO ASTM A615, GRADE 60.

STRUCTURAL STEEL WILL CONFORM TO ASTM A36. THE SIDEWALK DRAIN COVER WILL CONFORM TO ASTM A786.

WELDING AND WELD INSPECTION WILL BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE AWS D1.1 STRUCTURAL WELDING CODE–STEEL.

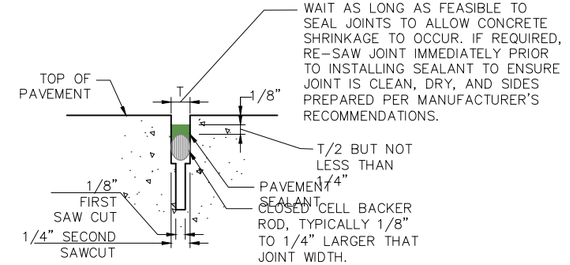
THE COVER PLATE ASSEMBLY WILL BE GALVANIZED AFTER FABRICATION. GALVANIZING WILL BE IN ACCORDANCE WITH ASTM A123.

2 / C505 SIDEWALK DRAIN
NTS



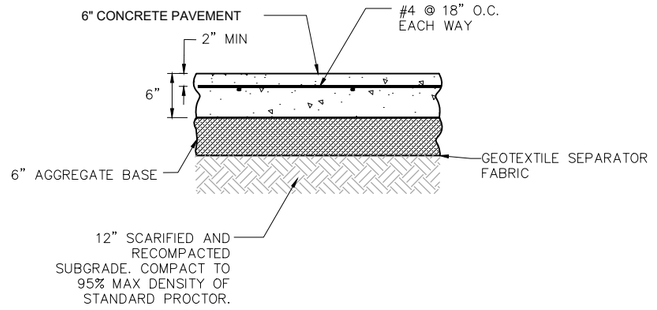
NOTE:
1. SURFACE COURSE AGGREGATE AND GEOGRID BY OTHERS.

5 / C505 GRAVEL AGGREGATE SECTION
NTS

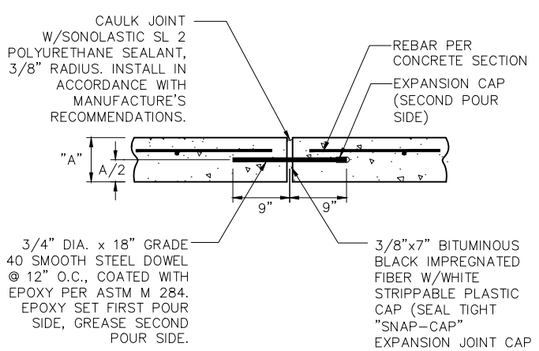


NOTES:
1. ENSURE JOINTS ARE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE JOINT SEALANT.
2. INSTALL CLOSED CELL BACKER ROD AFTER JOINTS HAVE BEEN CLEANED AND DRIED IN ACCORDANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.
3. INSTALL BACKER ROD AT CONSISTENT AND UNIFORM DEPTH.
4. JOINT SEALANT APPLICATION SHALL BE IN STRICT COMPLIANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.

6 / C505 CONCRETE JOINT DETAIL
NTS

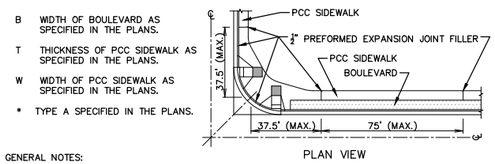


7 / C505 CONCRETE SECTION
NTS



NOTES:
1. "A" PER CONCRETE SECTION AND GEOTECHNICAL REPORT.
2. REBAR SHALL NOT PASS THROUGH ANY JOINT.
3. 3/4" SQUARE DOWELS W/DOWEL CLIPS BY PNA, MAY BE SUBSTITUTED. CONTRACTOR TO SUBMIT REQUEST TO ENGINEER FOR APPROVAL.

8 / C505 ISOLATION JOINT
NTS



GENERAL NOTES:

THE PCC SIDEWALK WILL BE CONSTRUCTED IN ACCORDANCE WITH SDDOT SPECIFICATIONS.

***THE CROSS SLOPE OF THE SIDEWALK IS DESIGNED AT 1.5% AND THE MAXIMUM SLOPE ALLOWED IS 2% UNLESS SPECIFIED OTHERWISE IN THE PLANS.

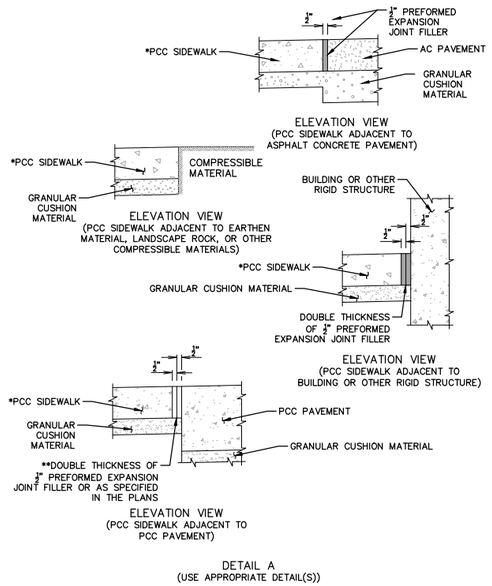
THE MAXIMUM LENGTH BETWEEN EXPANSION JOINTS IN THE PCC SIDEWALK IS 75 FEET.

PCC SIDEWALK PLACED ADJACENT TO INTERSECTION OF ROADWAYS WILL HAVE AN EXPANSION JOINT PLACED TRANSVERSELY A MAXIMUM OF 37.5 FEET FROM THE INTERSECTION. SEE PLAN VIEW.

AN EXPANSION JOINT IN THE PCC SIDEWALK WILL CONSIST OF A 1/2–INCH THICK PREFORMED EXPANSION JOINT FILLER MATERIAL PLACED FULL DEPTH AND WIDTH OF THE PCC SIDEWALK.

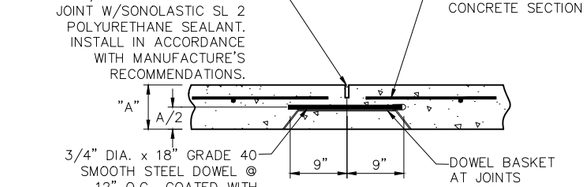
**LARGE AREAS OF PCC PAVEMENT ADJACENT TO THE PCC SIDEWALK MAY REQUIRE A DIFFERENT JOINT TREATMENT THAN SHOWN IN THE DETAIL. IF A DIFFERENT JOINT DETAIL IS NECESSARY, PLANS WILL CONTAIN THE JOINT DETAIL AND THE CONTRACTOR WILL CONSTRUCT THE JOINT TREATMENT IN ACCORDANCE WITH THE PLANS.

3 / C505 PCC SIDEWALK
NTS



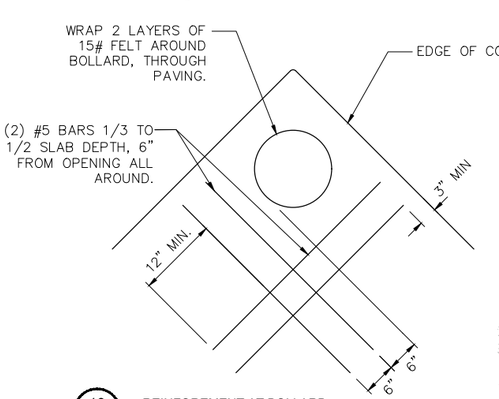
DETAIL A
(USE APPROPRIATE DETAIL(S))

4 / C505 PCC SIDEWALK
NTS



NOTES:
1. "A" PER CONCRETE SECTION.
2. REBAR SHALL NOT PASS THROUGH ANY JOINT.
4. 3/4" SQUARE DOWELS W/DOWEL CLIPS BY PNA, MAY BE SUBSTITUTED. CONTRACTOR TO SUBMIT REQUEST TO ENGINEER FOR APPROVAL.

9 / C505 CONTRACTION JOINT WITH DOWEL
NTS



10 / C505 REINFOREMENT AT BOLLARD
NTS

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15419
MARK HINES
SOUTH DAKOTA
4/19/2023

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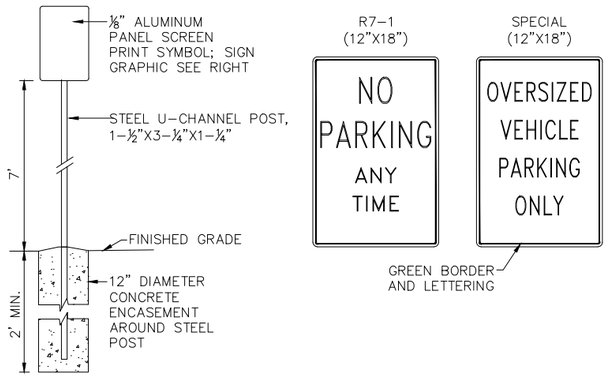
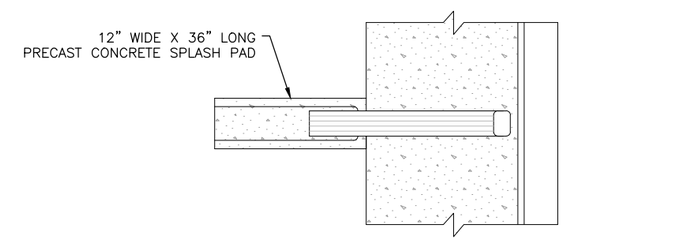
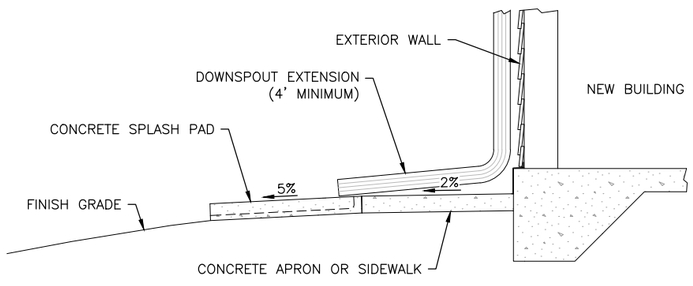
HURON WMD					SUB-SHEET
SITE DETAILS					C505
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED	DRAWN	CHECKED	DATE		SHEET
MH	JB	BD	2022.04.29		12 OF 74



1 C506 PARKING SIGNAGE
NTS

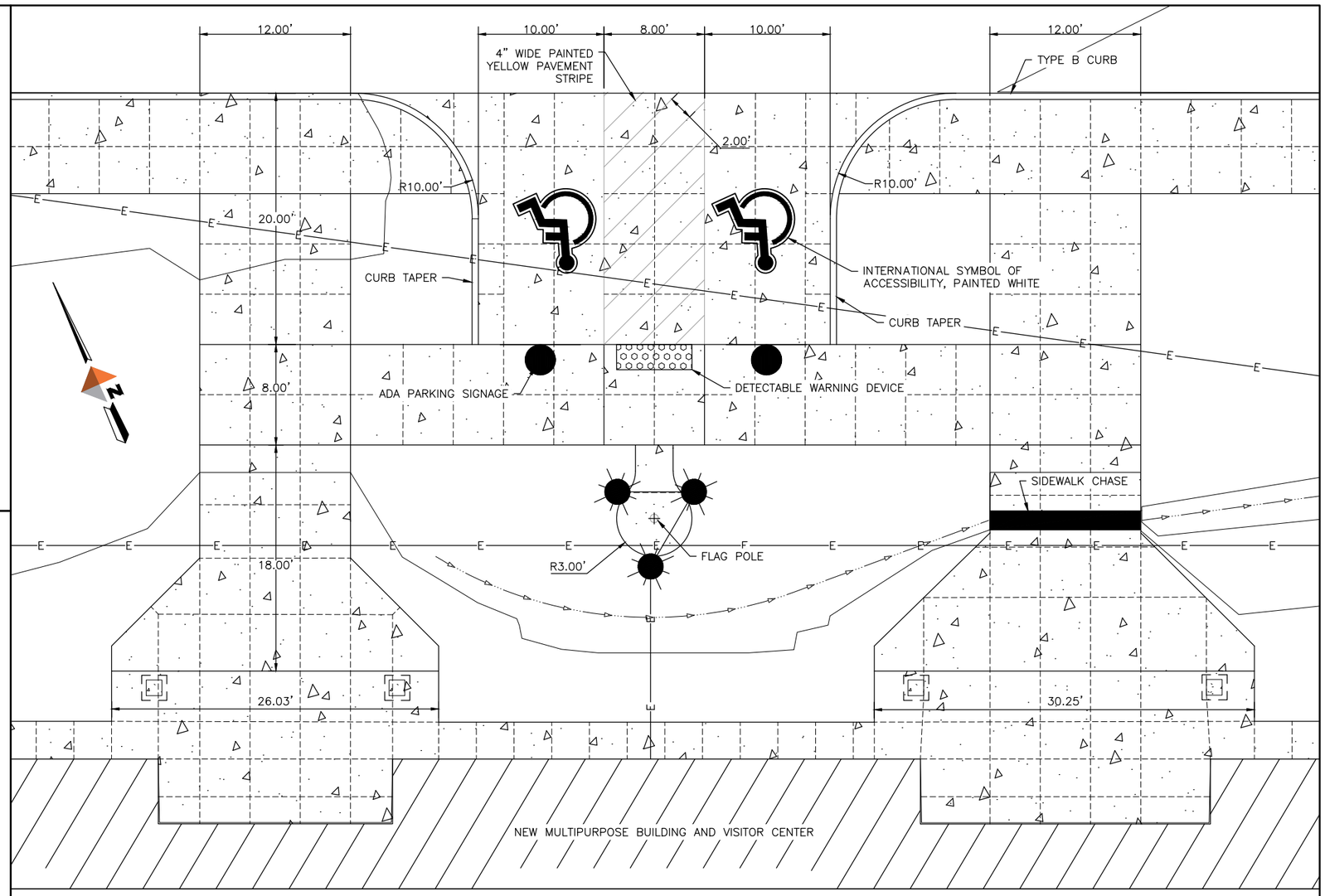


PLAN VIEW

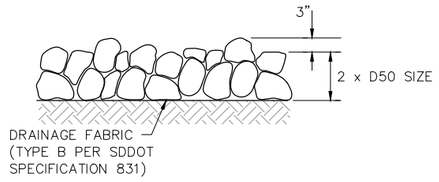


ELEVATION VIEW

2 C506 SPLASH PAD DETAILS
NTS



3 C506 ADA PARKING AREA AND SIDEWALKS
SCALE: 1"=5'



NOTES:

1. TOP OF RIPRAP TO BE AT FLOWLINE OR GRADE AS INDICATED ON PLAN (WITHIN VARIANCE GIVEN). RIPRAP PLACED ABOVE FINAL GRADE WILL NOT BE ACCEPTED.

4 C506 HAND-PLACED RIPRAP DETAIL
NTS

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15419
MARK HINES
SOUTH DAKOTA
4.19.2023

HURON WMD

SITE DETAILS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET C506

DESIGNED	DRAWN	CHECKED	DATE		SHEET
MH	JB	BD	2022.04.29		13 OF 74

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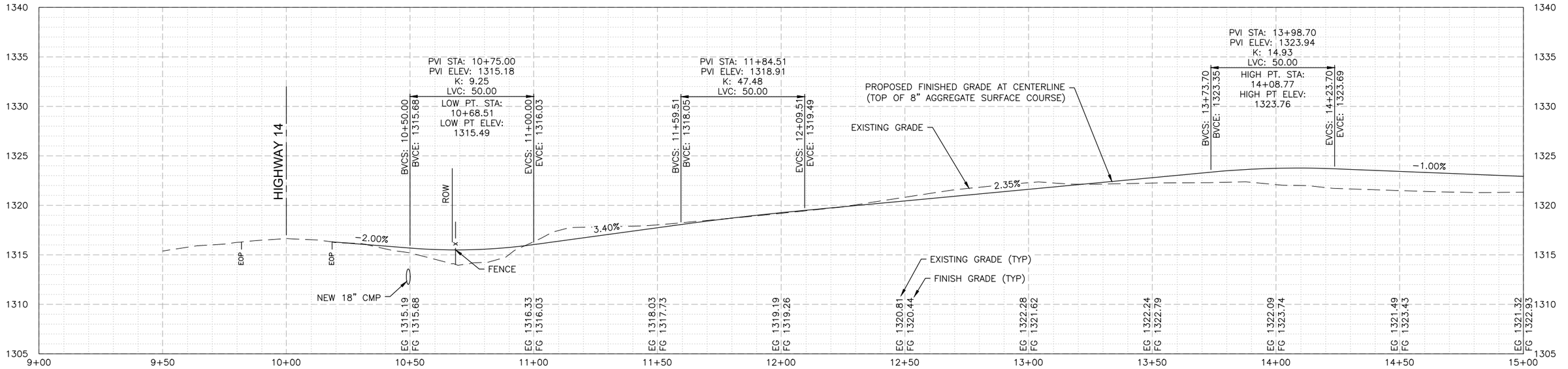

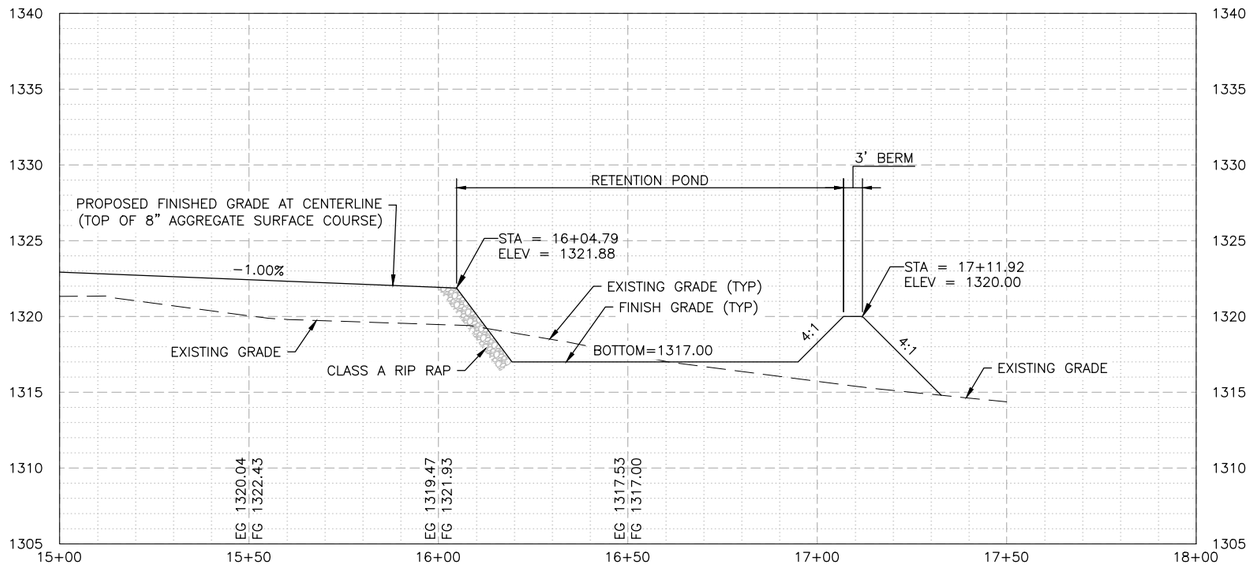

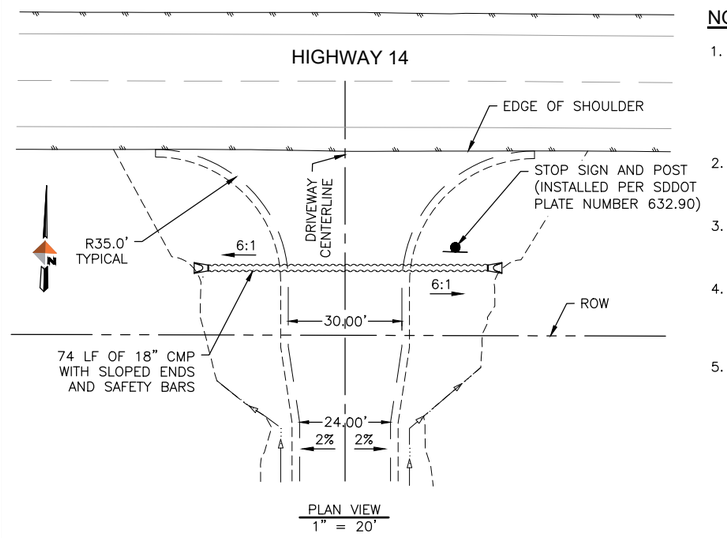

1 C507 HIGHWAY 14 APPROACH DETAILS

NOTES:

1. PORTIONS OF THIS PROJECT WILL BE CONSTRUCTED UNDER A SEPARATE CONTRACT BY THE FEDERAL HIGHWAYS ADMINISTRATION (FHWA) AS DESCRIBED HEREIN. USFWS CONTRACTOR (THIS CONTRACT) SHALL COORDINATE THEIR WORK WITH FHWA AND THEIR DESIGNATED CONTRACTOR. IT IS ANTICIPATED THIS USFWS CONTRACT WILL PRECEDE FHWA CONTRACT.
2. USFWS CONTRACTOR SHALL PERFORM ALL EARTHWORK, GRADING, CULVERT INSTALLATION AND EROSION CONTROL SHOWN ON PROJECT PLANS INCLUDING AREAS WITHIN HWY14 ROW.
3. USFWS CONTRACTOR SHALL BUILD, COMPACT AND MAINTAIN SUBGRADE DURING CONSTRUCTION AND PROVIDE FINISH GRADING AND COMPACTION OF SUBGRADE JUST PRIOR TO LEAVING PROJECT SITE.
4. USFWS CONTRACTOR SHALL FURNISH AND INSTALL CMP CULVERT WITH SLOPED ENDS AND SAFETY BARS PER SDDOT SECTION 450 AND APPLICABLE SECTION 450 STANDARD PLATES. CULVERT MATERIALS SHALL CONFORM TO SDDOT SECTION 990.
5. THE FOLLOWING ITEMS SHALL BE FURNISHED AND INSTALLED BY FHWA CONTRACTOR IN ACCORDANCE WITH FHWA FP-14 AND APPLICABLE SCRS:
   - SURFACE COURSE AGGREGATE SHALL BE PER SUBSECTION 703.05, CONFORMING TO TABLE 703-3.
   - GEOGRID SHALL BE PER SUBSECTION 714.03, CONFORMING TO TABLE 714-4.
   - FURNISH AND INSTALL 30" X 30" STOP SIGN, POST AND BREAKAWAY SUPPORT STUB INSTALLATED PER SDDOT SECTION 632 AND APPLICABLE PLATES. SIGN MATERIALS SHALL CONFORM TO SDDOT SECTION 982.
6. FHWA CONTRACTOR SHALL PROVIDE FINISH GRADING AND FINAL CLEANUP OF ANY AREAS USED OR DISTURBED BY HIM DURING DRIVEWAY AND PARKING LOT CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15419
MARK HINES
SOUTH DAKOTA
4/19/2023

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HURON WMD

DRIVEWAY AND PARKING LOT PROFILES

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET C507

DESIGNED	DRAWN	CHECKED	DATE		SHEET
MH	JB	BD	2022.04.29		14 OF 74

208TH STREET

14

CP-100

CP-101

NEW MULTIPURPOSE BUILDING AND VISITOR CENTER F.F. ELEV.=1324.00

RETENTION BASIN BOTTOM ELEVATION = 1317.00

GRADING LIMIT

N

40 0 40 80

SCALE IN FEET

EROSION CONTROL LEGEND

SF	SILT FENCE PER SD DOT STANDARD PLATE #734.05 ON SHEET C603
TW	CONCRETE TRUCK WASHOUT PER DETAIL ON SHEET C603
W	EROSION CONTROL WATTLE

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15419
MARK HINES
SOUTH DAKOTA
4/19/2023

HURON WMD

EROSION CONTROL PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET C601

DESIGNED	DRAWN	CHECKED	DATE		SHEET
MH	JB	BD	2022.04.29		15 OF 74

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RETENTION OF RECORDS

1. A COPY OF THE STORM WATER MANAGEMENT PLAN (SWMP) SHALL BE KEPT AT A CENTRAL LOCATION ON THE CONSTRUCTION SITE FROM THE DATE OF PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION.
2. PERMITTEES SHALL RETAIN COPIES OF THE SWMP AND ANY REVISIONS TO THE PLAN, AND ALL REPORTS REQUIRED BY THE PERMIT, AND RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT FOR A PERIOD OF A LEAST THREE YEARS FROM THE DATE THE SITE IS FINALLY STABILIZED. THIS PERIOD MAY BE EXTENDED BY THE DIRECTOR OF THE EPA AT ANY TIME.

GENERAL NOTES

1. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A STATE OF SOUTH DAKOTA, DEPARTMENT OF NATURAL RESOURCES (DENR) GENERAL PERMIT AUTHORIZING STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES (DENR STORM WATER CONSTRUCTION PERMIT) (PERMIT #SDR100000) PRIOR TO CONSTRUCTION AND THE ISSUANCE OF A BUILDING PERMIT FROM BEADLE COUNTY. FORMS MUST BE SUBMITTED TO THE DENR AT LEAST 15 DAYS PRIOR TO START OF CONSTRUCTION.
2. THE OWNER/CONTRACTOR SHALL PROVIDE THE COUNTY ENGINEER WITH A COPY OF THE DENR STORM WATER CONSTRUCTION PERMIT LETTER OF APPROVAL AND CERTIFICATION FROM THE STATE PRIOR TO RECEIVING A BUILDING PERMIT FROM THE COUNTY. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR ALL FEES ASSOCIATED WITH THESE PERMITS.
3. A COPY OF THE DENR STORM WATER CONSTRUCTION PERMIT, BEADLE COUNTY BUILDING PERMIT, AND THE APPROVED SWMP WITH AN EROSION AND SEDIMENT PLAN SHALL BE KEPT ON SITE AND UPDATED AT ALL TIMES.
4. THE SWMP ADMINISTRATOR IS RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIMES DURING CONSTRUCTION. THE SWMP SHALL BE MODIFIED IN COMPLIANCE TO THE COUNTY AND STATE PERMITS.
5. THE DENR SURFACE WATER QUALITY PROGRAM AND BEADLE COUNTY SHALL BE NOTIFIED FOR THE FOLLOWING ITEMS:
   A) AMENDING PERMIT CERTIFICATION – AMENDMENTS TO THE PERMIT SHALL BE IN WRITING NOTING CHANGES TO THE INFORMATION PROVIDED IN THE PERMIT APPLICATION, INCLUDING THE LEGAL CONTACT, THE PROJECT LEGAL DESCRIPTION OR MAP ORIGINALLY SUBMITTED WITH THE APPLICATION, OR THE PLANNED TOTAL DISTURBED ACREAGE.
   B) NONCOMPLIANCE NOTIFICATION – THE PERMITTEE SHALL NOTIFY THE DIVISION AT 1–877–518–5608 AND THE COUNTY WITHIN 24 HOURS TO REPORT THE FOLLOWING INSTANCES OF NON–COMPLIANCE:
   – ANY NONCOMPLIANCE WHICH MAY DANGER THE HEALTH OF THE ENVIRONMENT
   – ANY SPILL OR DISCHARGES OF HAZARDOUS SUBSTANCES OR CHEMICALS TO THE WATERS OF THE STATE
   – ANY DISCHARGE OF STORM WATER WHICH MAY EXCEED THE WATER QUALITY STANDARD
6. THE OPERATOR SHALL POST A SIGN OR OTHER NOTICE NEAR THE MAIN ENTRANCE OF THE CONSTRUCTION SITE ACCORDING TO THE EPA – POSTING REQUIREMENTS. THE APPROVED SWMP WILL BE LOCATED IN THE SITE CONSTRUCTION OFFICE.
7. AT THE COMPLETION OF THE PROJECT, THE OWNER/CONTRACTOR IS RESPONSIBLE TO SUBMIT A NOTICE OF TERMINATION TO THE DENR. THE OWNER/CONTRACTOR SHALL PROVIDE THE COUNTY WITH A COPY OF THIS INACTIVATION NOTICE.

SWMP ADMINISTRATOR

A) NAME:_____
TITLE:_____
PH: _____
OPERATOR HAS CONTROL OVER: _____

B) NAME:_____
TITLE:_____
PH: _____
OPERATOR HAS CONTROL OVER: _____

EROSION CONTROL INSPECTOR

A) NAME:_____
TITLE:_____
PH: _____
OPERATOR HAS CONTROL OVER: _____

B) NAME:_____
TITLE:_____
PH: _____
OPERATOR HAS CONTROL OVER: _____

TRAINING

EMPLOYEES AND CONTRACTOR PERSONNEL SHALL BE TRAINED IN THE FOLLOWING AREAS, AT LEAST ONCE PER YEAR:

A) PREVENTIVE MEASURES, INCLUDING SPILL PREVENTION AND RESPONSE, CONSTRUCTION ACTIVITY INSPECTIONS, AND PREVENTIVE MAINTENANCE.
B) POLLUTION CONTROL LAWS AND REGULATIONS.
C) THE CONSTRUCTION ACTIVITY'S SWMP.
D) FEATURES AND OPERATIONS OF THE CONSTRUCTION ACTIVITY THAT ARE DESIGNED TO MINIMIZE DISCHARGES OF SECTION 313 WATER PRIORITY CHEMICALS, PARTICULARLY SPILL PREVENTION PROCEDURES.

FINAL STABILIZATION

FINAL STABILIZATION IS REACHED WHEN ALL GROUND SURFACE DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED, AND UNIFORM COVER HAS BEEN ESTABLISH WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST SEVENTY (70) PERCENT OF PRE–DISTURBANCE LEVELS, OR EQUIVALENT PERMANENT, PHYSICAL EROSION REDUCTION METHODS HAVE BEEN EMPLOYED.

FINAL STABILIZATION PRACTICES FOR OBTAINING A VEGETATIVE COVER SHOULD INCLUDE, AS APPROPRIATE: SEED MIX SELECTION AND APPLICATION METHODS; SOIL PREPARATION AND AMENDMENTS; SOIL STABILIZATION PRACTICES (E.G., CRIMPED STRAW, HYDRO MULCH OR ROLLED EROSION CONTROL PRODUCTS); AND APPROPRIATE SEDIMENT CONTROL BMPS AS NEEDED UNTIL FINAL STABILIZATION IS ACHIEVED; ETC.

COMMON NAME (VARIETY)	SCIENTIFIC NAME	SEASON GROWTH	GROWTH FORM	SEEDS/LB	LBS PLS/ACRE

OVERVIEW OF MINIMUM POLLUTION PREVENTION PROVISIONS

1. IN ADDITION TO PREVENTING SOIL FROM ERODING AND MIGRATING FROM THE SITE DURING CONSTRUCTION, POLLUTANTS THAT COULD BE DISCHARGED IN THE STORM WATER EXITING THE SITE MUST BE MINIMIZED. THESE INCLUDE OIL, GREASE, PAINTS, GASOLINE, CONCRETE TRUCK WASH DOWN, SOLVENTS, LITTER, DEBRIS, SANITARY WASTES, AND MATERIALS USED IN THE MANUFACTURE OF CONCRETE SUCH AS AGGREGATE, CEMENT, AND SAND.
2. THE FULL REQUIREMENTS FOR POLLUTION PREVENTION ON THE CONSTRUCTION SITE ARE CONTAINED IN THE PROJECT "STORM WATER POLLUTION PREVENTION PLAN" (SWMP). THE REQUIREMENTS OF THE FULL SWMP ARE TO BE MET BY ANY OPERATOR WORKING ON THE SITE. A BRIEF LISTING OF THE REQUIREMENTS TO BE MET ARE AS FOLLOWS:

A) VEHICLE TRACKING FROM THE SITE IS TO BE PREVENTED.
B) EQUIPMENT MAINTENANCE AND REPAIR IS TO OCCUR ONLY IN DESIGNATED AREAS.
C) WASTE RECEPTACLES SHALL BE PROVIDED AT CONVENIENT LOCATIONS. REGULAR COLLECTION OF WASTES SHALL BE PERFORMED.
D) EQUIPMENT WASH DOWN SHALL OCCUR ON THE SITE IN THE DESIGNATED AREAS. PROVIDE APPROPRIATE CONTROL OF WASH WATER TO PREVENT DRY WEATHER DISCHARGES AND AVOID MIXING WITH STORM WATER.
E) PROVIDE PROTECTED STORAGE FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
F) PROVIDE ADEQUATELY MAINTAINED SANITARY FACILITIES.

MAINTENANCE & INSPECTION

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF ANY STORM EVENT.
2. ALL CONTROL MEASURES SHALL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF THE INSPECTION REPORT.
3. BUILT UP SEDIMENT SHALL BE REMOVED FROM SILT FENCE AND STRAW BALES WHEN IT HAS REACHED ONE–THIRD THE HEIGHT OF THE FENCE OR THE BALES.
4. SILT FENCE SHALL BE INSPECTED FOR DEPTH OF SEDIMENTS AND TEARS TO SEE IF THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS, AND TO SEE THAT THE FENCE POSTS ARE FIRMLY IN THE GROUND.
5. THE DETENTION BASINS AND OUTLET STRUCTURES & PIPES SHALL BE INSPECTED FOR DEPTH OF SEDIMENT. BUILT UP SEDIMENT SHALL BE REMOVED WHEN IT REACHES 10 PERCENT OF THE DESIGN CAPACITY, OR AT THE END OF THE JOB.
6. LANDSCAPING, PLANTING, AND SEEDING SHALL BE INSPECTED FOR BARE SPOTS, WASHOUT, ADEQUACY OF IRRIGATION, AND HEALTHY GROWTH.
7. A MAINTENANCE INSPECTION REPORT SHALL BE MADE AFTER EACH INSPECTION. A COPY OF THE REPORT SHALL BE KEPT ON FILE WITH THE SITE SUPERINTENDENT, AND WILL BE MADE AVAILABLE TO THE OWNER, COUNTY OFFICIALS, AND THE ARCHITECT & PROJECT ENGINEER.
8. THE SITE SUPERINTENDENT SHALL SELECT TWO INDIVIDUALS WHO WILL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND FILLING OUT THE INSPECTION & MAINTENANCE REPORT.

MAINTENANCE & INSPECTION REPORTS

ONCE AN INSPECTION HAS BEEN PERFORMED, A REPORT CONTAINING THE FOLLOWING MUST BE RETAINED WITH THE SWMP FOR UP TO 3 YEARS AFTER THE SITE HAS BEEN FINALLY STABILIZED.

A) NAMES AND QUALIFICATIONS OF PERSONNEL CONDUCTING THE INSPECTION.
B) DATES OF INSPECTION.
C) OBSERVATIONS RELATING TO IMPLEMENTATION OF THE SWMP.
D) ACTIONS TAKEN
E) INCIDENTS OF NON–COMPLIANCE.

IF NO INCIDENTS OF NON–COMPLIANCE WERE FOUND, THE REPORT SHALL CONTAIN A CERTIFICATION THAT THE SITE IS IN COMPLIANCE WITH THE SWMP AND THE PERMIT. THE REPORT MUST BE SIGNED IN ACCORDANCE WITH REGULATORY REQUIREMENTS.

MATERIALS INVENTORY

THE MATERIALS OR SUBSTANCES LISTED BELOW ARE EXPECTED TO BE ON–SITE DURING CONSTRUCTION:

CONCRETE	PAINTS
HERBICIDES	DETERGENTS
FUEL & PETROLEUM BASED PRODUCTS	FERTILIZERS
CLEANING SOLVENTS	ASPHALT
_____	_____
_____	_____
_____	_____
_____	_____

CONTRACTOR TO STRIKE OUT AND ADD ITEMS AS NECESSARY.

SCHEDULE OF MAJOR CONSTRUCTION ACTIVITIES

MAJOR ACTIVITY	SCHEDULED COMPLETION DATE	REMARKS
ESTABLISH CLEARANCE LIMITS & AREAS OF NON–DISTURBED AREAS		
CLEAR & GRUB WITHIN AREAS TO BE GRADED		
INSTALL WASTE RECEPTACLES AND SANITARY FACILITIES		
INSTALL VEHICLE WASH AREA BERM		
INSTALL INTERIM EROSION, SILT & POLLUTION CONTROL MEASURES		
MASS GRADE SITE		
INSTALL SITE UTILITIES		
CONSTRUCT BUILDINGS		
CONSTRUCT E.T. TREATMENT BED		
FINISH GRADE SITE		
REMOVE EXCESS EARTHWORK MATERIAL FROM SITE		
CONSTRUCT CURB AND GUTTER		
INSTALL AGGREGATE AND PAVEMENT		
INSTALL FENCING		
INSTALL PERMANENT PLANTING & SEEDING		
AT CONSTRUCTION COMPLETION, REMOVE WASTE RECEPTACLES AND SANITARY FACILITIES.		

THE SCHEDULE OF MAJOR CONSTRUCTION EVENTS SHALL BE COMPLETED BY THE PROJECT SUPERINTENDENT PRIOR TO FILING HIS NOTICE OF INTENT. HE SHALL UPDATE THE SCHEDULE AS NEEDED.

SPILL CLEANUP

IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED ELSEWHERE IN THE SWMP PLAN, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP.

1. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED, AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
2. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON–SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE, BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAKES, GLOVES, GOGGLES, KITTY LITTER, SAND, SAW DUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
3. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
4. THE SPILL AREA SHALL BE KEPT WELL VENTILATED, AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
5. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF SIZE.
6. IF A SPILL OCCURS, THE SPILL PREVENTION PLAN SHALL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS PARTICULAR TYPE OF SPILL FROM REOCCURRING, AND HOW TO CLEAN UP THE SPILL IF THERE IS ANOTHER ONE. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES SHALL ALSO BE INCLUDED.
7. THE SITE SUPERINTENDENT SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. HE WILL DESIGNATE AT LEAST TWO OTHER SITE PERSONNEL WHO WILL RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS WILL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND POSTED IN THE MATERIAL STORAGE AREA AND IN THE OFFICE.

SPILL PREVENTION

THE FOLLOWING MATERIAL MANAGEMENT PRACTICES SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF.

1. GOOD HOUSEKEEPING: THE FOLLOWING HOUSEKEEPING PRACTICES SHALL BE FOLLOWED ON–SITE DURING THE CONSTRUCTION OF THE PROJECT:

A) AN EFFORT SHALL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB.
B) ALL MATERIAL STORED ON–SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER ROOF OR OTHER ENCLOSURE.
C) PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
D) SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
E) WHENEVER POSSIBLE, ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
F) MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED.
G) THE SITE SUPERINTENDENT SHALL DAILY INSPECT ON–SITE MATERIAL TO ENSURE PROPER USE, STORAGE, AND DISPOSAL.

2. HAZARDOUS PRODUCTS: THESE PRACTICES SHALL BE FOLLOWED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:

A) PRODUCTS SHALL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RE–SEALABLE.
B) ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED. THEY CONTAIN IMPORTANT PRODUCT INFORMATION.
C) IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S LOCAL, STATE, AND FEDERAL RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

SPILL CONTAINMENT PLAN

1. THE CONSTRUCTION SITE MANAGEMENT TEAM SHALL DEVELOP A SPILL PREVENTION PLAN AND ENSURE THAT THE PLAN IS COMMUNICATED TO ALL FIELD PERSONNEL.
2. THE PLAN SHALL IDENTIFY THE TYPES OF HAZARDOUS MATERIALS, WHICH MAY BE USED ON THE PROJECT.
3. DEVELOP A STRATEGY TO STOP LEAKS AT THE SOURCE OF THE SPILL.
4. DEVELOP A STRATEGY TO CONTAIN THE MATERIALS ALREADY SPILLED USING AVAILABLE MATERIALS AND EQUIPMENT.
5. CONTACT THE LOCAL FIRE MARSHALL TO REVIEW ON–SITE STORAGE AREAS TO DETERMINE SPECIFIC REQUIREMENTS AND APPROPRIATE CONTAINMENT TECHNIQUES.
6. COMPLY WITH SUGGESTIONS AND REQUIREMENTS SET BY LOCAL FIRE DEPARTMENT.
7. UPDATE SPILL CONTAINMENT DURING THE COURSE OF CONSTRUCTION AS CHANGES OCCUR IN THE TYPES OF CHEMICALS BEING STORED.
8. IF A SPILL OCCURS FOLLOW PROPER PROCEDURE AS REQUIRED IN THE SPILL CONTAINMENT PLAN.
9. DISPOSE OF MATERIALS PER AGENCY OR MANUFACTURER'S INSTRUCTION.
10. ALL SPILLS REGARDLESS OF SIZE SHOULD BE REPORTED TO THE PROPER AGENCIES.

EQUIPMENT MAINTENANCE PROCEDURES

1. PROPERLY DISPOSE OF OR RECYCLE USED OILS, HYDRAULIC FLUIDS, AND GEAR LUBRICANTS. DO NOT DUMP FUELS AND LUBRICANTS INTO PITS OR ON THE GROUND. NEVER PLACE USED OIL IN A DUMPSTER OR POUR DOWN A STORM DRAIN.
2. PROPERLY DISPOSE OF OR RECYCLE USED BATTERIES.
3. DO NOT BURY USED TIRES.
4. DO NOT DISPOSE OF EXTRA PAINTS AND COATINGS BY DUMPING LIQUID ONTO THE GROUND OR THROWING IN DUMPSTERS. ALLOW COATINGS TO DRY OR HARDEN BEFORE DISPOSAL INTO COVERED DUMPSTERS.
5. REPAIR LEAKS OF HYDRAULIC FLUIDS, OILS, AND OTHER FLUIDS AS SOON AS POSSIBLE.
6. USE STEAM OR HIGH PRESSURE WATER INSTEAD OF THINNERS AND SOLVENTS TO WASH DOWN HEAVY EQUIPMENT. LOCATE THE WASH DOWN AREA IN A CONTAINED AREA, AND DISPOSE OF WASH WATER AND DETERGENTS TO THE SANITARY SEWER SYSTEM ONLY AFTER GRIT IS REMOVED.
7. PROVIDE SPILL CONTAINMENT DIKES AROUND STORED OIL AND CHEMICAL DRUMS.
8. MAINTAIN WASTE OIL CONTAINERS IN LEAK PROOF CONDITION.
9. CLEAN EQUIPMENT RADIATORS TO MAXIMIZE COOLING EFFICIENCY AND PREVENT BOIL OVER.
10. INSPECT EQUIPMENT FOR DAMAGED HOSES AND LEAKY GASKETS DAILY. REPAIR OR REPLACE AS NEEDED.

PRODUCT SPECIFIC PRACTICES

THE FOLLOWING WILL BE FOLLOWED ON–SITE.

1. PETROLEUM PRODUCTS: ALL ON–SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS THAT ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCE USED ON–SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
2. FERTILIZERS: FERTILIZERS USED SHALL BE APPLIED ONLY IN THE AMOUNTS RECOMMENDED BY THE MANUFACTURER OR LANDSCAPE ARCHITECT. ONCE APPLIED, FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A PROPERLY LABELED, SEALABLE PLASTIC BIN TO AVOID SPILLS.
3. PAINTS: ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT SHALL NOT BE DISCHARGED INTO THE STORM WATER SYSTEM, BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND LOCAL, STATE, AND FEDERAL REGULATIONS.
4. CONCRETE TRUCKS: CONCRETE TRUCKS SHALL ONLY BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER AT THE APPROVED SITE WASH OUT LOCATION. THE LOCATION SHALL BE THOROUGHLY CLEANED AND RESTORED AT CLOSE OF PROJECT AND EXCESS CONCRETE DISPOSED OF OFF–SITE AT AN APPROVED LOCATION.
5. WASTE MATERIALS: ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN A METAL DUMPSTER RENTED FROM A LICENSED SOLID WASTE MANAGEMENT COMPANY IN BEADLE COUNTY, SOUTH DAKOTA. THE DUMPSTER SHALL MEET ALL PIMA COUNTY WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER SHALL BE EMPTIED AS NECESSARY AT A MINIMUM OF BIWEEKLY OR MORE OFTEN IF NECESSARY, AND THE TRASH WILL BE HAULED TO A LICENSED LANDFILL. NO CONSTRUCTION DEBRIS OR WASTE MATERIALS ARE TO BE BURIED ON–SITE. ALL PERSONNEL SHALL BE INSTRUCTED BY THE SITE SUPERINTENDENT REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL. NOTICES STATING THESE PROCEDURES SHALL BE POSTED IN THE OFFICE TRAILER AND THE SITE SUPERINTENDENT WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.
6. HAZARDOUS WASTE: ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL, COUNTY, STATE AND FEDERAL REGULATIONS, AND BY THE MANUFACTURER. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SITE SUPERINTENDENT, WHO WILL BE RESPONSIBLE FOR SEEING THESE PRACTICES ARE FOLLOWED.
7. SANITARY WASTE: ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF THREE TIMES PER WEEK BY A LICENSED BEADLE COUNTY WASTE MANAGEMENT CONTRACTOR, AS REQUIRED BY LOCAL REGULATION.
8. OFFSITE VEHICLE TRACKING: A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. THE PAVED ROADWAYS ADJACENT TO THE SITE ENTRANCE SHALL BE SWEPT AS NEEDED TO REMOVE ANY EXCESS MUD, DIRT, OR ROCK TRACKED FROM THE SITE. HAUL TRUCKS AND DUMP TRUCKS REMOVING MATERIAL FROM THE CONSTRUCTION SITE SHALL BE COVERED WITH A TARPAULIN.

RELEASE OF HAZARDOUS SUBSTANCES OR OIL

1. THE PERMITTEE SHALL PREVENT OR MINIMIZE THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL FROM THE SITE. IF A PERMITTEE ALLOWS DISCHARGES CONTAINING AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTABLE QUANTITY ESTABLISHED UNDER 40 CFR 110, 40 CFR 117, OR 40 CFR 302, DURING A 24 HOUR PERIOD, THE NATIONAL RESPONSE CENTER (NRC) MUST BE NOTIFIED (PH 800–424–8802).
2. WITHIN 72 HOURS OR KNOWLEDGE OF THE RELEASE, THE PERMITTEE SHALL PREPARE AND SUBMIT A SATISFACTORY WRITTEN PROPOSAL OF REVISIONS TO BE INCORPORATED INTO THE SWMP TO PREVENT REOCCURRENCES OF SUCH RELEASES. THE CIRCUMSTANCES LEADING TO THE RELEASE, RESPONSES TO BE EMPLOYED FOR SUCH RELEASES, AND MEASURES TO PREVENT THE REOCCURRENCE OF SUCH RELEASES SHALL BE DOCUMENTED. AFTER A SUITABLE PROPOSAL IS ACCEPTED BY THE OWNER AND ENGINEER, (AND WITHIN 14 CALENDAR DAYS OF THE RELEASE) IT SHALL BECOME AN OFFICIAL REVISION TO THE SWMP AND CONFORMANCE TO ITS PROVISIONS SHALL BE REQUIRED.

ALLOWABLE NON-STORMWATER DISCHARGES

1. THE ONLY DISCHARGES ALLOWED UNDER THE GENERAL PERMIT, OTHER THAN STORM WATER DISCHARGES ARE AS FOLLOWS:

A) FIRE FIGHTING ACTIVITY RUNOFF
B) FIRE HYDRANT FLUSHING
C) VEHICLE WASH WATER IF DETERGENTS ARE NOT USED
D) DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS
E) POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHING
F) ROUTINE EXTERNAL BUILDING WASH DOWN THAT DO NOT INVOLVE DETERGENTS
G) NON–DETERGENT PAVEMENT WASH WATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED)
H) AIR CONDITIONING CONDENSATE
I) UNCONTAMINATED GROUND WATER OR SPRING WATER
J) FOUNDATION OR FOOTER DRAIN WATER (PROVIDING THERE WAS NO CONTAMINATION WITH PROCESS MATERIALS SUCH AS SOLVENTS).

2. ALLOWABLE NON–STORMWATER DISCHARGES MUST BE DIRECTLY RELATED TO AND ORIGINATE FROM THE CONSTRUCTION OF THE SITE AS DEPICTED IN THESE PLANS, OR BE A DEDICATED SUPPORT ACTIVITY TO THE CONSTRUCTION OF THE SITE.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15419
MARK J. HINES
SOUTH DAKOTA
4/19/2022

HURON WMD					SUB-SHEET
EROSION CONTROL NOTES					C602
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED MH	DRAWN JB	CHECKED BD	DATE 2022.04.29		SHEET 16 OF 74

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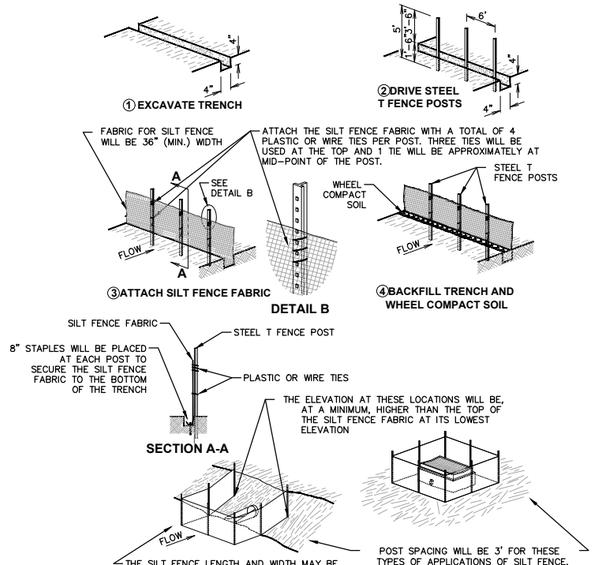
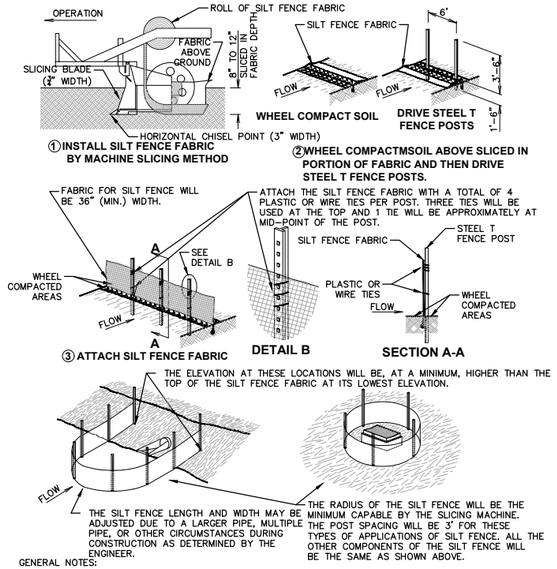
MANUAL HIGH FLOW SILT FENCE INSTALLATION



① EXCAVATE TRENCH
② DRIVE STEEL T FENCE POSTS
③ ATTACH SILT FENCE FABRIC
④ BACKFILL TRENCH AND WHEEL COMPACT SOIL

1 / C603 SIDEWALK DRAIN
NTS

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD
② WHEEL COMPACTMSOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.
③ ATTACH SILT FENCE FABRIC

GENERAL NOTES:

IF A TRENCH CAN NOT BE DUG OR THE SILT FENCE FABRIC CAN NOT BE SLICED IN DUE TO THE TYPE OF EARTHEN MATERIAL (SUCH AS ROCK), THEN A ROW OF 30 TO 40 POUND SANDBAGS BUTTED END TO END WILL BE PROVIDED ON TOP OF THE EXTRA LENGTH OF SILT FENCE FABRIC TO PREVENT UNDERFLOW.

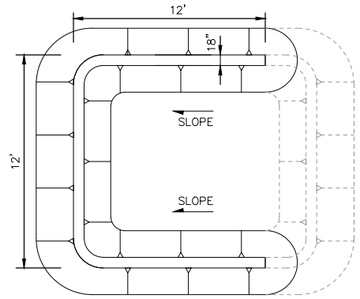
2 / C603 HIGH FLOW SILT FENCE
NTS

CONCRETE TRUCK CLEANING AREA CONSTRUCTION SPECIFICATIONS:

1. BUILD A THREE SIDED DIKE 12'X12'.
2. BUILD DIKES TO BE 18" HIGHER THAN EXISTING GRADE.
3. DIKE SHOULD SLOPE DOWNWARD TOWARDS THE BACK OF THE WASH AREA SO WATER DOESN'T RUN OUT OF CLEANING AREA.
4. LINE THE PIT WITH PLASTIC SHEETING OF AT LEAST 10-MIL THICKNESS THAT HAS NO SEAMS.
5. MOVE TRUCK WASHOUT AS NECESSARY FOR CONSTRUCTION PHASING.
6. IF THE TRUCK WASH IS LOCATED ON FLAT GROUND, THEN A FOURTH DIKE SHALL BE CONSTRUCTED TO CONTAIN WASHOUT LIQUIDS.

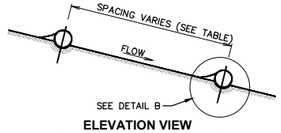
MAINTENANCE:

1. INSPECT DIKES WEEKLY, AND AFTER ANY MAJOR STORM TO ENSURE THAT THEY ARE INTACT AND WILL NOT ALLOW ANY WATER TO RUN OUT OF CLEANING AREA.
2. THOROUGHLY CLEAN AND RESTORE AT THE CLOSE OF THE PROJECT AND DISPOSE OF EXCESS CONCRETE AT AN APPROVED OFF-SITE LOCATION.



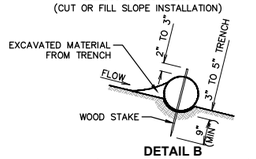
COMPACTED EARTH DIKE WITH 2:1 (H:V) SIDE SLOPES

5 / C603 CONCRETE TRUCK WASH
NTS

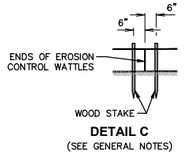


ELEVATION VIEW
(CUT OR FILL SLOPE INSTALLATION)

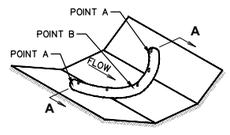
CUT OR FILL SLOPE INSTALLATION	
SLOPE	SPACING (FT.)
1:1	10
2:1	20
3:1	30
4:1	40



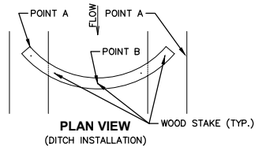
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C
(SEE GENERAL NOTES)

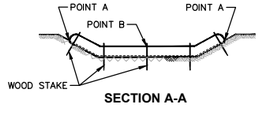


ISOMETRIC VIEW
(DITCH INSTALLATION)



PLAN VIEW
(DITCH INSTALLATION)

DITCH INSTALLATION	
GRADE	SPACING (FT.)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

3 / C603 EROSION CONTROL WATTLE
NTS

GENERAL NOTES:

AT CUT OR FILL SLOPE INSTALLATIONS, WATTLES WILL BE INSTALLED ALONG THE CONTOUR AND PERPENDICULAR TO THE WATER FLOW.

AT DITCH INSTALLATIONS, POINT A MUST BE HIGHER THAN POINT B TO ENSURE THAT WATER FLOWS OVER THE WATTLE AND NOT AROUND THE ENDS.

THE CONTRACTOR WILL DIG A 3" TO 5" TRENCH, INSTALL THE WATTLE TIGHTLY IN THE TRENCH SO THAT DAYLIGHT CAN NOT BE SEEN UNDER THE WATTLE, AND THEN COMPACT THE SOIL EXCAVATED FROM THE TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. SEE DETAIL B.

THE STAKES WILL BE 1"x2" OR 2"X2" WOOD STAKES, HOWEVER, OTHER TYPES OF STAKES SUCH AS REBAR MAY BE USED ONLY IF APPROVED BY THE ENGINEER. THE STAKES WILL BE PLACED 6" FROM THE ENDS OF THE WATTLES AND THE SPACING OF THE STAKES ALONG THE WATTLES WILL BE 3' TO 4'.

WHERE INSTALLING RUNNING LENGTHS OF WATTLES, THE CONTRACTOR WILL BUTT THE SECOND WATTLE TIGHTLY AGAINST THE FIRST AND WILL NOT OVERLAP THE ENDS. SEE DETAIL C.

THE CONTRACTOR AND OWNER OR ENGINEER WILL INSPECT THE EROSION CONTROL WATTLES IN ACCORDANCE WITH THE STORM WATER PERMIT. THE CONTRACTOR WILL, REMOVE, DISPOSE, OR RESHAPE THE ACCUMULATED SEDIMENT WHEN NECESSARY AS DETERMINED BY THE OWNER OR ENGINEER.

SEDIMENT REMOVAL, DISPOSAL, OR NECESSARY SHAPING WILL BE AS DIRECTED BY THE OWNER OR ENGINEER. ALL COSTS FOR REMOVING ACCUMULATED SEDIMENT, DISPOSAL OR SEDIMENT, AND NECESSARY SHAPING WILL BE INCIDENTAL TO THE CONTRACT PRICE SEDIMENT.

ALL COSTS FOR FURNISHING AND INSTALLING THE EROSION CONTROL WATTLES INCLUDING LABOR, EQUIPMENT, AND MATERIALS WILL BE INCIDENTAL TO THE CONTRACT PRICE.

CONTRACTOR SHALL COORDINATE WITH OWNER UPON COMPLETION OF THE PROJECT TO ENSURE ALL EROSION CONTROL IS IN GOOD CONDITION AND READY FOR SEEDING. SEEDING SHALL BE BY USFWS PERSONNEL UPON COMPLETION OF CONTRACTOR ACTIVITIES AT THE SITE. .

4 / C603 EROSION CONTROL NOTES

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HURON WMD

EROSION CONTROL DETAILS

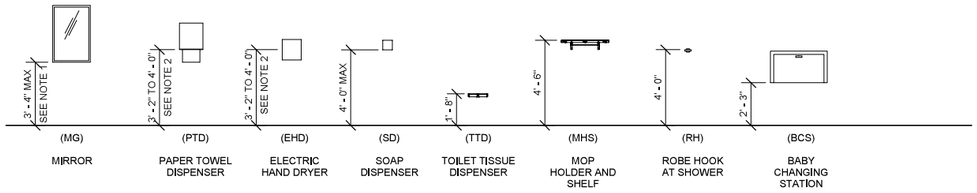
MULTIPURPOSE BUILDING AND VISITOR CENTER

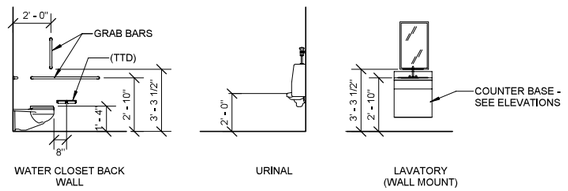
DESIGNED	DRAWN	CHECKED	DATE		SUB-SHEET
MH	JB	BD	2022.04.29		C603

SHEET 17 OF 74

ABBREVIATIONS

A	AMPERE
AAV	AUTOMATIC AIR VENT
A/C	AIR CONDITIONING
A/C UNIT	AIR CONDITIONING UNIT
AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ACC	ACCESSIBLE
ACI	AMERICAN CONCRETE INSTITUTE
ACP	ACCESS CONTROL POINT
ACR	ACRYLIC PLASTIC
ACS DR	ACCESS DOOR
ACS PNL	ACCESS PANEL
ACST	ACOUSTIC
ACT	ACOUSTICAL CEILING TILE
ADDM	ADDENDUM
ADH	ADHESIVE
ADJ	ADJACENT, ADJOINING, ADJUSTABLE
ADO	AUTOMATIC DOOR OPERATOR
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
AHR	ANCHOR
AHU	AIR HANDLING UNIT
AI	AREA INLET
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
A.L.	ACTIVE LEAF
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
AMP	AMPERE
ANOD	ANODIZE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPD	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECT
ARI	AMERICAN REFRIGERATION INSTITUTE
ASB	ASBESTOS
ASC	ABOVE SUSPENDED CEILING
ASPH	ASPHALT
ATC	ACOUSTICAL TILE CEILING
ATFP	ANTI-TERRORISM FORCE PROTECTION
AUTO	AUTOMATIC
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
AWT	ACOUSTICAL WALL TREATMENT
BB	BULLETIN BOARD
BC	BOOKCASE
BD	BOARD
BDRY	BOUNDARY
BEJ	BRICK EXPANSION JOINT
BEV	BEVEL
BJT	BED JOINT
BL	BASELINE, BUILDING LINE
BKR	BREAKER
BLDG	BUILDING
BLW	BELOW
BM	BENCHMARK
BO	BOTTOM OF
BOT	BOTTOM
BRCG	BRACING
BRDG	BRIDGING
BRG	BEARING
BRG PL	BEARING PLATE
BRK	BRICK
BRKT	BRACKET
BRZ	BRONZE
BS	BOTH SIDES
BSMT	BASEMENT
Btu	BRITISH THERMAL UNIT
BtuH	BTU PER HOUR
BTWN	BETWEEN
BUR	BUILT-UP ROOFING
BVCS	BEGIN VERTICAL CURVE STATION
BVCE	BEGIN VERTICAL CURVE ELEVATION
BW	BOTH WAYS
CAB	CABINET
CAP	CAPACITY
CB	CATCH BASIN, CIRCUIT BREAKER
CCT	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CE	COVER ELEVATION
CEM	CEMENT
CEM PLAS	CEMENT PLASTER
CER	CERAMIC
C CFI	CONDUIT, CONCRETE CONDUCTIVE FLOORING
CFLG	COUNTERFLASHING
CFM	CUBIC FEET PER MINUTE
CG	CORNER GUARD
CH BD	CHALKBOARD
CHFR	CHAMFER
CHIM	CHIMNEY
CHK	CHECK
CHR PL	CHROME PLATED
CI	CAST IRON, CURB INLET
CIP	CAST-IN-PLACE
CIRC	CIRCULAR
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CL	CENTER LINE
CLG	CEILING
CLG HT	CEILING HEIGHT
CLGL	CLEAR GLASS
CLJ	CONTROL JOINT
CLL	CONTRACT LIMIT LINE
CLO	CLOSET
CLOS	CLOSURE
CLR	CLEAR(ANCE)
CLWG	CLEAR WIRED GLASS
CMP	CORRUGATED METAL PIPE
CMPST	COMPOSITE
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CNR	CORNER
CNTR	COUNTER
CO	CLEANOUT
CO2	CARBON DIOXIDE
COL	COLUMN
COM	COMMON
COMB	COMBUSTION
COMP	COMPACTED
COMPT	COMPARTMENT
CONC	CONCRETE
CONN	CONNECT
CONSTR	CONSTRUCTION
CONT	CONTINUE
CONTR	CONTRACTOR
CORR	CORRIDOR
COV	COVER
CPRS	COMPRESSIBLE
CPT	CARPET
CRS	COURSE(S)
CS	CAST STONE
CSK	COUNTERSUNK
CSMT	CASEMENT
CSS	COMPACT SUBSTATION
CT	CERAMIC TILE, CURRENT TRANSFORMER
C TO C	CENTER TO CENTER
CTR	CENTER
CU	CONDENSING UNIT
CU FT	CUBIC FEET
CUH	CABINET UNIT HEATER
CULV	CULVERT
CU YD	CUBIC YARDS
CV	CEILING VENT, NON-SURGE CHECK VALVE W/ RATE OF FLOW CONTROLLER
CVH	CONDUCTIVE VINYL HOMOGENEOUS (SHEET TYPE)
CW	COLD WATER
CYL	CYLINDER
d	PENNY (AS IN NAIL - 10d)
DAT	DATUM
DB	DRY BULB
DBL	DOUBLE
DBL ACT DR	DOUBLE ACTING DOOR
DC	DIRECT CURRENT
DCJ	DOWELED CONTROL JOINT
DCJT	DUMMY CONTROL JOINT
DEG	DEGREE
DEMO	DEMOLITION
DEPR	DEPRESSION
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
D/FV	DEFUEL/FLUSH VALVE
DH	DOUBLE HUNG, DUCT HEATER
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISC	DISCONNECT
DISP	DISPENSER
DISTR PNL	DISTRIBUTION PANEL
DIV	DIVISION
DL	DEAD LOAD
DMPF	DAMPPROOFING
DMPR	DAMPER
DMT	DEMOUNTABLE
DN	DOWN
DR	DOOR, DRAIN
DRB	DRAINBOARD
DR CL	DOOR CLOSER
DS	DOUBLE STRENGTH (GLASS), DOWNSPOUT
DT	DRAIN TILE
DVTL	DOVETAIL
DWG	DRAWING
DWLS	DOWELS
DWR	DRAWER
DWTR	DUMBWAITER
DX	DIRECT EXPANSION
E	EAST, EASTING, ELECTRICAL
EA	EACH, EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EF	EACH FACE, EXHAUST FAN
EG	EXISTING GROUND
EJ	EXPANSION JOINT
EL	ELEVATION - GRADE OR BUILDING
ELEC	ELECTRIC
EM	EXPANDED METAL
EMD	ESTIMATED MAXIMUM DEMAND
EMER	EMERGENCY
ENCL	ENCLOSE(URE)
ENTR	ENTRANCE, ENTERING
EP	ELECTRICAL PANELBOARD, END POINT
EPDM	PROPYLENE-DIENE-MONOMER ROOF MEMBRANE
EPDS	EMERGENCY POWER DOWN STATION/SWITCH
EPRF	EXPLOSION PROOF
EPY	EPOXY COATING
EQ	EQUAL
EQLSP	EQUALLY SPACED
EQUIP	EQUIPMENT
ESCAL	ESCALATOR
ESO	EMERGENCY SHUT-OFF VALVE
EST	ESTIMATE(D)
EVCS	END VERTICAL CURVE STATION
EVCE	END VERTICAL CURVE ELEVATION
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXC	EXCAVATE
EXH	EXHAUST
EXH A	EXHAUST AIR
EXST	EXISTING
EXP	EXPANSION, EXPOSED
EXP BT	EXPANSION BOLT
EXT	EXTERIOR
F	FAHRENHEIT
FA	FIRE ALARM, FRESH AIR
FAC	FIRE APPARATUS CLOSET
FAI	FRESH AIR INTAKE
F BRK	FIRE BRICK
FC	FOOT CANDLE
FC BRK	FACE BRICK
FCG	FACING
FCJ	FLOOR CONSTRUCTION JOINT
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FDMPR	FIRE DAMPER
FDTN	FOUNDATION
FE	FINISH END
FEB	FIRE EXTINGUISHER BRACKET
FEC	FIRE EXTINGUISHER CABINET
FF	FACTORY FINISH, FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FG	FINISHED GRADE
FGL	FIBERGLASS
FH	FIRE HYDRANT, FLATE HEAD
FHC	FIRE HOSE CABINET
FHMS	FLAT HEAD MACHINE SCREW
FHR	FIRE HOSE RACK
FHS	FIRE HOSE STATION
FHWS	FLAT HEAD WOOD SCREW
FIG	FIGURE
FIN	FINISH
FIN FLR	FINISH FLOOR
FIP	FEMALE IRON PIPE
FIXT	FIXTURE
FJT	FLUSH JOINT
FL	FLOW LINE
FLASH	FLASHING
FLR	FLOOR
FLEX	FLEXIBLE
FLG	FLOORING
FLR PL	FLOOR PLATE
FLUOR	FLUORESCENT
FN	FENCE
FOC	FACE OF CONCRETE
FOD	FOREIGN OBJECT DEBRIS
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FP	FIRE PARTITION, FIREPROOF, FUELING PUMP
FPM	FEET PER MINUTE
FR	FIRE RESISTANT, FRAME
FRG	FORGED
FRMG	FRAMING
FRT	FIRE-RETARDANT
FS	FULL SIZE
FSCV	FILTER SEPARATOR CONTROL VALVE
FSI	FILTER SEPARATOR ISSUE
FSR	FILTER SEPARATOR RECEIVING
FSTNR	FASTEN(ER)
FT	FEET
FTG	FOOTING
FTR	FIGHTER RAMP
FURG	FURRING
FUT	FUTURE
FW	FIRE WATER
FWC	FABRIC WALL COVERING
G	NATURAL GAS
GA	GAGE
GAL	GALLON(S)
GALV	GALVANIZED
GALV STL	GALVANIZED STEEL
GB	GRAB BAR
GBB	GROUNDING BUSBAR (SECONDARY)
GC	GENERAL CONTRACTOR
GEN	GENERAL, GENERATOR
GF	GROUND FACE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFE	GOVERNMENT-FURNISHED EQUIPMENT
GFE/CI	GOVERNMENT-FURNISHED EQUIPMENT CONTRACTOR INSTALLED
GKT	GASKET(ED)
GL	GLASS
G, GND	GROUND
GPM	GALLONS PER MINUTE
GPT	GYPSUM TILE
GRP	GLASS REINFORCED PIPE
GRAN	GRANITE
GR LN	GRADE LINE
GRTG	GRATING
GYP	GYPSUM
GYP BD	GYPSUM BOARD
GYP PLAS	GYPSUM PLASTER
HB	HOSE BIBB
HC	HOLLOW CORE
HCP	HANDICAPPED
HDBD	HARDBOARD
HDW	HARDWARE
HDWD	HARDWOOD
HK	HOOK(S)
HM	HOLLOW METAL
HNDRL	HANDRAIL
HORIZ	HORIZONTAL
HP	HIGH PRESSURE, HORSEPOWER
HPT	HIGH POINT
HR	HOUR
HS	HIGH STRENGTH
HSGYP	HIGH-STRENGTH GYPSUM PLASTER
HSKPG	HOUSEKEEPING
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HW	HEADWALL
IN	INCH
INCL	INCLUDED
INSF	INSULATING FILL
INSUL	INSULATION
INT	INTERIOR
INTM	INTERMEDIATE
JCT	JUNCTION
JST	JOIST
JT	JOINT
KIT	KITCHEN
KPL	KICKPLATE
L	ANGLE, LEFT, LINE
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LBL	LABEL
LD	LOAD
LG	LENGTH
LH	LEFT HAND(ED)
LIN	LINEAR
LKR	LOCKER
LMST	LIMESTONE
LMT	LIMIT
LNTL	LINTEL
LR	LIVING ROOM
LVT	LUXURY VINYL TILE
LT	LEFT, LIGHT
LT WT	LIGHTWEIGHT
LTG	LIGHTING
LTNG	LIGHTNING
LVR	LOUVER
LWC	LIGHTWEIGHT CONCRETE
MATL	MATERIAL(S)
MAX	MAXIMUM
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
QT	QUARRY TILE, QUART
QTR	QUARTER
1/4 RND	QUARTER ROUND
R	RADIUS, RANGE, RIGHT, RISER
RA	RETURN AIR
RA GR	RETURN AIR GRILLE
RAR	RETURN AIR REGISTER
RB	RUBBER BASE, RESILIENT BASE
RD	ROOF DRAIN
RDG INS	RIGID INSULATION
SA	SUPPLY AIR
SB SHT	SPLASH BLOCK SHEET
SHTHG	SHEATHING
SHV	SHELVING
SIM	SIMILAR
S&R	SHELF AND ROD
SS	SERVICE SINK, STANDING SEAM (ROOF)
SST	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STOR	STORAGE
TBD	TO BE DETERMINED
T&G	TONGUE AND GROOVE
TO	TOP OF
TOS	TOP OF SLAB, TOP OF STEEL
TOW	TOP OF WALL
TPD	TOILET PAPER DISPENSER
TPTN	TOILET PARTITION
TV	TELEVISION
TYP	TYPICAL
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE, VITRIFIED CLAY TILE
WC	WATER CLOSET, WATER COLUMN
WD	WOOD, WOOD DOOR
WP	WATERPROOF(ING), WEATERPROOF, WORKING POINT
WRB	WARDROBE
WT	WEIGHT
WWM	WELDED WIRE MESH
WWR	WELDED WIRE REINFORCEMENT
XFR	TRANSFER
XFMR	TRANSFORMER
ZCV	ZONE CONTROL VALVE





RESTROOM ACCESSORY NOTES:

1. MIRRORS MUST BE INSTALLED WITH THE BOTTOM EDGE OF THE REFLECTING SURFACE NO HIGHER THAN 40" ABOVE THE FINISH FLOOR. A SINGLE FULL-LENGTH MIRROR IS RECOMMENDED IN EACH WASHROOM BECAUSE IT CAN BE USED BY EVERYONE, INCLUDING CHILDREN.
2. PAPER TOWEL DISPENSERS AND WASTE RECEPTACLES OR WARM-AIR HAND DRYERS SHOULD BE CONVENIENTLY LOCATED IN AN AREA THAT IS ACCESSIBLE TO WHEELCHAIRS, PREFERABLY ADJACENT TO A BARRIER-FREE LAVATORY. IT IS RECOMMENDED THAT ONE HAND DRYER BE MOUNTED WITH SUFFICIENT CLEAR FLOOR SPACE TO ALLOW BOTH LEFT AND RIGHT-HAND WHEELCHAIR APPROACHES; OR PROVIDE TWO DRYERS, ONE FOR EACH TYPE OF APPROACH. WHEN A SINGLE HAND DRYER IS INSTALLED IN A WASHROOM, IT IS RECOMMENDED THAT THE START BUTTON BE LOCATED 38" TO 40" ABOVE THE FINISH FLOOR; WHEN TWO OR MORE DRYERS ARE INSTALLED, MOUNT ONE DRYER SO ITS BUTTON IS 38" TO 40" ABOVE THE FINISH FLOOR; LOCATE OTHERS 41" TO 48".
3. WASHROOM ACCESSORIES MUST NOT PROJECT MORE THAN 4" INTO A CLEAR ACCESS AISLE IF THEIR LEADING EDGE IS BETWEEN 27" AND 80" ABOVE THE FINISH FLOOR; IF THEIR LEADING EDGE IS AT OR BELOW 27", THEN THEY MAY PROJECT ANY AMOUNT AS LONG AS THE REQUIRED MINIMUM WIDTH OF AN ADJACENT CLEAR ACCESS AISLE IS MAINTAINED. THIS STANDARD IS SPECIFICALLY DESIGNED TO ENSURE DETECTION BY VISUALLY IMPAIRED PEOPLE. IT IS RECOMMENDED THAT ALL FLOOR-STANDING AND SURFACE-MOUNTED UNITS PROJECTING MORE THAN 4" BE LOCATED IN CORNERS, ALCOVES, OR BETWEEN OTHER STRUCTURAL ELEMENTS SO AS NOT TO BE A HAZARD TO VISUALLY IMPAIRED PEOPLE OR INTERFERE WITH ACCESS AISLES OR WHEELCHAIR TURNING AREAS. FULLY RECESSED ACCESSORIES ARE THE PREFERRED CHOICE THROUGHOUT UNIVERSALLY DESIGNED WASHROOMS.

(1) MOUNTING HEIGHTS
1/4" = 1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 14260
CHAD M. CHAMBERLIN
SOUTH DAKOTA
11/29/2022

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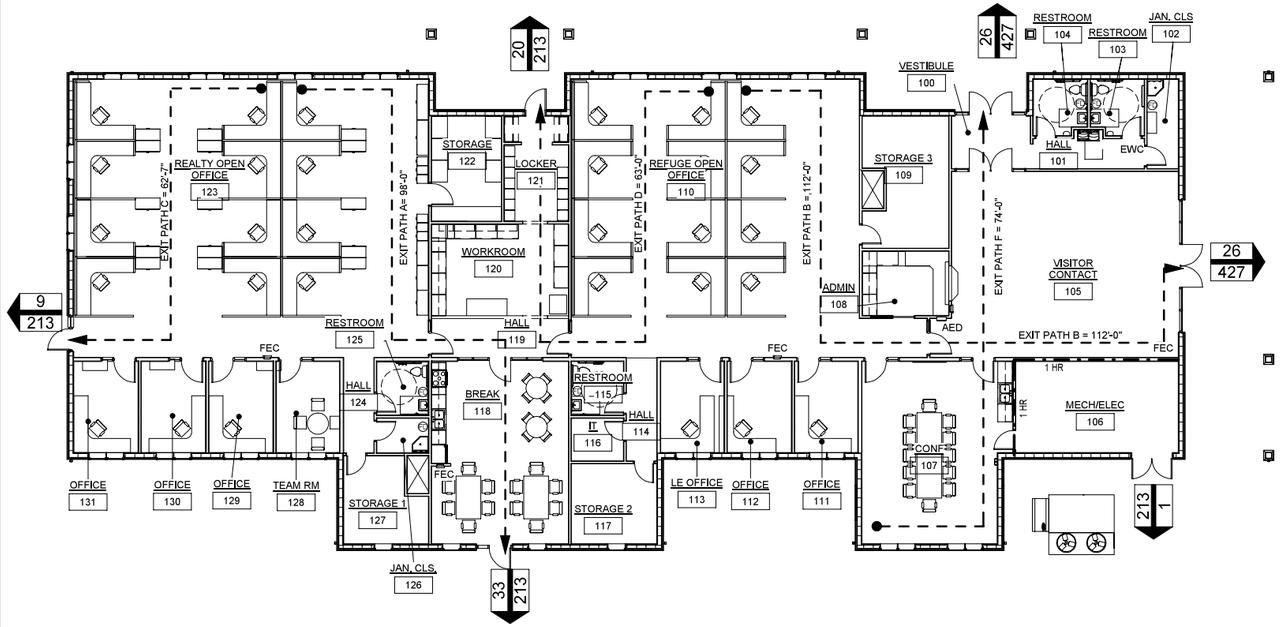
HURON WMD

ABREVIATIONS AND MOUNTING HEIGHTS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A001

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		18 OF 74



1 LIFE SAFETY PLAN
3/32" = 1'-0"

NORTH

0 8' 16' 24'

SCALE: 3/32"=1-0"

APPLICABLE BUILDING CODES

IBC	INTERNATIONAL BUILDING CODE	2018
IEC	INTERNATIONAL ELECTRIC CODE	2017
IPC	INTERNATIONAL PLUMBING CODE	2018
ADA	AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES	2010
NFPA 70	NATIONAL ELECTRICAL CODE	2017
NFPA 72	NATIONAL FIRE ALARM AND SIGNALING CODE	2019
NFPA 90A	STANDARD FOR THE INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS	2018
NFPA 101	LIFE SAFETY CODE	2018

USE GROUP / OCCUPANCY - Chapter 3 (IBC 2018)

B BUSINESS ENTIRE BUILDING 9,106 sq. ft. (GROSS AREA)

CONSTRUCTION TYPE - Chapter 6 (IBC 2018)

TYPE VB

FIRE SUPPRESSION - Chapter 9 (IBC 2018)

Non-Sprinklered

HEIGHT / STORIES - Chapter 5 (IBC 2018)

Allowable Height (Table 504,3): 40'-0" Designed Height: 25'-11" +/-
Allowable Stories (Table 504,4): 2 Designed Stories: 1

AREA - Chapter 5 (IBC 2018)

Allowable Area (Table 506,2): B @ NS = 9,000 sq. ft.
B @ S1 = 36,000 sq. ft.
B @ SM = 27,000 sq. ft. Designed Area: 9,106 sq. ft.
Allowable Area Increase by frontage: Aa=At+(NSxIf)
15,750 sq. ft.

* PER CODE NO SPRINKLERS REQUIRED

OCCUPANCY SEPARATION - Chapter 5 - Table 508.4 (IBC 2018)

NONE REQUIRED

FIRE RESISTANCE RATINGS - Chapter 6 - Table 601 (IBC 2018)

Structural Frame	0
Bearing Walls	
Interior	0
Exterior	0
Non-Bearing Walls and Partitions	0
Floor Construction	0
Roof Construction	0

EXTERIOR WALL RATINGS - Chapter 6 - Table 602 (IBC 2018)

Fire Separation Distance	Type of Construction	Required	Designed
Greater than 30'	VB	0	0

OCCUPANCY CALCULATIONS - Chapter 10 (Tables 1004.5, 1006.2.1, 1006.3.2, 1006.3.3(1), 1006.3.3(2)) - IBC 2018

OCCUPANT ANALYSIS

Mark	Name	Area	Area per Occupant	Occupant Count	Comments
100	VESTIBULE	82 SF	0	0	
101	HALL	73 SF		0	
102	JAN. CLS	55 SF	300	1	
103	RESTROOM	57 SF	0	0	
104	RESTROOM	57 SF	0	0	
105	VISITOR CONTACT	853 SF	150	6	
106	MECH/ELEC	294 SF	300	1	
107	CONF	518 SF	15	35	
108	ADMIN	111 SF	150	1	
109	STORAGE 3	206 SF	300	1	
110	REFUGE OPEN OFFICE	1641 SF	150	11	
111	OFFICE	114 SF	150	1	
112	OFFICE	116 SF	150	1	
113	LE OFFICE	114 SF	150	1	
114	HALL	64 SF	0	0	
115	RESTROOM	56 SF	0	0	
116	IT	44 SF	150	1	
117	STORAGE 2	136 SF	300	1	
118	BREAK	495 SF	150	4	
119	HALL	106 SF	0	0	
120	WORKROOM	249 SF	150	2	
121	LOCKER	132 SF	50	3	
122	STORAGE	146 SF	300	1	
123	REALTY OPEN OFFICE	1957 SF	150	14	
124	HALL	58 SF	0	0	
125	RESTROOM	54 SF	0	0	
126	JAN. CLS.	36 SF	300	1	
127	STORAGE 1	129 SF	300	1	
128	TEAM RM	115 SF	150	1	
129	OFFICE	116 SF	150	1	
130	OFFICE	116 SF	150	1	
131	OFFICE	116 SF	150	1	
Grand total: 32		8417 SF		91	

EXIT ACCESS TRAVEL DISTANCE - Chapter 10 - Table 1017.2 (IBC 2018)

B Occupancy	Non-Sprinklered	200 feet
	Fully Sprinklered	250 feet
	Maximum Distance	70 feet

EXIT WIDTH REQUIREMENTS - Chapter 10 - Section 1005 (IBC 2018)

	# of Occ.	Inches/Occ.	Min. Width	# of Exits	Min. Width / Exit	Design Width
Door Egress	-	0.15"	10.4"	5	36"	224"

PLUMBING FIXTURES - Chapter 29 - Table 2902.1 (IBC 2018)

Water Closets 1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	**Required (91 occupants) = 3**	**Provided = 4**
Lavatories 1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80	**Required (91 occupants) = 3**	**Provided = 4**
Drinking Fountains 1 per 100	**Required (91 occupants) = 1**	**Provided = 2**
Other	**Required = 1 Service Sink**	**Provided = 2**

EGRESS LEGEND

1 HOUR RATED CONSTRUCTION
START POINT
EXIT POINT
TOTAL LENGTH OF PATH & LABEL
108'-0" EXIT PATH A

COMBINED OCCUPANT LOAD AT A GIVEN EXIT DOOR. THIS SUM EQUALS TOTAL OCCUPANT LOAD.
OCCUPANT LOAD CAPACITY OF DOOR OR STAIR
THE CAPACITY OF DOORS IS DETERMINED AS FOLLOWS: CLEAR OPENING WIDTH IN INCHES DIVIDE BY 0.15.
THE CAPACITY OF STAIRS IS DETERMINED AS FOLLOWS: WIDTH IN INCHES DIVIDE BY 0.20.

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HURON WMD

LIFE SAFETY AND CODE ANALYSIS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A002

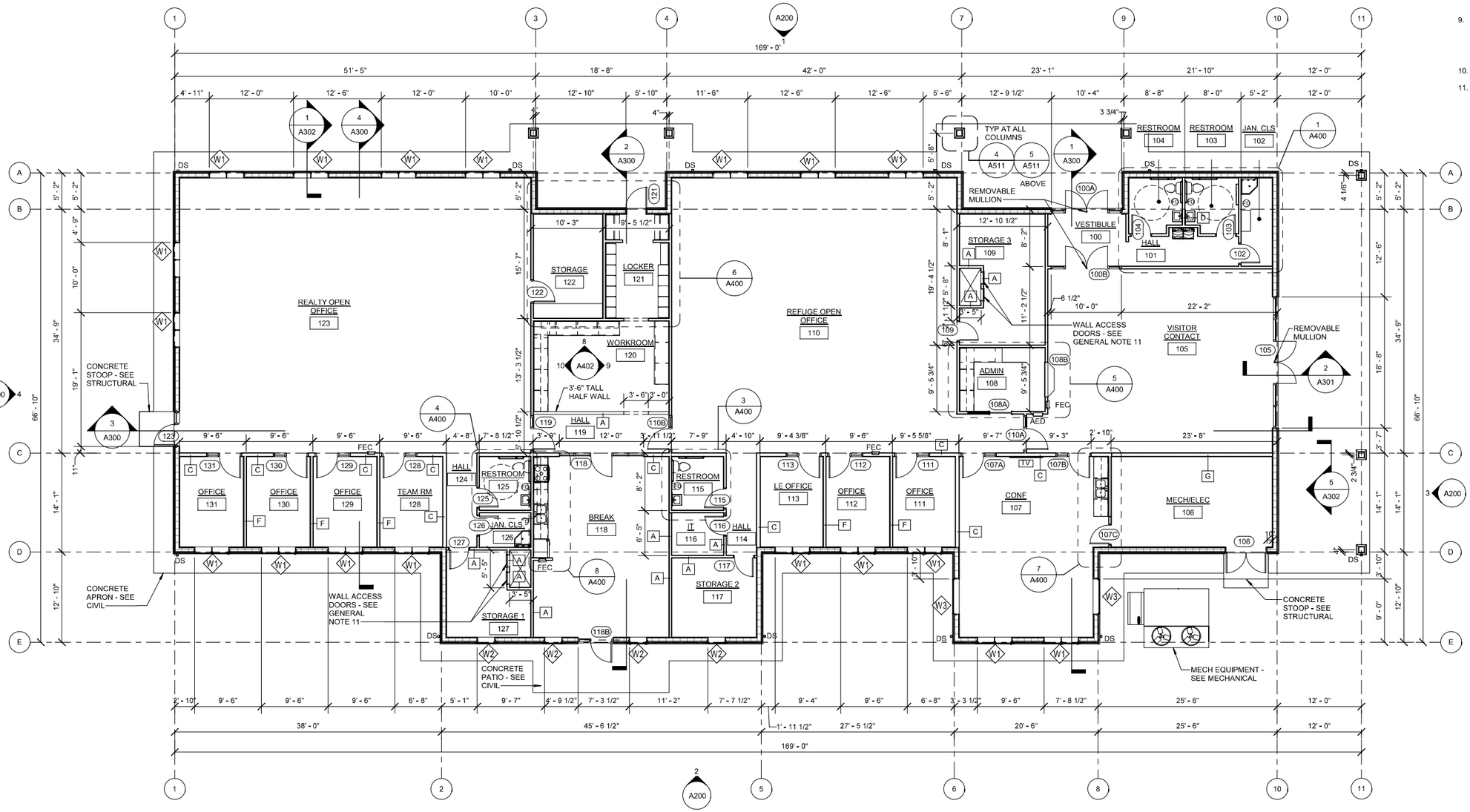
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		19 OF 74

WALL TYPE SCHEDULE

TYPE MARK	WIDTH	DESCRIPTION	COMMENTS
A	4 3/4"	5/8" GYP, 2x4 WOOD FRAMING, 5/8" GYPSUM WALL BOARD	
B	4 3/4"	5/8" GYP, 2x4 WOOD FRAMING, SOUND BATT INSULATION, 5/8" GYPSUM WALL BOARD	
C	6 3/4"	2x6 WOOD FRAMING WITH SOUND BATT INSULATION, 5/8" GYP EACH SIDE	STC 50-PROVIDE RC-1 CHANNEL ONE SIDE OF WALL AT OFFICE AREAS
D	4 3/4"	2X4 WOOD STUD, SOUND BATT INSULATION, 5/8" GYPSUM WALL BOARD ABOVE WALL TILE (BOTH SIDES), WALL TILE ON 5/8" CEMENT BACKER BOARD (BOTH SIDES),	
E		2X4 WOOD STUD, SOUND BATT INSULATION, WALL TILE ON 5/8" CEMENT BOARD BELOW, 5/8" GYPSUM WALL BOARD ABOVE WALL TILE (RESTROOM SIDE), 5/8" GYPSUM WALL BOARD ON OTHER SIDE.	
F	5 1/2"	5/8" GYP, 2x4 WOOD FRAMING, SOUND BATT INSULATION, 3/4" RC-1 CHANNEL, 5/8" GYPSUM WALL BOARD	STC 50-PROVIDE RC-1 CHANNEL ONE SIDE OF WALL AT OFFICE AREAS
G	6 3/4"	1 HOUR 2x6 WOOD FRAMING WITH SOUND BATT INSULATION, 5/8" TYPE 'X' GYP EACH SIDE, RC-1 ON ONE SIDE OF WALL	STC 50-PROVIDE RC-1 CHANNEL ONE SIDE OF WALL AT OFFICE AREAS
G1	4 3/4"	1 HOUR 2x4 WOOD FRAMING WITH SOUND BATT INSULATION, 5/8" TYPE 'X' GYP EACH SIDE, RC-1 ON ONE SIDE OF WALL	STC 50-PROVIDE RC-1 CHANNEL ONE SIDE OF WALL AT OFFICE AREAS
H	5 1/2"	1 HR RATED, 5/8" GYP TYPE X ON BOTH SIDES, 2x4 WOOD FRAMING, SOUND BATT INSULATION, 3/4" RC-1 CHANNEL, WALL TILE ON 5/8" CEMENT BOARD ON SINK SIDE	STC 50-PROVIDE RC-1 CHANNEL ONE SIDE OF WALL AT OFFICE AREAS

GENERAL NOTES:

1. COORDINATE BUILDING PLAN WITH SITE PLAN.
2. EXTERIOR WALL CONSTRUCTION ABOVE GRADE.
   A. FIBER CEMENT BOARD SIDING, WEATHER BARRIER MEMBRANE, 8" SIPS PANELS, 5/8" TYPE "X" GYP BOARD AT INTERIOR.
3. WALLS ARE FULL HEIGHT TO UNDERSIDE OF STRUCTURE UNLESS NOTED OTHERWISE. ALLOW FOR DEFLECTION.
4. DIMENSIONS ARE TO FACE OF STUDS OR SIPS PANELS UNLESS NOTED OTHERWISE.
5. INTERIOR PARTITIONS ARE TYPE B UNLESS NOTED OTHERWISE.
6. WALL PENETRATIONS:
   A. ALLOW FOR EXPANSION WHEN REQUIRED OR AS INDIATED BY OTHER DISCIPLINES.
7. DOOR RETURN - 4" ON HINGE SIDE UNLESS NOTED OTHERWISE.
8. FLOOR DRAINS: NOT ALL FLOOR DRAINS ARE SHOWN ON ARCHITECTURAL PLANS. SEE PLUMBING DRAWINGS FOR LOCATION AND TYPE OF ALL FLOOR DRAINS.
9. PROVIDE BLOCKING IN PARTITION WALLS AS FOLLOWS:
   A. WOOD BLOCKING AND METAL REINFORCEMENT INSTALLED DURING CONSTRUCTION TO SUPPORT WALL HUNG ITEMS AND FIXTURES.
   B. LOCKERS - PROVIDE ADDITIONAL BLOCKING IN WALLS FOR ATTACHMENT.
10. SIDEWALK, DOOR PADS AND STEPS, PAVEMENT GRADES AND ELEVATIONS TO BE COORDINATED WITH CIVIL DRAWINGS.
11. PROVIDE AND INSTALL NEW 20"X30" WALL ACCESS DOORS AT 12" ABOVE FINISH FLOOR. VERTICAL CENTERLINE OF ACCESS DOOR SHALL BE CENTERED ON THE HVAC DUCT LOCATED IN THE CHASE DIRECTLY BEHIND THE ACCESS DOOR - COORDINATE WITH MECHANICAL FOR LOCATION. ACCESS DOOR AND FRAME SHALL BE FABRCATED FROM 16 GAUGE, GALVANNEALED STEEL WITH A WHITE PRIME COAT FINISH, AND PAINTED TO MATCH THE ADJACENT GYPSUM WALL BOARD. DOORSHALL HAVE ROUNDED SAFETY CORNERS AND A CONCEALED PIVOTING ROD HINGE. FRAME SHALL BE ONE PIECE CONSTRUCTION WITH NO MITERS OR WELDS ON THE FACE. LATCH SHALL BE SCREWDRIVER OPERATED. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.



1 GROUND FLOOR PLAN
1/8" = 1'-0" GROSS AREA = 9,106 SF

NORTH

0 4' 8' 16'
SCALE: 1/8"=1'-0"

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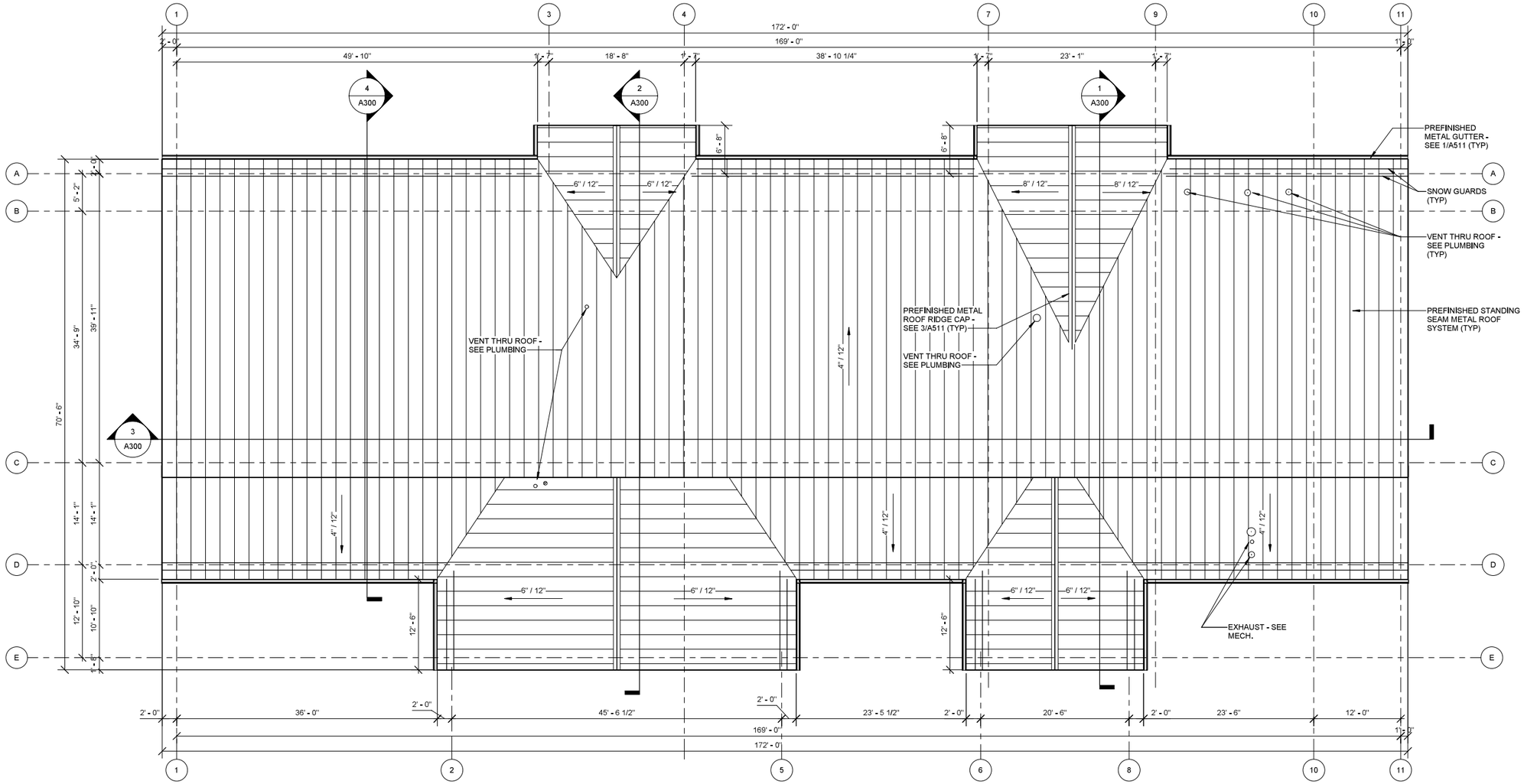
HURON WMD						SUB-SHEET
GROUND FLOOR PLAN						A100
MULTIPURPOSE BUILDING AND VISITOR CENTER						
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.		SHEET
CH	CH	CMC	2022.4.29			20 OF 74

ROOF PLAN NOTES:

1. COORDINATE LOCATIONS AND SIZE OF CURBS AND PENETRATIONS WITH STRUCTURAL ROOF FRAMING PLAN AND DISCIPLINE DRAWINGS.
2. PIPE PENETRATIONS SMALLER THAN 6" MAY NOT BE SHOWN. COORDINATE WITH DISCIPLINE DRAWINGS.
3. SOME MISCELLANEOUS ROOF PENETRATIONS NOT SPECIFICALLY SHOWN ON THIS DRAWING SHALL BE FLASHED AND SEALED ACCORDING TO DETAILS SHOWN, AND PER ROOFING MANUFACTURER'S RECOMMENDED GUIDE DETAILS.



1 ROOF PLAN
1/8" = 1'-0"

NORTH

0 4' 8' 16'
SCALE: 1/8"=1'-0"

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HURON WMD					SUB-SHEET
ROOF PLAN					A101
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		21 OF 74

RCP GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY DIMENSIONS AND VERTICAL CONTROL POINTS PRIOR TO INSTALL ATION OF CEILING SYSTEM.
2. CONTRACTOR SHALL PROMPTLY NOTIFY OWNER'S REPRESENTATIVE OF DISREPENCIES IN WORK WHICH WILL AFFECT INSTALLATION OF CEILINGS AS SHOWN ON DRAWINGS.
3. GYP. BOARD CEILINGS SHALL BE ATTACHED TO METAL FRAMING BELOW UNDERSIDE OF ROOF TRUSSES UNLESS NOTED OTHERWISE.
4. COORDINATE MECHANICAL, ELECTRICAL, AND FIRE PROTECTION SYSTEM INSTALLATION WITH RESPECTIVE DISCIPLINE DRAWINGS AND SPECIFICATIONS. CEILINGS SHALL BE 8'-0" A.F.F. UNLESS NOTED OTHERWISE.
5. REFERENCE SPECIFICATIONS AND ROOM FINISH SCHEDULE FOR CEILING TYPES AND FINISHES.
6. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ABOVE CEILING WORK TO ENSURE CLEARANCES FOR SCHEDULED CEILING HEIGHTS.
7. SEE ELECTRICAL DRAWINGS FOR LIGHT FIXTURE LOCATION, TYPES, AND COUNT.

RCP LEGEND

- GYP BOARD
- ACT
- X'-X" CEILING HEIGHT
- CEILING SLOPE AS NOTED
- EXIT
- (S) SMOKE DETECTOR
- 24"x24" AP (ACCESS PANEL)
- PENDANT LIGHTING
- PENDANT LIGHTING
- FIXED LIGHTING
- SUPPLY AIR
- RETURN AIR
- WALL MOUTED LIGHT
- 2'X4' LIGHT FIXTURE
- 2'X4' LIGHT FIXTURE

SOLID WOOD TRIM - STAINED TO MATCH TONGUE AND GROOVE (TYP)
GYP BOARD ATTACHED TO SIPS ROOF AND BETWEEN EXPOSED TRUSSES
24x72 ACOUSTIC PANELS ATTACHED TO UNDERSIDE OF GYP
PROVIDE SOFFIT ENCLOSURE SIMILAR TO DETAIL 8/A511
TONGUE AND GROOVE WOOD CEILING
EXPOSED WOOD TRUSS - SEE STRUCTURAL
SOLID WOOD TRIM - STAINED TO MATCH TONGUE AND GROOVE (TYP)
GYP BOARD ATTACHED TO SIPS ROOF AND BETWEEN EXPOSED TRUSSES
24x72 ACOUSTIC PANELS ATTACHED TO UNDERSIDE OF GYP
PROVIDE SOFFIT ENCLOSURE SIMILAR TO DETAIL 8/A511
TONGUE AND GROOVE WOOD CEILING
EXPOSED WOOD TRUSS - SEE STRUCTURAL
8 A511 SIM
SOLID WOOD TRIM - STAINED TO MATCH TONGUE AND GROOVE (TYP)
TONGUE AND GROOVE WOOD CEILING BETWEEN EXPOSED TRUSSES
GYP BOARD ATTACHED TO SIPS ROOF AND BETWEEN EXPOSED TRUSSES
24x72 ACOUSTIC PANELS ATTACHED TO UNDERSIDE OF GYP
RETURN GYP WALL UP TO BOTTOM OF SIPS
FIBER CEMENT BOARD SOFFIT (TYP)
GYP BOARD ATTACHED TO SIPS ROOF AND BETWEEN EXPOSED TRUSSES
EXPOSED TRUSSES - SEE STRUCTURAL
8 A511
PREFINISHED METAL GUTTER (TYP)
GYP BOARD ATTACHED TO SIPS ROOF AND BETWEEN EXPOSED TRUSSES

1 REFLECTED CEILING PLAN
1/8" = 1'-0"

NORTH
0 4' 8' 16'
SCALE: 1/8"=1'-0"

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REFLECTED CEILING PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

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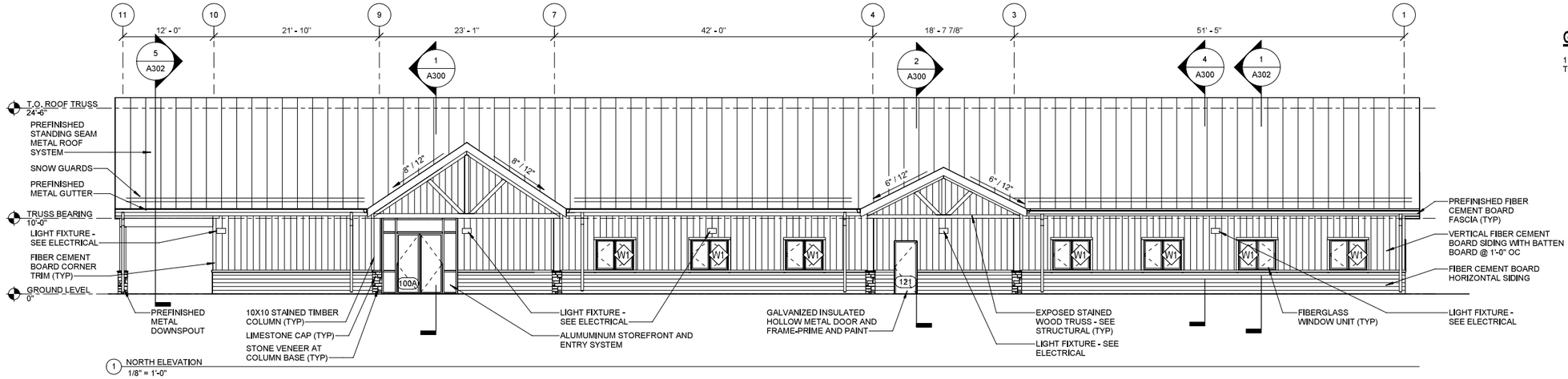
SUB-SHEET A120

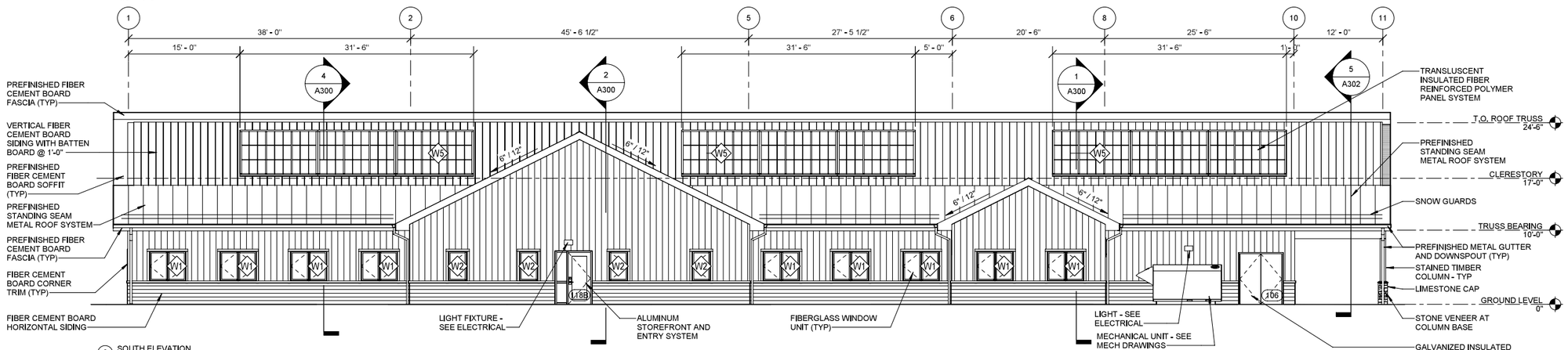
SHEET 22 OF 74

GENERAL NOTES:

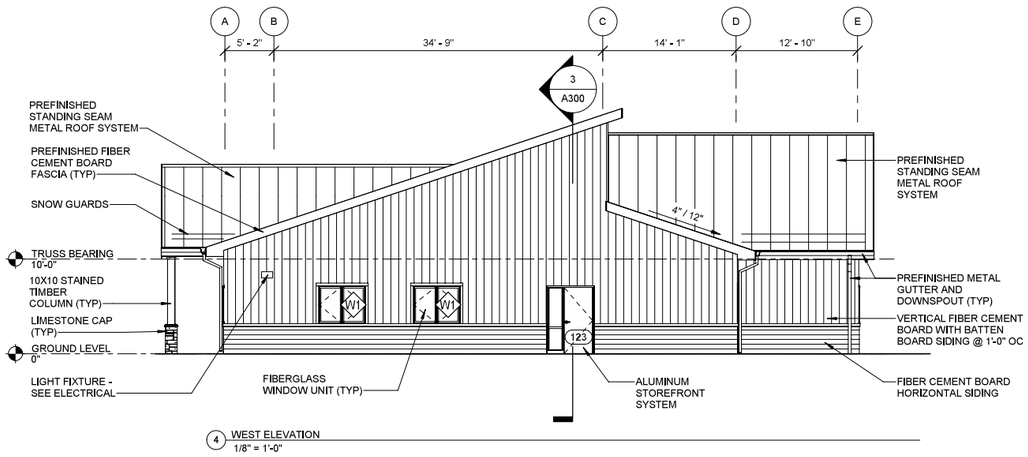
1. EXPOSED WOOD TRUSSES AND WOOD COLUMNS TO BE STAINED IN THE SAME COLOR.



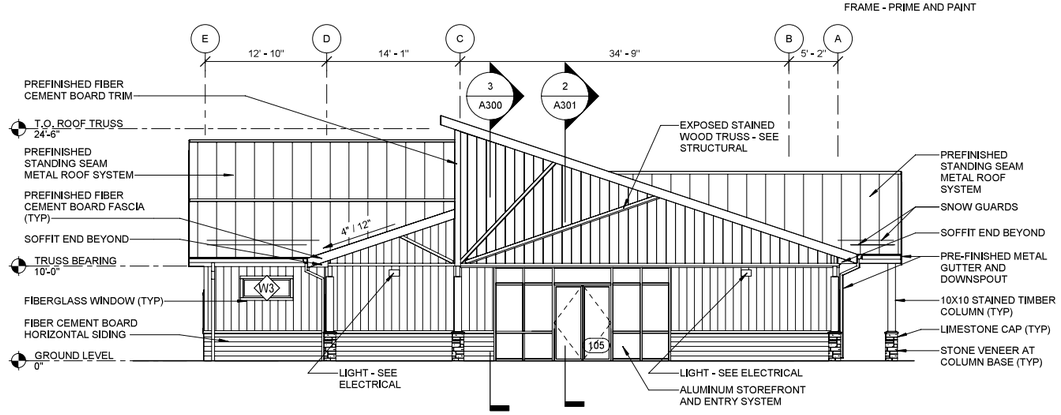
1 NORTH ELEVATION
1/8" = 1'-0"



2 SOUTH ELEVATION
1/8" = 1'-0"



4 WEST ELEVATION
1/8" = 1'-0"



3 EAST ELEVATION
1/8" = 1'-0"

0 4' 8' 16'
SCALE: 1/8"=1'-0"

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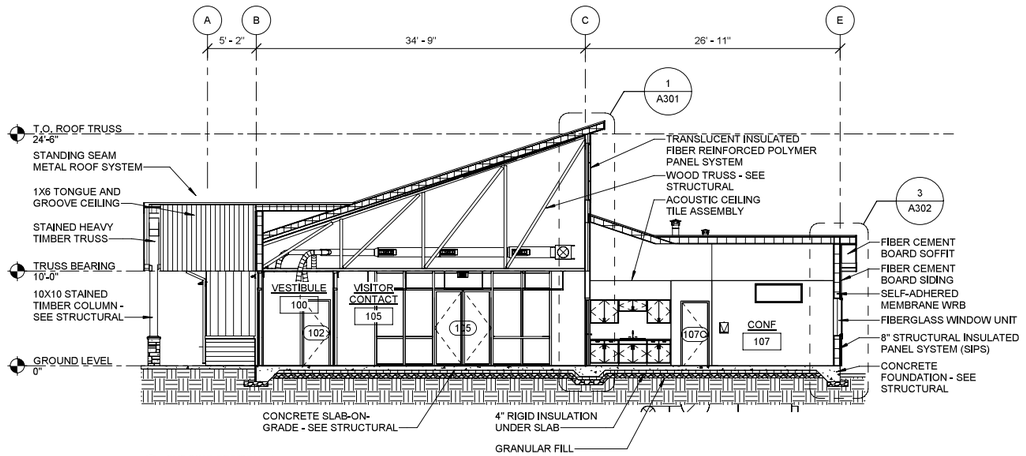
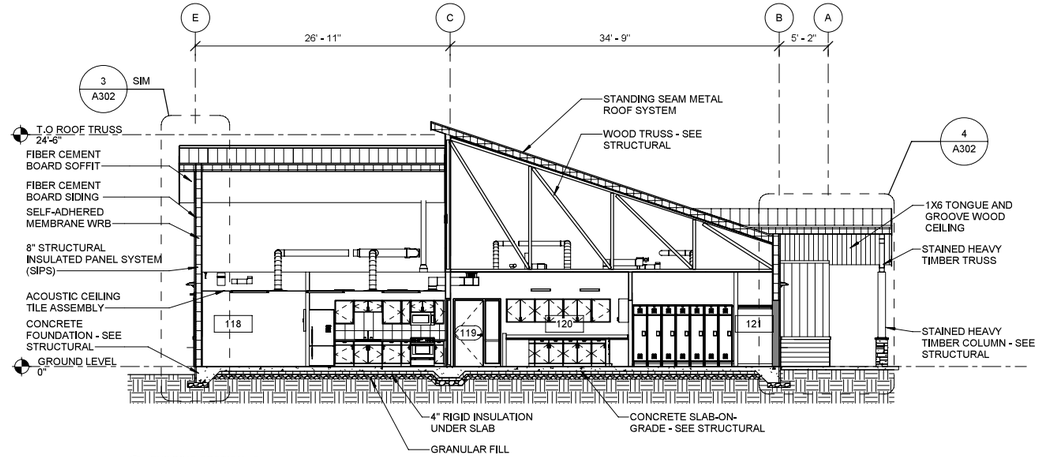
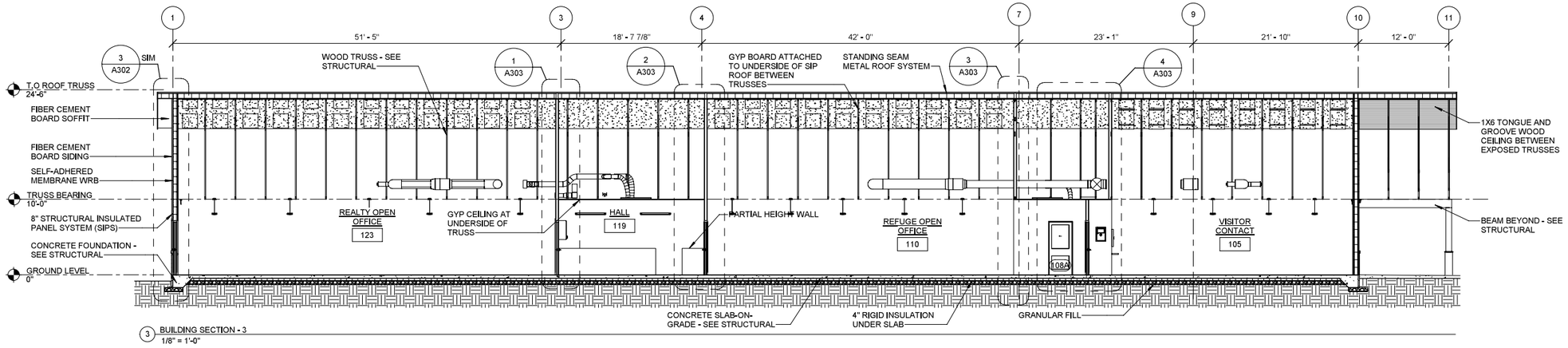
HURON WMD					SUB-SHEET
BUILDING ELEVATIONS					A200
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		23 OF 74



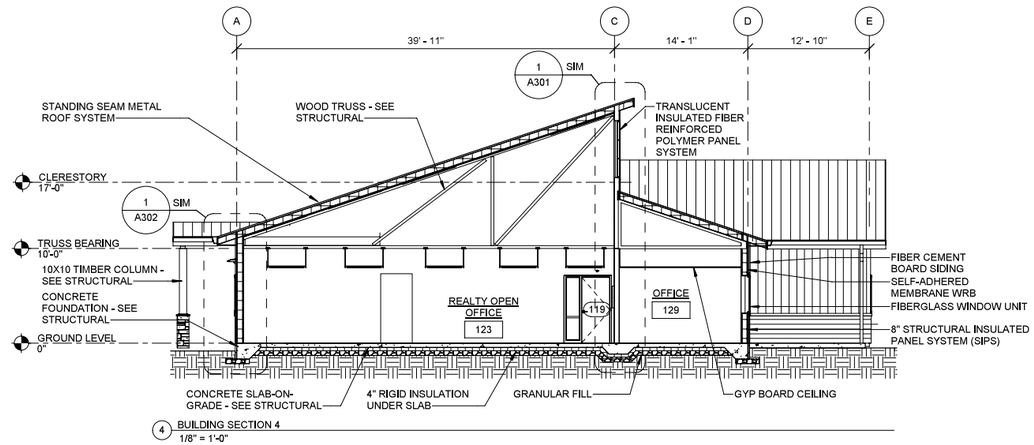
1 BUILDING SECTION - 1
1/8" = 1'-0"



2 BUILDING SECTION - 2
1/8" = 1'-0"



3 BUILDING SECTION - 3
1/8" = 1'-0"



4 BUILDING SECTION 4
1/8" = 1'-0"

0 4' 8' 16'
SCALE: 1/8"=1'-0"

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HURON WMD

BUILDING AND WALL SECTIONS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A300

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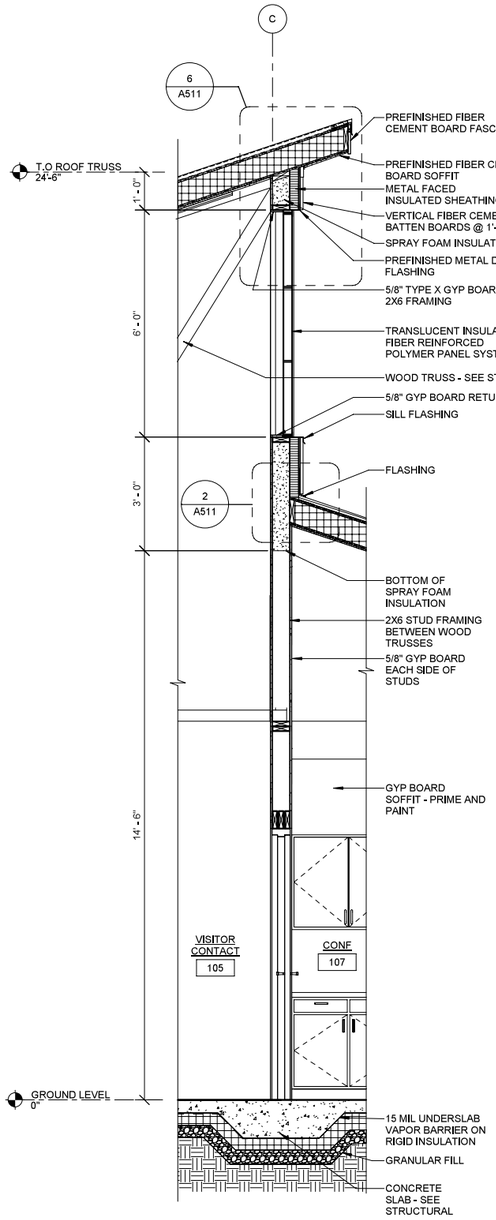
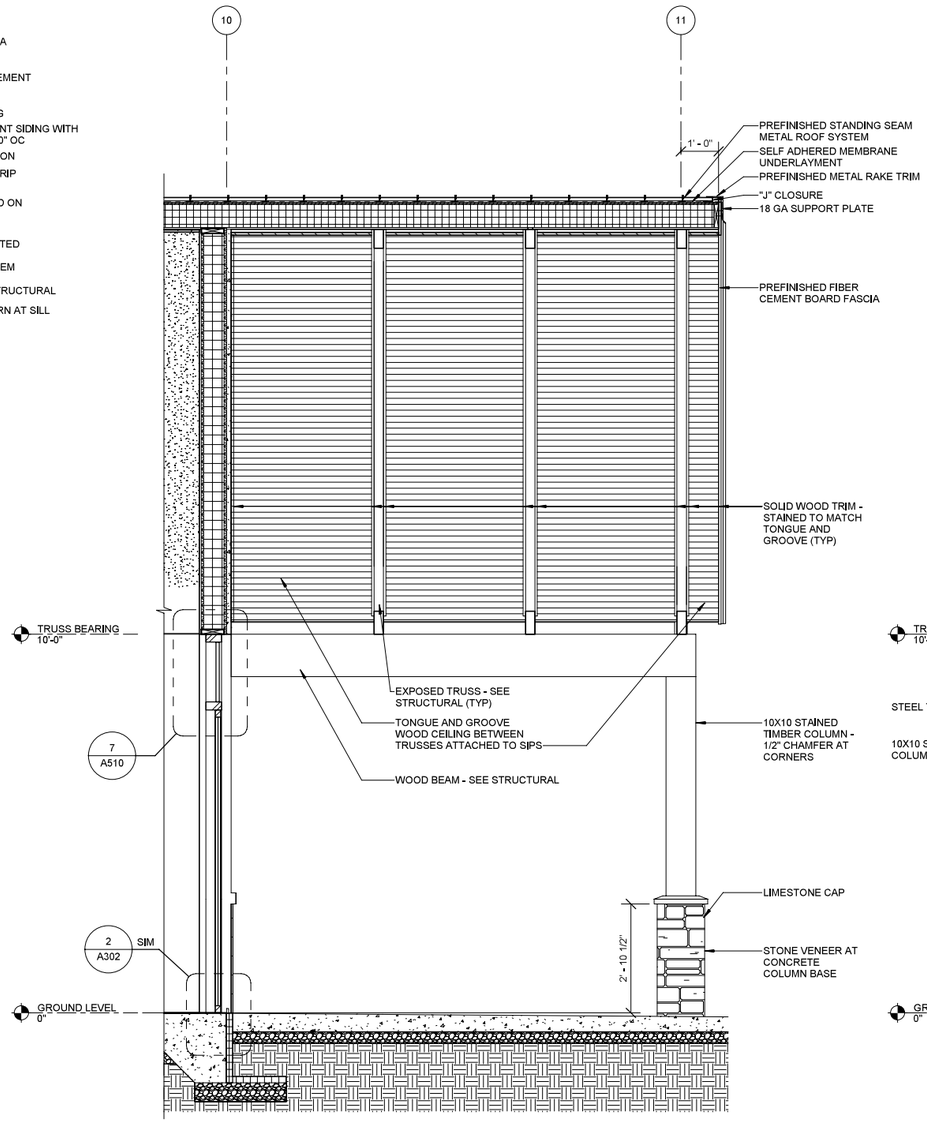
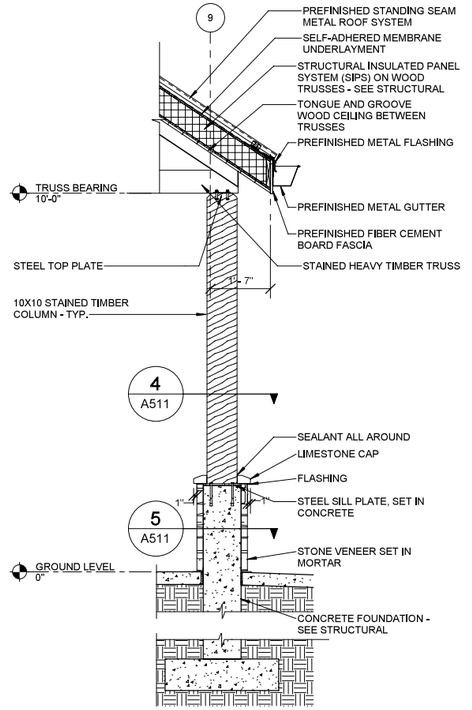
CH	CH	CMC	2022.4.29		24 OF 74



1 WALL SECTION @ CLERESTORY
1/2" = 1'-0"



2 SECTION THRU WALKWAY COVER
1/2" = 1'-0"



3 SECTION AT EXTERIOR COLUMN
1/2" = 1'-0"

0 1' 2' 4'
SCALE: 1/2"=1'-0"

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WALL SECTIONS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A301

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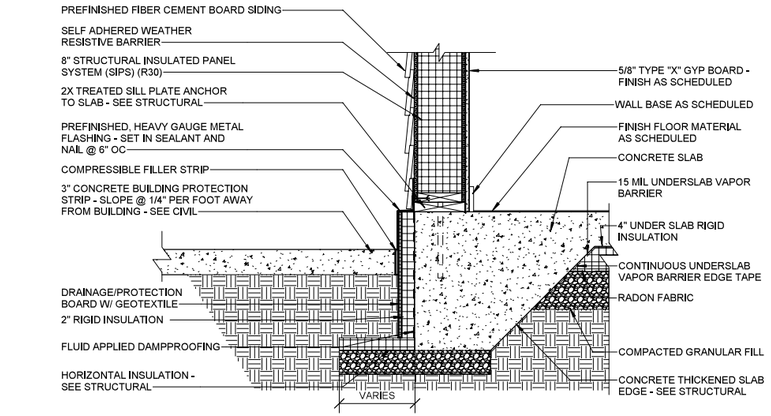
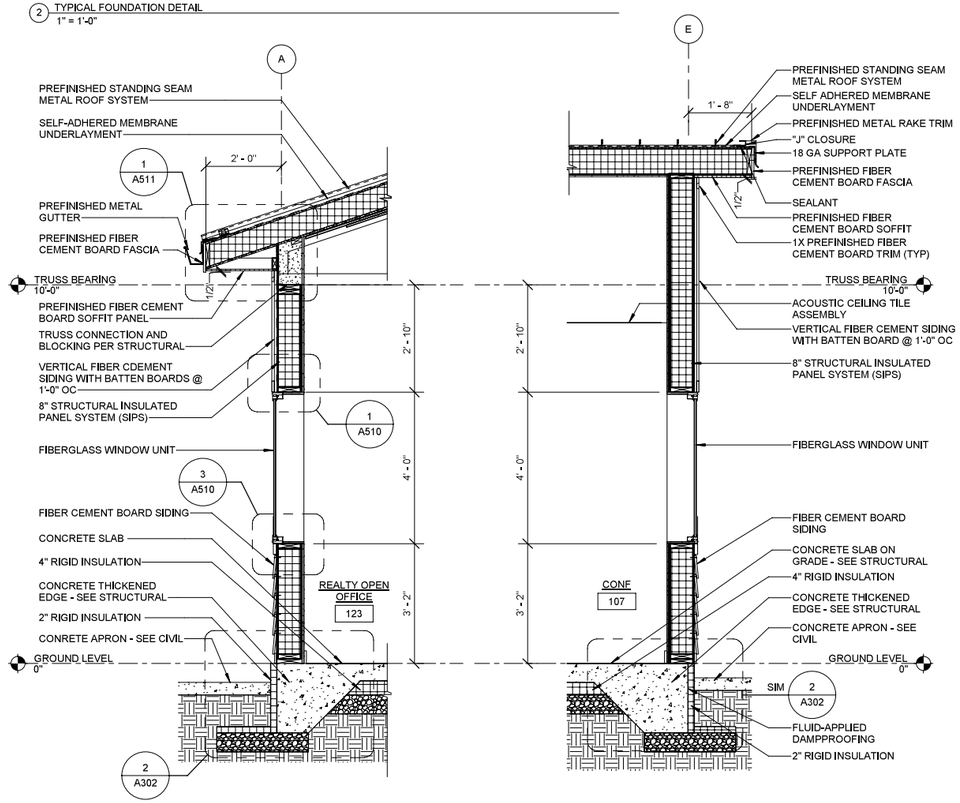
CH	CH	CMC	2022.4.29		25 OF 74

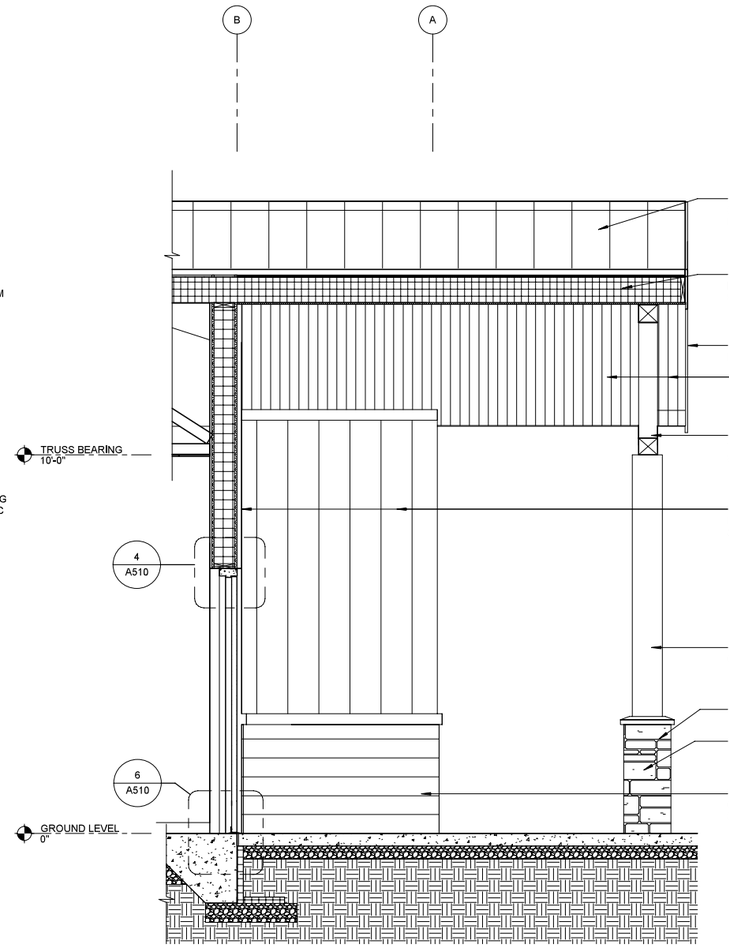


2 TYPICAL FOUNDATION DETAIL
1" = 1'-0"

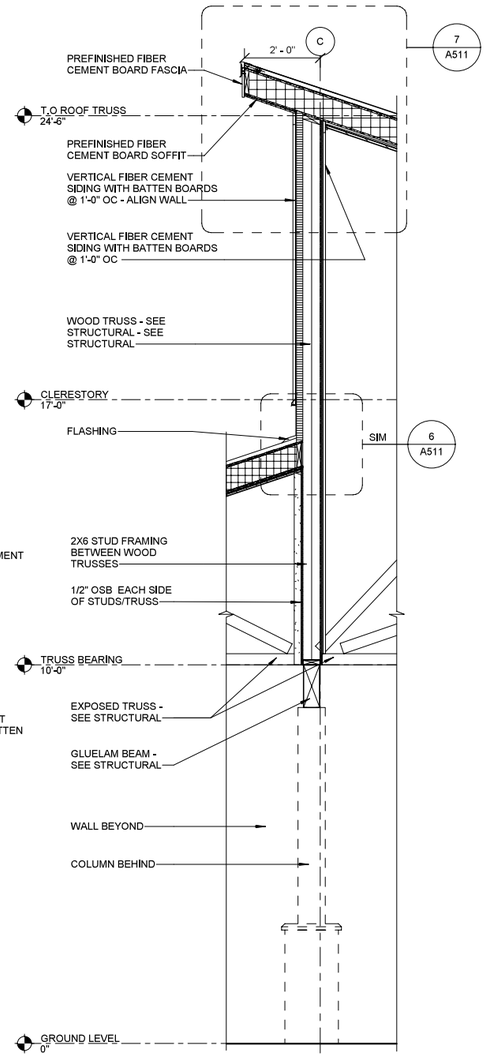


1 WALL SECTION
1/2" = 1'-0"

3 WALL SECTION - A
1/2" = 1'-0"



4 WALL SECTION - 4
1/2" = 1'-0"



5 WALL SECTION @ EAST PATIO
1/2" = 1'-0"

0 6" 1' 2'
SCALE: 1" = 1'-0"

0 1' 2' 4'
SCALE: 1/2"=1'-0"

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HURON WMD

WALL SECTIONS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A302

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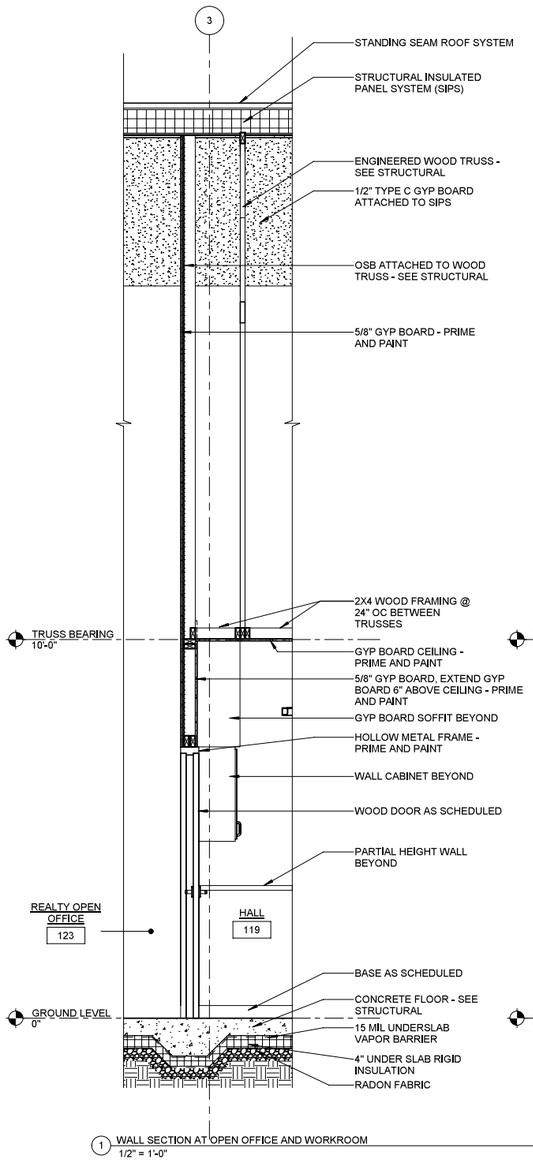
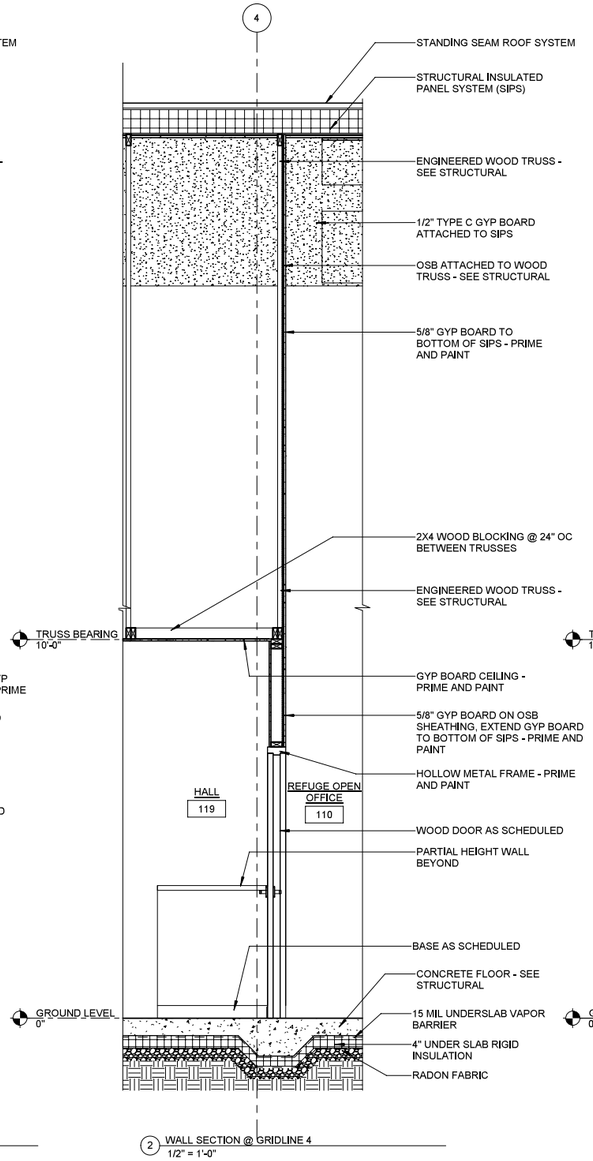
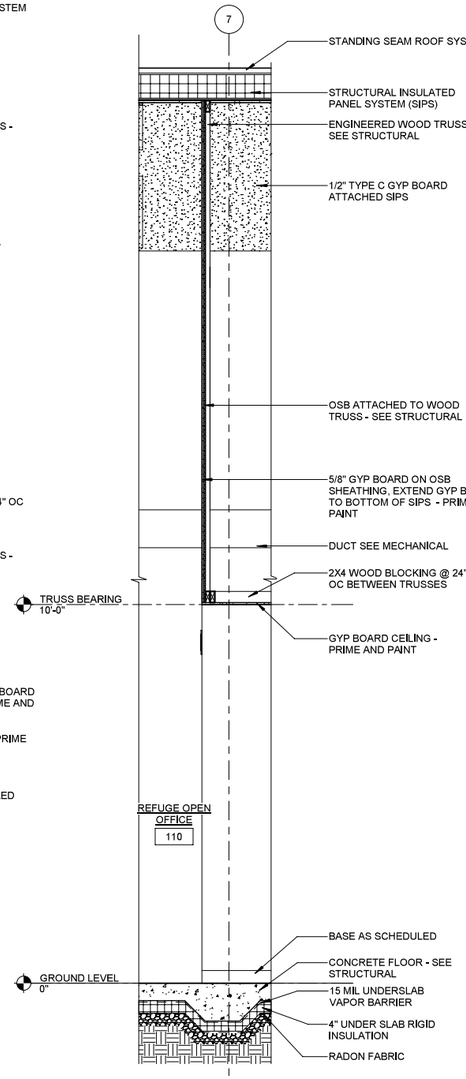
CH	CH	CMC	2022.4.29		26 OF 74



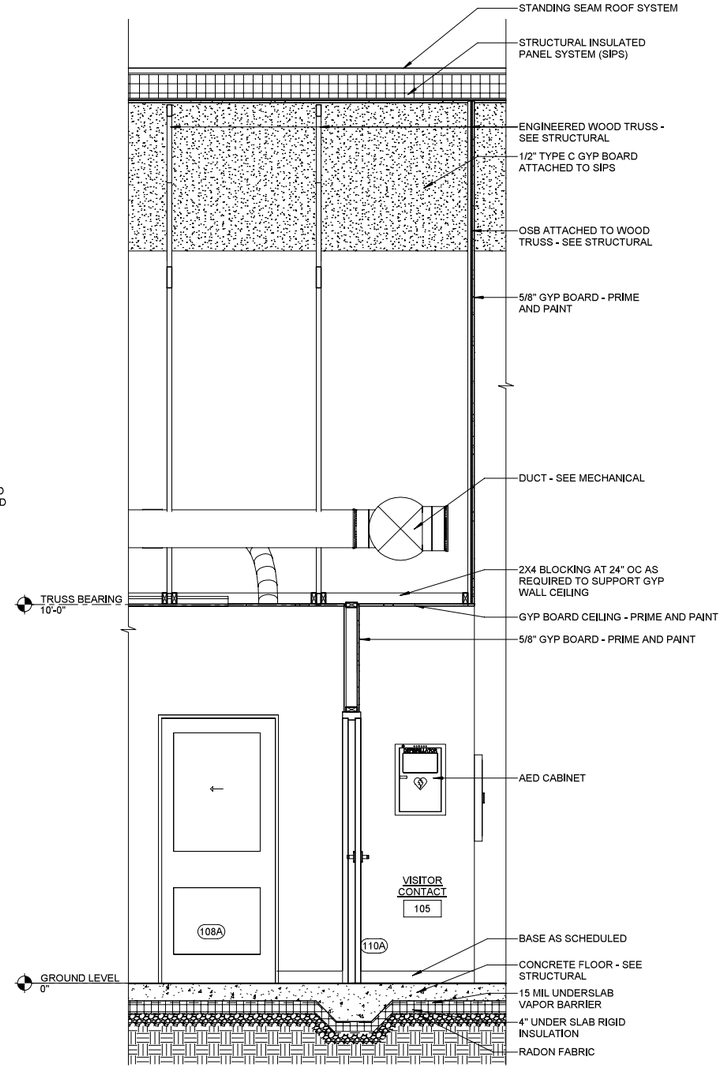
1 WALL SECTION AT OPEN OFFICE AND WORKROOM
1/2" = 1'-0"



2 WALL SECTION @ GRIDLINE 4
1/2" = 1'-0"



3 WALL SECTION AT GRIDLINE 7
1/2" = 1'-0"



4 WALL SECTION @ WEST VISITOR CONTACT
1/2" = 1'-0"

0 1' 2' 4'
SCALE: 1/2"=1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 14260
CHAD M. CHAMBERLIN
SOUTH DAKOTA
4/29/2022

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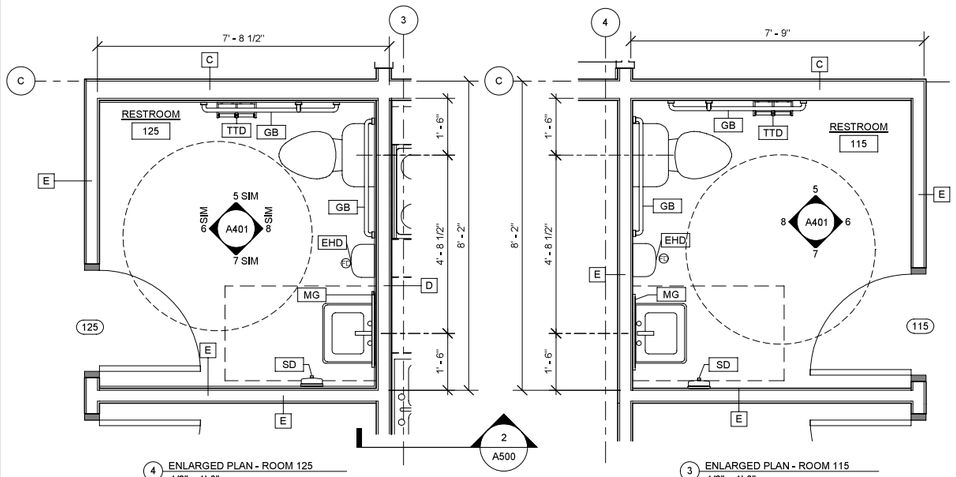
HURON WMD

WALL SECTIONS

MULTIPURPOSE BUILDING AND VISITOR CENTER

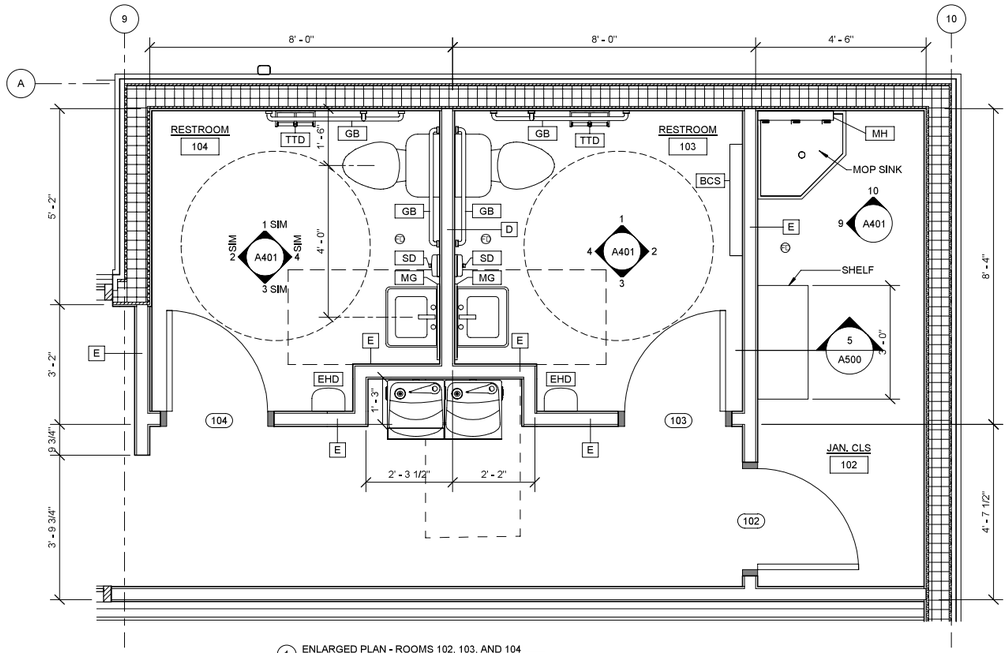
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		27 OF 74

SUB-SHEET
A303

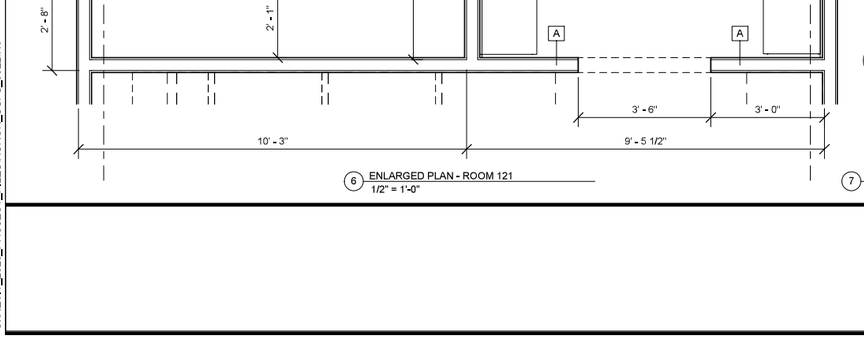


4 ENLARGED PLAN - ROOM 125
1/2" = 1'-0"

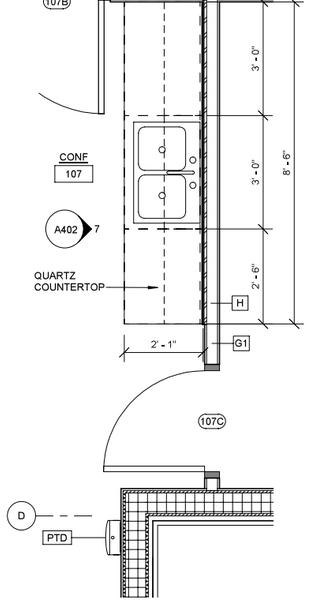
3 ENLARGED PLAN - ROOM 115
1/2" = 1'-0"



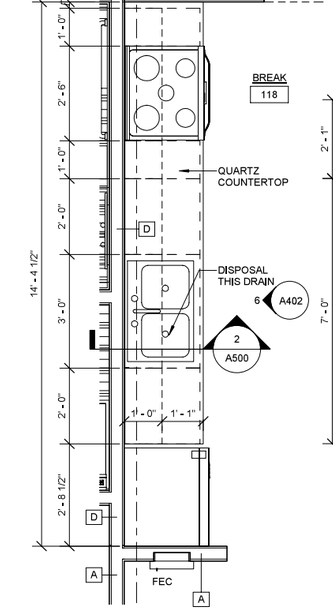
1 ENLARGED PLAN - ROOMS 102, 103, AND 104
1/2" = 1'-0"



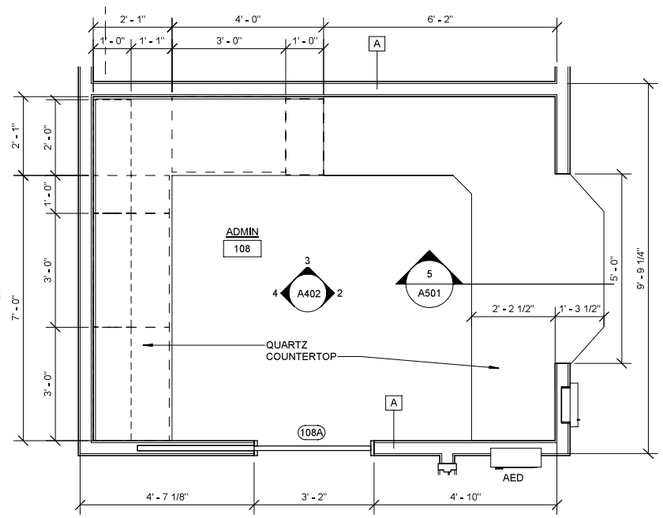
6 ENLARGED PLAN - ROOM 121
1/2" = 1'-0"



7 ENLARGED COUNTER PLAN - ROOM 107
1/2" = 1'-0"



8 ENLARGED COUNTER PLAN - ROOM 118
1/2" = 1'-0"



5 ENLARGED PLAN - ROOM 108
1/2" = 1'-0"

TOILET ACCESSORY LEGEND

MARK	DESCRIPTION
BCS	BABY CHANGING STATION
EHD	ELECTRIC HAND DRYER
GB	GRAB BAR
MG	MIRROR 24X36
MH	MOP AND BROOM HOLDER
PTD	PAPER TOWEL DISPENSER
RH	ROBE HOOK
SD	SOAP DISPENSER
TTD	TOILET TISSUE DISPENSER

ENLARGED FLOOR PLAN NOTES:

1. WALLS ARE FULL HEIGHT TO UNDERSIDE OF STRUCTURE UNLESS NOTED OTHERWISE, ALLOW FOR DEFLECTION.
2. DIMENSIONS ARE TO FACE OF STUDS OR SIPS PANELS UNLESS NOTED OTHERWISE.
3. WALL PENETRATIONS:
   A. ALLOW FOR EXPANSION WHEN REQUIRED OR AS INDICATED BY OTHER DISCIPLINES.
4. INTERIOR PARTITIONS ARE TYPE A UNLESS NOTED OTHERWISE. SEE A100 FOR WALL TYPES.
5. DOOR RETURN - MINIMUM OF 4" ON HINGE SIDE.
6. FLOOR DRAINS: NOT ALL FLOOR DRAINS ARE SHOWN ON ARCHITECTURAL PLANS. SEE PLUMBING DRAWINGS FOR LOCATION AND TYPE OF FLOOR DRAINS.
7. PROVIDE BLOCKING IN PARTITION WALLS AS FOLLOWS:
   A. WOOD BLOCKING AND METAL REINFORCEMENT INSTALLED DURING CONSTRUCTION TO SUPPORT WALL HUNG ITEMS AND FIXTURES.
8. SEE SPECIFICATIONS FOR TOILET ACCESSORIES.

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

REGISTERED PROFESSIONAL ARCHITECT
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SOUTH DAKOTA
11/29/2022

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HURON WMD

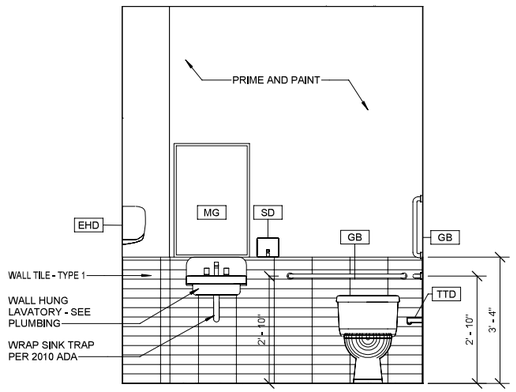
ENLARGED FLOOR PLANS

MULTIPURPOSE BUILDING AND VISITOR CENTER

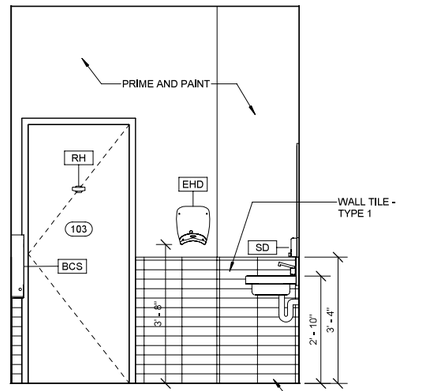
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
CH	CH	CMC	2022.4.29	

SUB-SHEET A400

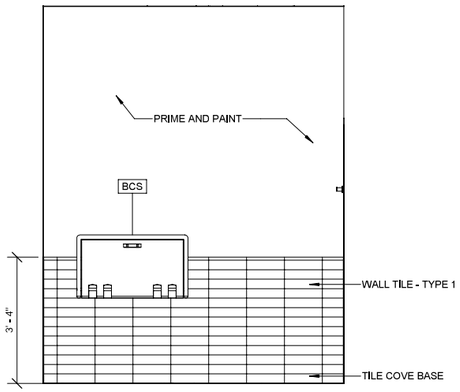
SHEET 28 OF 74



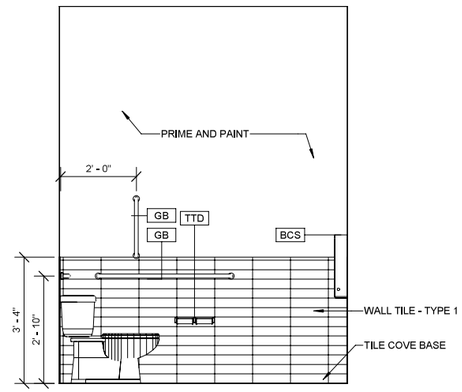
4 RESTROOM 103 - WEST
1/2" = 1'-0"



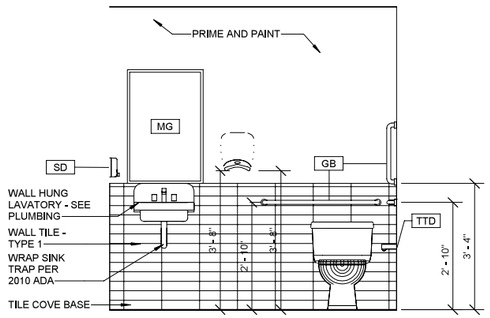
3 RESTROOM 103 - SOUTH
1/2" = 1'-0"



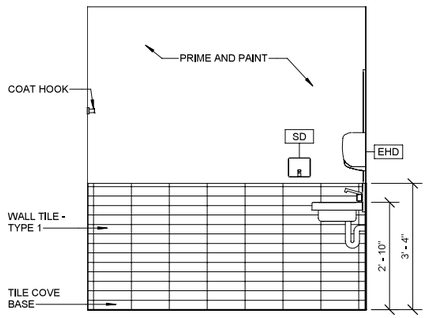
2 RESTROOM 103 - EAST
1/2" = 1'-0"



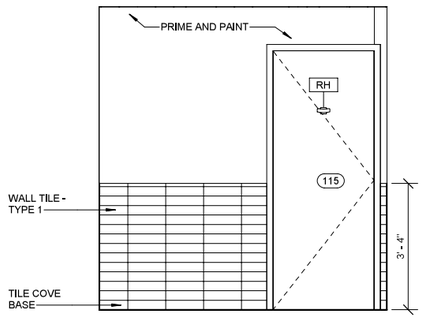
1 RESTROOM 103 - NORTH
1/2" = 1'-0"



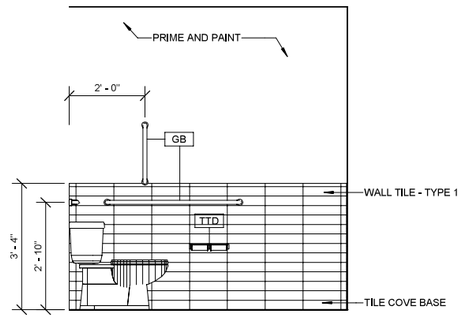
8 RESTROOM 115 - WEST
1/2" = 1'-0"



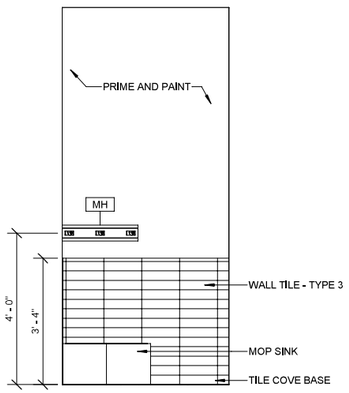
7 RESTROOM 115 - SOUTH
1/2" = 1'-0"



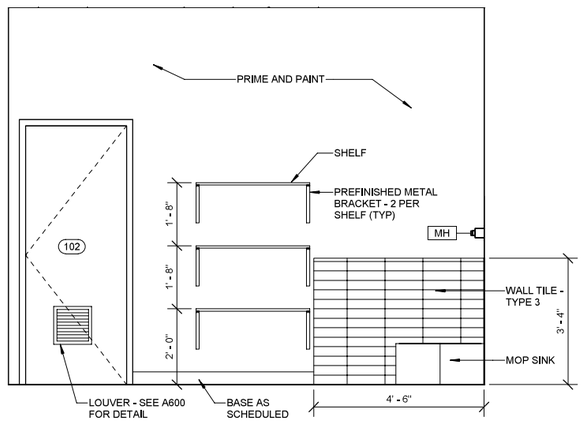
6 RESTROOM 115 - EAST
1/2" = 1'-0"



5 RESTROOM 115 - NORTH
1/2" = 1'-0"



10 JAN CLS 102 - NORTH
1/2" = 1'-0"



9 JAN CLS 102 - WEST
1/2" = 1'-0"

0 1' 2' 4'
SCALE: 1/2"=1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO.
14260
CHAD M. CHAMBERLIN
SOUTH DAKOTA
11/29/2022

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HURON WMD

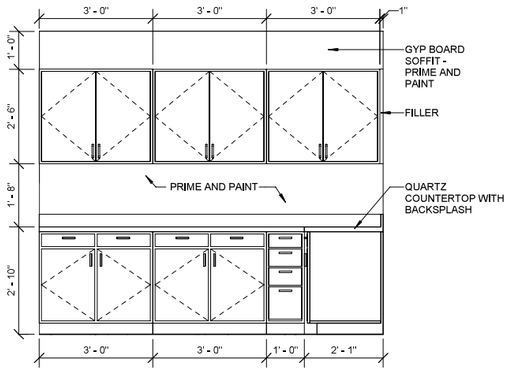
INTERIOR ELEVATIONS

MULTIPURPOSE BUILDING AND VISITOR CENTER

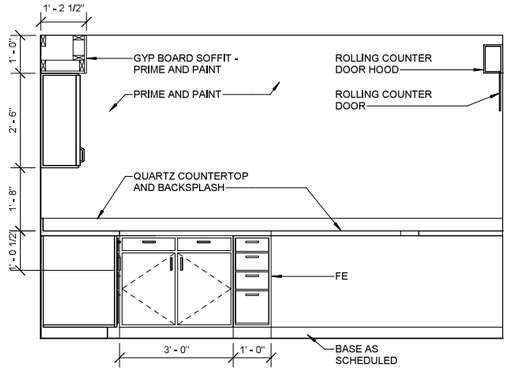
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
CH	CH	CMC	2022.4.29	

SUB-SHEET
A401

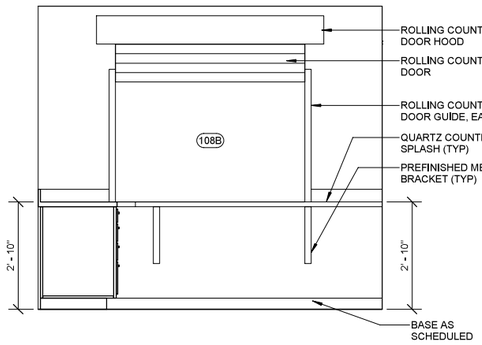
SHEET 29 OF 74



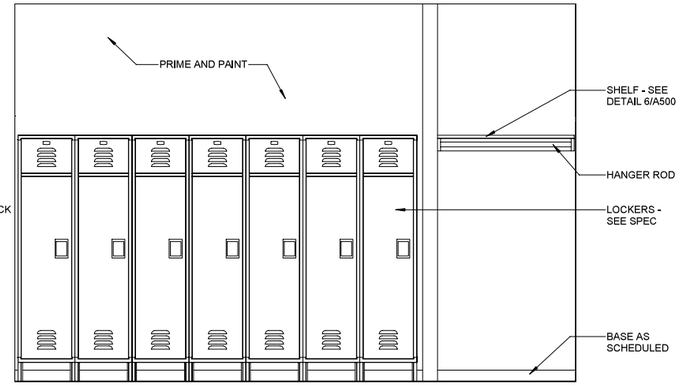
4 ADMIN 108 - WEST
1/2" = 1'-0"



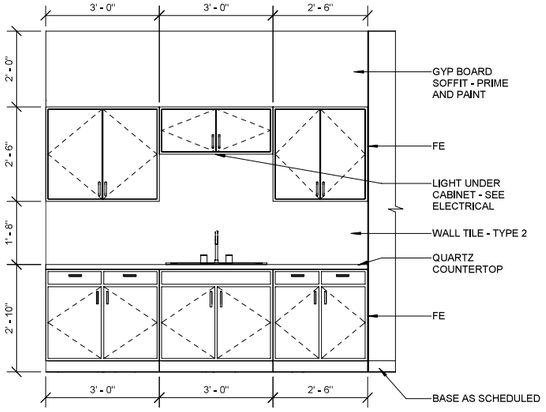
3 ADMIN 108 - NORTH
1/2" = 1'-0"



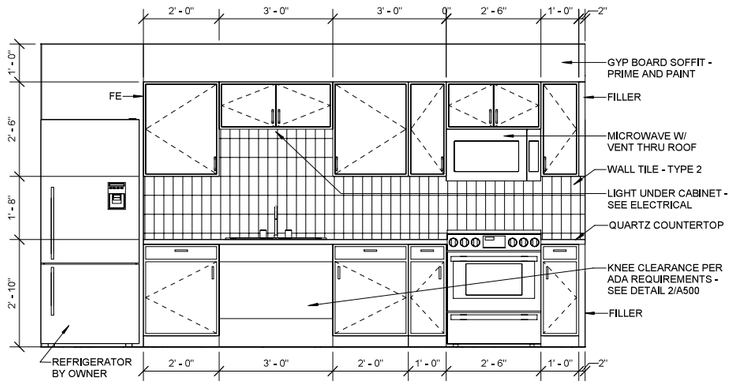
2 INTERIOR ADMIN ELEVATION 108 - EAST
1/2" = 1'-0"



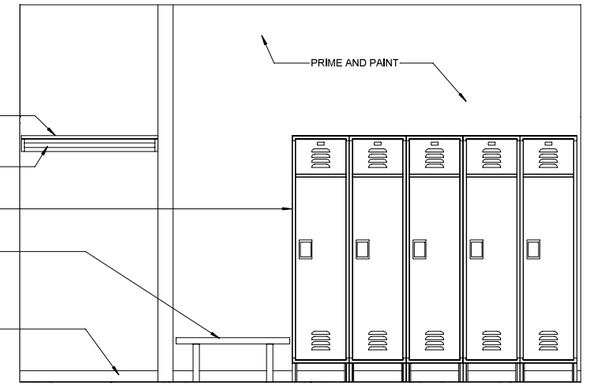
1 INTERIOR ELEVATION LOCKER - WEST
1/2" = 1'-0"



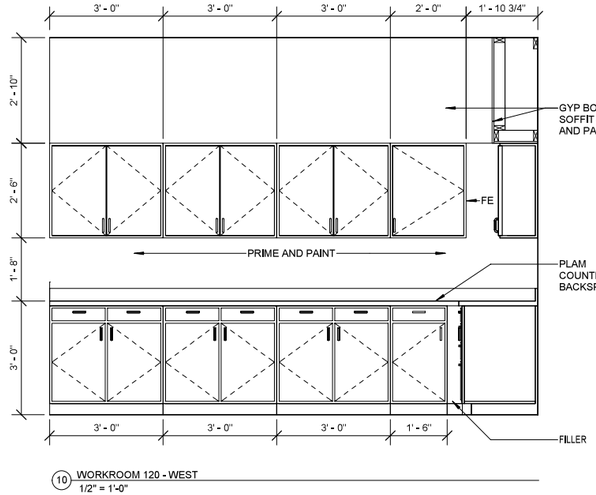
7 CONF ROOM 107 - EAST
1/2" = 1'-0"



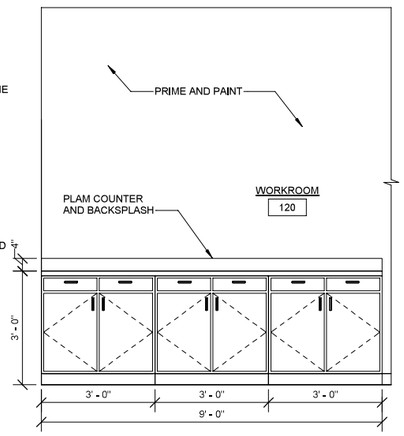
6 BREAK ROOM
1/2" = 1'-0"



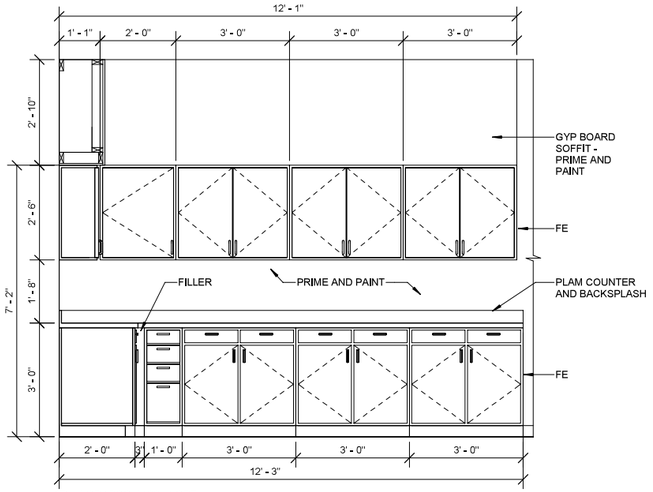
5 INTERIOR ELEVATION LOCKER - EAST
1/2" = 1'-0"



10 WORKROOM 120 - WEST
1/2" = 1'-0"



9 WORKROOM 120 - EAST
1/2" = 1'-0"



8 WORKROOM 120 - NORTH
1/2" = 1'-0"

CASEWORK NOTES:

1. SEE SHEET A500 FOR TYPICAL CASEWORK SECTIONS.
2. ALL CABINETS ARE RED OAK - SEE 9/A500 FOR CASEWORK STYLE.
3. "FINISH EDGE" ABBREVIATED TO "FE" - THIS SHEET ONLY.

0 1' 2' 4'
SCALE: 1/2"=1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 14260
CHAD M. CHAMBERLIN
SOUTH DAKOTA
4/29/2022

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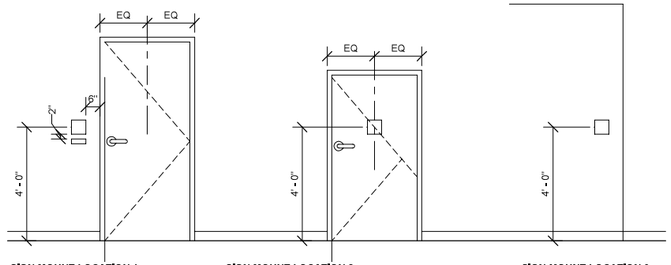
HURON WMD

INTERIOR ELEVATIONS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A402

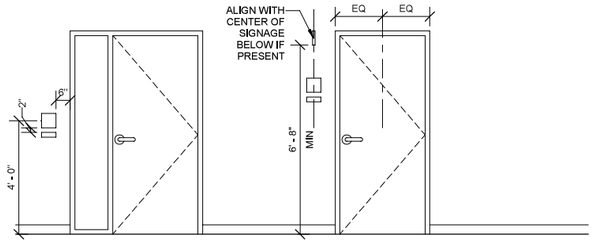
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		30 OF 74



SIGN MOUNT LOCATION 1
SIGN LOCATION FOR ADA COMPLIANCE. MOUNT SIGN ON LATCH SIDE OF DOOR. CENTER SIGN HORIZONTALLY WITHIN THE 18" CLEARANCE FOR ADA. SIGN SHOULD BE MOUNTED SO BOTTOM OF LOWEST TACTILE CHARACTER IS 48" AFF MINIMUM.

SIGN MOUNT LOCATION 2
CENTER SIGN ON DOOR. FIELD ADJUSTMENTS MAY BE NEEDED TO ACCOMMODATE EXISTING OBSTANCLES. SIGNS SPECIFIED WITH THIS MOUNT SHOULD BE INSTALLED SO BOTTOM OF LOWEST TACTILE CHARACTER IS 48" AFF MINIMUM UNLESS OTHERWISE NOTED. ALSO USE THIS LOCATION WHEN SIGN MOUNT LOCATION 1 CANNOT BE ACHIEVED.

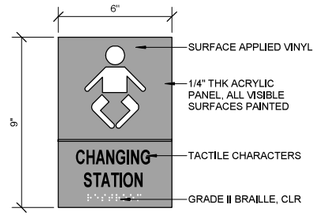
SIGN MOUNT LOCATION 3
CENTER SIGN HORIZONTALLY WITHIN THE 18" CLEARANCE FOR ADA. MOUNT SIGN SO BOTTOM OF LOWEST TACTILE CHARACTER IS 48" AFF MINIMUM.



SIGN MOUNT LOCATION 4
SIGN LOCATION FOR ADA COMPLIANCE WHERE RELITE OCCURS. CENTER SIGN HORIZONTALLY WITHIN THE 18" CLEARANCE FOR ADA ADJACENT TO THE RELITE. SIGN SHOULD BE MOUNTED SO BOTTOME OF LOWEST TACTILE CHARACTER IS 48" AFF MINIMUM

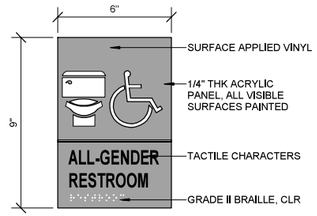
SIGN MOUNT LOCATION 5
SIGN LOCATION FOR ADA COMPLIANCE WITH WALL MOUNT FLAG SIGN OCCURS. MOUNT SIGN ON LATCH SIDE OF DOOR. CENTER SIGN HORIZONTALLY ABOVE IDENTITY SIGNAGE BELOW IF PRESENT. IF NO OTHER SIGNAGE IS PRESENT OR SIGN IS NOT LOCATED ADJACENT TO DOOR LOCATE 6" FROM DOOR JAMB OR WALL EDGE. SIGN SHOULD BE MOUNTED SO THAT BOTTOM OF SIGN IS 80" AFF MINIMUM.

1 SIGNAGE MOUNTING HT
3/8" = 1'-0"



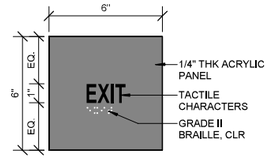
MOUNT AT RESTROOM 103 IN SIGN MOUNT LOCATION 1, ADJACENT TO ALL-GENDER RESTROOM SIGN

2 CHANGING STATION SIGN
3" = 1'-0"



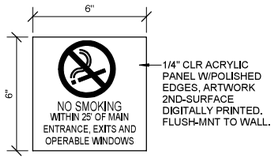
MOUNT AT ALL RESTROOMS IN SIGN MOUNT LOCATION 1

3 ALL GENDER SIGN
3" = 1'-0"



MOUNT AT ALL EXITS IN SIGN MOUNT LOCATION 1 OR 4

4 EXIT SIGN
3" = 1'-0"



MOUNT AT ALL EXTERIOR DOORS IN SIGN MOUNT LOCATION 1 OR 4

5 SIGN 2
3" = 1'-0"

0 6" 1' 2'
SCALE: 3"=1'-0"

0 2' 4' 6'
SCALE: 3/8"=1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO.
14260
CHAD M.
CHAMBERLIN
SOUTH DAKOTA
11/29/2022

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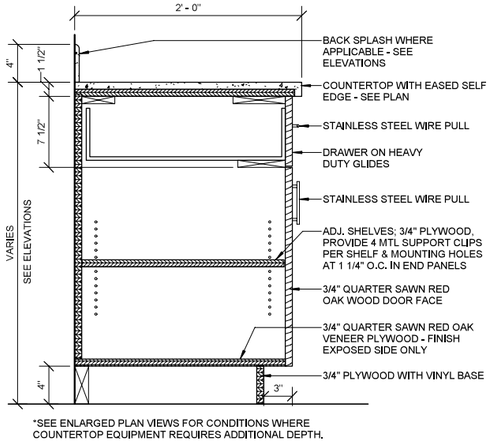
HURON WMD

ADA SIGNAGE

MULTIPURPOSE BUILDING AND VISITOR CENTER

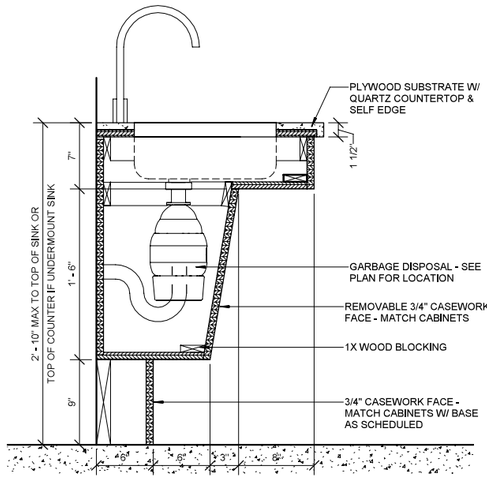
SUB-SHEET A403

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		31 OF 74

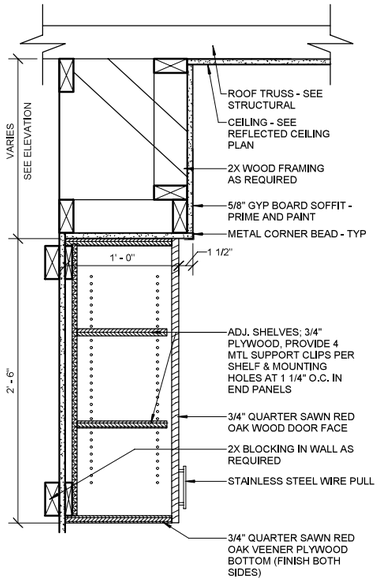


*SEE ENLARGED PLAN VIEWS FOR CONDITIONS WHERE COUNTERTOP EQUIPMENT REQUIRES ADDITIONAL DEPTH.

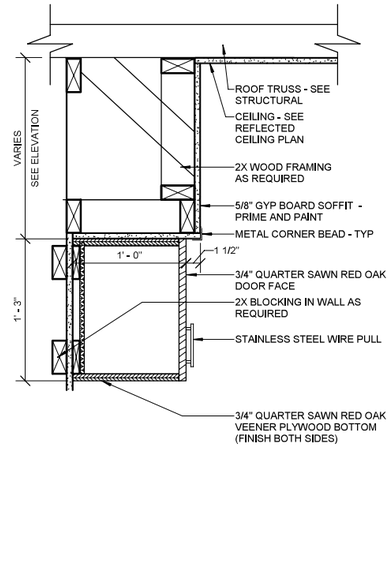
1 CASEWORK - TYP BASE CABINET
1 1/2" = 1'-0"



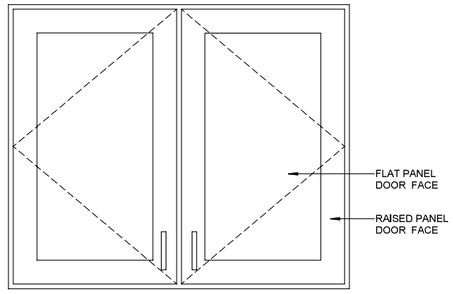
2 ADA ACCESS SINK BASE
1 1/2" = 1'-0"

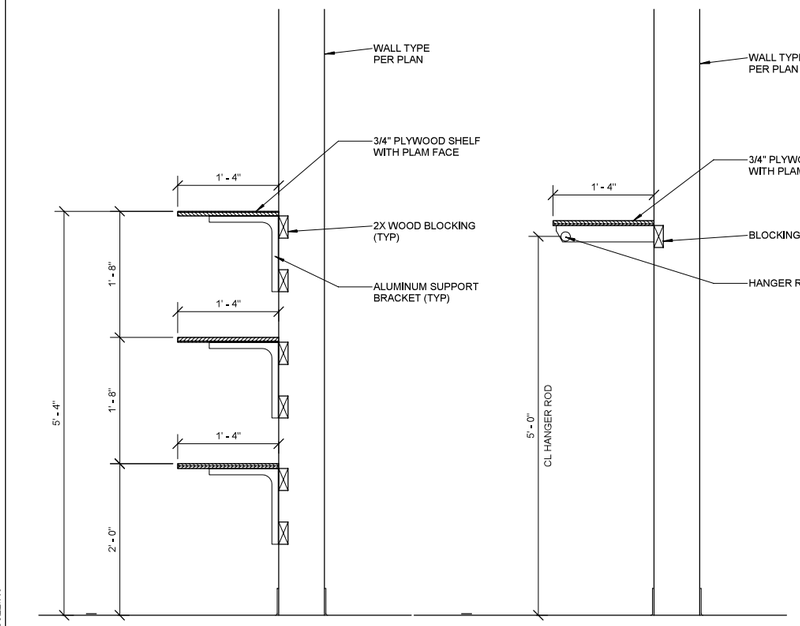


3 CASEWORK - TYP UPPER CABINET
1 1/2" = 1'-0"

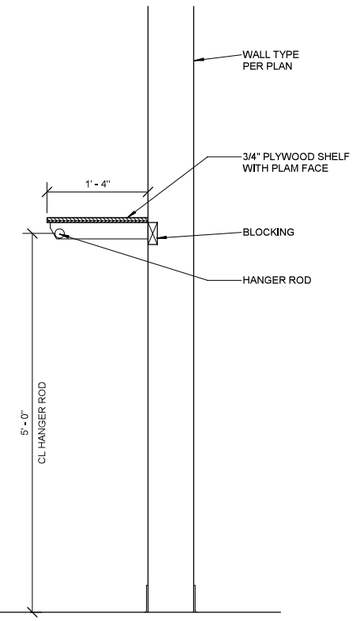


4 CASEWORK - UPPER CABINET ABOVE SINK/MICROWAVE
1 1/2" = 1'-0"

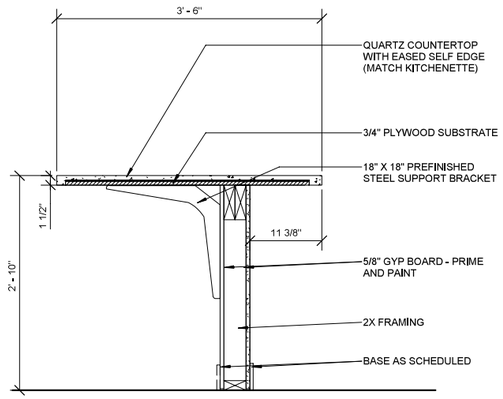




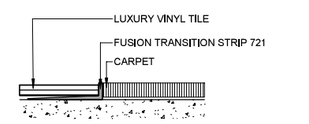
5 SHELVING1
1" = 1'-0"



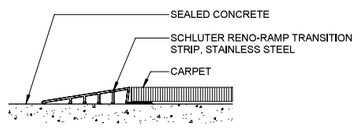
6 SHELF DETAIL
1" = 1'-0"



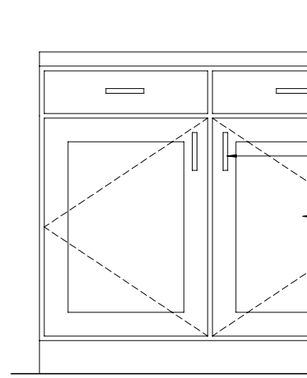
7 RECEPTION DESK SECTION
1" = 1'-0"



8 FLOOR TRANSITION DETAIL - CARPET TO LVT
3" = 1'-0"



9 FLOOR TRANSITION - CONCRETE TO CPT
3" = 1'-0"



10 CASEWORK STYLE
1 1/2" = 1'-0"

0 6" 1' 2'
SCALE: 3"=1'-0"

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

0 1' 2' 3'
SCALE: 3/4"=1'-0"

0 6" 1' 2'
SCALE: 1" =1'-0"

0 1' 2' 4'
SCALE: 1/2"=1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO.
14260
CHAD M. CHAMBERLIN
SOUTH DAKOTA
4/29/2022

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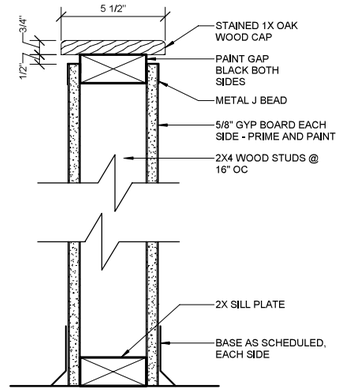
HURON WMD

INTERIOR DETAILS

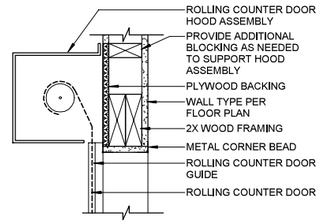
MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A500

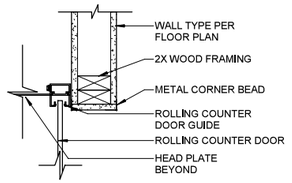
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		32 OF 74



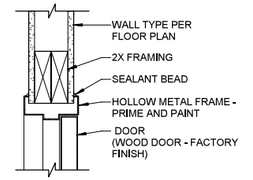
6 WALL CAP DETAIL
3" = 1'-0"



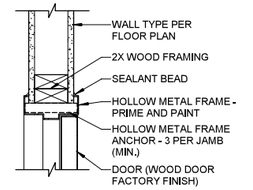
3 ROLLING COUNTER DOOR HEAD
1 1/2" = 1'-0"



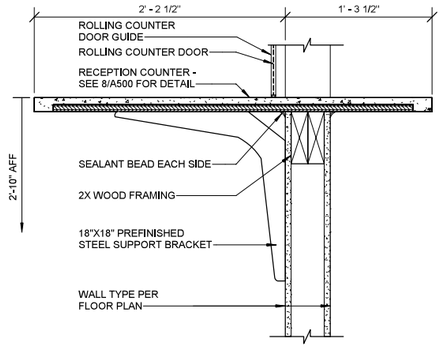
4 ROLLING COUNTER DOOR JAMB
1 1/2" = 1'-0"



1 INTERIOR DOOR HEAD DETAIL
1 1/2" = 1'-0"



2 INTERIOR DOOR JAMB DETAIL
1 1/2" = 1'-0"



5 ROLLING COUNTER DOOR SILL
1 1/2" = 1'-0"

0 6" 1' 2'
SCALE: 3"=1'-0"

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

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 14260
CHAD M. CHAMBERLIN
SOUTH DAKOTA
4/29/2022

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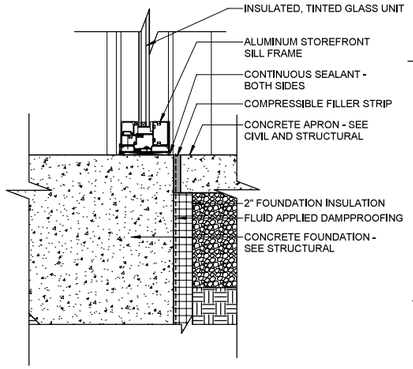
HURON WMD

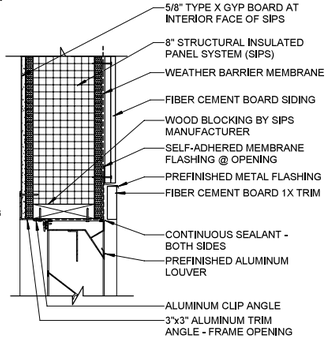
INTERIOR DETAILS

MULTIPURPOSE BUILDING AND VISITOR CENTER

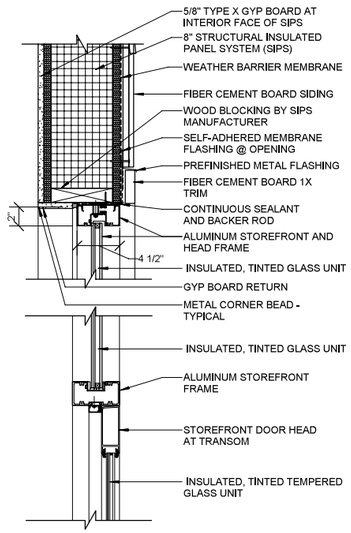
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SUB-SHEET / SHEET
CH	CH	CMC	2022.4.29		A501 — SHEET 33 OF 74



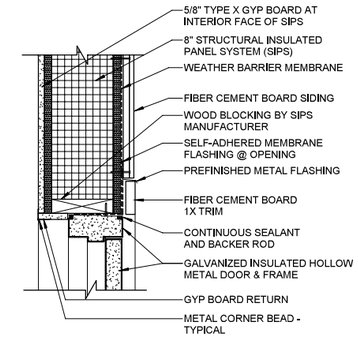
13 STOREFRONT FRAME SILL1
1 1/2" = 1'-0"



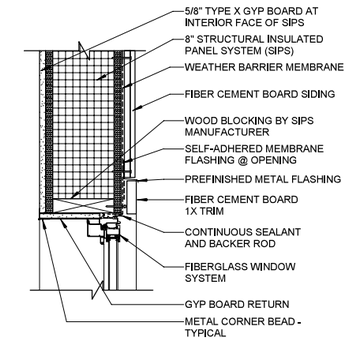
10 LOUVER HEAD DETAIL
1 1/2" = 1'-0"



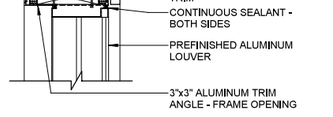
7 STOREFRONT FRAME HEAD
1 1/2" = 1'-0"



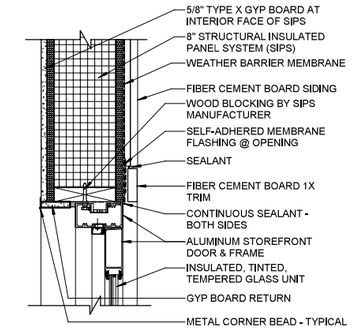
4 EXTERIOR DOOR HEAD DTL
1 1/2" = 1'-0"



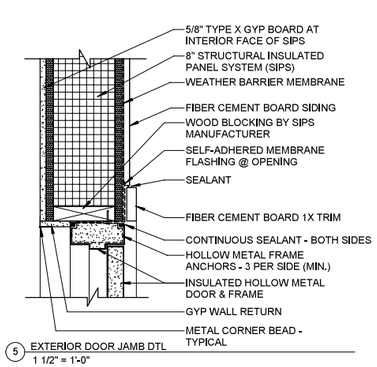
1 WINDOW HEAD DETAIL
1 1/2" = 1'-0"



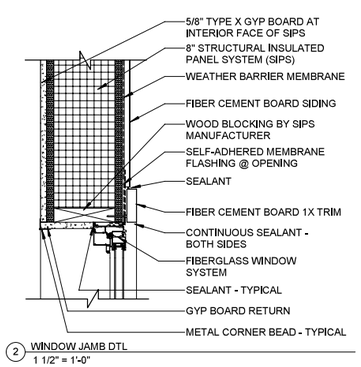
11 LOUVER JAMB DETAIL
1 1/2" = 1'-0"



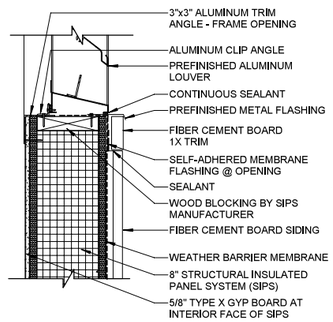
8 STOREFRONT JAMB
1 1/2" = 1'-0"



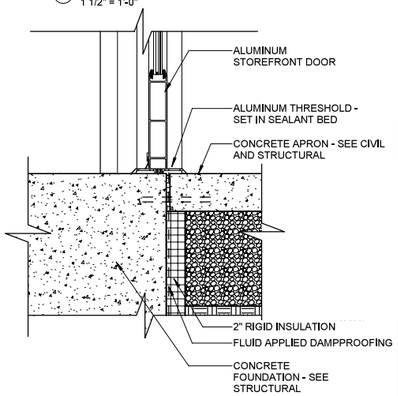
5 EXTERIOR DOOR JAMB DTL
1 1/2" = 1'-0"



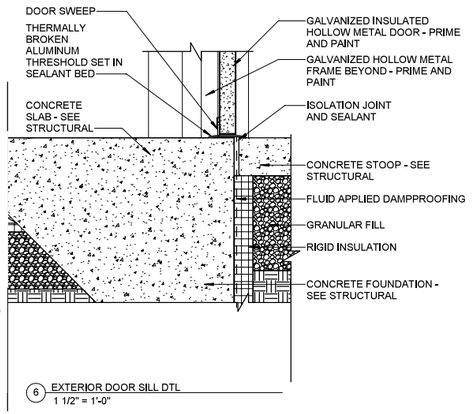
2 WINDOW JAMB DTL
1 1/2" = 1'-0"



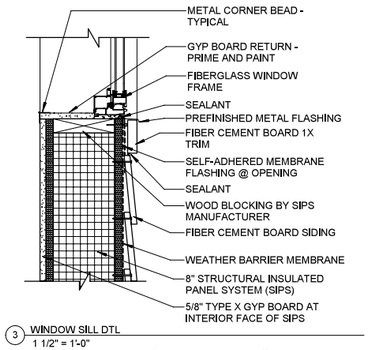
12 LOUVER SILL DETAIL
1 1/2" = 1'-0"



15 STOREFRONT DOOR SILL1
1 1/2" = 1'-0"



6 EXTERIOR DOOR SILL DTL
1 1/2" = 1'-0"



3 WINDOW SILL DTL
1 1/2" = 1'-0"

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

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 14260
CHAD M. CHAMBERLIN
SOUTH DAKOTA
4/29/2022

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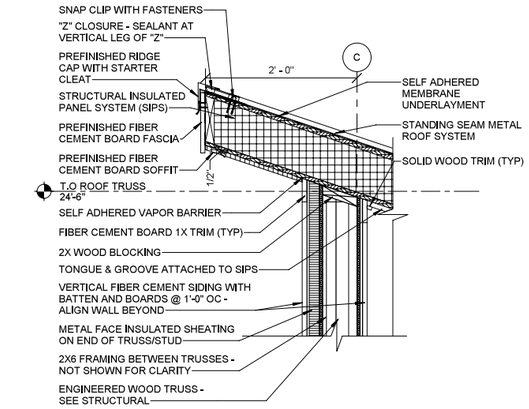
HURON WMD

EXTERIOR DETAILS

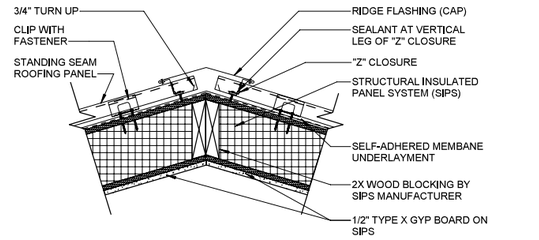
MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A510

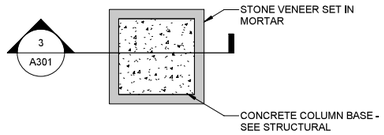
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		34 OF 74



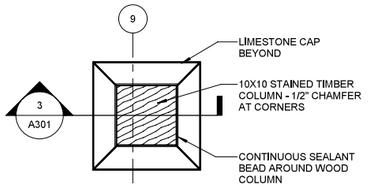
7 SOFFIT DETAIL
1" = 1'-0"



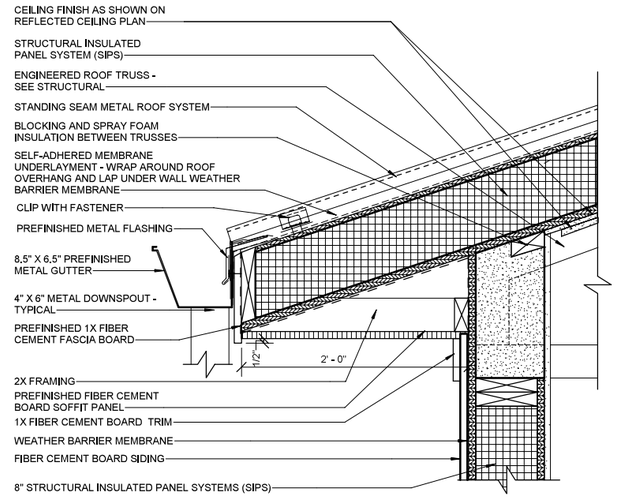
3 RIDGE DETAIL
1 1/2" = 1'-0"



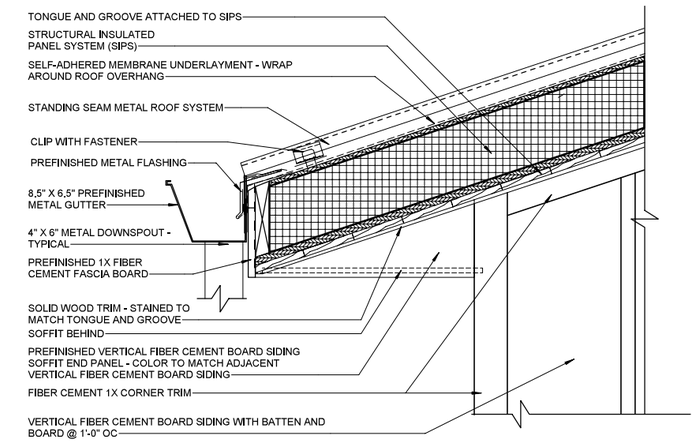
4 COLUMN BASE PLAN
1" = 1'-0"



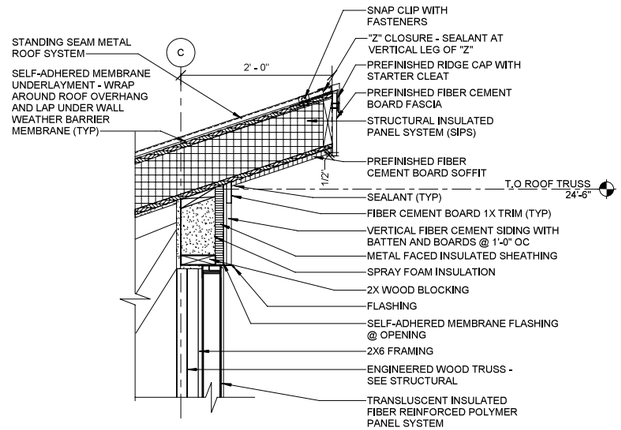
5 COLUMN TOP PLAN
1" = 1'-0"



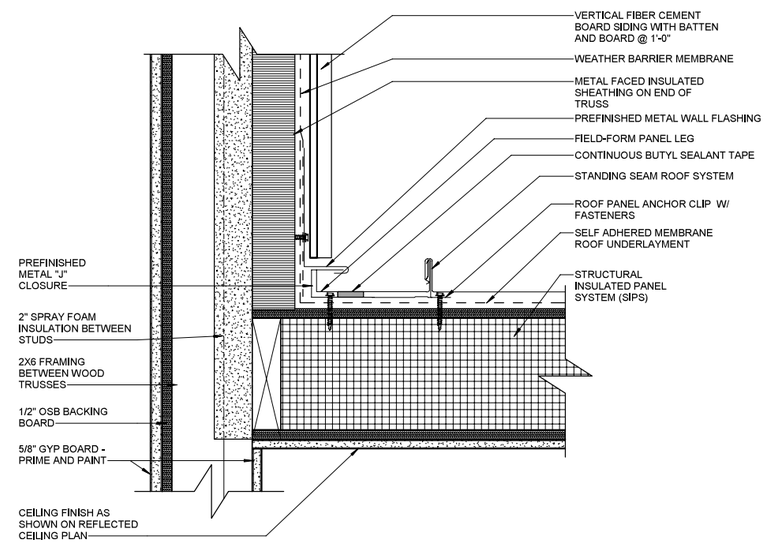
1 OVERHANG DETAIL
1 1/2" = 1'-0"



8 SOFFIT CLOSURE DETAIL
1 1/2" = 1'-0"



6 SOFFIT DETAIL AT HIGH ROOF
1" = 1'-0"



2 FLASHING DETAIL
3" = 1'-0"

0 6" 1' 2'
SCALE: 3"=1'-0"

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

0 6" 1' 2'
SCALE: 1" =1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 14260
CHAD M. CHAMBERLIN
SOUTH DAKOTA
4/29/2022

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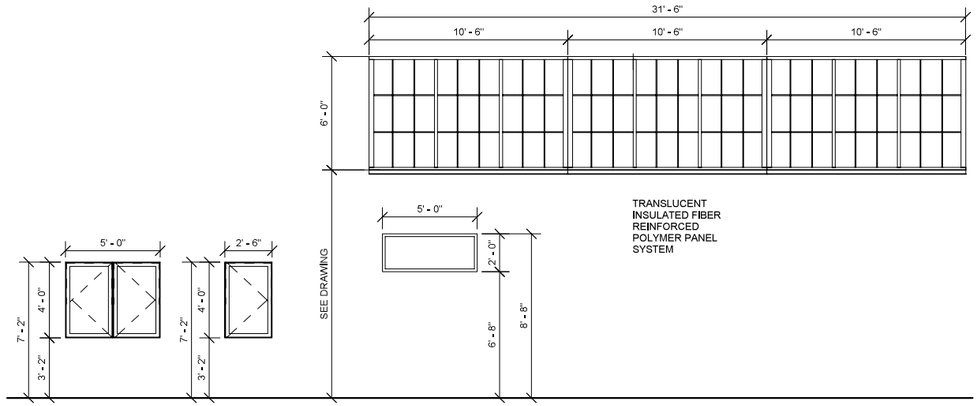
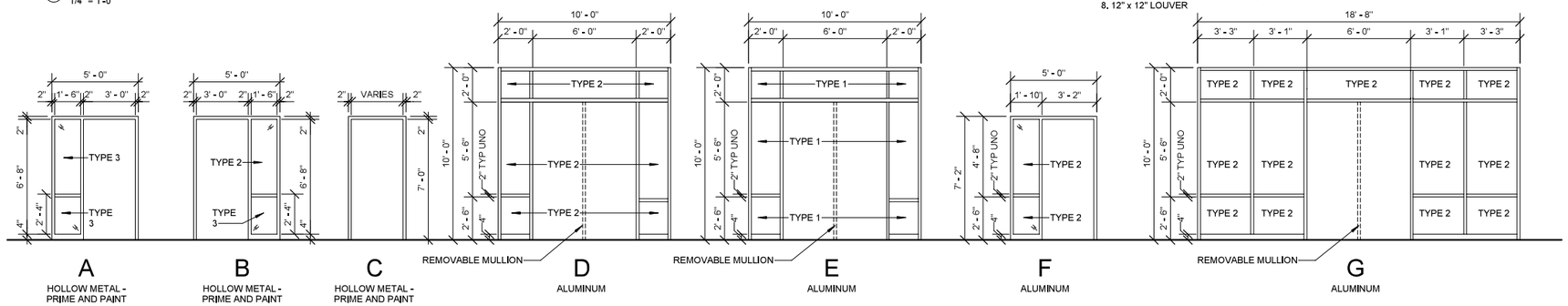
HURON WMD					SUB-SHEET
EXTERIOR DETAILS					A511
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		35 OF 74

WINDOW SCHEDULE

MARK	HEIGHT	WIDTH	TYPE
W1	4'-0"	2'-6"	CASEMENT WINDOW
W2	4'-0"	2'-6"	CASEMENT WINDOW
W3	2'-0"	5'-0"	FIXED WINDOW
W5	6'-0"	10'-6"	TRANSLUCENT PANEL



1 WINDOW TYPES
1/4" = 1'-0"

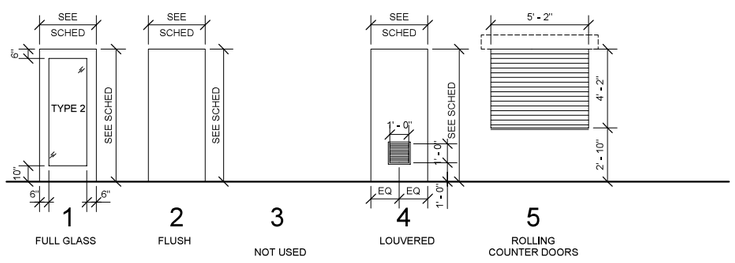


DOOR SCHEDULE

DOOR NO.	DOOR PANEL WIDTH	DOOR PANEL HEIGHT	DOOR LEAF	DOOR PANEL MATL	DOOR TYPE	FRAME TYPE	FRAME MATL	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	GLAZING SIZE	DOOR RATING	HWDR SET	NOTES
100A	6'-0"	8'-0"	2	ALUM	1	D	ALUM	7/A501	8/A501	9/A501			03	2,6
100B	6'-0"	8'-0"	2	ALUM	1	E	ALUM	7/A501	8/A501	9/A501			04	5,6
102	3'-0"	7'-0"	1	HM	4	C	HM	1/A502	2/A502				13	8
103	3'-0"	7'-0"	1	WD	2	C	HM	1/A502	2/A502				09	
104	3'-0"	7'-0"	1	WD	2	C	HM	1/A502	2/A502				09	
105	6'-0"	8'-0"	2	ALUM	1	G	ALUM	7/A501	8/A501	9/A501			02	6
106	6'-0"	7'-0"	2	HM	2	C	HM	1/A502	2/A502				07	
107A	3'-0"	7'-0"	1	WD	2	A	HM	1/A502	2/A502				11	
107B	3'-0"	7'-0"	1	WD	2	B	HM	1/A502	2/A502				12	
107C	3'-0"	7'-0"	1	HM	2	C	HM	1/A502	2/A502			60 MIN	14	
108A	3'-1"	7'-0"	1	WD	2	-	-						15	4,7
108B	5'-0"	4'-2"	1	ST	5	-	ST	3/A502	4/A502	5/A502				3
109	3'-0"	7'-0"	1	WD	2	C	HM	1/A502	2/A502				11	
110A	3'-0"	7'-0"	1	WD	2	B	HM	1/A502	2/A502				11	
110B	3'-0"	7'-0"	1	WD	2	A	HM	1/A502	2/A502				11	
111	3'-0"	7'-0"	1	WD	2	A	HM	1/A502	2/A502				10	
112	3'-0"	7'-0"	1	WD	2	A	HM	1/A502	2/A502				10	
113	3'-0"	7'-0"	1	WD	2	B	HM	1/A502	2/A502				10	
115	3'-0"	7'-0"	1	WD	2	C	HM	1/A502	2/A502				09	
116	3'-0"	7'-0"	1	WD	4	C	HM	1/A502	2/A502				13	8
117	3'-0"	7'-0"	1	WD	2	C	HM	1/A502	2/A502				11	
118	3'-0"	7'-0"	1	WD	2	G	ALUM	1/A502	2/A502				08	
118B	3'-0"	7'-0"	1	ALUM	1	F	ALUM	1/A502	2/A502				01	
119	3'-0"	7'-0"	1	WD	2	A	HM	1/A502	2/A502				11	
121	3'-0"	7'-0"	1	HM	2	C	HM	4/A501	5/A-501	6/A-501			06	1, 2
122	3'-0"	7'-0"	1	WD	2	C	HM	4/A501	5/A-501				12	
123	3'-0"	7'-0"	1	HM	2	A	HM	4/A501	5/A-501	6/A-501			05	1
125	3'-0"	7'-0"	1	WD	2	C	HM	1/A502	2/A502				09	
126	3'-0"	7'-0"	1	HM	4	C	HM	1/A502	2/A502				13	8
127	3'-0"	7'-0"	1	HM	2	C	HM	1/A502	2/A502				11	
128	3'-0"	7'-0"	1	WD	2	A	HM	1/A502	2/A502				10	
129	3'-0"	7'-0"	1	WD	2	A	HM	1/A502	2/A502				10	
130	3'-0"	7'-0"	1	WD	2	B	HM	1/A502	2/A502				10	
131	3'-0"	7'-0"	1	WD	2	B	HM	1/A502	2/A502				10	

NOTES:
1. GALVANIZED AND INSULATED.
2. PREP DOOR TO RECEIVE ACCESS CONTROL. ACCESS CONTROL BY OTHER.
3. ROLLING COUNTER DOOR.
4. POCKET DOOR.
5. USE GLASS TYPE 1.
6. REMOVABLE MULLION
7. INSTALL TRIMS PER SPECIFICATION
8. 12" x 12" LOUVER

2 FRAME TYPE
1/4" = 1'-0"



3 DOOR TYPE
1/4" = 1'-0"

0 2' 4' 8'
SCALE: 1/4"=1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 14260
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SOUTH DAKOTA
4/29/2022

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HURON WMD

DOOR SCHED., DOOR & WINDOW ELEV.

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A600

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		36 OF 74

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR	WALL BASE	WALLS	CEILING MATERIAL	CEILING HEIGHT	NOTES
100	VESTIBULE	LUXURY VINYL TILE	VINYL	GYPSUM	GYPSUM	10'-0"	
101	HALL	LUXURY VINYL TILE	VINYL	GYPSUM	GYPSUM	10'-0"	
102	JAN. CLS	LUXURY VINYL TILE	VINYL	GYPSUM	GYPSUM	10'-0"	
103	RESTROOM	LUXURY VINYL TILE	TCB	CERAMIC TILE/GYPSUM	GYPSUM	10'-0"	
104	RESTROOM	LUXURY VINYL TILE	TCB	CERAMIC TILE/GYPSUM	GYPSUM	10'-0"	
105	VISITOR CONTACT	LUXURY VINYL TILE	VINYL	GYPSUM	EXPOSED STRUCTURAL		
106	MECH/ELEC	SEALED CONCRETE	WOOD	GYPSUM	EXPOSED STRUCTURAL		
107	CONF	CARPET	WOOD	GYPSUM	ACT	9'-0"	
108	ADMIN	CARPET	WOOD	GYPSUM	ACT	8'-0"	
109	STORAGE 3	CARPET	WOOD	GYPSUM	ACT	8'-0"	
110	REFUGE OPEN OFFICE	CARPET	WOOD	GYPSUM	EXPOSED STRUCTURAL		
111	OFFICE	CARPET	WOOD	GYPSUM	GYPSUM	8'-0"	
112	OFFICE	CARPET	WOOD	GYPSUM	GYPSUM	8'-0"	
113	LE OFFICE	CARPET	WOOD	GYPSUM	GYPSUM	8'-0"	
114	HALL	CARPET	WOOD	GYPSUM	GYPSUM	8'-0"	
115	RESTROOM	LUXURY VINYL TILE	TCB	CERAMIC TILE/GYPSUM	GYPSUM	8'-0"	
116	IT	LUXURY VINYL TILE	VINYL	GYPSUM	EXPOSED STRUCTURAL		
117	STORAGE 2	LUXURY VINYL TILE	VINYL	GYPSUM	ACT	8'-0"	
118	BREAK	LUXURY VINYL TILE	VINYL	GYPSUM	ACT	8'-0"	
119	HALL	CARPET	WOOD	GYPSUM	GYPSUM	10'-0"	
120	WORKROOM	CARPET	WOOD	GYPSUM	GYPSUM	10'-0"	
121	LOCKER	LUXURY VINYL TILE	VINYL	GYPSUM	GYPSUM	10'-0"	
122	STORAGE	CARPET	WOOD	GYPSUM	ACT	8'-0"	
123	REALTY OPEN OFFICE	CARPET	WOOD	GYPSUM	EXPOSED STRUCTURAL		
124	HALL	CARPET	WOOD	GYPSUM	GYPSUM	8'-0"	
125	RESTROOM	LUXURY VINYL TILE	TCB	CERAMIC TILE/GYPSUM	GYPSUM	8'-0"	
126	JAN. CLS.	LUXURY VINYL TILE	VINYL	GYPSUM	GYPSUM	8'-0"	
127	STORAGE 1	LUXURY VINYL TILE	VINYL	GYPSUM	ACT	8'-0"	
128	TEAM RM	CARPET	WOOD	GYPSUM	ACT	8'-0"	
129	OFFICE	CARPET	WOOD	GYPSUM	GYPSUM	8'-0"	
130	OFFICE	CARPET	WOOD	GYPSUM	GYPSUM	8'-0"	
131	OFFICE	CARPET	WOOD	GYPSUM	GYPSUM	8'-0"	

1 ROOM FINISH FLOOR PLAN
1/8" = 1'-0"

FINISH LEGEND

- LUXURY VINYL TILE
- SEALED CONCRETE
- CARPET

NORTH

0 4' 8' 16'
SCALE: 1/8"=1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 14260
CHAD M. CHAMBERLIN
SOUTH DAKOTA
11/29/2022

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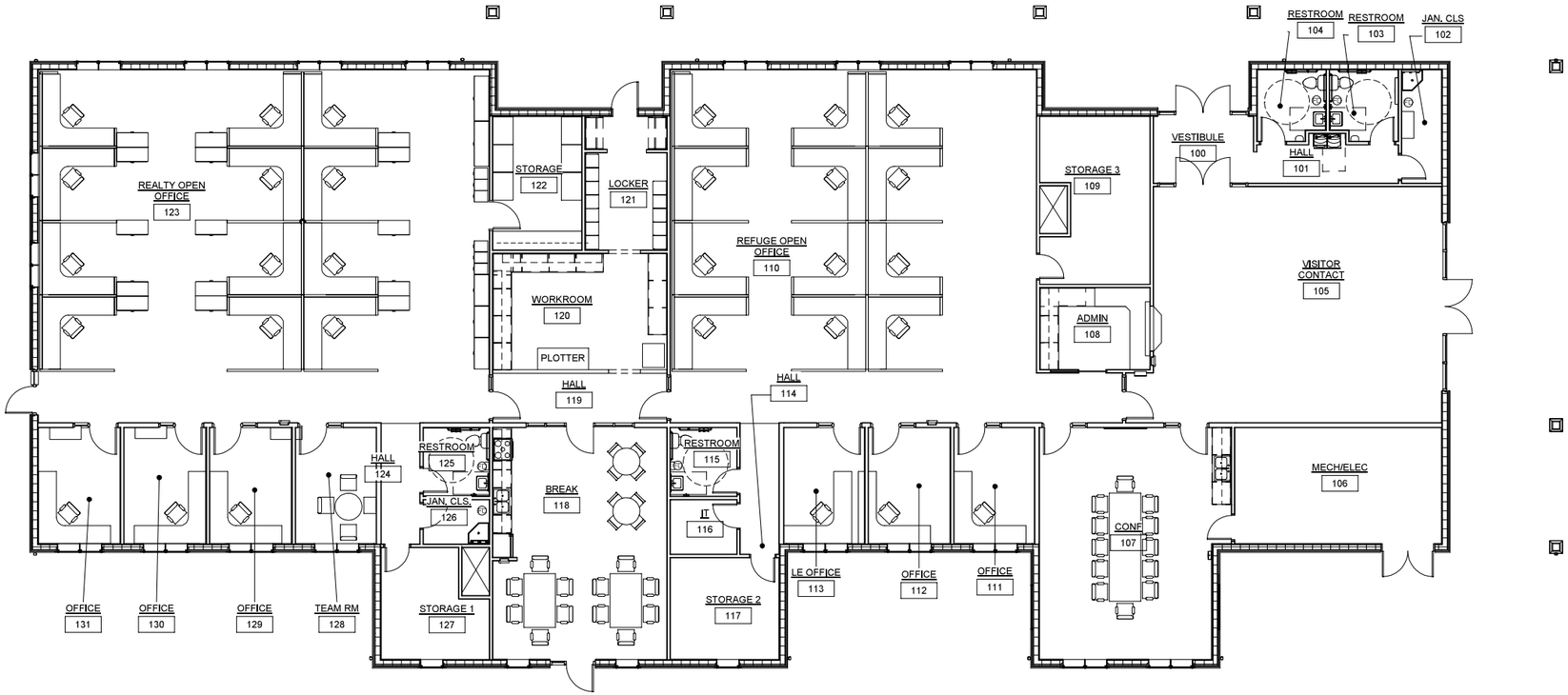
HURON WMD

ROOM FINISH FLOOR PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET A800

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		37 OF 74



1 FURNITURE PLAN
1/8" = 1'-0"

FOR REFERENCE ONLY

NORTH

0 4' 8' 16'
SCALE: 1/8"=1'-0"

REGISTERED PROFESSIONAL ARCHITECT
REG. NO.
14260
CHAD M.
CHAMBERLIN
SOUTH DAKOTA
11/29/2022

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HURON WMD					SUB-SHEET
FURNITURE PLAN					A801
MULTIPURPOSE BUILDING AND VISITOR CENTER					
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CH	CH	CMC	2022.4.29		38 OF 74

STRUCTURAL GENERAL NOTES

1. APPLICABLE SPECIFICATIONS AND CODES
   CONSTRUCTION AND DESIGN SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION, AND WITH THE LATEST EDITION OF THE APPLICABLE SPECIFICATIONS AND REQUIREMENTS NOTED AS FOLLOWS.
2. SPECIAL INSPECTION
   - a. SOILS - TABLE 1705.6 OF THE IBC
     - i. PERIODIC INSPECTION OF FOUNDATION SOIL BEARING CAPACITY, DEPTH, FILL MATERIALS CLASSIFICATION AND SUBGRADE PREPARATION AND COMPACTION.
     - ii. FULL TIME INSPECTION OF ENGINEERED FILL PLACEMENT AND COMPACTION.
   - b. CONCRETE - TABLE 1705.3 OF THE IBC
     - i. PERIODIC INSPECTION OF REINFORCEMENT BEFORE CONCRETE IS PLACED.
     - ii. FULL TIME INSPECTION OF ANCHOR RODS AND OTHER EMBEDDED ITEMS AS IDENTIFIED HEREIN.
     - iii. FULL TIME INSPECTION DURING PLACEMENT OF CONCRETE INCLUDING THE TAKING OF TEST SPECIMENS, SLUMP AND AIR CONTENT MEASUREMENT. INSPECTION AND TESTING SHALL BE LIMITED TO STRUCTURAL REINFORCED CONCRETE WITH TESTING FREQUENCY IN ACCORDANCE WITH THE PROJECT TECHNICAL SPECIFICATIONS.
   - c. STEEL - AISC 360 FOR STRUCTURAL STEEL, IBC SECTION 1705.2 FOR STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL (COLD-FORMED STEEL, REBAR, ETC.)
     - i. FULL TIME INSPECTION FOR HIGH-STRENGTH BOLTING FOR SLIP CRITICAL CONNECTIONS PER AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
     - ii. PERIODIC INSPECTION FOR HIGH STRENGTH BOLTING FOR BEARING TYPE CONNECTIONS PER AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
     - iii. FULL TIME INSPECTION OF COMPLETE AND PARTIAL PENETRATION GROVE WELDS, MULTI-PASS FILLET WELDS AND SINGLE PASS FILLET WELDS GREATER THAN 5/16" IN ACCORDANCE WITH AWS D1.1.
     - iv. PERIODIC INSPECTION OF FRAME JOINT DETAILS FOR COMPLIANCE WITH THE PLANS AND SPECIFICATIONS
   - d. WOOD
     - i. PERIODIC INSPECTION OF DIAPHRAGMS AND SHEAR WALLS FOR COMPLIANCE WITH PLANS AND SPECIFICATION REQUIREMENTS. INCLUDED IS THE SHEATHING TYPE AND THICKNESS; VERIFICATION OF FRAMING MEMBERS OF CONSTRUCTED ASSEMBLIES WITHIN THE FIELD AND AT BOUNDARY ELEMENTS; FASTENER TYPE, DIAMETER AND LENGTH; FASTENER SPACING AT INTERMEDIATE SUPPORTS AND AT BOUNDARY ELEMENTS.
     - ii. PERIODIC INSPECTION OF HOLD DOWNS AND OTHER LATERAL FORCE RESISTING HARDWARE FOR CORRECT TYPE, FASTENING AND LOCATION.
3. DESIGN LOADS
   - a. DESIGN LOADS AND LOAD APPLICATIONS SHALL BE IN ACCORDANCE WITH IBC.
   - b. UNIFORM FLOOR LIVE LOADS
     - i. ALL FLOOR AREAS, UNLESS OTHERWISE INDICATED - - - 50 PSF + 10 PSF PARTITION
     - ii. STAIRS, LANDINGS, CORRIDORS - 100 PSF
     - iii. STORAGE ROOMS - 125 PSF
     - iv. MECHANICAL ROOM - 150 PSF
     - v. FLOOR LIVE LOAD REDUCTIONS APPLIED IN ACCORDANCE WITH IBC.
   - c. ROOF LOADS
     - i. MINIMUM ROOF LIVE LOAD - 20 PSF
     - ii. MINIMUM ROOF SNOW LOAD - 28 PSF
     - iii. DRIFT SURCHARGE LOADS IN ACCORDANCE WITH ASCE 7.
       - (a) BASIC GROUND SNOW LOAD - 40 PSF
       - (b) IMPORTANCE FACTOR - I = 1.00
   - d. WIND LOADS IN ACCORDANCE WITH CHAPTER 26 OF ASCE 7
     - i. OCCUPANCY OR RISK CATEGORY - II
     - ii. BASIC WIND SPEED (3-SEC GUST) - 113 MPH
     - iii. EXPOSURE CATEGORY - C
   - e. SEISMIC LOADS
     - i. IMPORTANCE FACTOR - I = 1.00
     - ii. MAPPED SPECTRAL RESPONSE S_S - 0.15
     - iii. MAPPED SPECTRAL RESPONSE S_1 - 0.034
     - iv. SITE CLASS - D
     - v. SPECTRAL RESPONSE COEFFICIENT S_{DS} - - - - - - - - - - - - - - - - - 0.16
     - vi. SPECTRAL RESPONSE COEFFICIENT S_{D1} - - - - - - - - - - - - - - - - - 0.054
     - vii. SEISMIC DESIGN CATEGORY - A
     - viii. BASIC SEISMIC-FORCE-RESISTING SYSTEM - - - - STRUCTURAL INSULATED PANEL SHEAR WALLS
     - ix. DESIGN BASE SHEAR - 6.20 KIPS
     - x. SEISMIC RESPONSE COEFFICIENT C_s - 0.025
     - xi. RESPONSE MODIFICATION FACTOR R - 6.5
     - xii. ANALYSIS PROCEDURE USED - - - - EQUIV. LATERAL FORCE SPECIAL LOADS
   - f. SPECIAL LOADS
     - i. MECHANICAL EQUIPMENT LOADS - - - - - - - - - - - - ACTUAL OPERATING LOADS
     - ii. CEILING FRAMING LIVE LOAD - 10 PSF
     - iii. PARTITIONS AND INTERIOR WALLS LIVE LOAD - - - - - - - - - - - 5 PSF LATERAL
   - g. ADDITIONAL LOADS REFERENCED ON THE DRAWINGS.
   - h. BUILDING CONSTRUCTION TYPE - TYPE VB NR FRAMING
4. CONSTRUCTION LOADS
   STRUCTURES HAVE BEEN DESIGNED FOR DEAD LOADS AND THE DESIGN LOADS NOTED ABOVE. PROVIDE TEMPORARY BRACING, SHORING OR OTHER SUPPLEMENTAL SUPPORT DURING CONSTRUCTION AS NECESSARY TO PROTECT THE STRUCTURES FROM EXCESSIVE CONSTRUCTION LOADS.
5. FOUNDATIONS
   - a. FOUNDATION DESIGN CRITERIA
     - i. MAXIMUM ALLOWABLE SOIL BEARING PRESSURE - - - - - - - - - - - - - 1,500 PSF
     - ii. LATERAL SOIL PRESSURE - - - - - - - - - - - - - - - 60 PCF EQUIV. FLUID PRESSURE
     - iii. DESIGN FROST DEPTH BELOW EXTERIOR GRADE - - - - - - - - - - - - - - - - 42 INCH
   - b. AVOID EXCESSIVE WETTING OR DRYING OF THE FOUNDATION EXCAVATIONS DURING CONSTRUCTION.
   - c. BACKFILL ON WALLS WITH FILL ON BOTH SIDES SHALL BE COMPACTED IN EQUAL LIFTS EACH SIDE OF WALL. WALLS BACKFILLED FROM ONE SIDE ONLY SHALL HAVE ALL SUPPORTING SLABS, PERMANENT FRAMING OR TEMPORARY BRACING IN PLACE PRIOR TO PLACEMENT OF BACKFILL.
6. CONCRETE
   - a. CONCRETE CONSTRUCTION SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)
   - b. DETAILING, FABRICATION AND PLACEMENT OF REINFORCEMENT SHALL CONFORM TO DETAILS AND DETAILING OF CONCRETE REINFORCEMENT (ACI 315)
   - c. MATERIALS
     - i. CONCRETE
       - (a) STRUCTURAL CAST-IN-PLACE - f'_c = 4,000 PSF
       - (b) EXTERIOR WALKS, CURBS, RAMPS - - - - - - - - - - - - - - - - f'_c = 3,000 PSF
     - ii. REINFORCING MATERIALS
       - (a) REINFORCING BARS - - - - - - - - - - - - - - - - - - ASTM A615, GRADE 60
       - (b) WELDED WIRE FABRIC - - - - - - - - - - - - - - - - ASTM A1064, GADE 70
   - d. ALL BENT REINFORCING BARS SHALL BE SHOP FABRICATED ONLY. REBENDING OR WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS AUTHORIZED BY ENGINEER.
   - e. END HOOKS IN REINFORCING BARS, SHOWN ON THE DRAWINGS BUT NOT DIMENSIONED, SHALL CONFORM TO ACI 318
   - f. CONCRETE COVER OVER REINFORCEMENT SHALL BE 2" CLEAR, EXCEPT FOR THE FOLLOWING, UNLESS OTHERWISE NOTED.
     - i. CONCRETE PLACED AGAINST AND PERMANENTLY IN CONTACT WITH EARTH - 3" CLEAR
     - ii. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH OR WATER
       - (a) BEAMS, COLUMNS - 1 1/2" CLEAR
       - (b) WALLS - 1 1/2" CLEAR
       - (c) SLABS - 3/4" CLEAR
   - g. REINFORCEMENT SPLICES NOT PERMITTED EXCEPT AS DETAILED OR AUTHORIZED BY THE ENGINEER. LAP REINFORCING BARS THE FOLLOWING MINIMUMS AT ALL SPLICES, CORNERS AND INTERSECTIONS, UNLESS OTHERWISE INDICATED. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BAR.

BAR SIZE	REG BARS	TOP BARS
#3	1' - 3"	1'-7"
#4	1' - 7"	2'-1"
#5	2' - 0"	2'-7"

   - h. LAP WELDED WIRE FABRIC ONE FULL MESH AT SPLICES.
   - i. STAGGER ADJACENT REINFORCEMENT LAP SPLICES IN WALLS 18" MINIMUM.
   - j. PROVIDE BAR SUPPORTS TO PROPERLY SECURE AND SUPPORT REINFORCING BARS AND WELDED WIRE FABRIC AT POSITIONS SHOWN ON THE DRAWINGS. IN ADDITION TO NORMAL ACCESSORIES PROVIDE #5 STANDEES AT 36" O.C. TO SUPPORT TOP REINFORCEMENT IN BASE SLABS, AND #3 U OR Z SHAPE SPACERS AT 72" O.C. EACH WAY IN WALLS WITH TWO CURTAINS OF REINFORCEMENT.
   - k. DOWELS, PIPES AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION DURING CONCRETE PLACEMENT.
   - l. REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY PIPE, PIPE FLANGE OR METAL PART EMBEDDED IN CONCRETE. PROVIDE 2" CLEARANCE IN ALL CASES UNLESS OTHERWISE INDICATED. NO EMBEDDED ITEM SHALL BE SUSPENDED FROM, SUPPORTED BY, OR BRACED IN PLACE FROM THE STRUCTURAL REINFORCEMENT.
   - m. LOCATE CONSTRUCTION JOINTS WHERE SHOWN ON THE DRAWINGS OR AS AUTHORIZED THE ENGINEER. SLAB, JOISTS AND BEAMS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE EXCEPT WHERE DETAILED ON DRAWINGS.
   - n. THOROUGHLY CLEAN BY SANDBLASTING ALL KEYWAYS AND CONSTRUCTION JOINTS PRIOR TO PLACING CONCRETE IN ADJACENT POUR.
   - o. BEGIN SPACING OF BARS WHICH PARALLEL CONSTRUCTION AND EXPANSION JOINTS 2" CLEAR EACH SIDE OF JOINT.
   - p. UNLESS OTHERWISE SHOWN, PLACE 2 - #5 (1 EACH FACE) WITH 2'-0" PROJECTIONS AROUND ALL OPENINGS IN CONCRETE WALLS OR SLABS.
   - q. PROVIDE AN ADDITIONAL 100 LINEAL FEET EACH OF #4 AND #5 REINFORCING BARS FOR USE AS DIRECTED DURING CONSTRUCTION.
   - r. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" UNLESS OTHERWISE INDICATED.
7. SLABS ON GRADE
   - a. SLAB ON GRADE CONTROL JOINTS ARE DENOTED "CJ" ON DRAWINGS. SLAB ON GRADE CONSTRUCTION JOINTS ARE DENOTED "CONST JT." AT CONTRACTOR'S OPTION CONSTRUCTION JOINTS MAY BE SUBSTITUTED FOR CONTROL JOINTS.
   - b. LOCATE WELDED WIRE FABRIC 1 1/2" CLEAR FROM TOP OF SLAB.
   - c. PROVIDE 1 - #4 X 4'-0" PARALLEL TO EDGE OF SLAB OPPOSITE THE END OF ALL DISCONTINUED SLAB JOINTS, AND 1 - #4 X 4'-0" DIAGONAL BAR AT ALL REENTRANT CORNERS. PLACE BARS MID-DEPTH IN SLAB AND 2" CLEAR FROM EDGE OR CORNER.
   - d. SLOPE BOTTOM SURFACE OF SLABS AS NECESSARY TO MAINTAIN MINIMUM THICKNESS NOTED ON DRAWINGS FOR ALL SLABS WITH SLOPING TOP SURFACE OR DEPRESSION FOR TILE.
8. STRUCTURAL STEEL
   - a. STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS.
   - b. MATERIAL
     - i. STRUCTURAL STEEL W-SHAPES - - - - - - - - ASTM A992, GRADE 50
     - ii. STRUCTURAL STEEL PLATES, BARS, ANGLES, AND CHANNELS - - - - - - - - - - - - - ASTM A36
     - iii. HOLLOW STRUCTURAL STEEL - - - - - - - - - ASTM A500, GRADE B
     - iv. STEEL PIPE - ASTM A53, GRADE B
     - v. HIGH-STRENGTH BOLTS - - - - - - - - - - - - - - ASTM A325
     - vi. ANCHOR RODS - ASTM F1554, GRADE 36
     - vii. HEADED ANCHOR STUDS (HAS) - - - - - - - - ASTM A108, TYPE B
   - c. ALL STRUCTURAL STEEL BOLTED CONNECTIONS SHALL BE SNUG-TIGHTENED, 3/4" DIAMETER A325 - N BOLTS WITH STANDARD HOLTS, UNLESS OTHERWISE NOTED.
   - d. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE - STEEL (AWS D1.1) AND SHALL BE PERFORMED BY WELDERS QUALIFIED BY THE APPROPRIATE AWS TEST FOR THE WELDING PERFORMED.
   - e. ALL STRUCTURAL STEEL DESIGNATED (AESS) ON DRAWINGS SHALL CONFORM TO AISC SPECIFICATIONS FOR ARCHITECTURALLY EXPOSED STRUCTURAL STEEL.
9. WOOD FRAMING
   - a. WOOD CONSTRUCTION SHALL CONFORM TO IBC
   - b. MATERIALS
     - i. STRUCTURAL LUMBER - - - - - - - - - - - - - - - - DOUGLAS FIR-LARCH
       - (a) 2" TO 4" THICK X 4" WIDE - - - - - - - - STANDARD GRADE
       - (b) 2" TO 4" THICK X 5" AND WIDER - - - NO.2 GRADE
     - ii. PLYWOOD SHEATHING - - - - - - - - - - - - - - - APA RATED SHEATHING
       - (a) FLOOR SHEATHING - - - - - - - - - - - - 48/24 EXPOSURE 1
       - (b) WALL SHEATHING - - - - - - - - - - - - - 24/0 EXPOSURE 1
       - (c) ROOF SHEATHING - - - - - - - - - - - - - 40/20 EXPOSURE 1
     - iii. STRUCTURAL GLUE-LAMINATED TIMBER
       - (a) COMBINATION SYMBOL - - - - - - - - - DF 1.6 L2
       - (b) CONDITION OF USE - - - - - - - - - - - - DRY (MOISTURE CONTENT IN SERVICE LESS THAN 16%)
       - (c) APPEARANCE GRADE - - - - - - - - - - - ARCHITECTURAL
     - iv. MICROLLAM TIMBERS - - - - - - - - - - - - - - - TRUS JOIST CORP. OR EQUAL
       - (a) MINIMUM THICKNESS - - - - - - - - - - - 1 3/4"
       - (b) ALLOWABLE BENDING STRESS, F_b = 2,600 PSI
       - (c) ALLOWABLE SHEAR STRESS, F_v = 285 PSI
       - (d) ELASTIC MODULUS, E = 2,000,000 PSI
   - c. PREFABRICATED WOOD TRUSSES SHALL CONFORM TO THE TRUSS PLATE INSTITUTE DESIGN SPECIFICATIONS FOR METAL PLATE CONNECTED WOOD TRUSSES. TRUSSES SHALL BE DESIGNED BY MANUFACTURER TO SUPPORT ALL SUPERIMPOSED DEAD LOADS AND THE DESIGN LOADS NOTED HEREIN.
     - i. TRUSS CHORD MATERIALS TO BE HEM FIR NO. 1 OR BETTER
     - ii. TRUSS GIRDER CHORDS TO BE DOUG FIR NO. 2 OR BETTER. MINIMUM CROSS SECTIONAL SIZES:
       - (a) TOP CHORD - - - - - - - - - - - - - - - - 2X6
       - (b) WEB PANES - - - - - - - - - - - - - - - - 2X4
       - (c) BOTTOM CHORD - - - - - - - - - - - - 2X10
10. EQUIPMENT INSTALLATION
    - a. ALL OPENINGS SHOWN SHALL BE VERIFIED, AND ALL STRUCTURAL DIMENSIONS AND DETAILS PERTAINING TO EQUIPMENT INSTALLATION SHALL BE COORDINATED BY THE CONTRACTOR WITH THE ACTUAL EQUIPMENT FURNISHED.
    - b. EQUIPMENT SUPPORTS, ANCHORAGES AND OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS, BUT REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO PLACING CONCRETE.
11. ARCHITECTURAL ELEVATION 0'-0" = CIVIL/STRUCTURAL ELEVATION 1324.00

NOTE:
SAWN JOINT SHALL BE CUT WITHIN 24 HOURS OF SLAB PLACEMENT

A/S101 SECTION
SAW CUT JOINT & SLAB SUBGRADE

TRUSS NOTES:
1. TRUSS TOP CHORD LOADING
   - A. LIVE LOAD - - - - - - - - - - 20 PSF
   - B. SNOW LOAD - - - - - - - - 32 PSF
2. TRUSS BOTTOM CHORD LOADING
   - A. DEAD LOAD - - - - - - - - - 8 PSF

STRUCTURAL ABBREVIATIONS

A.B.	-ANCHOR BOLT	FAB.	-FABRICATE	PL	-PLATE
A/C	-AIR CONDITIONER	F.D.	-FLOOR DRAIN	PENETR.	-PENETRATION
ADJ.	-ADJACENT	FIN.	-FINISH	PERIM.	-PERIMETER
A.F.F.	-ABOVE FINISHED FLOOR	FLR.	-FLOOR	PERP.	-PERPINDICULAR
A.F.G.	-ABOVE FINISHED GRADE	FDN.	-FOUNDATION	PRLIM.	-PRELIMINARY
AGGR.	-AGGREGATE	FRMG.	-FRAMING	PROJ.	-PROJECTION
AHU	-AIR HANDLING UNIT	FT.	-FOOT	PSF	-POUNDS PER SQUARE FOOT
ANCH.	ANCHOR	FTG.	-FOOTING	PSI	-POUNDS PER SQUARE INCH
L	-ANGLE			PT.	-POINT
APPD.	-APPROVED	GA.	-GAGE (OR GAUGE)		
APPROX.	-APPROXIMATE	GALV.	-GALVANIZED	QTY.	-QUANTITY
ARCH'L	-ARCHITECTURAL	G.L.	-GLULAM		
@	-AT	GR.	-GRADE BEAM	R	-RADIUS
&	-AND	GYP.	-GYPSUM	RD	-ROOF DRAIN
		GVW	-GROSS VEHICLE WEIGHT	REF.	-REFERENCE (REFER TO)
BCX	-BOTTOM CHORD EXTENSION			REINF.	-REINFORCEMENT
BLDG.	-BUILDING	H.S.	-HEADED STUD	REM	-REMAINDER
BLK.	-BLOCK	HDR.	-HEADER	REQD	-REQUIRED
BLKG.	-BLOCKING	HGR.	-HANGER	REQMT.	-REQUIREMENT
BM.	-BEAM	HORIZ.	-HORIZONTAL	RTU	-ROOF TOP UNIT
B.O.W.	-BOTTOM OF WALL	HT.	-HEIGHT		
BP	-BASE PLATE			S.	-SOUTH
BRG.	-BEARING	I.F.	-INSIDE FACE	SCHED.	-SCHEDULE
BSMT.	-BASEMENT	IN.	-INCH	SECT.	-SECTION
BOT.	-BOTTOM	INFO.	-INFORMATION	SHT.	-SHEET
BTWN.	-BETWEEN	INT.	-INTERIOR	SIM.	-SIMILAR
BRDG.	-BRIDGING	INTERM.	-INTERMEDIATE	SJ	-SAWN JOINT (CONTROL JOINT)
				SP.	-SPACE
CANT.	-CANTILEVER	JST.	-JOIST	SPEC.	-SPECIFICATIONS
CL	-CENTERLINE	JT.	-JOINT	SQ.	-SQUARE
C.I.P.	-CAST IN PLACE			STD.	-STANDARD
CJ	-CONTROL JOINT	K.	-KIP (1000 LBS)	STIFF.	-STIFFENER
CLR.	-CLEAR	KSF	-KIPS PER SQUARE FOOT	STGR.	-STAGGERED
CMU	-CONCRETE MASONRY UNIT	KSI	-KIPS PER SQUARE INCH	STL.	-STEEL
COL.	-COLUMN			STIR.	-STIRRUP
CONC.	-CONCRETE	LAT.	-LATERAL	STRUCT.	-STRUCTURAL
CONN.	-CONNECTION	LBS.	-PUNDS	SUPT.	-SUPPORT
CONST JT.	-CONSTRUCTION JOINT	LDGR.	-LEDGER	SYMM.	-SYMMETRICAL
CONT.	-CONTINUOUS	LL	-LIVE LOAD		
CONTR.	-CONTRACTOR	LLH	-LONG LEG HORIZONTAL	T & B	-TOP AND BOTTOM
COORD.	-COORDINATE	LLV	-LONG LEG VERTICAL	TCX	-TOP CHORD EXTENSION
CNTRD.	-CENTERED	LONG.	-LONGITUDINAL	TEMP.	-TEMPERATURE
				T & G	-TONGUE AND GROOVE
D.B.	-DIAGONAL BRACE	MATL.	-MATERIAL	THK.	-THICKNESS
DBL.	-DOUBLE	MAX.	-MAXIMUM	TJI	-TRUSS JOIST
DET.	-DETAIL	MC	-MOMENT CONNECTION	T.O.B.	-TOP OF BEAM
DIA. OR ( )	-DIAMETER	MCJ	-MASONRY CONTROL JOINT	T.O.S.C.	-TOP OF STRUCTURAL CONCRETE
DIAG.	-DIAGONAL	MECHL.	-MECHANICAL	T.O.F.	-TOP OF FOOTING
DIM.	-DIMENSION	MEZZ.	-MEZZANINE	T.O.S.	-TOP OF STEEL
DIST.	-DISTANCE	MFR.	-MANUFACTURER	T.O.W.	-TOP OF WALL
DL	-DEAD LOAD	MIN.	-MINIMUM	TRANSV.	-TRANSVERSE
DWG.	-DRAWING	MISC.	-MISCELLANEOUS	TS	-TUBULAR STEEL
DWL.	-DOWEL	M.L.	-MICRO-LAM BEAM	TYP.	-TYPICAL
		MTL.	-METAL		
E.	-EAST			U.N.O.	-UNLESS NOTED OTHERWISE
EA.	-EACH	N.	-NORTH		
E.F.	-EACH FACE	NO. OR #	-NUMBER	VAR.	-VARIES
EL.	-ELEVATION	NOM.	-NOMINAL	VERT.	-VERTICAL
ELEC.	-ELECTRICAL	N.S.	-NON-SHRINK		
ENGR.	-ENGINEER	N.T.S.	-NOT TO SCALE	W.	-WEST
EPS	-EXPANDED POLY-STYRENE			W/	-WITH
EQ.	-EQUAL	O.C.	-ON CENTER	WD.	-WOOD
EXIST.	-EXISTING	O.D.	-OVERFLOW DRAIN	WL	-WIND LOAD
EXP.	-EXPANSION	O.F.	-OUTSIDE FACE	W/O	-WITHOUT
EXT.	-EXTERIOR	O.H.	-OPPOSITE HAND	W.P.	-WORK POINT
E.W.	-EACH WAY	OPNG.	-OPENING	WT.	-WEIGHT
		OPP.	-OPPOSITE	W.W.F.	-WELDED WIRE FABRIC
				X.B.	-X-BRACE

BAR SIZE	a	b
#4	18"	24"
#5	24"	30"
#6	30"	36"

NOTES:

1. 'AS' = ADDITIONAL BARS EQUAL IN TOTAL NUMBER TO REGULAR REINFORCEMENT CUT BY THE OPENING. PLACE ONE-HALF TOTAL BARS TO EACH SIDE OF OPENING & IN THE SAME TRANSVERSE POSITION AS THE REGULAR REINFORCEMENT.
2. 'AS' BAR SIZE TO BE SAME AS REGULAR REINFORCEMENT IN EACH DIRECTION.
3. THIS DETAIL APPLIES UNLESS ADDITIONAL REINFORCEMENT SPECIFICALLY INDICATED AT OPENINGS ON DRAWINGS.
4. ADDITIONAL BARS TO PLACED AT OF WALL OR SLAB WHERE ONE LAYER OF REINFORCING IS PROVIDED AND AT EACH FACE WHERE TWO LAYERS OF REINFORCING ARE PROVIDED.
5. ADDITIONAL HORIZONTAL AND VERTICAL BARS ARE NOT NECESSARY FOR HOLES 8 TO 11 INCHES. USE ONLY THE DIAGONAL BARS. FOR HOLES SMALLER THAN 8 INCHES DO NOT CUT BARS, SPREAD NORMAL REINFORCING AROUND HOLE (NO DIAGONALS NEEDED).

B/S101 DETAIL
ADDITIONAL REINFORCEMENT AT OPENINGS

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SOUTH DAKOTA
4/28/2022

HURON WMD

GENERAL STRUCTURAL NOTES
MULTIPURPOSE BUILDING & VISITOR CENTER

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SK	SK	MM	2022.04.29

SUB-SHEET
S101

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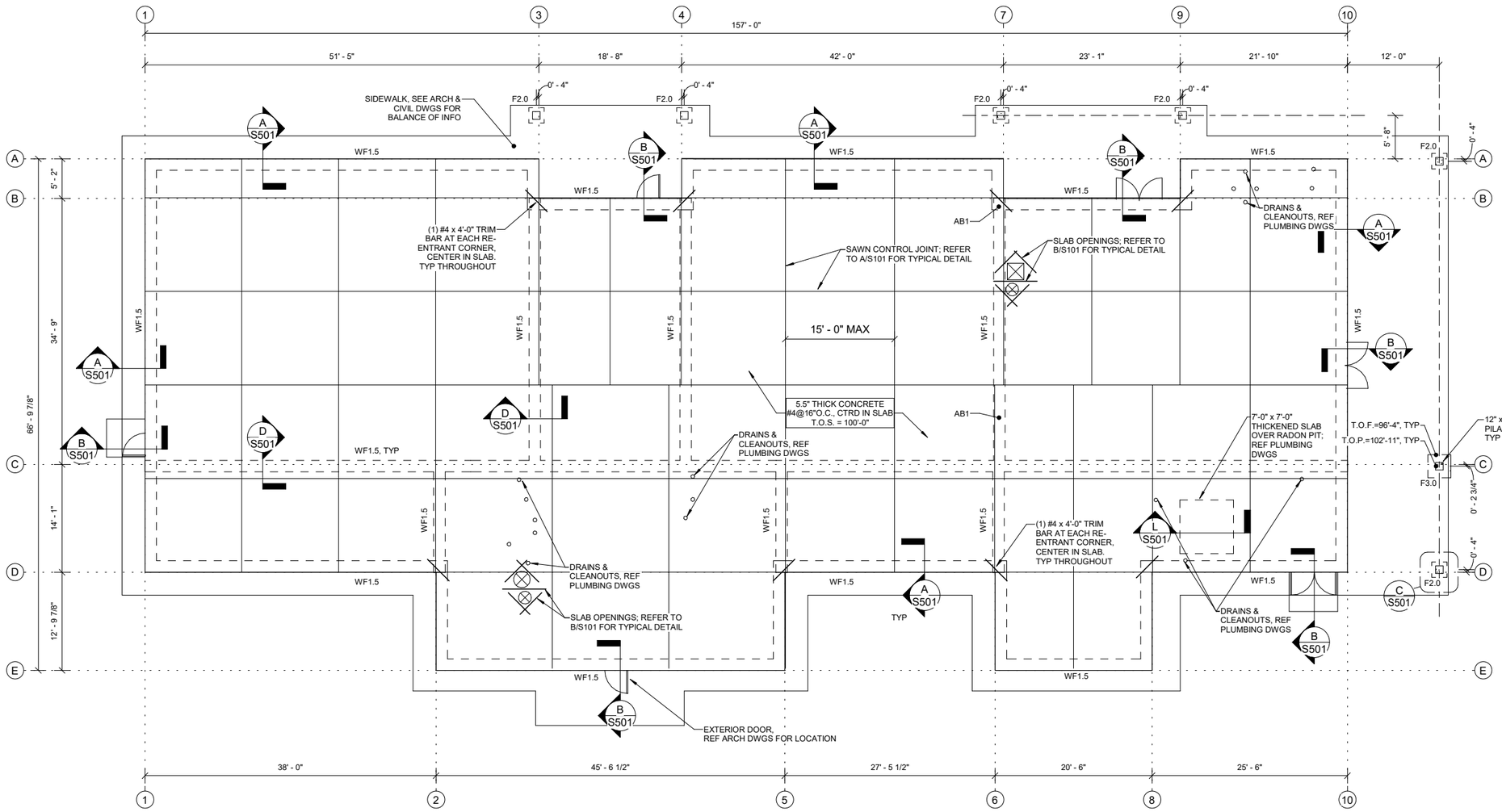

1 S201 PLAN VIEW
FOUNDATION PLAN

FOUNDATION SCHEDULE				
ID	DEPTH	LENGTH	WIDTH	REINF.
WF1.5	0'-10"**	CONT	1'-6"	(3) #4 LONG.
F2.0	1'-0"	2'-0"	2'-0"	(3) #4 EA WAY
F3.0	1'-0"	3'-0"	3'-0"	(4) #4 EA WAY

**NOTE: DEPTH IS APPLICABLE AT INTERIOR THICKENED SLAB. SEE A/S501 FOR EXTERIOR DEPTH.

FOUNDATION PLAN NOTES:

1. REF. S101 FOR ADDITIONAL NOTES. REF. ARCHITECTURAL FOUNDATION PLAN FOR ADDITIONAL INFORMATION.
2. REF. STRUCTURAL INSULATED PANELS (SIP) SHOP DRAWINGS FOR ADDITIONAL INFORMATION THAT IS OUTSIDE THE SCOPE OF THESE DRAWINGS.
3. GUTTERS AND DOWNSPOUTS SHALL BE PROVIDED TO DIRECT WATER AWAY FROM THE FOUNDATION AT ALL TIMES. FINISHED GRADE SHALL SLOPE AWAY FROM THE BUILDING AT A MINIMUM OF 2% FOR A DISTANCE OF 10 FEET.
4. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH OTHER CONTRACT DOCUMENTS.
5. CONTRACTOR SHALL COORDINATE ALL TOP OF WALL AND BEARING PLATE ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
6. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
7. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
8. MAINTAIN STRUCTURAL SLAB THICKNESS AT ALL FLOOR SLOPES AND DEPRESSIONS.
9. "AB1" STANDS FOR ANCHOR BOLT FOR HOLDOWN. USE 5/8"Ø F1554, GR 36 ALL THREAD W/ DOUBLE NUT AND WASHER EMBED IN FOOTING (MAINTAIN 3" CLR FROM BOTTOM). CENTER OF ANCHOR SHOULD BE 4-3/8" FROM END OF WOOD SHEAR WALL.
10. HORIZONTAL RIGID INSULATION NOT SHOWN FOR CLARITY. SEE J/S501 FOR PLAN AND LAYOUT.

NORTH

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HURON WMD

STRUCTURAL FOUNDATION PLAN

MULTIPURPOSE BUILDING & VISITOR CENTER

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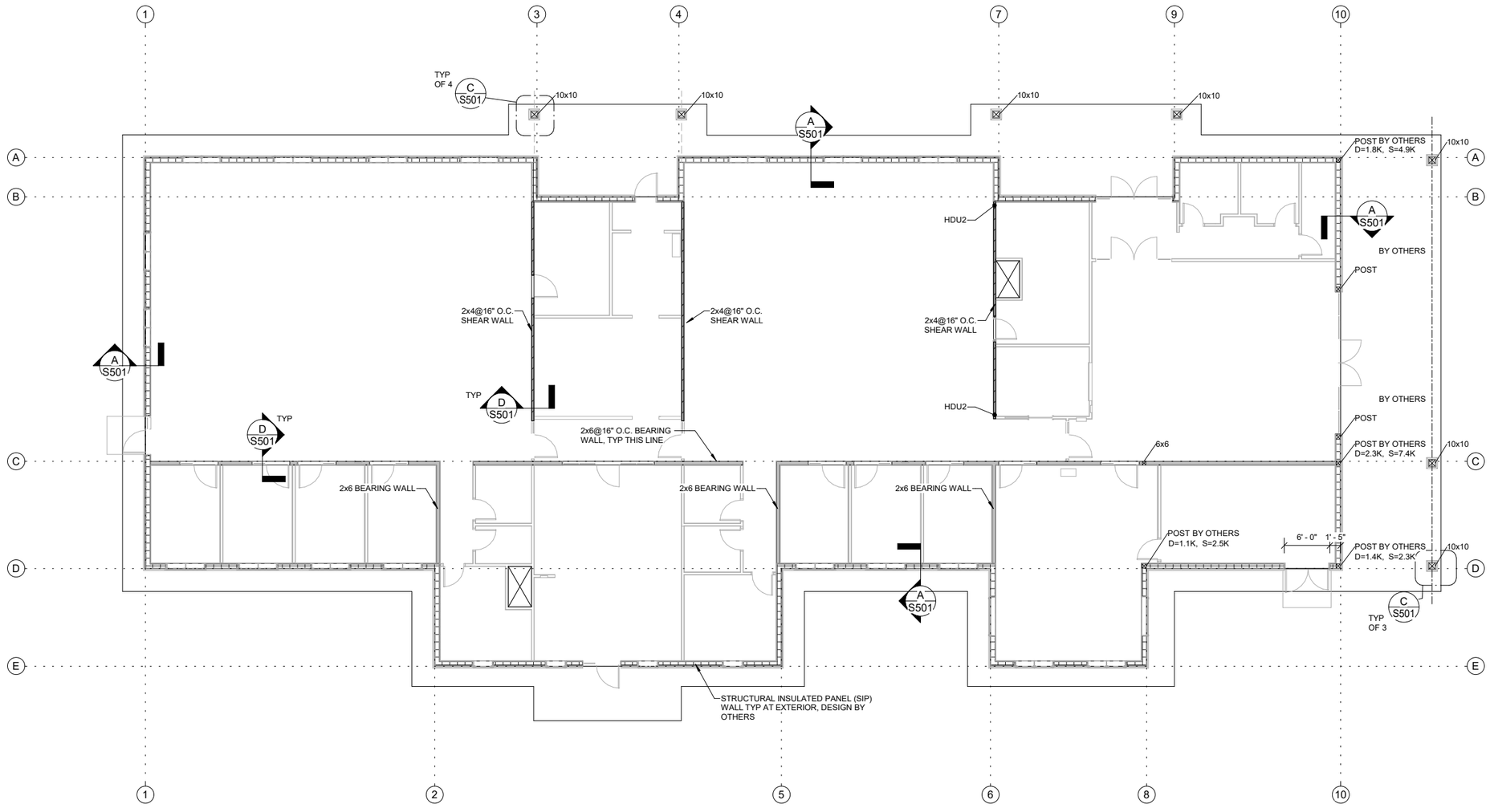

MAIN LEVEL WOOD PLAN NOTES:

1. REF. S101 FOR ADDITIONAL NOTES. REF. ARCHITECTURAL ROOF PLAN FOR ADDITIONAL INFORMATION.
2. GUTTERS AND DOWNSPOUTS SHALL BE PROVIDED TO DIRECT WATER AWAY FROM THE FOUNDATION AT ALL TIMES. FINISHED GRADE SHALL SLOPE AWAY FROM THE BUILDING AT A MINIMUM OF 2% FOR A DISTANCE OF 10 FEET.
3. COORDINATE SIZE AND LOCATION OF OPENINGS IN FLOOR FRAMING WITH THE ARCHITECTURAL DRAWINGS.
4. CONTRACTOR SHALL COORDINATE ALL TOP OF WALL AND BEARING PLATE ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
5. ALL NAILERS, LEDGERS, AND BEARING PLATES THAT ARE EXPOSED TO MOISTURE OR COME INTO CONTACT WITH THE CONCRETE SHALL BE PRESSURE TREATED LUMBER OF THE SIZE INDICATED ON THE STRUCTURAL DRAWINGS.
6. ▭ INDICATES THE LOCATION OF STRUCTURAL BEARING WALL.
7. ▨ INDICATES THE LOCATION OF SHEAR WALL. DASHED LINE INDICATES 1/2" PLYWOOD OR OSB (REF ARCH). PANEL EDGES TO BE FULLY BLOCKED AND ATTACHED WITH 10d COMMON NAILS AT 6" O.C. AT PANEL EDGES (EN) AND 12" O.C. FIELD NAILING (FN).
8. ▦ INDICATES STRUCTURAL INSULATED PANEL (SIP), DESIGNED BY OTHERS.

NORTH

1 S301 **PLAN VIEW**
MAIN LEVEL FRAMING PLAN

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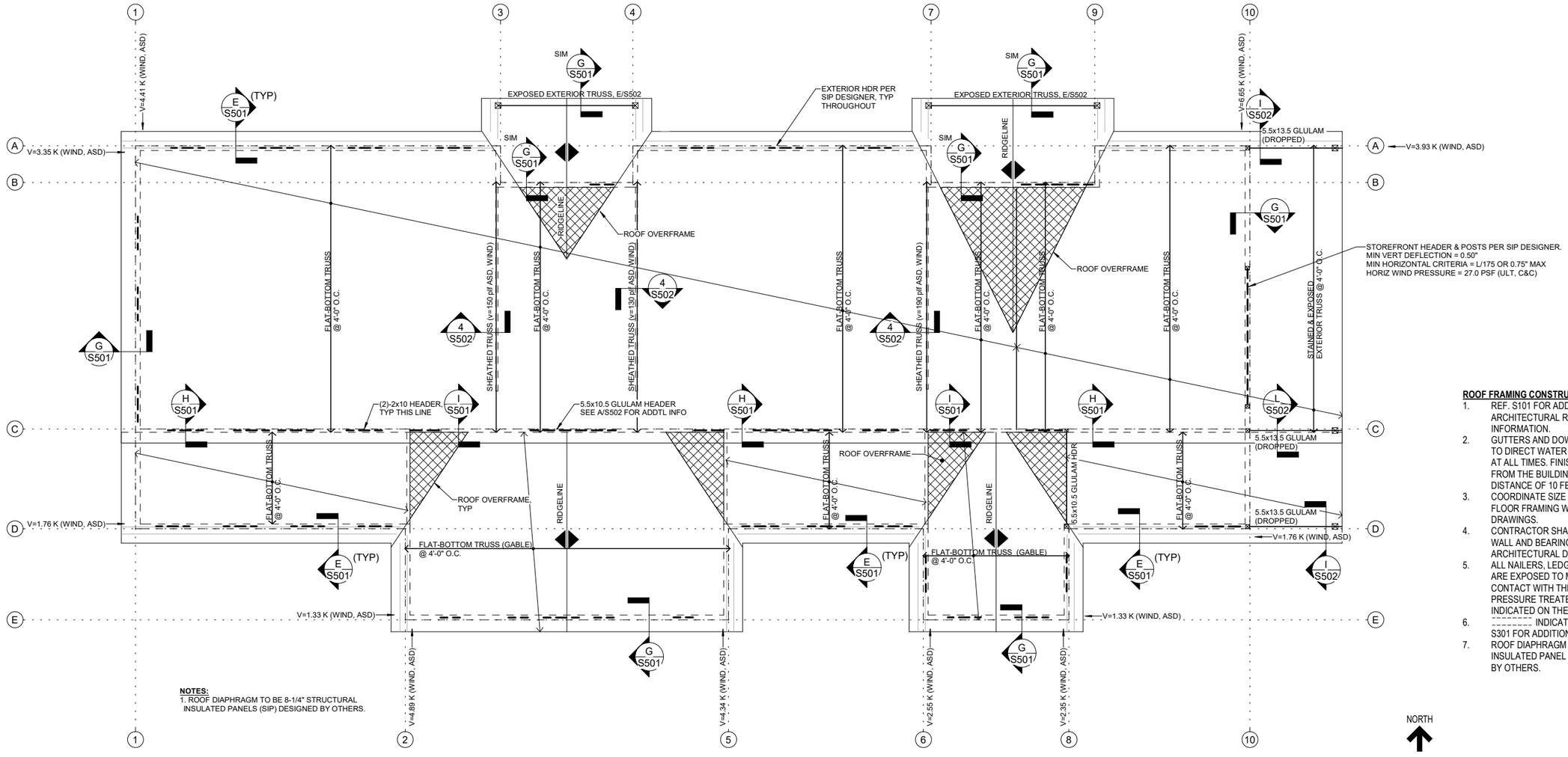
HURON WMD MAIN LEVEL FRAMING PLAN MULTIPURPOSE BUILDING & VISITOR CENTER					SUB-SHEET S301
DESIGNED SK	DRAWN SK	CHECKED MM	DATE 2022.04.29		SHEET 41 OF 74



NOTES:
1. ROOF DIAPHRAGM TO BE 8-1/4" STRUCTURAL INSULATED PANELS (SIP) DESIGNED BY OTHERS.

ROOF FRAMING CONSTRUCTION NOTES:

1. REF. S101 FOR ADDITIONAL NOTES. REF. ARCHITECTURAL ROOF PLAN FOR ADDITIONAL INFORMATION.
2. GUTTERS AND DOWNSPOUTS SHALL BE PROVIDED TO DIRECT WATER AWAY FROM THE FOUNDATION AT ALL TIMES. FINISHED GRADE SHALL SLOPE AWAY FROM THE BUILDING AT A MINIMUM OF 2% FOR A DISTANCE OF 10 FEET.
3. COORDINATE SIZE AND LOCATION OF OPENINGS IN FLOOR FRAMING WITH THE ARCHITECTURAL DRAWINGS.
4. CONTRACTOR SHALL COORDINATE ALL TOP OF WALL AND BEARING PLATE ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
5. ALL NAILERS, LEDGERS, AND BEARING PLATES THAT ARE EXPOSED TO MOISTURE OR COME INTO CONTACT WITH THE CONCRETE SHALL BE PRESSURE TREATED LUMBER OF THE SIZE INDICATED ON THE STRUCTURAL DRAWINGS.
6. _ _ _ _ _ _ _ INDICATES BEARING WALL BELOW. SEE S301 FOR ADDITIONAL INFO ON WALL TYPES
7. ROOF DIAPHRAGM SHALL BE STRUCTURAL INSULATED PANEL (SIP) DESIGNED AND FASTENED BY OTHERS.

1/S401 PLAN VIEW
ROOF FRAMING PLAN

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4/28/2022

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ROOF FRAMING PLAN
MULTIPURPOSE BUILDING & VISITOR CENTER

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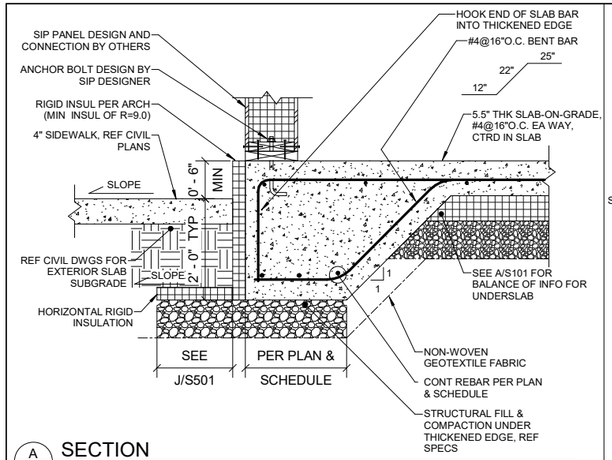
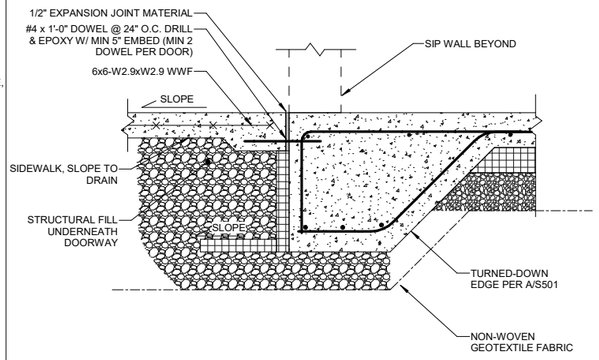
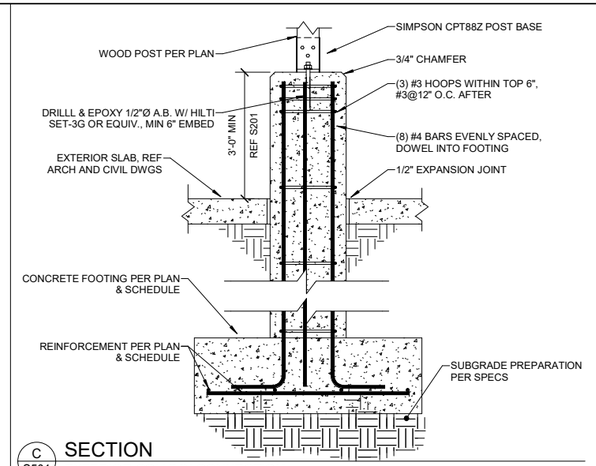


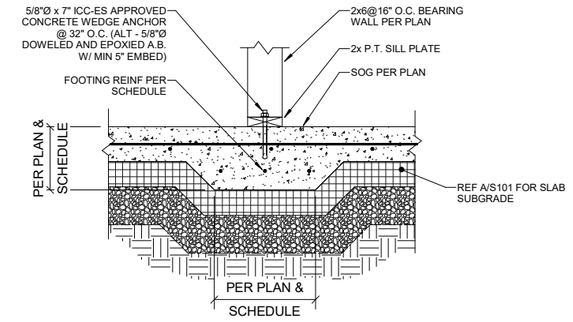
A S501 **SECTION**
TURNED-DOWN EDGE DETAIL



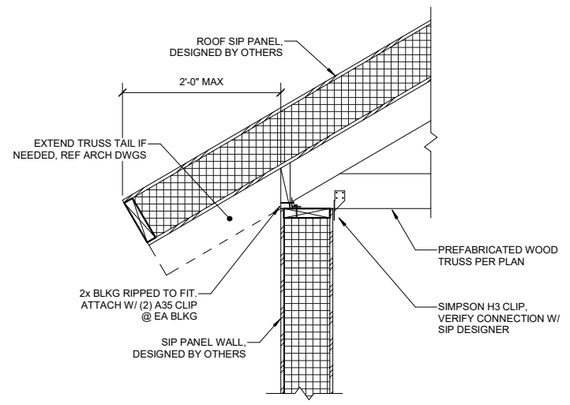
B S501 **SECTION**
DOOR OPENING CONNECTION



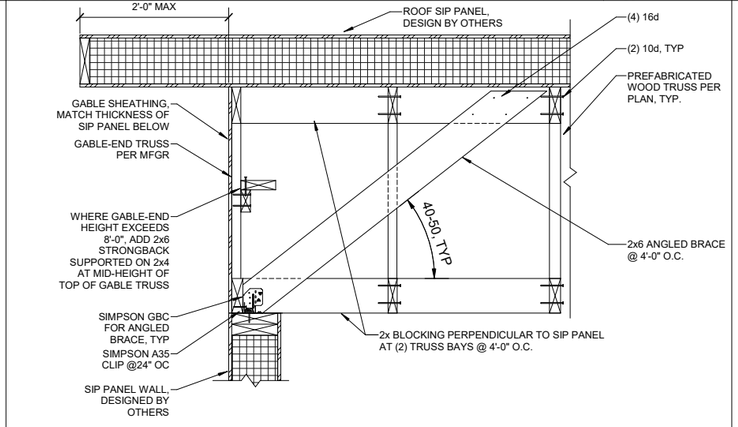
C S501 **SECTION**
EXTERIOR COLUMN CONNECTION



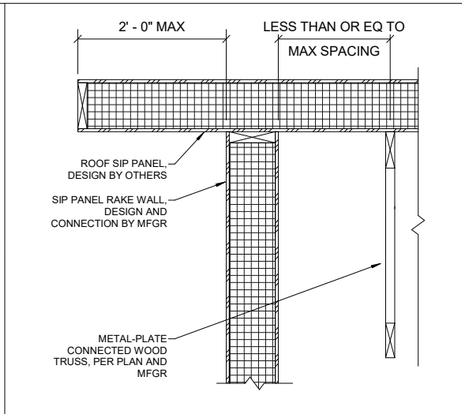
D S501 **SECTION**
THICKENED SLAB DETAIL



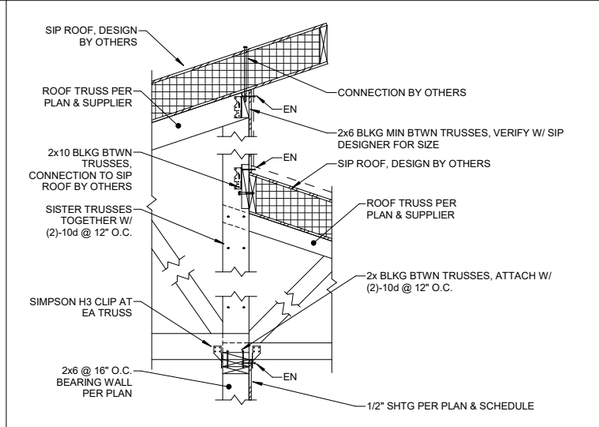
E S501 **SECTION**
ROOF TRUSS BEARING ON SIP PANEL



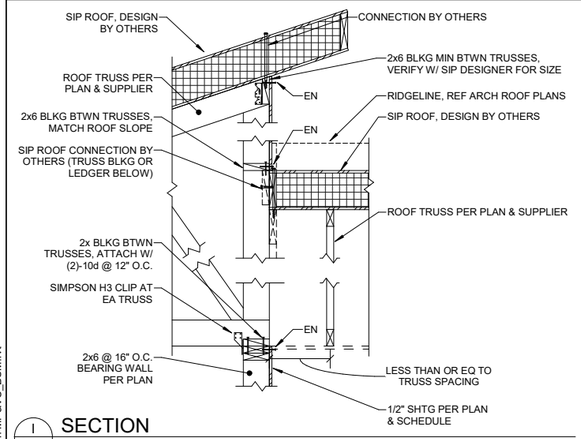
F S501 **SECTION**
GABLE-END TRUSS DETAIL



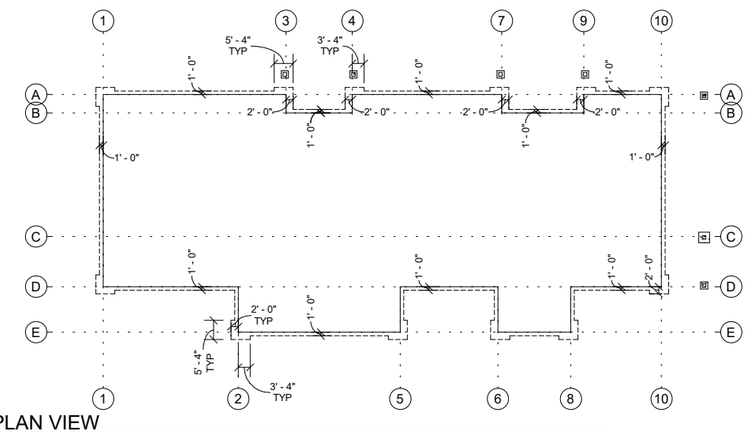
G S501 **SECTION**
ROOF GABLE DETAIL



H S501 **SECTION**
INTERIOR BEARING WALL DETAIL

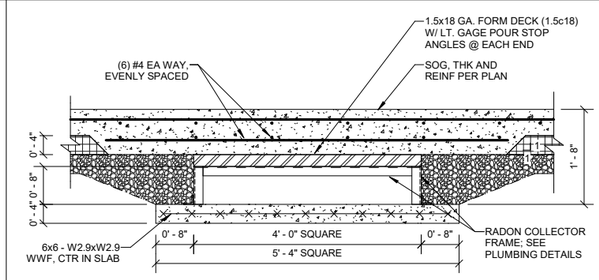


I S501 **SECTION**
INTERIOR BEARING WALL DETAIL - GABLE ROOF



J S501 **PLAN VIEW**
HORIZONTAL RIGID INSULATION LAYOUT

NOTES:
1) HORIZONTAL RIGID INSULATION (HRI) IS DIMENSIONED, BUT SEE A/S501 FOR PLACEMENT
2) HRI NEEDS TO HAVE A MINIMUM R-VALUE OF 8.6. THE MINIMUM VALUE ARE FOR PROTECTION AGAINST FROST DAMAGE. REF ARCH DWGS FOR ENERGY CONSERVATION REQUIREMENTS.
3) HRI SHALL BE EXTRUDED POLYSTYRENE INSULATION.
4) EXTERIOR SIDEWALK NOT SHOWN FOR CLARITY.



L S501 **SECTION**
RADON COLLECTION PIT

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HURON WMD

STRUCTURAL SECTIONS & DETAILS

MULTIPURPOSE BUILDING & VISITOR CENTER

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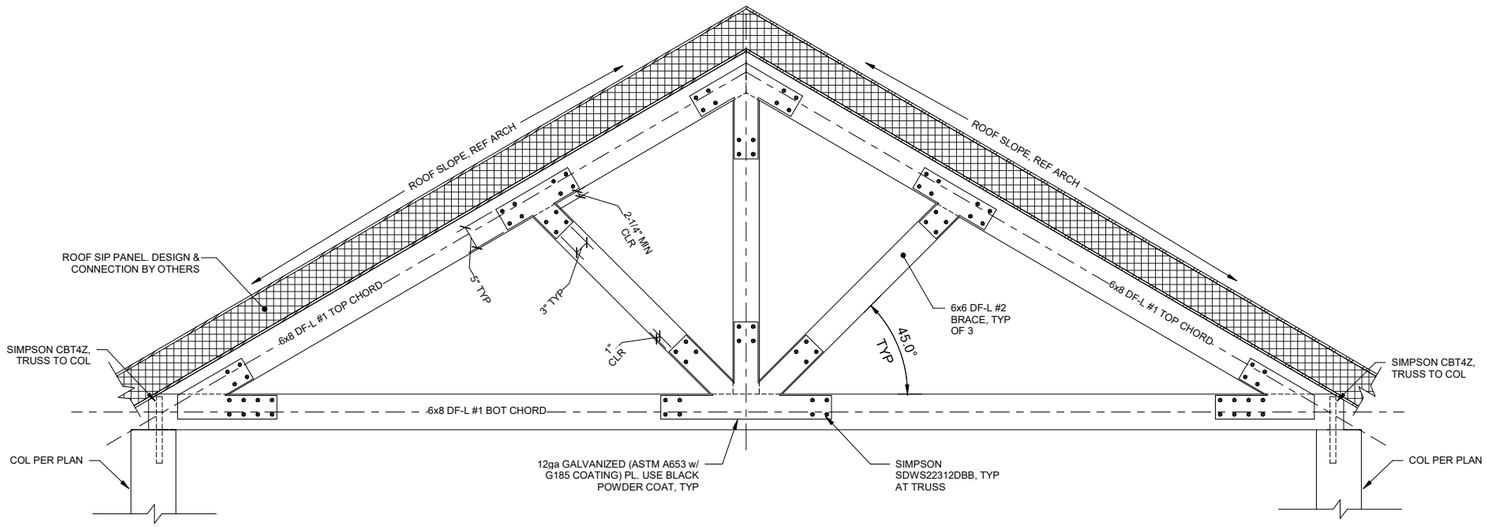
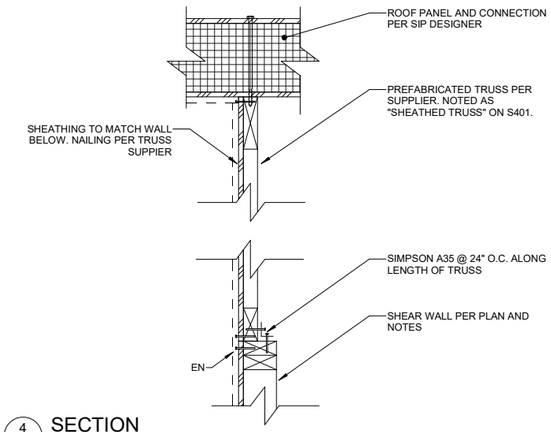
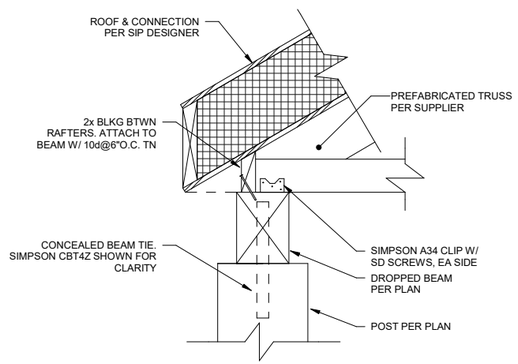


NOTE:
SEE ROOF FRAMING PLAN
FOR TRUSS SPAN LENGTH

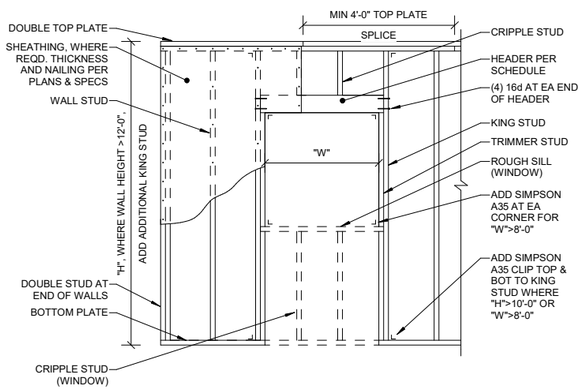
E S502 SECTION
EXPOSED EXTERIOR TRUSS



4 S502 SECTION
SHEATHED TRUSS CONN



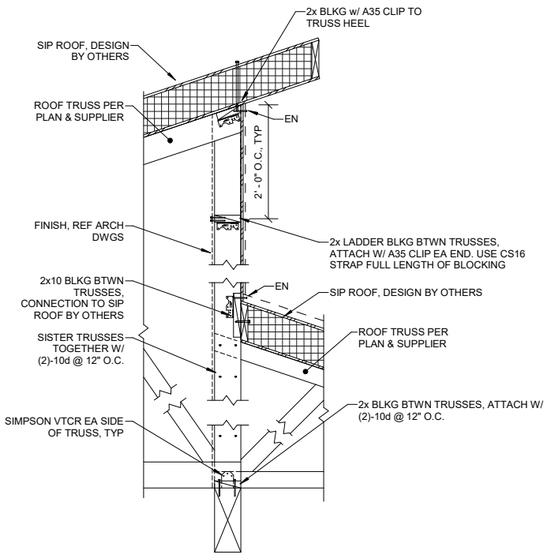
I S502 SECTION
RAFTER TO DROPPED BEAM CONNECTION



J S502 SECTION
TYPICAL HEADER DETAIL

HEADER SCHEDULE			
"W" OPENING	TYPE	TRIMMERS	KINGS
<4'-0"	(2)-2x6	1	1
4'-0" - 6'-0"	(2)-2x8	1	1
6'-0" - 8'-0"	(3)-2x10	2	2

NOTE: USE THESE SIZES WHEN NOTHING IS NOTED ON PLAN



L S502 SECTION
EXTERIOR TRUSS BEARING DETAIL

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PRINT DATE
4/28/2022

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HURON WMD

STRUCTURAL SECTIONS & DETAILS

MULTIPURPOSE BUILDING & VISITOR CENTER

SUB-SHEET
S502

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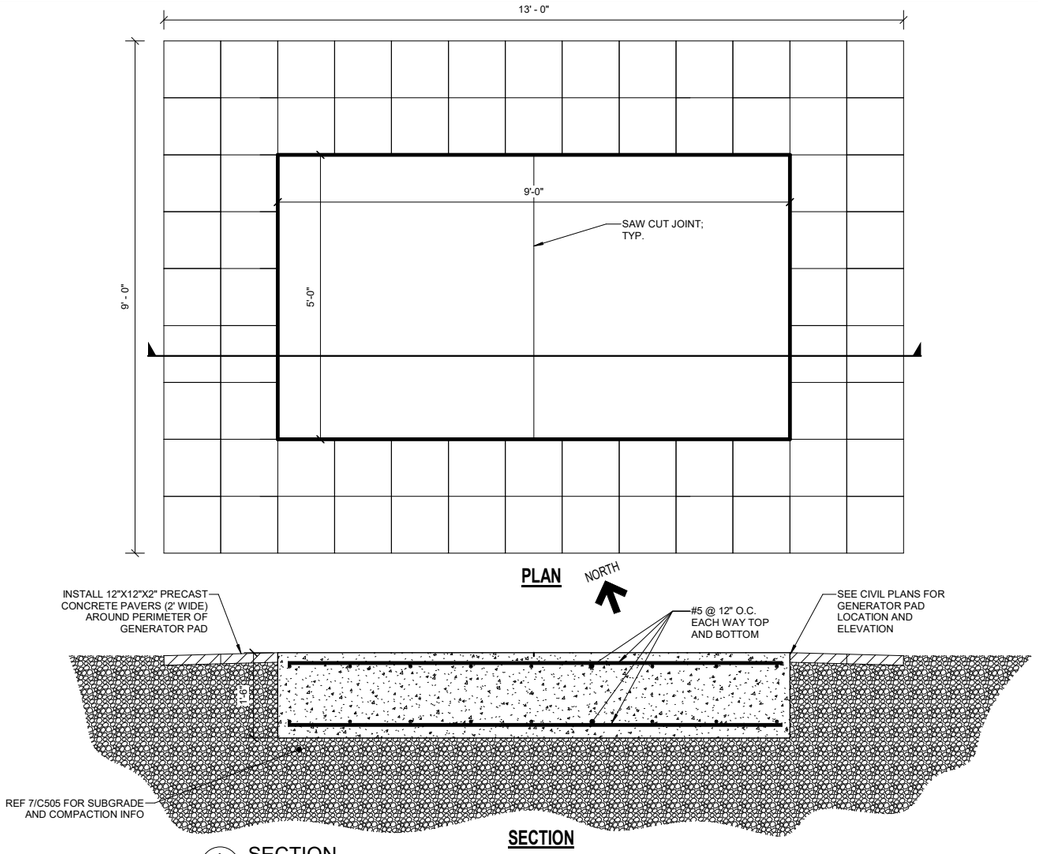
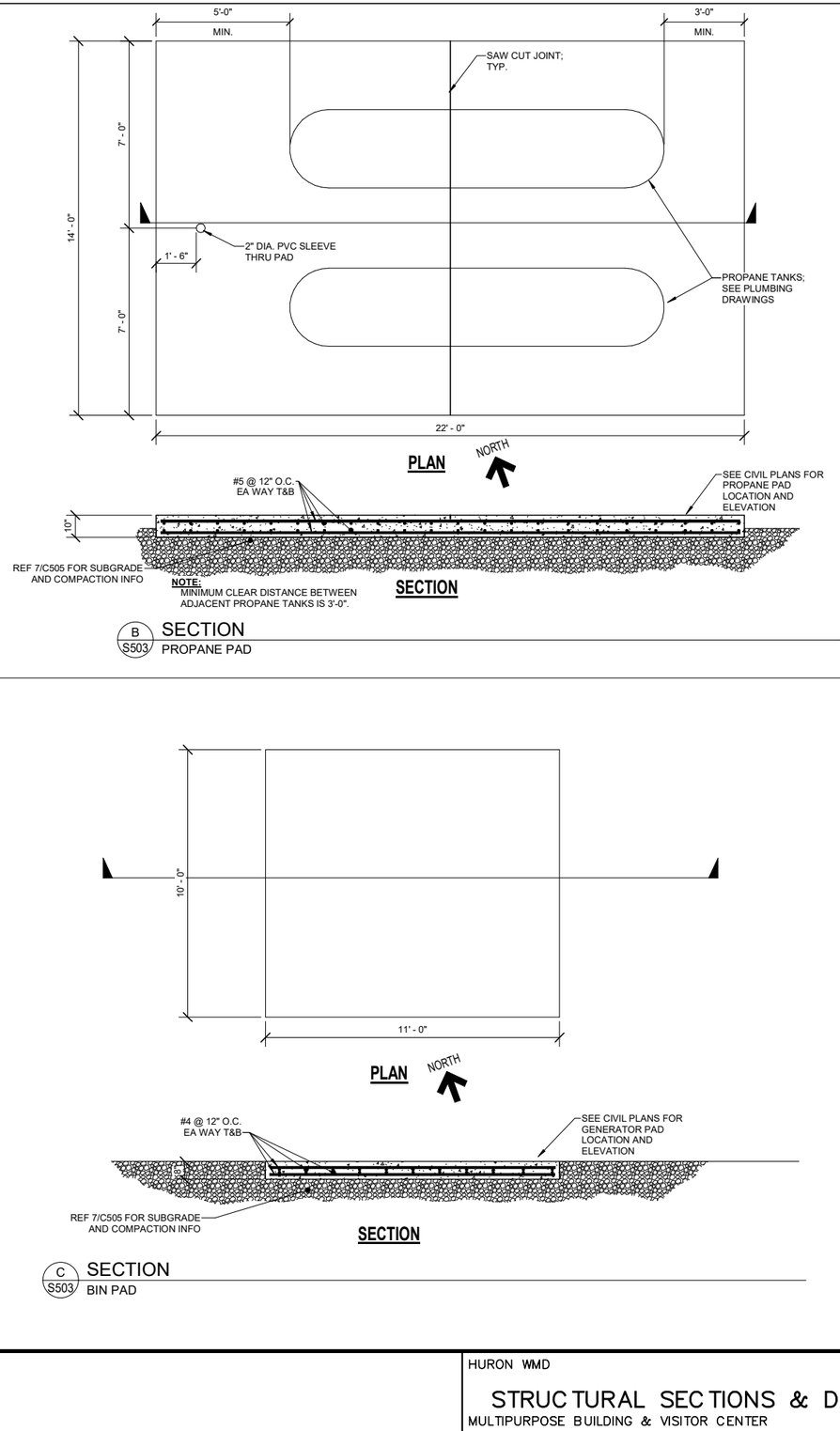
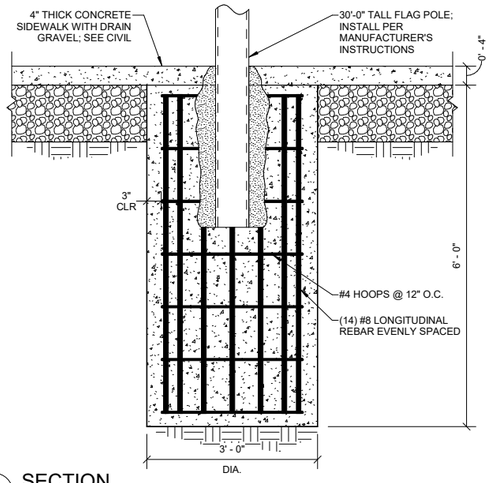


A S503 SECTION
GENERATOR PAD



B S503 SECTION
PROPANE PAD



D S503 SECTION
FLAG POLE FOUNDATION

C S503 SECTION
BIN PAD

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HURON WMD

STRUCTURAL SECTIONS & DETAILS

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OUTDOOR PACKAGED AHU SCHEDULE (R-410A)

PLAN CODE	MANUF.	MODEL	SUPPLY FAN				DX COOLING DATA			GAS-FIRED HEAT EXCHANGER						EXHAUST FAN				ELECTRICAL			FRESH AIR CFM MIN	FILTER	COMMENTS
			CFM MAX	ESP	RPM	HP	TOT./ SENS. MBH	EAT DB/WB	LAT DB/WB	INPUT MBH	OUTPUT MBH	EAT DB	LAT DB	AFUE	TURND-OWN	APD, IN W.C.	CFM MAX	ESP	RPM	HP	MCA/MOCP	V	PHASE			
AHU-1	AAON	RN-016-8-0-EB 09-34B	6400	3.5"	1959	10	195/171	78/63	52.5/50.9	270	219	24.3	97.8	80%	9:1	0.21	6400	1.0"	1760	5	118/125	208	3	1200	MERV8/13	OUTDOOR AHU

NOTES:
1. PROVIDE UNIT WITH THE FOLLOWING, UNLESS OTHERWISE NOTED: FACTORY DISCONNECT, 100% O.A. ECONOMIZER, HEAD PRESSURE CONTROL PACKAGE, MODULATING GAS VALVE HEATING- MODULATING SCROLL COMPRESSOR COOLING, SUBBASE, HAILGUARDS, SERVICE LIGHTS, UV LIGHT KIT, AND ALL AVAILABLE STANDARD FEATURES AND COMPONENTS. SEE 237416.13 PARAGRAPH 2.14 FOR MORE INFORMATION.
2. PROVIDE WITH MODULATING COMPRESSORS AND GAS BURNER FOR CAPACITY CONTROL.
3. PROVIDE WITH FACTORY MOUNTED AND WIRED VAV CONTROLLER (AAON VCCX2 OR EQUAL WITH BACNET INTERFACE. COORDINATE POINT INTEGRATION.), REMOTE CONTROLLER SCREEN, AND VARIABLE SPEED DRIVES. PROVIDE UNIT WITH FULL OPERATION REMOTE CONTROLLER.
4. SEE 4/M301 FOR INSTALLATION DETAIL.
5. PROVIDE UNIT WITH 30" PLENUM CURB WITH BOTTOM SUPPLY AND RETURN CONNECTIONS.

VFD APPLICATION

EQUIPMENT	MOTOR	HP	SUPPLIED BY
AHU-1	SUPPLY FAN	10	AHU MANUFACTURER
AHU-1	EXHAUST FAN	5	AHU MANUFACTURER
HWP-1	PUMP MOTOR	2	T.C.
HWP-2	PUMP MOTOR	2	T.C.

NOTES:
1. T.C. PROVIDED VFDS TO INCLUDE FACTORY BYPASS AND DISCONNECT. POWER BY E.C.

GLYCOL NOTES

THE HOT WATER SYSTEM SHALL BE CHARGED WITH A 35% SOLUTION OF GLYCOL. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

ACCESS DOORS

PROVIDE DUCT ACCESS DOORS FOR ALL MOTORIZED DAMPERS AND LOUVERS TO ALLOW FOR ADEQUATE MAINTENANCE ACCESS

SITE ELEVATION

THE ELEVATION AT HURON HEADQUARTERS AND VISITOR CENTER, IS APPROXIMATELY 1280 FEET ABOVE SEA LEVEL. MAKE ALL EQUIPMENT SELECTIONS WITH THIS ELEVATION DERATE IN MIND.

EXPOSED DUCTWORK AND PIPING NOTE

1. EXPOSED DUCTWORK AND TO BE DOUBLE-WALL SPIRAL WITH 1.5" INSULATION AND PAINTABLE FINISH. PAINTING BY G.C. COLOR SELECTION BY ARCH.
2. ANY PIPING TO VIEW SHALL BE JACKETED WITH A PAINTABLE PVC JACKET.

EXCEPTIONS: MECHANICAL ROOM, JANITOR CLOSETS.

UNDERGROUND DUCTWORK NOTE

1. UNDERGROUND DUCTWORK SHALL BE BLUE DUCT OR EQUIVALENT. INSTALL AND FUSE DUCTWORK WITH MANUFACTURER'S RECOMMENDED SYSTEM AND INSTALLATION INSTRUCTIONS.
2. UNDERGROUND DUCTWORK TO BE PRESSURE TESTED TO INSURE NO INFILTRATION OF DUST/MOISTURE AFTER SYSTEM IS INSTALLED.

CONTROL NOTES

1. TEMPERATURE CONTROL CONTRACTOR TO PROVIDE BOX AND CONDUIT TO ACCESSIBLE CEILING SPACE FOR EACH THERMOSTAT.
2. PROVIDE A DDC CONTROL SYSTEM WITH WEB BASED INTERFACE FOR HVAC SYSTEM CONTROL.
3. TEMPERATURE CONTROL CONTRACTOR TO PROVIDE AND WIRE RADIANT FLOOR SLAB TEMPERATURE SENSORS FOR RADIANT FLOOR SLAB TEMPERATURE SENOSORS FOR RADIANT FLOOR HEAT SYSTEM OPERATION.

DUCTWORK CONSTRUCTION SCHEDULE

INSULATED DUCTWORK INCLUDES:
- ALL INTERIOR SUPPLY DUCTWORK
- ALL EXHAUST DUCTWORK FROM THE BACKDRAFT DAMPER TO THE BUILDING EXTERIOR.

UNINSULATED/UNLINED DUCTWORK INCLUDES:
- ALL OTHER INTERIOR EXHAUST DUCTWORK
- ALL INTERIOR RETURN DUCTWORK

LINED DUCTWORK INCLUDES:
- ALL TRANSFER DUCTWORK

NOTE: INSULATED FLEXIBLE DUCTWORK MAY BE USED AT THE CONTRACTOR'S OPTION FOR A MAXIMUM OF 5 FT. LENGTH TO EACH DIFFUSER/REGISTER/ GRILLE.

MECHANICAL SHEET LIST

MECHANICAL SYMBOLS LEGEND

AIR TERMINALS, EQUIPMENT & SPECIALTIES

NEW EQUIPMENT
EXISTING TO REMAIN
EQUIPMENT TAG: TYPE OF EQUIPMENT (EF); EQUIPMENT NUMBER (REFER TO SCHEDULE)
DIFFUSER/GRILLE TAG: AIR TERMINAL NUMBER (5D-1 / 220); AIR TERMINAL CFM (REFER TO SCHEDULE)
SUPPLY AIR TERMINAL (NEW, EXIST., DEMO.)
RETURN AIR TERMINAL (NEW, EXIST., DEMO.)
EXHAUST AIR TERMINAL (NEW, EXIST., DEMO.)
WALL LOUVER
LINEAR SLOT AIR TERMINAL
SIDEWALL AIR TERMINAL
PUMP
P.O.D.C. - POINT OF DISCONNECTION
T'STAT. (ELEC./PNEU.)
P.O.C. - POINT OF CONNECTION
SWITCH

DUCTWORK & ACCESSORIES

NEW DUCTWORK
18x12 — INSIDE CLEAR DUCT SIZE: FIRST FIGURE INDICATED IS SIDE OF DUCT SHOWN
EXISTING DUCTWORK TO REMAIN
DUCTWORK END CAP
DUCT BREAK
FLEXIBLE DUCTWORK
UP — RISE IN DUCTWORK
SQUARE ELBOW UP SUPPLY/RETURN/EXH.
DN — FALL IN DUCTWORK
SQUARE ELBOW DN SUPPLY/RETURN/EXH.
FD — FIRE DAMPER
ROUND ELBOW UP SUPPLY/RETURN/EXH.
SD — SMOKE DAMPER
ROUND ELBOW DN SUPPLY/RETURN/EXH.
F/SD — FIRE/SMOKE DAMPER
SQUARE DIFFUSERS SUPPLY/RETURN/EXH.
BDD — BACKDRAFT DAMPER
ROUND DIFFUSERS FULL / HALF
VD — MANUAL VOLUME DAMPER
INDICATED AIR FLOW SUPPLY / RETURN
MOTORIZED DAMPER
DUCT REDUCER

DUCTWORK SHADING

SUPPLY AIR
EXHAUST AIR
RETURN AIR
OUTSIDE AIR

HVAC/HYDRONIC PIPING

HWS — HOT WATER SUPPLY
CD — CONDENSATE DRAIN
HWR — HOT WATER RETURN

THIS IS A STANDARDIZED SYMBOLS LEGEND, ALL SYMBOLS SHOWN MAY NOT APPEAR ON OR WITHIN THIS SET OF CONTRACT DOCUMENTS.

ACE INC
ASSOCIATED • CONSTRUCTION • ENGINEERING INC
2040 HARNISH BLVD.
BILLINGS, MT 59102
406-245-0136
ACE JOB 21BL5442

REGISTERED PROFESSIONAL ENGINEER — 11498 — TODD A. MELING — 4/29/2022 — SOUTH DAKOTA

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HURON FISH AND WILDLIFE
MULTIPURPOSE BUILDING AND VISITOR CENTER
MECHANICAL COVER SHEET

SUB-SHEET: M001

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
AS	TA	TM	2022.04.29	29320.07	46 OF 74

GRILLE - REGISTER - DIFFUSER SCHEDULE

PLAN CODE	MANUFACTURER	MODEL NUMBER	FUNCTION	FACE SIZE	NECK SIZE	MATERIAL	FINISH	CFM	VOLUME DAMPER	REMARKS
CD-2	PRICE	SMCD	CEILING SUPPLY	12"x12"	6"	ALUMINUM	WHITE	SEE PLANS	IN DUCT	4-WAY THROW, MODULAR CORE WITH TOOL FREE RECONFIGURATION
CD-3	PRICE	SMCD	CEILING SUPPLY	12"x12"	8"	ALUMINUM	WHITE	SEE PLANS	IN DUCT	4-WAY THROW, MODULAR CORE WITH TOOL FREE RECONFIGURATION
RG-2	PRICE	PDDR	CEILING RETURN	12"x12"	6"	ALUMINUM	WHITE	SEE PLANS	IN DUCT	ARCHITECTURAL PERFORATED FACE RETURN GRILLE
RG-3	PRICE	PDDR	CEILING RETURN	12"x12"	8"	ALUMINUM	WHITE	SEE PLANS	IN DUCT	ARCHITECTURAL PERFORATED FACE RETURN GRILLE
RG-4	PRICE	PDDR	CEILING RELIEF	18"x18"	--	ALUMINUM	WHITE	SEE PLANS	--	ARCHITECTURAL PERFORATED FACE RELIEF GRILLE
DL-1	PRICE	HCD	SUPPLY DRUM LOUVER	6"x18"	--	ALUMINUM	WHITE	SEE PLANS	OBD IN GRILLE	DRUM LOUVER. BLADES TO BE FIELD ADJUSTED.
SSG-2	PRICE	20/30	SIDEWALL SUPPLY	12"x8"	--	ALUMINUM	WHITE	SEE PLANS	OBD IN GRILLE	SIDEWALL SUPPLY GRILLE. ADJUSTABLE BLADES WITH 3/4" BLADE SPACING.
SRG-1	PRICE	60/70	SIDEWALL RETURN	12"x8"	--	ALUMINUM	WHITE	SEE PLANS	OBD IN GRILLE	SIDEWALL RETURN GRILLE, 3/4" BLADE SPACING
SRG-2	PRICE	60/70	SIDEWALL RETURN	24"x10"	--	ALUMINUM	WHITE	SEE PLANS	OBD IN GRILLE	SIDEWALL RETURN GRILLE, 3/4" BLADE SPACING
SRG-3	PRICE	530	SIDEWALL RETURN	30"x36"	--	STEEL	WHITE	SEE PLANS	OBD IN GRILLE	SIDEWALL RETURN GRILLE, 3/4" BLADE SPACING
SRG-4	PRICE	530	SIDEWALL RETURN	32"x48"	--	STEEL	WHITE	SEE PLANS	OBD IN GRILLE	SIDEWALL RETURN GRILLE, 3/4" BLADE SPACING

NOTES:
1. PROVIDE ALL DUCT TRANSITIONS TO AND FROM GRILLES/REGISTERS/DIFFUSERS AS REQUIRED.
2. ALL GRILLE AND REGISTER COLORS TO BE COORDINATED WITH ARCHITECT.
3. CONTRACTOR TO VERIFY EXACT BUILDING CONSTRUCTION, CEILING, AND FLOOR TYPES AND PROVIDE THE CORRECT FRAMES FOR ALL AIR DIFFUSION PRODUCTS AS REQUIRED.
4. PROVIDE MANUAL VOLUME DAMPERS FOR CONNECTION TO ALL G/R/D'S. SEE DETAIL 2/M302.
5. SEE DRAWING FOR FURTHER G/R/D REQUIREMENTS.

CONDENSING BOILER SCHEDULE (35% PROPYLENE GLYCOL)

PLAN CODE	MANUFACTURER	MODEL NUMBER	BOILER TURNDOWN	MBH INPUT	MAX MBH OUTPUT	DESIGN GPM	BOILER MIN FLOW	EWT/LWT	W.P.D.	FLUE SIZE	C.A. SIZE	POWER	REMARKS
B-1, B-2	LOCHINVAR	FTXL400	10:1	399	364	36.4	10	130/150	3.5	4" CPVC	4" CPVC	120V 1 PHASE	FLOOR MOUNTED FIRE-TUBE BOILER SEE 1/M304 FOR DETAIL.

NOTES:
1. FURNISH WITH INTEGRAL BOILER CONTROL PANEL WITH BACNET INTERFACE FOR CONNECTION TO BMS. COORDINATE POINT INTEGRATION.
2. PROVIDE LP GAS KIT, 50 PSI RELIEF VALVE, DIRECT VENT SEALED COMBUSTION, CONCENTRIC VENT KIT, 10 YEAR LIMITED WARRANTY, CONDENSTATE NEUTRALIZATION KIT.
3. LOW AND HIGH PRESSURE GAS SWITCH WITH MANUAL RESET AND LOW WATER CUTOFF WITH MANUAL RESET & TEST. G.C. TO PROVIDE HOUSEKEEPING PAD FOR BOILER.
4. PROVIDE A SPARE IGNITER.
5. PROVIDE BOILER WITH MANUFACTURER PROVIDED BOILER CIRCULATION PUMP.

PUMP SCHEDULE

PLAN CODE	MANUFACTURER	FUNCTION	MODEL NUMBER	IMP. DIA	RPM	GPM	FT OF HD	ELECTRICAL DATA			EFF	REMARKS
								HP	VOLT	PH		
HWP-1,2	TACO	HEATING WATER SYSTEM PUMPS	1619	7.15"	1760	36	60	2	120	1	41%	HEATING HOT WATER SYSTEM PUMPS
BP-1,2	GRUNDFOS	BOILER CIRCULATOR PUMPS	UPMXL 25-124	N/A	N/A	19	15	120W	120	1	---	PROVIDE WITH EACH BOILER FROM MANUFACTURER
ZP-1 THRU ZP-10	TACO	RADIANT ZONE CIRCULATOR PUMPS	0011	---	3250	SEE FLOOR HEAT SYSTEM SCHEDULE	31	1/8	120	1	---	RADIANT ZONE CIRCULATOR PUMPS

NOTES:
1. PROVIDE GAUGES ACROSS PUMPS FOR BALANCING PURPOSES.
2. SEE 1/M303 FOR PUMP DETAIL.

AIR SEPARATOR SCHEDULE

PLAN CODE	MANUFACTURER	MODEL NUMBER	GPM	PIPE SIZE	REMARKS
AS-1	TACO	4903	36	2.5"	AIR/DIRT SEPARATOR

EXPANSION TANK SCHEDULE

PLAN CODE	MANUFACTURER	MODEL NUMBER	TOTAL VOLUME	ACCEPTANCE VOLUME	PRECHARGE PRESSURE
ET-1	TACO	CA-90	23	23	15 PSI

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MULTIPURPOSE BUILDING AND VISITOR CENTER

MECHANICAL SCHEDULES

SUB-SHEET M002

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
AS	TA	TM	2022.04.29	29320.07	47 OF 74

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RADIANT ZONE SCHEDULE

PLAN CODE	MANUFACTURER	TUBE SPACING	SUPPLY TEMP. MAX	EWT	DELTA T	FT. OF HEAD	GPM	HEADER SIZE	TUBE SIZE	TUBE SPACING	# OF CIRC.	APPROX. CIRC. LENGTHS	MBH OUTPUT	ZONE SQ. FT	SPACES SERVED	REMARKS
RZ-1	REHAU	6" O.C.	120	115	20	1.8	5.4	1"	5/8"	8" O.C.	10	< 300 FT	54	2209	3	300' MAX CIRC. LENGTH
RZ-2	REHAU	6" O.C.	120	115	20	1.2	1.8	1"	5/8"	8" O.C.	4	< 300 FT	18	759	8	300' MAX CIRC. LENGTH
RZ-3	REHAU	6" O.C.	120	115	20	1.7	4.8	1"	5/8"	8" O.C.	9	< 300 FT	48	2000	3	300' MAX CIRC. LENGTH
RZ-4	REHAU	6" O.C.	120	115	20	1.5	1.5	1"	5/8"	8" O.C.	3	< 300 FT	15	608	6	300' MAX CIRC. LENGTH
RZ-5	REHAU	6" O.C.	120	115	20	0.6	0.75	1"	5/8"	8" O.C.	2	< 300 FT	7	302	1	300' MAX CIRC. LENGTH
RZ-6	REHAU	6" O.C.	120	115	20	1.4	2.9	1"	5/8"	8" O.C.	6	< 300 FT	29	1173	6	300' MAX CIRC. LENGTH
RZ-7	REHAU	6" O.C.	120	115	20	0.4	0.6	1"	5/8"	8" O.C.	2	< 300 FT	6	249	1	300' MAX CIRC. LENGTH
RZ-8	REHAU	6" O.C.	120	115	20	0.8	1.2	1"	5/8"	8" O.C.	3	< 300 FT	12	489	1	300' MAX CIRC. LENGTH
RZ-9	REHAU	6" O.C.	120	115	20	0.3	0.5	1"	5/8"	8" O.C.	1	< 300 FT	2.7	111	1	300' MAX CIRC. LENGTH
RZ-10	REHAU	6" O.C.	120	115	20	1.0	1.3	1"	5/8"	8" O.C.	3	< 300 FT	13.2	503	1	300' MAX CIRC. LENGTH

NOTES:
1. PROVIDE DDC CONTROL OF PUMPS, ETC. PER T.C. SEQUENCE.
2. VERIFY EXACT LOCATION OF RADIANT MANIFOLD LOCATIONS WITH G.C. PRIOR TO INSTALL.
3. PROVIDE RADIANT MAINFOLD WITH CIRCUIT BALANCE VALVES.
4. PROVIDE AND INSTALL WALL CABINET MANIFOLDS (MODEL REHAU-284) FOR RZ-1 AND RZ-2. SEE HYDRONIC PLAN FOR LOCATION. COORDINATE SIZE WITH MANIFOLD. CABINET TO BE PREPPED FOR PAINT BY G.C.

AUTOMATIC GLYCOL FEEDER SCHEDULE

PLAN CODE	MANUFACTURER	MODEL NUMBER	GALLON CAPACITY	PRESSURE RANGE	MAKEUP CAPACITY	ELECTRICAL DATA		REMARKS
						VOLT	HP	
AGF-1	WESSELS	G-18	18	12-60 PSIG	1.0 GPM	120	1/3	SEE NOTES

NOTES:
1. PROVIDE UNIT WITH FULLY AUTOMATED SYSTEM INCLUDING LOW LEVEL CUTOFF AND ALARM, ISOLATION VALVES, STRAINER, PRESSURE TANK WITH PRESSURE CONTROL, PRESSURE REDUCING VALVE AND GAUGE.
2. PROVIDE UNIT WITH LID DESIGNED TO ACCOMODATE RELIEF VALVE PIPING. PROVIDE MAGNETIC STARTER, 115V MOTOR AND CONTROLS WITH CORD AND PLUG. WIRE TO DDC SYSTEM FOR MONITORING.

CABINET UNIT HEATER SCHEDULE

PLAN CODE	MANUFACTURER	MODEL NUMBER	STYLE	LOCATION	PERFORMANCE								ELECTRICAL DATA			
					AIR SIDE			HEATING SIDE								
					CFM/HIGH SPEED	EAT °F	LAT °F	MIN MBH	GPM	EWT °F	LWT °F	P.D.	HP	VOLT	FLA	PH
CUH-1	TRANE	FFB80201AAYA	FLOOR-MOUNTED	VESTIBULE	200	60	104	8.8	0.5	150	120	0.71 FT HD	1/10	120	2.75	1

NOTES:
1. UNITS TO BE PROVIDED WITH INTEGRAL UNIT MOUNTED DISCONNECT, SUSPENSION OR MOUNTING HARDWARE, WALL GASKET, T.C. TO PROVIDE CONTROL VALVES AND THERMOSTAT/SENSOR. PROVIDE STANDARD COLOR SELECTION CHART FOR ARCHITECTURAL SELECTION. SEE DETAIL 5/M302 FOR CABINET UNIT HEATER DETAIL.
2. PROVIDE AND INSTALL PER MANUFACTURER'S INSTRUCTIONS. PROVIDE WITH VALVES AND ACCESSORIES PER DETAIL 5/M302.

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MULTIPURPOSE BUILDING AND VISITOR CENTER

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SUB-SHEET M003

SHEET 48 OF 74

VARIABLE AIR VOLUME UNIT SCHEDULE

PLAN CODE	MFR	MODEL NUMBER	INLET SIZE (IN. DIA)	100% CFM	MIN CFM	HOT WATER COIL (35% GLYCOL)									MAX TOTAL S.P. @ 100% CFM IN. H20	CONTROL VALVE	REMARKS
						HEATING CAPACITY (MBH)	AIR SIDE				WATER SIDE						
							CFM	E.A.T.	L.A.T.	ROWS	GPM	E.W.T.	L.W.T.	FLUID P.D. (FT)			
VAV 1	PRICE	SDV5000	14"	1210	529	25.8	529	55	101	2	2.25	150	127	<10'	0.3"	2-WAY	SEE NOTES
VAV 2	PRICE	SDV5000	12"	770	385	18.6	385	55	100.6	2	2.0	150	131	<10'	0.3"	2-WAY	SEE NOTES
VAV 3	PRICE	SDV5000	14"	1450	650	32.8	650	55	100.4	2	3.5	150	130	<10'	0.3"	2-WAY	SEE NOTES
VAV 4	PRICE	SDV5000	10"	410	214	10.9	214	55	102.8	2	1.0	150	128	<10'	0.3"	2-WAY	SEE NOTES
VAV 5	PRICE	SDV5000	6"	160	124	6.2	125	55	120	2	0.75	150	130	<10'	0.3"	2-WAY	SEE NOTES
VAV 6	PRICE	SDV5000	14"	1270	642	31.9	642	55	101.8	2	3.5	150	131	<10'	0.3"	2-WAY	SEE NOTES
VAV 7	PRICE	SDV5000	6"	160	46	2.4	46	55	101	1	0.75	150	144	<10'	0.3"	3-WAY	SEE NOTES
VAV 8	PRICE	SDV5000	7"	250	115	6.0	115	55	103	2	0.75	150	134	<10'	0.3"	2-WAY	SEE NOTES
VAV 9	PRICE	SDV5000	4"	100	40	1.3	20	55	109	1	0.5	150	140.7	<10'	0.3"	3-WAY	SEE NOTES
VAV 10	PRICE	SDV5000	8"	360	179	8.8	179	55	101	2	1.0	150	140	<10'	0.3"	2-WAY	SEE NOTES
VAV 11	PRICE	SDV5000	6"	200	0	NO HEAT	NO HEAT	NO HEAT	NO HEAT	NO HEAT	NO HEAT	NO HEAT	NO HEAT	NO HEAT	0.3"	2-WAY	SEE NOTES

NOTES:
1. ENTERING STATIC PRESSURE = 1" W.C.
2. BOX SUPPLIER TO PROVIDE FACTORY INSTALLED MULTI-POINT AVERAGING SENSORS. MECHANICAL CONTRACTOR TO PROVIDE BOXES WITH HANGING BRACKETS, AND PROVIDE DUCT TRANSITIONS TO AND FROM BOXES AS REQUIRED. TEMPERATURE CONTROL SUBCONTRACTOR TO FURNISH ALL DIGITAL VAV BOX CONTROLLERS, ACTUATORS ETC. TO THE BOX MANUFACTURER FOR INSTALLATION. COST OF CONTROLLERS AND SHIPPING SHALL BE BURDEN OF T.C. CONTRACTOR. COST OF THE INSTALLATION SHALL BE BY THE BOX MANUFACTURER.
3. SOUND DISCHARGE LEVELS TO BE <20 N.C. AT 1" INLET STATIC PRESSURE, UNLESS OTHERWISE NOTED.
4. ALL COILS TO BE 2 ROW UNLESS OTHERWISE NOTED.
5. SEE DETAILS 1&2 ON M301 FOR PIPING REQUIREMENTS AND 6/M302 FOR INSTALLATION REQUIREMENTS.
6. MECHANICAL CONTRACTOR TO VERIFY BOX ORIENTATION PRIOR TO ORDERING TO MAINTAIN CONTROL PANEL ACCESS AFTER INSTALLATION.

EXHAUST FAN SCHEDULE

PLAN CODE	MANUFACTURER	MODEL NUMBER	CFM	ESP	RPM	DRIVE TYPE	ELECTRICAL DATA				STATIC EFFICIENCY	SONES	WEIGHT	CONTROL NOTES	AREA SERVED	REMARKS
							HP	VOLT	FLA	PH						
EF-1	PANASONIC	FV-0511VF1	75	0.6	1350	DIRECT	13W	115	0.3	1	N/A	1.5	10 LBS	WIRED TO LIGHTING WALL SWITCH	REST ROOM 125	SEE NOTES 1,2,3,5.
EF-2	PANASONIC	FV-0511VF1	75	0.6	1350	DIRECT	13W	115	0.3	1	N/A	1.5	10 LBS	WIRED TO LIGHTING WALL SWITCH	JAN CLOSET 126	SEE NOTES 1,2,3,5.
EF-3	PANASONIC	FV-0511VF1	75	0.6	1350	DIRECT	13W	115	0.3	1	N/A	1.5	10 LBS	WIRED TO LIGHTING WALL SWITCH	REST ROOM 115	SEE NOTES 1,2,3,5.
EF-4	FANTECH	RN 4EC-4	200	1.5	2450	DIRECT	169W	115	2.1	1	N/A	N/A	7.8 LBS	SEE NOTE 4	RADON PIT	IN-LINE EXHAUST FAN. SEE NOTES 1,5.
EF-5	PANASONIC	FV-0511VF1	75	0.375	1350	DIRECT	13W	115	0.3	1	N/A	1.5	10 LBS	WIRED TO LIGHTING WALL SWITCH	REST ROOM 104	SEE NOTES 1,2,3,5.
EF-6	PANASONIC	FV-0511VF1	75	0.375	1350	DIRECT	13W	115	0.3	1	N/A	1.5	10 LBS	WIRED TO LIGHTING WALL SWITCH	REST ROOM 103	SEE NOTES 1,2,3,5.
EF-7	PANASONIC	FV-0511VF1	75	0.375	1350	DIRECT	13W	115	0.3	1	N/A	1.5	10 LBS	WIRED TO LIGHTING WALL SWITCH	JAN CLOSET 102	SEE NOTES 1,2,3,5.
EF-8	COOK	GC-186	160	0.4	1100	DIRECT	86W	115	0.8	1	38%	5.5	13 LBS	SEE NOTE 4.	160 MECH/ELEC	SEE NOTES 1,2,3,5.

NOTES:
1. PROVIDE ALL FANS WITH BACKDRAFT DAMPER.
2. SEE 3/M302 FOR CEILING MOUNTED EXHAUST FAN DETAIL.
3. PROVIDE ALL DIRECT DRIVE FANS WITH FACTORY WIRED SPEED CONTROLLER AND FACTORY DISCONNECT.
4. FAN TO RUN CONTINUOUSLY.
5. SEE PLANS FOR TERMINATION REQUIREMENTS.

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MECHANICAL SCHEDULES

SUB-SHEET M004

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
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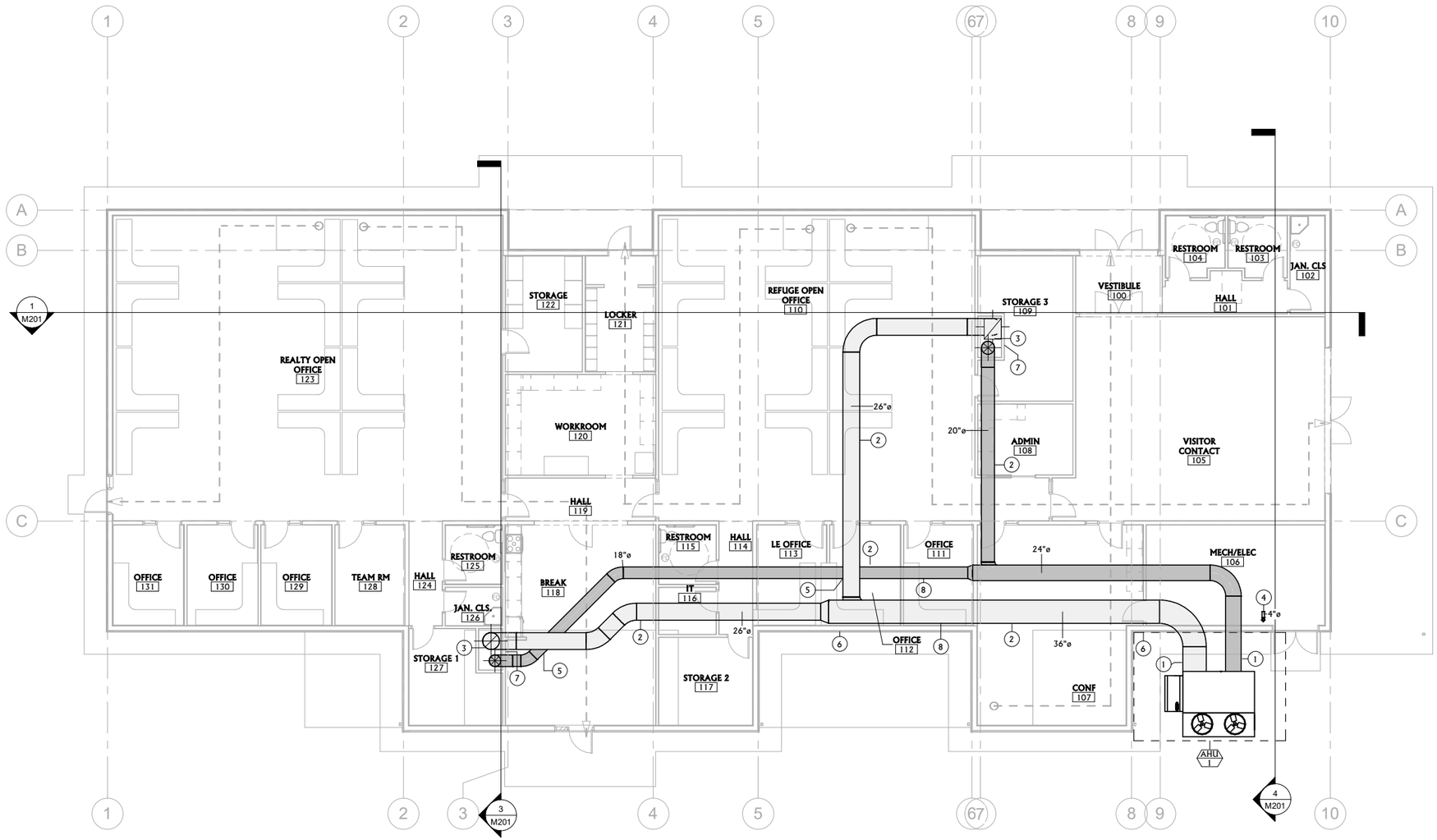

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1 / M100 UNDERFLOOR MECHANICAL HVAC PLAN

1/8" = 1'-0"

MECHANICAL GENERAL NOTES

A	MECHANICAL CONTRACTOR SHALL CUT ALL FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO PERFORM THE WORK DEPICTED IN THESE CONTRACT DOCUMENTS AND SPECIFICATIONS. GENERAL CONTRACTOR SHALL PATCH ALL ASSOCIATED FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.
B	COORDINATE EXACT LOCATION OF DIFFUSERS AND GRILLES WITH REFLECTED CEILING PLAN AND LIGHTING LAYOUT.
C	FLEX DUCT RUN OUTS SHALL BE LIMITED TO 5'-0".
D	COORDINATE HVAC AND PLUMBING EQUIPMENT WITH ALL OTHER TRADES AS REQUIRED.
E	ALL CEILING DIFFUSERS TO BE 4-WAY UNLESS OTHERWISE NOTED.
F	DUCT PENETRATIONS THROUGH ROOF TO BE COORDINATED WITH JOIST LAYOUT.
G	PROVIDE FLUSH CUP CONCEALED OPERATORS ON ALL HAND DAMPERS LOCATED ABOVE HARD CEILINGS.
H	ALL DUCT DIMENSIONS SHOWN ON PLANS ARE CLEAR INTERIOR DIMENSIONS.
I	VERIFY EXACT LOCATION OF T-STATS WITH ARCHITECT PRIOR TO INSTALLATION.
J	SEAL ALL MECHANICAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES WITH UL-APPROVED FIRE RATED SYSTEM.

MECHANICAL KEYNOTES

1	UNDERGROUND DUCTWORK UP TO AHU-1. SEE 4/M301 FOR DETAIL.
2	MANUFACTURED UNDERGROUND DUCTWORK ROUTED UNDER BUILDING SLAB. SEE 2/M304 FOR DETAIL.
3	UNDERGROUND SUPPLY/RETURN DUCTWORK RISERS UP IN CHASE TO SERVE BUILDING. SEE M101 FOR CONTINUATION.
4	4" PVC RADON PIPE CONNECTION IN RADON MITIGATION PIT. SEE M101 FOR CONTINUATION TO FAN.
5	INSTALL SUPPLY DUCTWORK DEEPER TO ALLOW FOR CROSSINGS.
6	FOUNDATION, SEE A/S 501 FOR TYPICAL CONSTRUCTION. COORDINATION WITH STRUCTURAL FOR OK DUCT LOCATION AN LOCATE AS NEEDED.
7	PROVIDE ACCESS DOOR AT IN MECHANICAL CHASE WALL TO ACCESS DUCTWORK BY G.C. M.C. TO PROVIDE DUCT ACCESS DOORS TO INSPECT AND CLEAN UNDERGROUND DUCTWORK RUNS.
8	PROVIDE WATER DETECTION SENSORS IN DUCTWORK LOW POINTS BELOW GRADE. CONNECT SENSORS TO BAS FOR MONITORING AND ALARM.

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UNDERFLOOR MECHANICAL HVAC PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET M100

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MECHANICAL GENERAL NOTES

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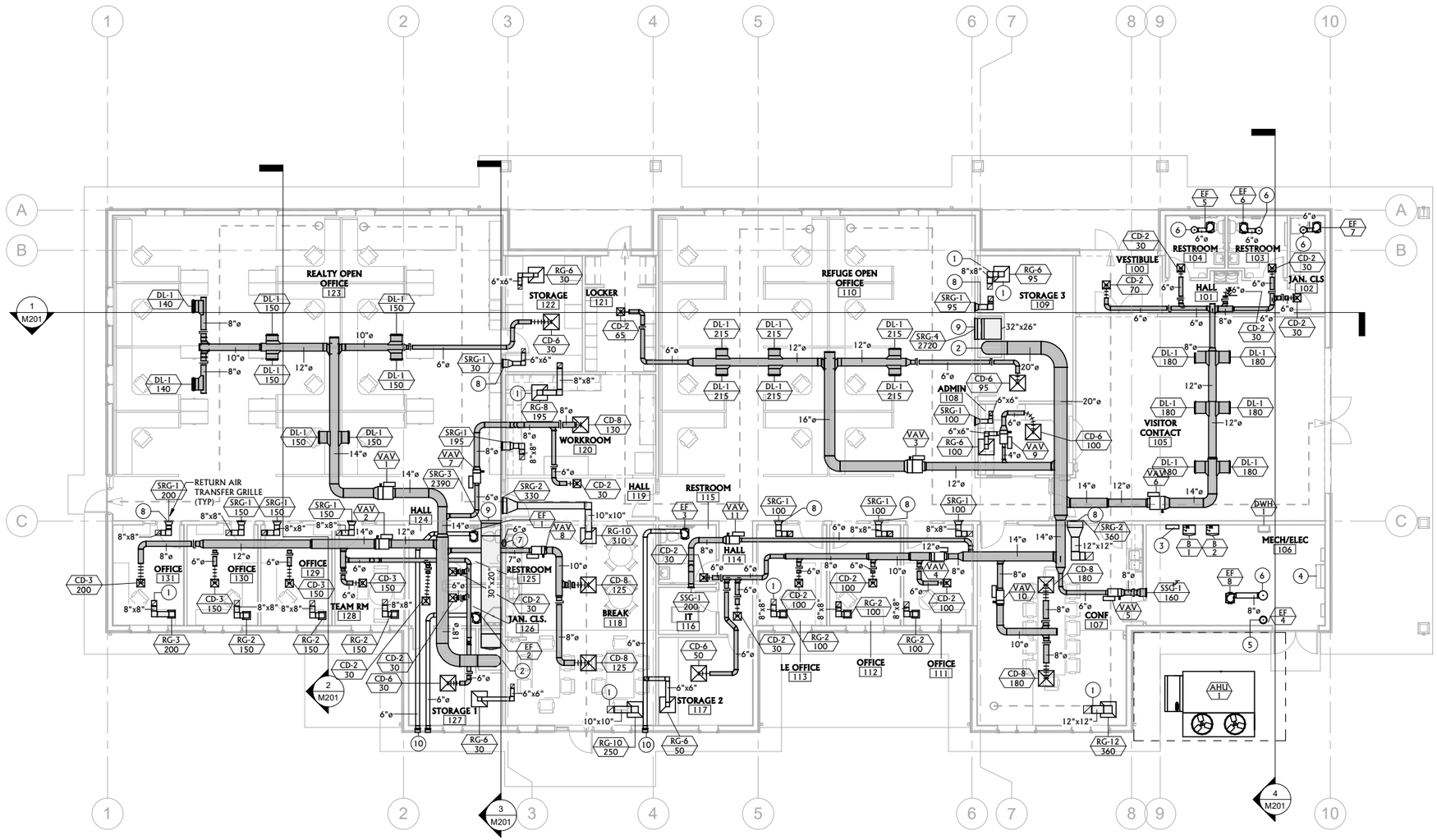
B	COORDINATE EXACT LOCATION OF DIFFUSERS AND GRILLES WITH REFLECTED CEILING PLAN AND LIGHTING LAYOUT.
C	FLEX DUCT RUN OUTS SHALL BE LIMITED TO 5'-0".
D	COORDINATE HVAC AND PLUMBING EQUIPMENT WITH ALL OTHER TRADES AS REQUIRED.
E	ALL CEILING DIFFUSERS TO BE 4-WAY UNLESS OTHERWISE NOTED.
F	DUCT PENETRATIONS THROUGH ROOF TO BE COORDINATED WITH JOIST LAYOUT.
G	PROVIDE FLUSH CUP CONCEALED OPERATORS ON ALL HAND DAMPERS LOCATED ABOVE HARD CEILINGS.
H	ALL DUCT DIMENSIONS SHOWN ON PLANS ARE CLEAR INTERIOR DIMENSIONS.
I	VERIFY EXACT LOCATION OF T-STATS WITH ARCHITECT PRIOR TO INSTALLATION.
J	SEAL ALL MECHANICAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES WITH UL-APPROVED FIRE RATED SYSTEM.

MECHANICAL KEYNOTES

1	SEE 5/M301 FOR PLENUM RETURN DUCT TRANSFER INSTALLATION. (TYP.)
2	UNDERGROUND DUCTWORK UP FROM BELOW. TRANSITION MATERIALS AS REQUIRED.
3	TEMPERATURE CONTROL PANEL. 120V BY E.C. DO NOT ROUTE MECHANICAL SYSTEMS OVER.
4	ELECTRICAL GEAR, DO NOT ROUTE MECHANICAL SYSTEMS OVER.
5	INLINE RADON FAN. SEE 4/M201 FOR BUILDING SECTION. DUCT TO ROOF CAP.
6	EXHAUST DUCT UP TO ROOF CAP. SEE M103 FOR CONTINUATION.
7	3.5"X10" EXHAUST DUCT IN WALL FROM MICROWAVE VENT CONNECTION, TRANSITION TO 6" ROUND DUCT ABOVE WALL AND TERMINATE TO ROOF CAP.
8	SIDEWALL RETURN TRANSFER TO OPEN AREA TO RETURN TO AHU. (TYP.) DUCT OPENING TO PLENUM ON TOP OF DUCT.
9	SIDEWALL RETURN GRILLE IN WALL.
10	EXHAUST TO WALL CAP TERMINATION. MATCH DUCT SIZE (TYP.)



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1 M101 FIRST FLOOR MECHANICAL HVAC PLAN

1/8" = 1'-0"

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HURON FISH AND WILDLIFE

FIRST FLOOR MECHANICAL HVAC PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

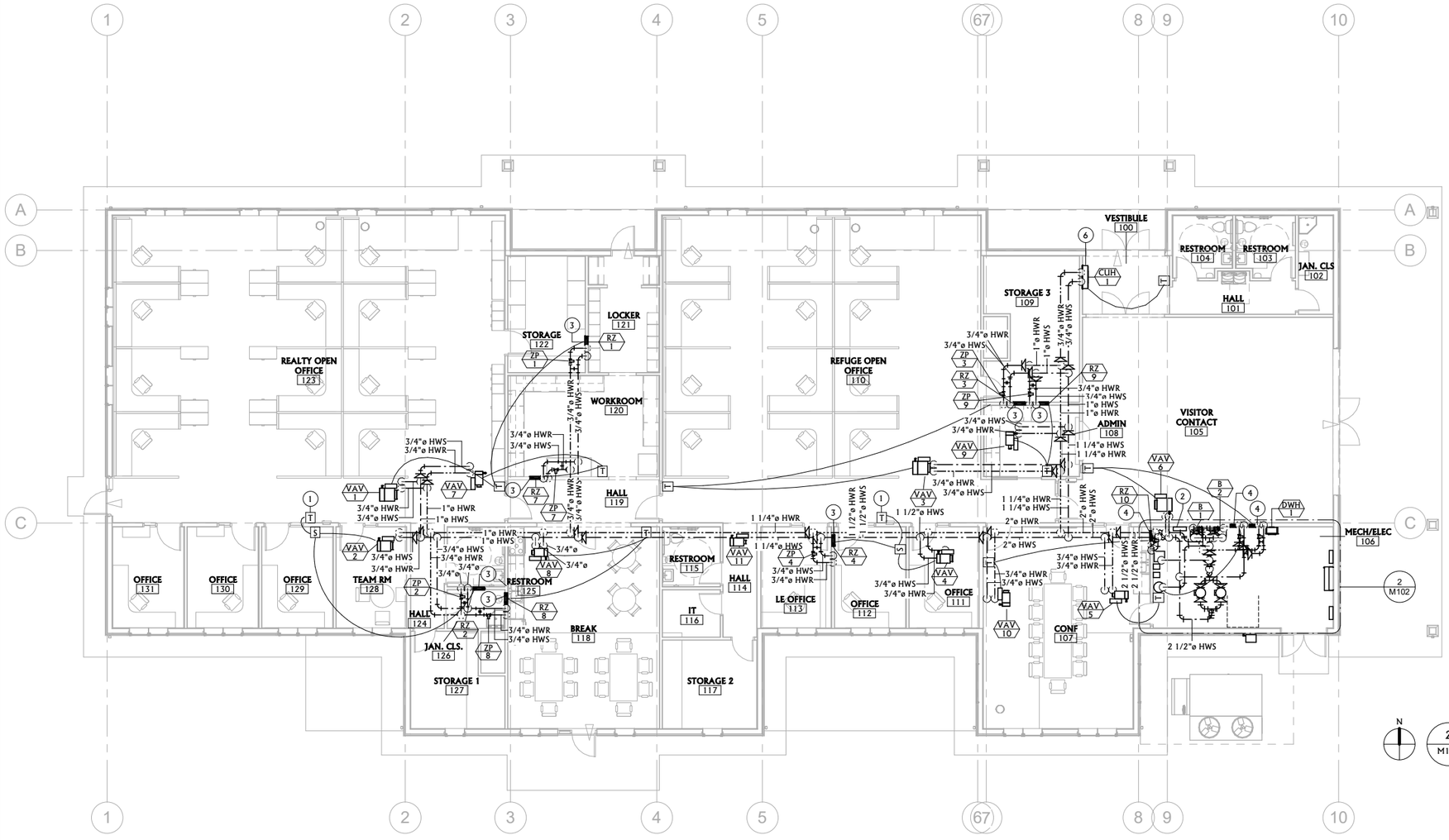
SUB-SHEET M101

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
AS	TA	TM	2022.04.29	29320.07	51 OF 74

BIM 360://5442 - USFW HURON - VISITOR CENTER/21BL5442-MECHANICAL_R20.rvt

MECHANICAL PIPING GENERAL NOTES	
1	MECHANICAL CONTRACTOR SHALL CUT ALL FLOORS, WALLS, CEILINGS AND ROOF AS REQUIRED TO PERFORM THE WORK DEPICTED IN THESE CONTRACT DOCUMENTS AND SPECIFICATIONS. GENERAL CONTRACTOR SHALL PATCH ALL ASSOCIATED FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.
2	SEAL ALL MECHANICAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES WITH UL-APPROVED FIRE RATED SYSTEM.
3	HYDRONIC VALVES 2" AND SMALLER TO BE BALL VALVES. HYDRONIC VALVES LARGER THAN 2" TO BE LUG STYLE BUTTERFLY VALVES.
4	LOCATE ALL VALVES ABOVE ACCESSIBLE CEILINGS OR PROVIDE ACCESS PANEL IN CEILING FOR VALVE ACCESS. ACCESS PANELS SHALL BE RATED WHERE REQUIRED.
5	COORDINATE HVAC AND PLUMBING ROUTING AND EQUIPMENT WITH ALL OTHER TRADES AS REQUIRED.
6	VERIFY EXACT LOCATION OF THERMOSTATS WITH ARCHITECT PRIOR TO INSTALLATION.
7	THERMOSTATS TO BE LOCATED AT 48" A.F.F.

MECHANICAL KEYNOTES	
1	THERMOSTAT INTERFACE MOUNTED OUTSIDE PRIVATE OFFICE ZONE IN ACCESSIBLE PUBLIC LOCATION FOR ADJUSTABILITY. WIRE TO REMOTE BLANK SENSOR LOCATED IN PRIVATE OFFICE SHOWN.
2	TEMPERATURE CONTROL PANEL. 120V BY E.C. DO NOT ROUTE MECHANICAL SYSTEMS OVER.
3	PIPE DOWN TO RADIANT FLOOR HEATING MANIFOLD. PROVIDE MANIFOLD WITH MANUFACTURER'S PROVIDED ACCESS PANEL FOR IN WALL INSTALLATION. SEE 4/M303 FOR PIPING DETAIL. LOCATE PIPING ACCESSORIES IN ACCESSIBLE CEILING SPACE. COORDINATE ACCESS PANEL AND MANIFOLD LOCATION WITH CASEWORK AND FURNITURE LAYOUTS.
4	PIPE DOWN TO RADIANT FLOOR HEATING MANIFOLD. SEE 4/M303 FOR PIPING DETAIL. LOCATE PIPING ACCESSORIES IN ACCESSIBLE CEILING SPACE. LOCATE MANIFOLD IN MECHANICAL ROOM.
5	VFDS FOR HWP-1,2 DO NOT ROUTE MECHANICAL/PLUMBING SYSTEMS OVER. MAINTAIN CODE REQUIRED CLEARANCES.
6	SEE 5/M302 FOR FLOOR MOUNTED CABINET UNIT HEATER DETAIL.
7	ELECTRICAL GEAR, DO NOT ROUTE MECHANICAL SYSTEMS OVER.
8	PIPE 3/4" OUTLET FROM AGF-1 TO TOP CONNECTION OF AS-1.



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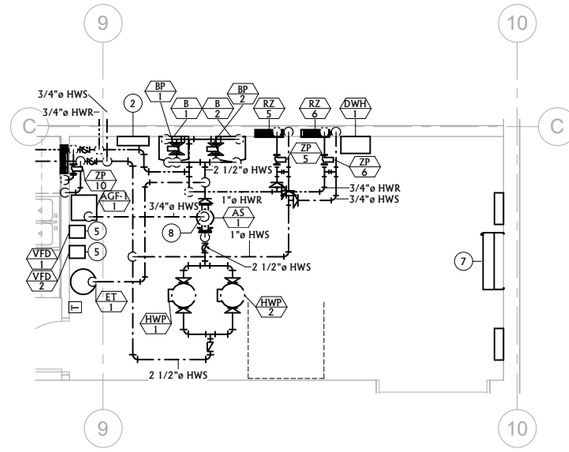
1 / M102 FIRST FLOOR MECHANICAL PIPING PLAN

1/8" = 1'-0"



N

2 / M102 ENLARGED MECHANICAL ROOM PLAN

1/4" = 1'-0"

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11498
TODD A. MELING
4/29/2022
SOUTH DAKOTA

HURON FISH AND WILDLIFE

FIRST FLOOR MECHANICAL PIPING PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET M102

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
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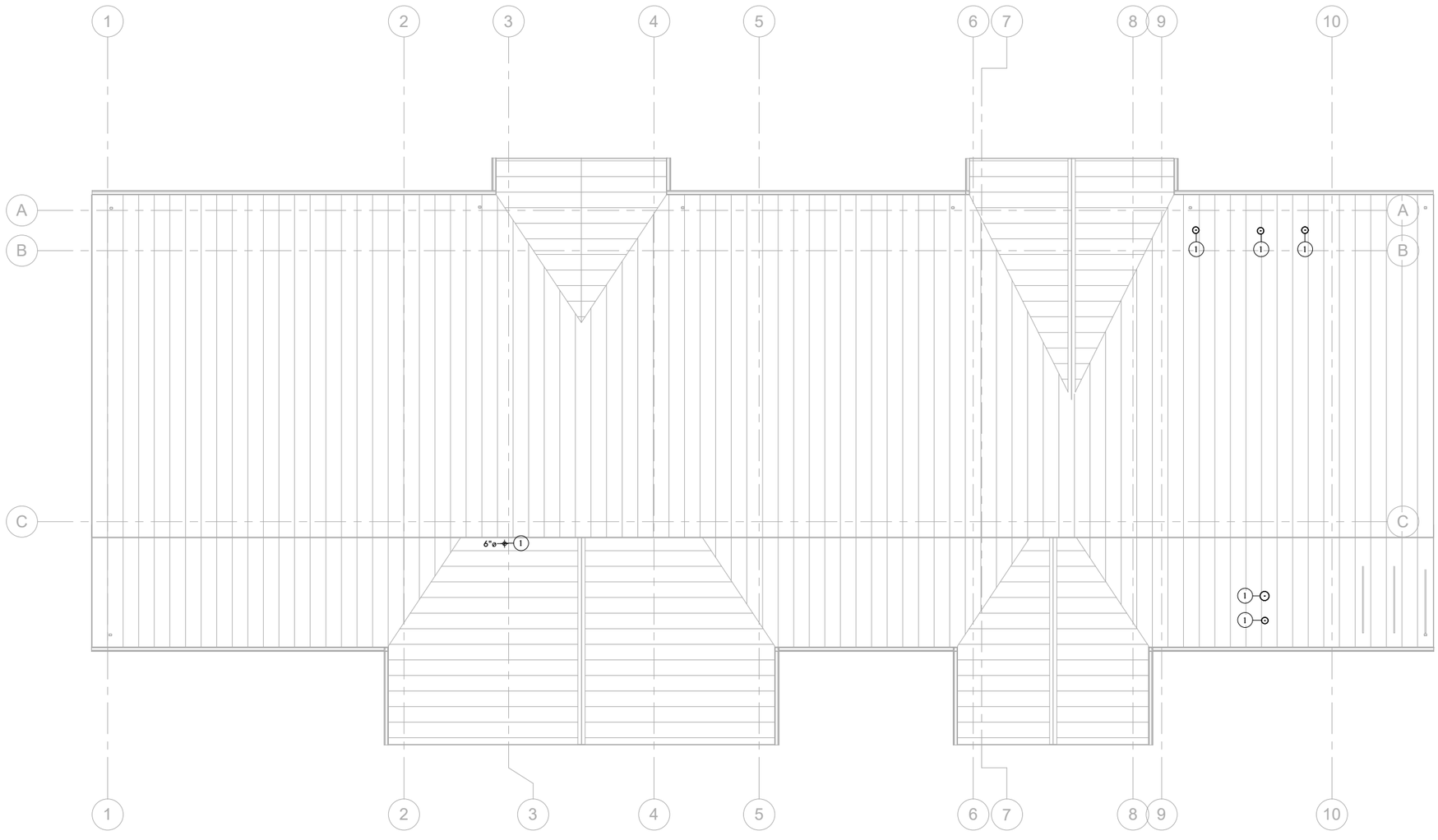
MECHANICAL GENERAL NOTES	
A	MECHANICAL CONTRACTOR SHALL CUT ALL FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO PERFORM THE WORK DEPICTED IN THESE CONTRACT DOCUMENTS AND SPECIFICATIONS. GENERAL CONTRACTOR SHALL PATCH ALL ASSOCIATED FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.
B	COORDINATE EXACT LOCATION OF DIFFUSERS AND GRILLES WITH REFLECTED CEILING PLAN AND LIGHTING LAYOUT.
C	FLEX DUCT RUN OUTS SHALL BE LIMITED TO 5'-0".
D	COORDINATE HVAC AND PLUMBING EQUIPMENT WITH ALL OTHER TRADES AS REQUIRED.
E	ALL CEILING DIFFUSERS TO BE 4-WAY UNLESS OTHERWISE NOTED.
F	DUCT PENETRATIONS THROUGH ROOF TO BE COORDINATED WITH JOIST LAYOUT.
G	PROVIDE FLUSH CUP CONCEALED OPERATORS ON ALL HAND DAMPERS LOCATED ABOVE HARD CEILINGS.
H	ALL DUCT DIMENSIONS SHOWN ON PLANS ARE CLEAR INTERIOR DIMENSIONS.
I	VERIFY EXACT LOCATION OF T-STATS WITH ARCHITECT PRIOR TO INSTALLATION.
J	SEAL ALL MECHANICAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES WITH UL-APPROVED FIRE RATED SYSTEM.

MECHANICAL KEYNOTES	
1	EXHAUST ROOF CAP. SEE M101 FOR DUCT SIZES.



N

1 / M103 ROOF MECHANICAL PLAN

1/8" = 1'-0"

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ROOF MECHANICAL PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET M103

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
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ZONE 1
ZONE 2
ZONE 3
ZONE 4
ZONE 5
ZONE 6
ZONE 7
ZONE 8
ZONE 9
ZONE 10
ZONE 11

N

1 / M104 MECHANICAL ZONE PLAN

1/8" = 1'-0"

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MECHANICAL ZONE PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET M104

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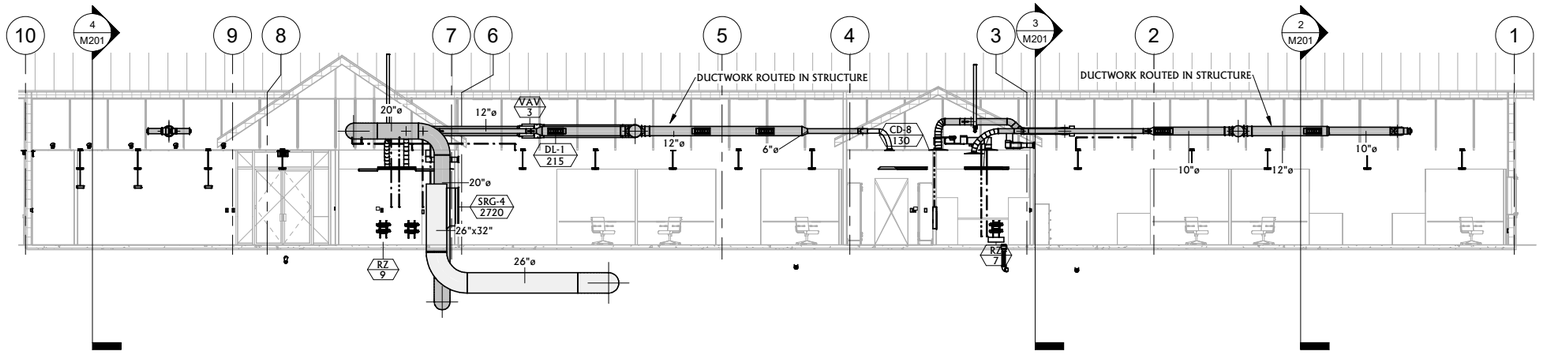
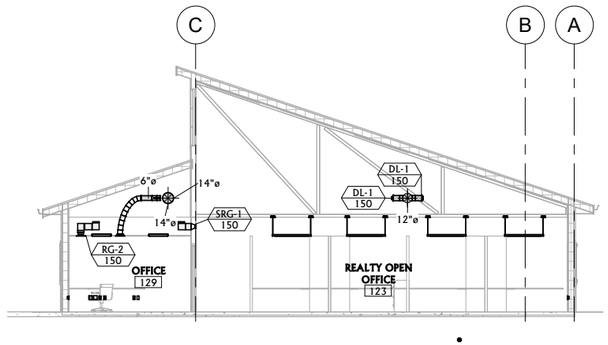
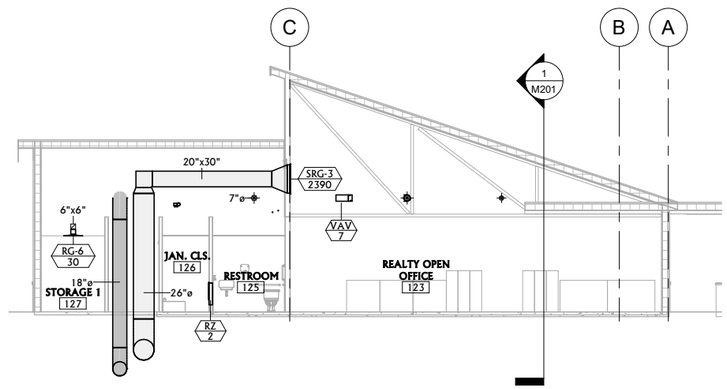


1 M201 MECHANICAL SECTION 1 - LOOKING SOUTH

1/8" = 1'-0"



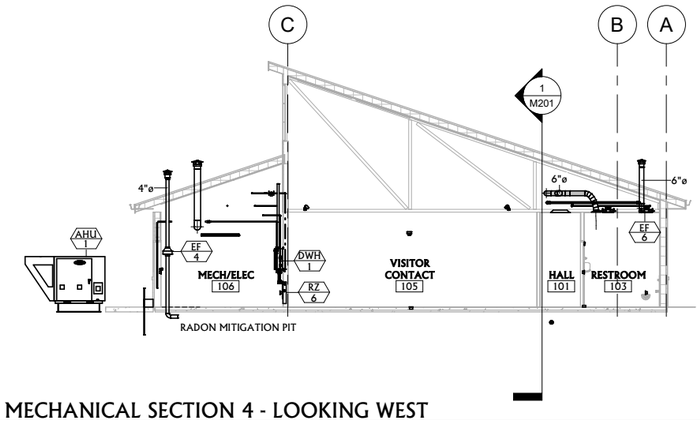


2 M201 MECHANICAL SECTION 2 - LOOKING WEST

1/8" = 1'-0"

3 M201 MECHANICAL SECTION 3 - LOOKING WEST

1/8" = 1'-0"



4 M201 MECHANICAL SECTION 4 - LOOKING WEST

1/8" = 1'-0"

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MECHANICAL SECTIONS AND ENLARGED PLANS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET M201

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AS	TA	TM	2022.04.29	29320.07	55 OF 74

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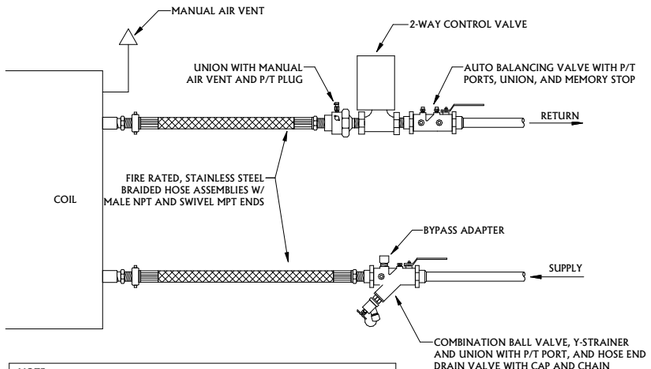
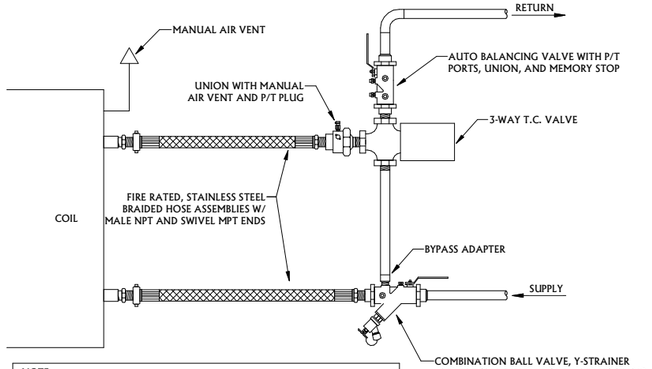
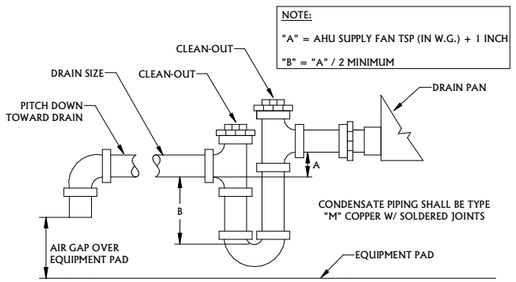


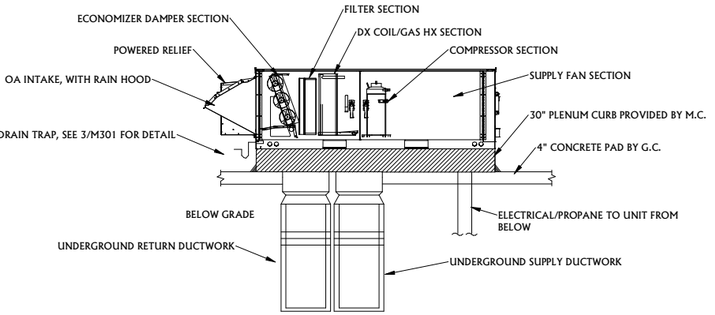
1 2-WAY COIL DETAIL
NOT TO SCALE



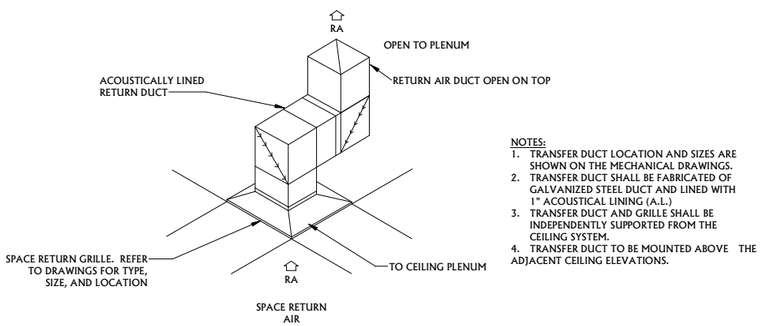
2 3-WAY COIL DETAIL
NOT TO SCALE



3 AHU CONDENSATE DRAIN TRAP DETAIL
NOT TO SCALE



4 AHU-1 DETAIL
NOT TO SCALE



NOTES:
1. TRANSFER DUCT LOCATION AND SIZES ARE SHOWN ON THE MECHANICAL DRAWINGS.
2. TRANSFER DUCT SHALL BE FABRICATED OF GALVANIZED STEEL DUCT AND LINED WITH 1" ACOUSTICAL LINING (A.L.)
3. TRANSFER DUCT AND GRILLE SHALL BE INDEPENDENTLY SUPPORTED FROM THE CEILING SYSTEM.
4. TRANSFER DUCT TO BE MOUNTED ABOVE THE ADJACENT CEILING ELEVATIONS.

5 RETURN AIR PLENUM TRANSFER DETAIL
NOT TO SCALE

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MECHANICAL DETAILS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET M301

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
AS	TA	TM	2022.04.29	29320.07	56 OF 74

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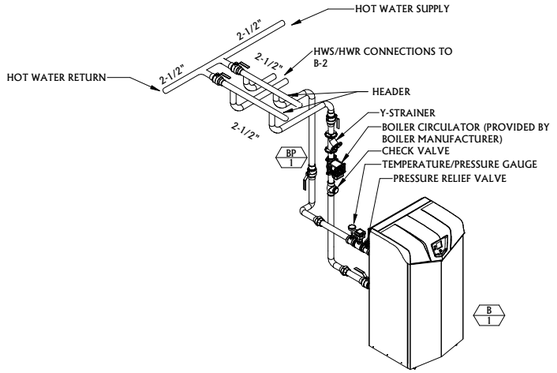
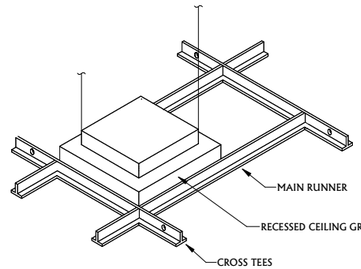


1 BOILER DETAIL
NOT TO SCALE

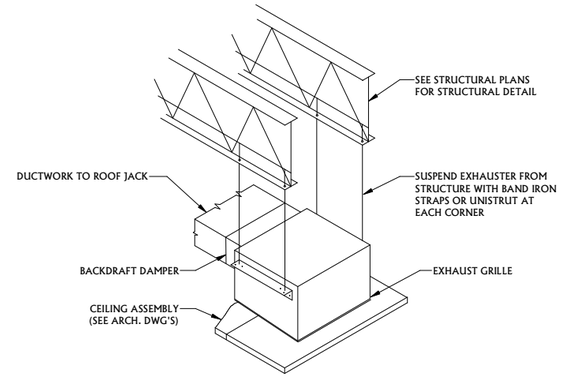


NOTES:

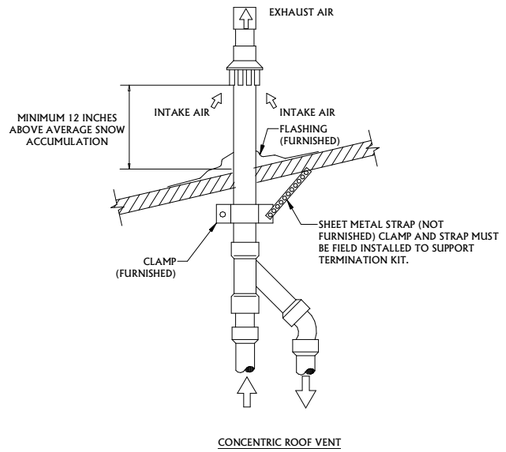
1) CONNECT 2 NO. 12 GA. GRILLE SUPPORT WIRES @ DIAGONAL CORNERS OF EACH CEILING GRILLE. MAX. CEILING GRILLE WT. 55#. SEE SPEC. 230548 FOR MORE INFORMATION.

2) EXCLUDE GRILLES LESS THAN 20LBS OR LESS FROM THIS REQUIREMENT WHERE IMPORTANCE FACTOR IP = 1.0

2 CEILING GRILLE SUPPORT DETAIL
NOT TO SCALE

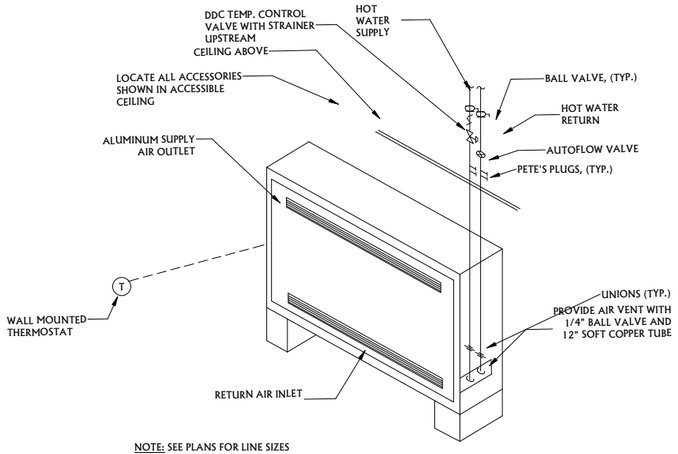


3 CEILING MOUNTED EXHAUST FAN
NOT TO SCALE



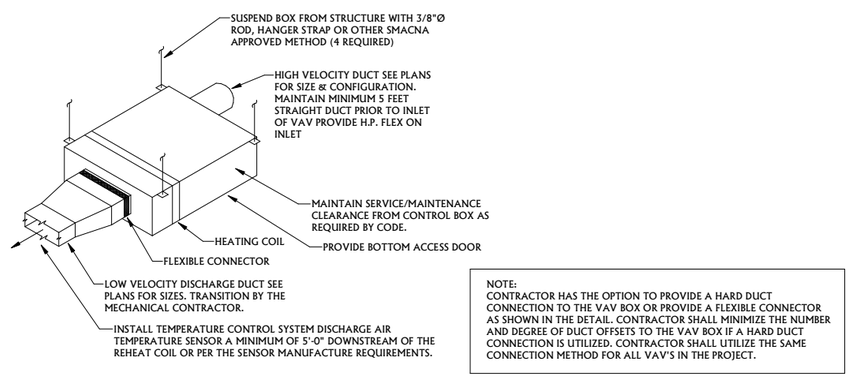
CONCENTRIC ROOF VENT

4 CONCENTRIC ROOF TERMINATION
NOT TO SCALE



NOTE: SEE PLANS FOR LINE SIZES

5 FLOOR MOUNTED CABINET UNIT HEATER DETAIL
NOT TO SCALE



NOTE:
CONTRACTOR HAS THE OPTION TO PROVIDE A HARD DUCT CONNECTION TO THE VAV BOX OR PROVIDE A FLEXIBLE CONNECTOR AS SHOWN IN THE DETAIL. CONTRACTOR SHALL MINIMIZE THE NUMBER AND DEGREE OF DUCT OFFSETS TO THE VAV BOX IF A HARD DUCT CONNECTION IS UTILIZED. CONTRACTOR SHALL UTILIZE THE SAME CONNECTION METHOD FOR ALL VAV'S IN THE PROJECT.

6 VAV BOX DETAIL
NOT TO SCALE

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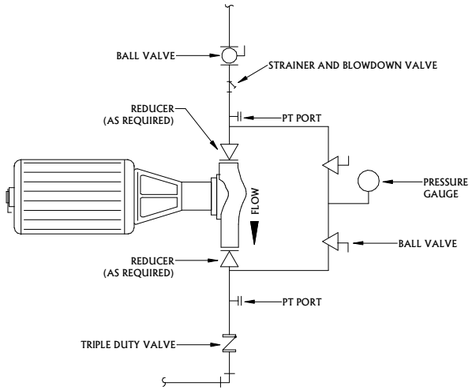
HURON FISH AND WILDLIFE

MECHANICAL DETAILS

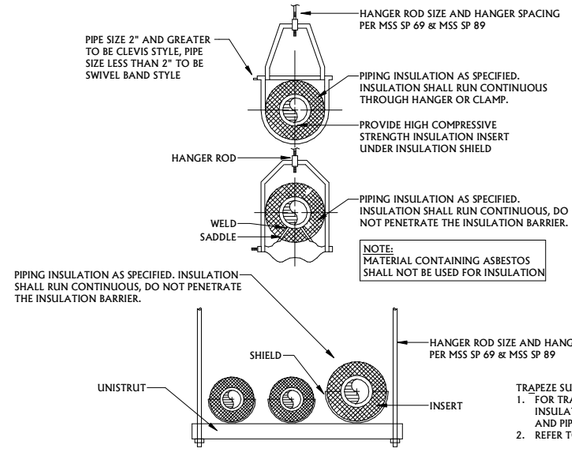
MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET M302

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
AS	TA	TM	2022.04.29	29320.07	57 OF 74



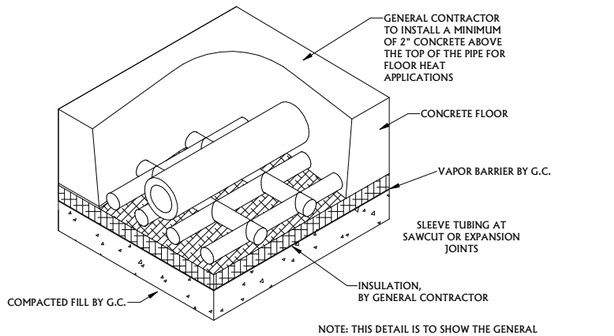
1 INLINE PUMP DETAIL
NOT TO SCALE



UNISTRUT STYLE

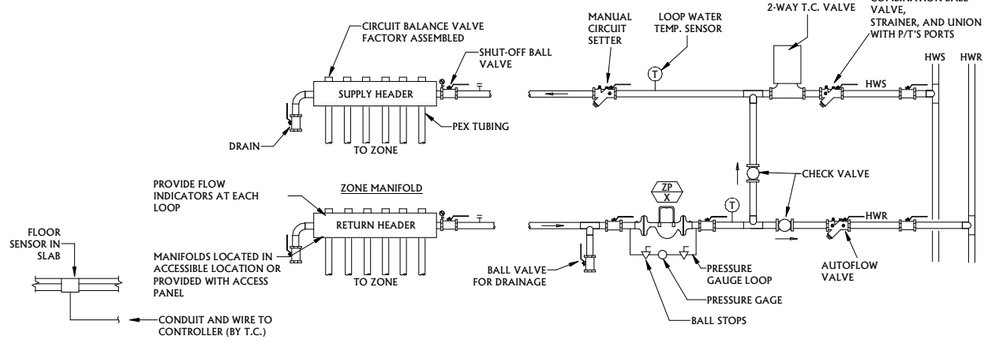
TRAPEZE SUPPORTED PIPING NOTES:
1. FOR TRAPEZE SUPPORTED PIPING; 1-1/2" AND LESS PIPING INSTALL PROTECTION SHIELD AND PIPE CLAMP, INSULATION SHALL BE CONTINUOUS. 2" AND GREATER PIPING INSTALL THERMAL-HANGER SHIELD INSERT AND PIPE CLAMP, INSULATION SHALL BE CONTINUOUS.
2. REFER TO THE PROJECT GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.

2 PIPE HANGER DETAILS
NOT TO SCALE



NOTE: THIS DETAIL IS TO SHOW THE GENERAL INFORMATION ABOUT THE MECHANICAL SYSTEM. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR FURTHER DETAILS ON SLAB AND SUB GRADE REQUIREMENTS.

3 RADIANT FLOOR DETAIL
NOT TO SCALE



4 RADIANT FLOOR SYSTEM SCHEMATIC
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MECHANICAL DETAILS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET M303

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GENERAL MECHANICAL NOTES:

1) PROVIDE BOILER WITH INTEGRAL HIGH LIMIT TEMPERATURE CONTROL WITH MANUAL RESET, FLOW SWITCH, AND LOW-WATER FUEL CUT-OFF WITH MANUAL RESET, HIGH AND LOW GAS PRESSURE SWITCHES WITH MANUAL RESET.

2) BOILERS ARE 100% CAPACITY. PUMPS ARE 100% CAPACITY.

3) INSTALL ALL EQUIPMENT PER MANUFACTURER INSTALLATION INSTRUCTIONS.

4) PIPE A 2.5 GALLON CHEMICAL POT FEEDER FROM SUCTION TO DISCHARGE OF HWP-1 AND HWP-2. MOUNT A MAXIMUM OF 48" A.F.F.

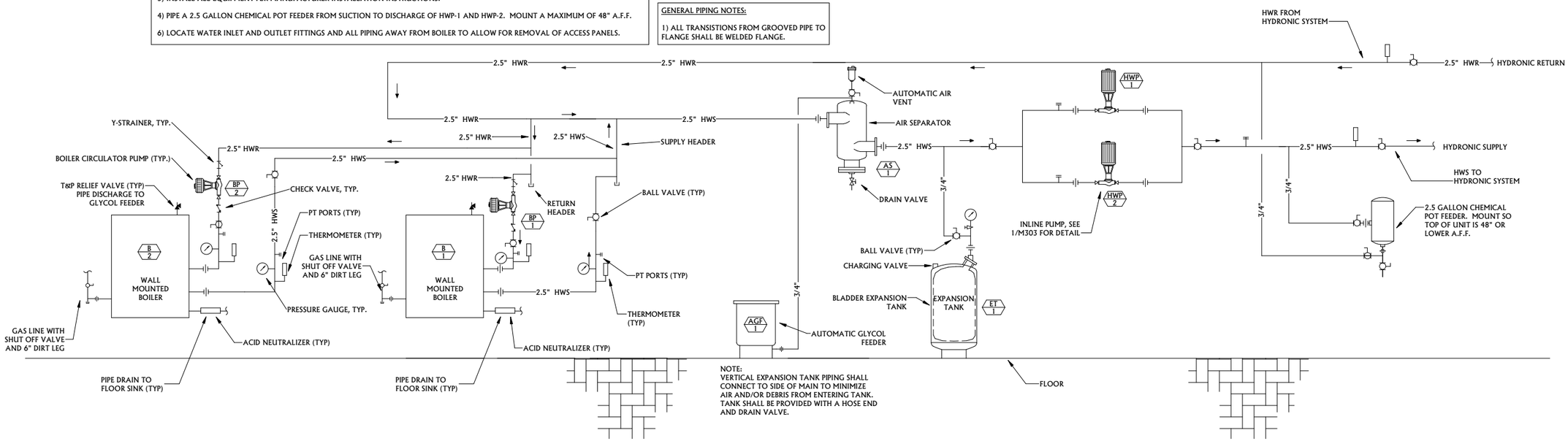
6) LOCATE WATER INLET AND OUTLET FITTINGS AND ALL PIPING AWAY FROM BOILER TO ALLOW FOR REMOVAL OF ACCESS PANELS.

GENERAL VALVING NOTES:

2) ALL VALVES TO BE BALL VALVES.

GENERAL PIPING NOTES:

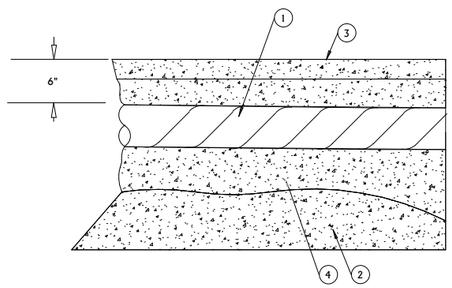
1) ALL TRANSISTIONS FROM GROOVED PIPE TO FLANGE SHALL BE WELDED FLANGE.



1 HYDRONIC HEATING SYSTEM SCHEMATIC

NOT TO SCALE

1. UNDERSLAB BLUE DUCT OR EQUIVALENT PRODUCT INTENDED TO BE DIRECTLY BURIED, SUBMIT ANY PROPOSED ALTERNATIVES FOR APPROVAL.
2. COMPACTED FILL
3. FINISHED GRADE, SEE CIVIL DRAWINGS
4. 4"-6" SUB BED



NOTE:
A TRENCH SHALL BE DEEP ENOUGH TO BURY THE DUCT. THE DUCT CAN REST ON THE SAND BEDDING. THE DUCT TRENCH SHALL BE FILLED WITH SAND BEDDING TO THE BOTTOM OF THE SLAB. BACKFILL SHALL BE TAMPED EVENLY AROUND BOTH SIDES OF THE DUCT. FLOOR SLAB CAN THEN BE POURED OVER THE DUCT MAKING A COMPLETE SLAB.

2 UNDERGROUND DUCTWORK DETAIL

NOT TO SCALE

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MECHANICAL DETAILS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET M304

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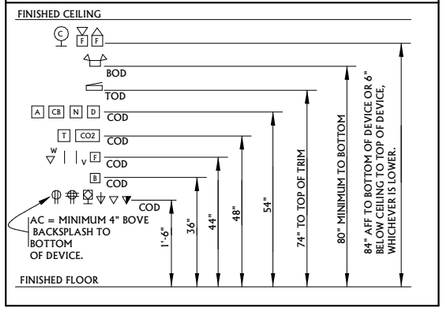
ELECTRICAL LEGEND

LIGHTING DEVICES

	LAY-IN OR RECESSED LIGHTING FIXTURE
	SURFACE MOUNTED LIGHTING FIXTURE
	DIRECT/ INDIRECT LIGHTING PENDANT MOUNTED FIXTURE.
	SURFACE MOUNTED OR CHAIN HUNG STRIP FIXTURE
	WALL BRACKET LIGHTING FIXTURE
	RECESSED DOWN LIGHT, HALF MOON INDICATES WALL WASH TRIM AND DIRECTION.
	SURFACE MOUNTED CYLINDER FIXTURE
	WALL MOUNTED FIXTURE
	WALL SCONCE FIXTURE
	FILLED CENTER OR SLASH INDICATES FIXTURE IS AN EMERGENCY DEVICE WITH EMERGENCY BATTERY PACK OR CONNECTED TO EMERGENCY POWER.
	EXIT SIGN, BRACKET INDICATES WALL MOUNTING. NUMBER OF FACES AND DIRECTION INDICATED BY FILLED AREAS.
	REMOTE DOUBLE HEAD EGRESS FIXTURE
	SITE GROUND MOUNTED FLOOD FIXTURE
	DOUBLE HEAD WALL MOUNTED BATTERY PACK POWERED EGRESS FIXTURE.
	SQUARE HEAD POLE MOUNTED SITE LIGHT FIXTURE.
	ROUND HEAD POLE MOUNTED SITE LIGHT FIXTURE.

INTERIOR MOUNTING HEIGHTS



FIRE ALARM DEVICES

F	MANUAL PULL STATION
F	AUDIO/VISUAL HORN/STOBE DEVICE
F	VISUAL STROBE DEVICE
F	AUDIO SPEAKER DEVICE
F	CEILING MOUNTED AUDIO/VISUAL SPEAKER/STROBE DEVICE
F	CEILING MOUNTED AUDIO SPEAKER DEVICE
M	MAGNETIC DOOR HOLDER
SD	SMOKE DETECTOR
HD	HEAT DETECTOR
CO	CARBON MONOXIDE DETECTOR
DSD	DUCT SMOKE DETECTOR
FSD	FIRE SMOKE DAMPER
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM REMOTE ANNUNCIATOR
R	ADDRESSABLE INTERFACE DEVICE BY EC FOR FIRE/SMOKE DAMPERS

COMMUNICATION DEVICES

	COMBINATION VOICE/ DATA DEVICE JACKS, BOX INDICATES FLOOR MOUNTING
	VOICE DEVICE JACK, BOX INDICATES FLOOR MOUNTING
	CABLE TV JACK
	INTERCOM JACK
S	CEILING MOUNTED SPEAKER
S	WALL MOUNTED SPEAKER
V	WALL MOUNTED VOLUME CONTROLLER

SECURITY SYSTEM DEVICES

CCTV	CLOSED CIRCUIT CAMERA
MS	CEILING MOUNTED MOTION SENSOR
MS	CORNER MOUNTED MOTION SENSOR
MS	WALL MOUNTED MOTION SENSOR
KP	KEY PAD
REX	REQUEST TO EXIT SENSOR

MISCELLANEOUS LEGEND

W/	WITH	AFF	ABOVE FINISHED FLOOR
AC	ABOVE COUNTER	AFG	ABOVE FINISHED GRADE
EC	ELECTRICAL CONTRACTOR	WM	WIRE MOLD
(E)	EXISTING	GC	GENERAL CONTRACTOR
(R)	RELOCATED	GND	GROUND
(N)	NEW DEVICE	UG	UNDER GROUND
C	CONDUIT	BOD	BOTTOM OF DEVICE
BFG	BELOW FINISHED GRADE	TOD	TOP OF DEVICE
UC	UNDER COUNTER	COD	CENTER OF DEVICE
WP	WEATHER PROOF	BOF	BOTTOM OF FIXTURE
MC	MECHANICAL CONTRACTOR	PC	PLUMBING CONTRACTOR

1	REFER TO ELECTRICAL NOTES
	HOMERUN TO ELECTRICAL PANEL
	NORMAL CIRCUIT CONCEALED IN WALL OR EXPOSED
	UNDERGROUND OR BURIED CIRCUIT

POWER DEVICES

	SINGLE POLE SWITCH, SUBSCRIPT INDICATES TYPE: P PILOT LIGHT 2 2 POLE MC MOMENTARY CONTACT 3 3-WAY 4 4-WAY K KEYED D DIMMER LV LOW VOLTAGE T TIMER, 1 HOUR TIMER, MOTOR RATED FOR EXHAUST FANS OS OCCUPANCY SENSOR
	DUPLEX RECEPTACLE SUBSCRIPT INDICATES TYPE: WP WEATHERPROOF GFCI GROUND FAULT CIRCUIT INTERRUPTER AC ABOVE COUNTER IG ISOLATED GROUND TR TAMPER RESISTANT WR WEATHER RESISTANT FILLED CENTER INDICATES GFCI DEVICE
	DOUBLE DUPLEX RECEPTACLE, SUBSCRIPT ABOVE INDICATE TYPE
	DUPLEX RECEPTACLE IN FLOOR BOX
	DOUBLE DUPLEX RECEPTACLE IN FLOOR BOX
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE, CEILING MOUNTED. DEVICE AND COVER SHALL MATCH CEILING FINISH
	SWITCHED DUPLEX RECEPTACLE, BOX INDICATES DEVICE LOCATED IN FLOOR BOX
	208V SINGLE PHASE RECEPTACLE, CONFIGURATION NOTED ON PLANS
	208V THREE PHASE RECEPTACLE, CONFIGURATION NOTED ON PLANS
	SIMPLEX RECEPTACLE IN FLOOR BOX
	MUSHROOM HEAD PUSH BUTTON
PC	PHOTO CELL
	WALL MOUNTED CLOCK HANGER/ POWER RECEPTACLE
OS	CORNER WALL MOUNTED OCCUPANCY SENSOR
OS1	CEILING MOUNTED OCCUPANCY SENSOR, STYLE 1
OS2	CEILING MOUNTED OCCUPANCY SENSOR, STYLE 2
OS3	CEILING MOUNTED OCCUPANCY SENSOR, STYLE 3
PP PP	OCCUPANCY SENSOR POWER PACK, BOX INDICATES WALL MOUNTING
	SPECIAL PURPOSE CONNECTION, BRACKET INDICATES WALL MOUNTING, BOX INDICATES FLOOR MOUNTING
	JUNCTION BOX, BRACKET INDICATES WALL MOUNTING, BOX INDICATES FLOOR MOUNTING
M	MOTOR CONNECTION
R	RELAY
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	COMBINATION STARTER/DISCONNECT SWITCH
	CONTACTOR
M	MOTOR THERMAL SWITCH
AS	AQUASTAT BY PLUMBING CONTRACTOR, WIRED BY EC.
VFD	VARIABLE FREQUENCY DRIVE
CO2	CO2 DETECTOR BY MC, ROUGH-IN BY EC
T	THERMOSTAT BY MC, ROUGH-IN BY EC
	PAD MOUNTED UTILITY TRANSFORMER
	ELECTRICAL PANEL - SEE PANEL SCHEDULES FOR MOUNTING CONFIGURATION

ELECTRICAL ABBREVIATIONS

A	AMP(S)
ACCU	AIR CONDITIONING CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
ADJ	ADJUSTABLE
ADMIN	ADMINISTRATION
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AMP	AMPERE(S)
APPL	APPLIANCE
APPROX	APPROXIMATE
ATS	AUTOMATIC TRANSFER SWITCH
BLDG	BUILDING
BRK	BREAKER
BTU/HR	BRITISH THERMAL UNIT/HOUR
C	CONDUIT
CB	CIRCUIT BREAKER
CCT	CIRCUIT
CCTV	CLOSED CIRCUIT TELEVISION
CUH	CABINET UNIT HEATER
CFM	CUBIC FEET PER MINUTE
COM	COMMUNICATION
COMM	COMMISSARY
COMP	COMPRESSOR
COND	CONDENSER
CONTR	CONTRACTOR
CU	COPPER
CTV	CABLE TELEVISION
CW	COOL WHITE
CWP	COLD WATER PUMP
DIA	DIAMETER
DISC	DISCONNECT
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ELEC	ELECTRIC
EMD	ESTIMATED MAXIMUM DEMAND
EMER	EMERGENCY
ENGR	ENGINEER
ETC	ETCETERA
EWC	ELECTRIC WATER COOLER
EXT	EXTERIOR
FA	FIRE ALARM
FAC	FACILITY
FACP	FIRE ALARM CONTROL PANEL
FIX	FIXTURE
FLA	FULL LOAD AMPS
FT	FOOT
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HID	HIGH INTENSITY DISCHARGE
HT	HEIGHT
HTRS	HEATERS
HW	HOT WATER
HWH	HOT WATER HEATER
HWP	HOT WATER PUMP
HZ	HERTZ
INC	INCORPORATED
J-BOX	JUNCTION BOX
KHZ	KILOHERTZ
KIT	KITCHEN
KVA	KILIVOLT AMPERE(S)
KW	KILOWATT(S)
LTS	LIGHTS
LW	LIGHT WHITE
MC	MECHANICAL CONTRACTOR
MOC	MOMENTARY CONTACT
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MFA	MINIMUM FEEDER AMPACITY
MFG	MANUFACTURER
MTS	MOTOR THERMAL SWITCH
NIC	NOT IN CONTRACT
NO	NUMBER
OCP	OVERCURRENT PROTECTION
OFCI	OWNER-FURNISHED, CONTRACTOR INSTALLED
P	PHASE
PNL	PANEL
PREP	PREPARATION
PROD	PRODUCE
P/I	PROVIDE & INSTALL
RA	REMOTE ANNUNCIATOR
RAF	RETURN AIR FAN
RECP	RECEPTACLE
RECPTS	RECEPTACLES
REF	REFRIGERATOR
REFR	REFRIGERANT
REQD	REQUIRED
RM	ROOM
RMS	ROOM(S)
RR	RESTROOMS
RS	RAPID START
SDP	SUB DISTRIBUTION PANEL
SER	SERVICE
SF	SUPPLY FAN
SHT	SHEET
SN	SOLID NEUTRAL
SP	SWITCH, PILOT
SPECS	SPECIFICATIONS
SPST	SWITCH, SINGLE POLE-SINGLE THROW
STD	STANDARD
STL	STEEL
STOR	STORAGE
SW	SWITCH
TBD	TELEPHONE BACK BOARD
TV	TELEVISION
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRICAL
UGT	UNDERGROUND TELEPHONE
UH	UNIT HEATER
V	VOLT(S)
VA	VOLT AMPERES
VEST	VESTIBULE
W	WIRE
W	WATT(S)
W/	WITH
WM	WATT MISER
XFMR	TRANSFORMER

ELECTRICAL SHEET LIST

E001	ELECTRICAL COVER SHEET
E002	ELECTRICAL SCHEDULES
E003	ELECTRICAL SCHEDULES
E101	ELECTRICAL POWER AND SPECIAL SYSTEMS PLAN
E102	ELECTRICAL LIGHTING PLAN
E301	ELECTRICAL DETAILS
E302	ELECTRICAL DETAILS
ES101	ELECTRICAL SITE PLAN

GENERAL ELECTRICAL NOTES (APPLY TO ALL DRAWINGS)

A	ALL WORK SHALL COMPLY WITH THE FOLLOWING: (1) THE LATEST ADOPTED EDITION OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) AND INTERNATIONAL CODES, (2) THE LATEST EDITION OF NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA) STANDARDS, TIA/EIA STANDARDS, ANSI/BICSI STANDARDS, UNDERWRITER LABORATORIES, INC. (UL) LISTINGS, AND (3) ALL APPLICABLE LOCAL AND REGIONAL CODES.
B	CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS ASSOCIATED WITH THIS PROJECT ON BEHALF OF THE OWNER.
C	CONTRACTOR SHALL RECOGNIZE THAT PROJECT SCOPE INCLUDES ALL PROJECT CONTRACT DOCUMENTS (DRAWINGS AND SPECIFICATIONS). THE DRAWINGS AND SPECIFICATIONS SHALL BE TAKEN TOGETHER AS ONE. CONTRACTOR SHALL PROVIDE WORK SPECIFIED AND NOT INDICATED OR WORK INDICATED AND NOT SPECIFIED AS THOUGH MENTIONED IN BOTH.
D	CONTRACTORS ARE TO COORDINATE ALL WORK WITH THE OWNER. CLEAN ALL DEBRIS FROM THE CONSTRUCTION SITE TO THE SATISFACTION OF THE OWNER. REFERENCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
E	GROUND CONTINUITY OF GROUND THROUGHOUT THE SYSTEM SHALL BE PROVIDED. SYSTEM GROUND TO COMPLY WITH NEC REQUIREMENTS. RACEWAY SHALL NOT BE RELIED UPON FOR SOLE EQUIPMENT GROUNDING MEANS. ALL RACEWAY (CONDUIT, SURFACE RACEWAY, ETC) SHALL HAVE CONTINUOUS GROUND THROUGHOUT RACEWAY SYSTEM, SIZE PER NEC. CONTRACTOR SHALL ENSURE AND CONDUCT ALL PERFORMANCE CRITERIA AND TESTING OF GROUNDING SYSTEM PER NFPA. REFERENCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
F	CONTRACTOR SHALL REPLACE ANY ACOUSTICAL CEILING TILES, PORTIONS OF THE SUSPENSION SYSTEM OR EXPOSED GRID SYSTEM DAMAGED BY HIS WORK.
G	ALL CONDUIT PENETRATING FIRE WALLS, FIRE BARRIERS, SMOKE BARRIERS, OR FIRE PARTITIONS SHALL COMPLY WITH APPLICABLE BUILDING CODES AND SHALL BE SEALED TIGHT WITH AN APPROVED FIRE STOP SEALANT RESTORING THE WALL/BARRIER/PARTITION TO ITS ORIGINAL RESISTANCE, REFERENCE SPEC SECTION 078400. UNLESS OTHERWISE NOTED ON DRAWINGS, ALL WALL, CEILING, AND FLOOR SLAB PARTITIONS SHALL BE CONSIDERED AS FIRE RATED PATCHED ACCORDINGLY.
H	NO ELECTRICAL CONDUIT SHALL BE RUN EXPOSED IN FINISHED AREAS. CONTRACTOR TO USE SURFACE METALLIC RACEWAYS FOR POWER AND LIMITED VOLTAGE TECHNOLOGY SYSTEMS WHERE INDICATED OR REQUIRED.
I	ENSURE ALL EXTERIOR WALL PENETRATIONS HAVE A SLEEVE GROUTED INTO THE WALL AND THE CONDUIT ROUTED THROUGH THE SLEEVE IS CAULKED INTO THE SLEEVE.
J	BRANCH CIRCUITS SHALL BE MINIMUM #12 CONDUCTOR AND 3/4" CONDUIT. UPSIZE CONDUIT/CONDUCTORS FOR OCPD, VOLTAGE DROP, ETC AS REQUIRED BY THE NEC.
K	ALL CABLING LOCATED IN THE CEILING SPACE SHALL BE PLENUM RATED UNLESS IT IS COMPLETELY INSTALLED IN CONDUIT. THIS INCLUDES BUT IS NOT LIMITED TO ALL LIMITED VOLTAGE TECHNOLOGY SYSTEM CABLING (EXCEPT FIRE ALARM CABLING WHICH SHALL BE INSTALLED IN CONDUIT) AND OCCUPANCY SENSOR/LIGHTING CONTROL CABLING.

ACE INC
ASSOCIATED • CONSTRUCTION • ENGINEERING
2040 HARNISH BLVD.
BILLINGS, MT 59102
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ACE JOB 21BL5442

REGISTERED PROFESSIONAL ENGINEER
15362
CHRISTOPHER B. GREEN
4/29/2022
SOUTH DAKOTA

HURON WMD

ELECTRICAL COVER SHEET

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET E001

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CG	CG	PK	2022.04.29		60 OF 74

BIM 360://5442 - USFW HURON - VISITOR CENTER/21BL5442-ELECTRICAL_R20.rvt

Panel: G1L

Location: MECHANICAL 106
Supply From: ATS
Mounting: Surface
Enclosure: 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 22,000
Mains Type: Main Circuit Breaker
Mains Rating: 400 A
Buss Rating 400 A

Notes: PROVIDE WITH 350A/3P, 22KAIR MAIN CIRCUIT BREAKER.

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	RM107 CONFERENCE RCPTS	20 A	1	1440	10900					3	125 A	AIR HANDLING UNIT AHU-1	2
3	RM108 ADMIN RCPTS	20 A	1			720	10900			--	--	--	4
5	RM111,112 OFFICE RCPTS	20 A	1					720	10900	--	--	--	6
7	RM113 LE OFFICE RCPTS	20 A	1	360	900					3	20 A	RM106 HEATING WATER SYS PUMP HWP-1	8
9	RM110 REFUGE OPEN OFFICE RCPTS (SE)	20 A	1			720	900			--	--	--	10
11	RM110 REFUGE OPEN OFFICE RCPTS (NE)	20 A	1					720	900	--	--	--	12
13	RM110 REFUGE OPEN OFF RCPTS (S CENT)	20 A	1	720	900					3	20 A	RM106 HEATING WATER SYS PUMP HWP-2	14
15	RM110 REFUGE OPEN OFF RCPTS (N CENT)	20 A	1			720	900			--	--	--	16
17	RM110 REFUGE OPEN OFFICE RCPTS (SW)	20 A	1					720	900	--	--	--	18
19	RM110 REFUGE OPEN OFFICE RCPTS (NW)	20 A	1	720	416					1	20 A	RM106 DDC PANEL	20
21	RM118 BREAK RCPTS	20 A	1			1500	1630			1	20 A	RM106 BOILER B-1, BOILER PUMP BP-1	22
23	RM120 WORKROOM RCPTS	20 A	1					720	1630	1	20 A	RM106 BOILER B-2, BOILER PUMP BP-2	24
25	RM129 OFFICE RCPTS	20 A	1	720	338					1	20 A	RM106 EXHAUST FANS EF-4, EF-8	26
27	RM131 OFFICE RCPTS	20 A	1			720	830			1	20 A	RM 106 AGF-1	28
29	RM123 REALTY OPEN OFFICE RCPTS (SE)	20 A	1					720	0	1	20 A	SPARE	30
31	RM123 REALTY OPEN OFFICE RCPTS (NE)	20 A	1	720	1967					3	30 A	VAPORIZER VAP-1	32
33	RM123 REALTY OPEN OFF RCPTS (S CENT)	20 A	1			720	1967			--	--	--	34
35	RM123 REALTY OPEN OFF RCPTS (N CENT)	20 A	1					720	1967	--	--	--	36
37	RM123 REALTY OPEN OFFICE RCPTS (SW)	20 A	1	720	267					3	20 A	SEWER LIFT STATION PUMP (PUMP-1)	38
39	RM123 REALTY OPEN OFFICE RCPTS (NW)	20 A	1			720	267			--	--	--	40
41	RM116 IT RACK RCPTS	20 A	1					1080	267	--	--	--	42
43	RM116 IT RACK RCPT	30 A	1	180	0					1	20 A	SPARE	44
45	RM116 FIRE ALARM CONTRL PANEL FACP	20 A	1			360	0			1	20 A	SPARE	46
47	RM106 ZP-5, ZP-6 RM107 ZP-10	20 A	1					1290	2500	2	30 A	ENGINE/GENERATOR PANEL	48
49	RM112 ZP-4, RM109 ZP-3, ZP-9	20 A	1	1290	2500					--	--	--	50
51	RM126 ZP-2, ZP-8	20 A	1			860	0			1	20 A	SPARE	52
53	RM120 ZP-7, RM 122 ZP-1	20 A	1					860	0	1	20 A	SPARE	54
55	SPARE	20 A	1	0	0					1	20 A	SPARE	56
57	SPARE	20 A	1			0	0			1	20 A	SPARE	58
59	SPARE	20 A	1					0	0	1	20 A	SPARE	60
61	RM106,107,114,116,118,124 LIGHTING	20 A	1	517	0					1	20 A	SPARE	62
63	RM100,101,105,121,110,119,123 LIGHTING	20 A	1			471	0			1	20 A	SPARE	64
65	EXTERIOR BLDG LIGHTS	20 A	1					312	0	1	20 A	SPARE	66
67	SPARE	20 A	1	0	0					1	20 A	SPARE	68
69	SPARE	20 A	1			0	0			1	20 A	SPARE	70
71	SPARE	20 A	1					0	0	1	20 A	SPARE	72
			Total Load:	25575 VA		24905 VA		26926 VA					
			Total Amps:	214 A		208 A		225 A					

Legend:

NOTE 1: PROVIDE RED HANDLE LOCKABLE BREAKER FOR MCCB SHOWN. LABEL PER NFPA 72 REQUIREMENTS. NOTE 2: PROVIDE 3#1/0,#6G,1 1/2"C FOR CKT G1L-2,4,6 AHU-1.

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	52699 VA	115.51%	60874 VA		
Other	0 VA	0.00%	0 VA	**Total Conn. Load:**	77405 VA
Receptacle	22870 VA	71.86%	16435 VA	**Total Est. Demand:**	79145 VA
Power	536 VA	100.00%	536 VA	**Total Conn.:**	215 A
Lighting	1300 VA	100.00%	1300 VA	**Total Est. Demand:**	220 A

Notes:

GENERAL REQUIREMENTS: PROVIDE NFPA 70-2020 ART 110.21(B) COMPLIANT HAZARD MARKINGS (ARC FLASH AND SHOCK HAZARD) IN ACCORDANCE WITH SPEC SECTION 262416 3.2S REQUIREMENTS. THE HAZARD MARKINGS MAY BE EITHER FIELD OR FACTORY APPLIED. PROVIDE FIELD MARKINGS, PHENOLIC LABEL WHITE TEXT ON BLACK BACKGROUND, OF AVAILABLE SHORT CIRCUIT CURRENT IN COMPLIANCE WITH NFPA 70-2020 ART 110.24 AND IN ACCORDANCE WITH SPEC SECTION 262416 3.2R REQUIREMENTS. PROVIDE PHENOLIC LABEL (WHITE TEXT ON BLACK BACKGROUND) WITH PANELBOARD NAME AND ELECTRICAL CHARACTERISTICS (208Y/120V, 400A, 3PH4W) ON FRONT OF PANELBOARD.

Panel: N1L

Location: MECHANICAL 106
Supply From: UT1
Mounting: Surface
Enclosure: 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 65,000
Mains Type: Main Circuit Breaker
Mains Rating: 400 A
Buss Rating 400 A

Notes: PROVIDE WITH 400A/3P, ELECTRONIC TRIP LSIG 65KAIR MAIN CIRCUIT BREAKER.

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	RM100 VEST,101 HALL,102 JANITOR RCPTS	20 A	1	690	26926					3	350 A	ATS	2
3	RM104 RESTRM RCPT+DRYER+IR SENSOR	20 A	1			1750	25575			--	--	--	4
5	RM103 RESTRM RCPT+DRYER+IR SENSOR	20 A	1					1750	24905	--	--	--	6
7	RM105 VISITOR CONTACT RCPTS (N)	20 A	1	900	1500					1	20 A	RM118 BREAK SMALL APPLIANCE CKT 1	8
9	RM105 VISITOR CONTACT RCPTS (W)	20 A	1			720	1500			1	20 A	RM118 BREAK SMALL APPLIANCE CKT 2	10
11	RM105 VISITOR CONTACT RCPTS (S)	20 A	1					1080	1200	1	20 A	RM118 BREAK MICROWAVE	12
13	RM105 VISITOR CONTACT FLOORBOX RCPTS	20 A	1	720	2000					2	50 A	RM118 BREAK RANGE	14
15	RM106 MECH/ELECT RCPTS	20 A	1			720	2000			--	--	--	16
17	RM107 CONFERENCE RM RCPTS	20 A	1					900	180	1	20 A	RM118 BREAK GARBAGE DISPOSAL	18
19	RM107 CONFERENCE RM RCPTS	20 A	1	360	1440					1	20 A	RM118 BREAK WALL RCPTS (S)	20
21	RM111 OFFICE RCPTS	20 A	1			540	540			1	20 A	RM118 BREAK WALL RCPTS (NE)	22
23	RM112 OFFICE RCPTS	20 A	1					540	1750	1	20 A	RM115 RESTRM RCPT+DRYER+IR SENSOR	24
25	RM113 LE OFFICE RCPTS	20 A	1	540	1750					1	20 A	RM125 RESTRM RCPT+DRYER+IR SENSOR	26
27	RM108 ADMIN RCPTS	20 A	1			900	1260			1	20 A	RM128 TEAM RM,129 OFFICE RCPTS	28
29	RM109 STORAGE 3 RCPTS	20 A	1					900	1080	1	20 A	RM130 OFFICE,131 OFFICE RCPTS	30
31	RM114 HALL,110 OPEN OFF HALL RCPTS	20 A	1	540	540					1	20 A	EXTERIOR RCPTS (E) (SE)	32
33	RM110 REFUGE OPEN OFFICE RCPTS (SE)	20 A	1			720	360			1	20 A	EXTERIOR RCPTS (W) (S)	34
35	RM110 REFUGE OPEN OFFICE RCPTS (NE)	20 A	1					900	540	1	20 A	EXTERIOR RCPTS (N)	36
37	RM110 REFUGE OPEN OFF RCPTS (S CENT)	20 A	1	720	1116					1	20 A	RM 118,120-122,125-131 LIGHTING	38
39	RM110 REFUGE OPEN OFF RCPTS (N CENT)	20 A	1			900	1093			1	20 A	RM 107,111-113,115,117 LIGHTING	40
41	RM110 REFUGE OPEN OFFICE RCPTS (SW)	20 A	1					720	87	1	20 A	FLAG POLE LIGHTING	42
43	RM110 REFUGE OPEN OFFICE RCPTS (NW)	20 A	1	900	652					1	20 A	PARKING LOT LIGHTING	44
45	RM117 STORAGE 2 RCPTS	20 A	1			540	900			1	20 A	RM123 REALTY OPEN OFFICE LIGHTING	46
47	RM121 LOCKER RCPTS	20 A	1					360	900	1	20 A	RM110 REFUGE OPEN OFFICE LIGHTING	48
49	RM120 WORKROOM RCPTS (N)	20 A	1	900	590					1	20 A	RM105 VISITOR CONTACT LIGHTING	50
51	RM120 WORKROOM RCPTS (S)	20 A	1			720	0			1	20 A	SPARE	52
53	RM122 STORAGE RCPTS	20 A	1					720	0	1	20 A	SPARE	54
55	RM119 HALL RCPTS	20 A	1	360	0					1	20 A	SPARE	56
57	RM127 STORAGE 1,126 JANITOR RCPTS	20 A	1			720	0			1	20 A	SPARE	58
59	RM124 HALL,123 OPEN OFF HALL RCPTS	20 A	1					540	0	1	20 A	SPARE	60
61	RM123 REALTY OPEN OFFICE RCPTS (SE)	20 A	1	720	0					1	20 A	SPARE	62
63	RM123 REALTY OPEN OFFICE RCPTS (NE)	20 A	1			1080	0			1	20 A	SPARE	64
65	RM123 REALTY OPEN OFF RCPTS (S CENT)	20 A	1					720	0	1	20 A	SPARE	66
67	RM123 REALTY OPEN OFF RCPTS (N CENT)	20 A	1	900	0					1	20 A	SPARE	68
69	RM123 REALTY OPEN OFFICE RCPTS (SW)	20 A	1			720	0			1	20 A	SPARE	70
71	RM123 REALTY OPEN OFFICE RCPTS (NW)	20 A	1					1080	0	1	20 A	SPARE	72
			Total Load:	44761 VA		43258 VA		40852 VA					
			Total Amps:	376 A		364 A		340 A					

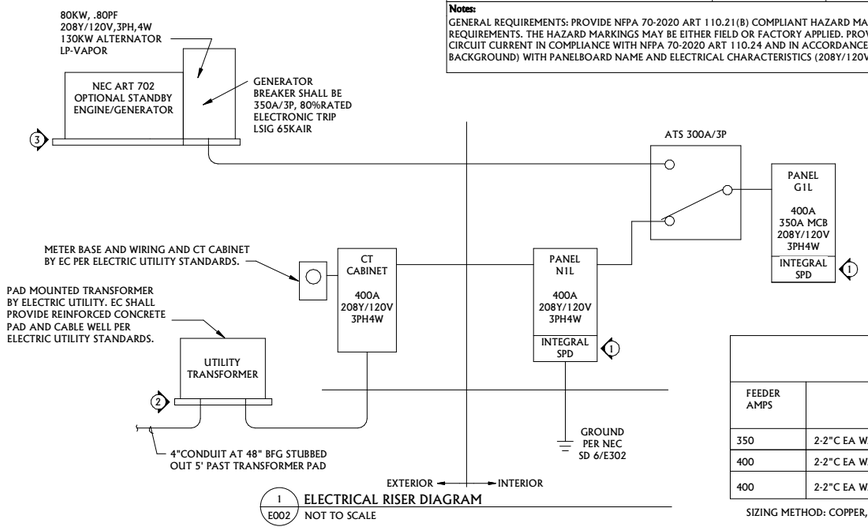
Legend:

NOTE 1: PROVIDE 3#6,#10G,3/4"C FOR CKT N1L-14,16 RANGE.

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Kitchen Equipment - Non-Dwelling Unit	4380 VA	65.00%	2847 VA		
Motor	53029 VA	115.42%	61204 VA	**Total Conn. Load:**	128870 VA
Other	0 VA	0.00%	0 VA	**Total Est. Demand:**	111508 VA
Receptacle	58010 VA	58.62%	34005 VA	**Total Conn.:**	358 A
Power	6816 VA	100.00%	6816 VA	**Total Est. Demand:**	310 A
Lighting	6636 VA	100.00%	6636 VA		

Notes:

GENERAL REQUIREMENTS: PROVIDE NFPA 70-2020 ART 110.21(B) COMPLIANT HAZARD MARKINGS (ARC FLASH AND SHOCK HAZARD) IN ACCORDANCE WITH SPEC SECTION 262416 3.2S REQUIREMENTS. THE HAZARD MARKINGS MAY BE EITHER FIELD OR FACTORY APPLIED. PROVIDE FIELD MARKINGS, PHENOLIC LABEL WHITE TEXT ON BLACK BACKGROUND, OF AVAILABLE SHORT CIRCUIT CURRENT IN COMPLIANCE WITH NFPA 70-2020 ART 110.24 AND IN ACCORDANCE WITH SPEC SECTION 262416 3.2R REQUIREMENTS. PROVIDE PHENOLIC LABEL (WHITE TEXT ON BLACK BACKGROUND) WITH PANELBOARD NAME AND ELECTRICAL CHARACTERISTICS (208Y/120V, 400A, 3PH4W) ON FRONT OF PANELBOARD.



FEEDER SCHEDULE

FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
350	2-2"C EA W/ 3#2/0,#2/0N,#3G	ATS, G1L
400	2-2"C EA W/ 3#3/0,#3/0N,#3G	N1L
400	2-2"C EA W/ 3#3/0,#3/0N	CT CABINET

SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C 1/0 AND ABOVE

GENERAL ELECTRICAL NOTES:

A. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL UTILITY REQUIREMENTS, FINAL LOCATIONS AND LOAD INFORMATION WITH ELECTRIC UTILITY.

KEY ELECTRICAL NOTES:

1. PROVIDE INTEGRAL SURGE PROTECTION IN PANELBOARD, REFER TO SPECIFICATIONS FOR REQUIREMENTS.
2. PROVIDE CONCRETE PAD OR VAULT PER ELECTRIC UTILITY COMPANY STANDARDS AND REQUIREMENTS. REFER TO SITE PLAN FOR TRANSFORMER LOCATION.
3. PROVIDE CONCRETE PAD FOR ENGINE/GENERATOR IN COMPLIANCE WITH ENGINE/GENERATOR MANUFACTURER REQUIREMENTS.

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REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER B. GREEN
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4/29/2022
SOUTH DAKOTA

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HURON WMD

ELECTRICAL SCHEDULES

MULTIPURPOSE BUILDING AND VISITOR CENTER

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
CG	CG	PK	2022.04.29	

SUB-SHEET E002

SHEET 61 OF 74

LUMINAIRE SCHEDULE

FIXT TYPE LETTR	MANUFACTURER	MODEL NUMBER	MOUNTING	COLOR TEMP	LUMENS	Voltage	WATTS	DESCRIPTION
A	LITHONIA OR EQUAL	2BTL4-60LHE-ADSM-EZ1-LP835	REC/LAY-IN	3500K	5815	120 V	43	
A2	LITHONIA OR EQUAL	2BTL4-60LHE-ADSM-EZ1-LP835-DGA	REC/FLANGE	3500K	5815	120 V	43	
AA	LITHONIA OR APPROVED SUBSTITUTION	DSX1LED-P6-50K-T4M-MVOLT-SPA-SF-DBLXD	POLE	5000K	18635		163	
AE	LITHONIA OR EQUAL	2BTL4-60LHE-ADSM-EZ1-LP835-EL14LSD	REC/FLANGE	3500K	5815	120 V	43	
B	LITHONIA OR EQUAL	2GTL-4-60L-RW-A12125-EZ1-LP835	REC/LAY-IN	3500K	6218		49	
B2	LITHONIA OR EQUAL	2GTL-F-4-60L-RW-A12125-EZ1-LP835	REC/FLANGE	3500K	6218		49	
B2E	LITHONIA OR EQUAL	2GTL-F-4-60L-RW-A12125-EZ1-LP835-EL14L	REC/FLANGE	3500K	6218		49	
BB	HYDREL OR APPROVED SUBSTITUTION	M9720C-B-LED-P1-50K-MVOLT-NSP-FLC-34S-RG-STR	IN-GRADE	5000K	3133	120 V	29	
C	GOTHAM OR EQUAL	EVO6-35/25-AR-MWD-LS-MVOLT-GZ10	CEIL/REC	3500K	2537	120 V	25	
CC	LITHONIA OR APPROVED SUBSTITUTION	DSXW1LED-10C-530-50K-TFTM-MVOLT-DDBXD	WALL/SURFACE	5000K	2212		20	
D	EUREKA OR APPROVED SUBSTITUTION	3545-24-LED-SHO-35-80-120V-DV-WI-WHE-WH	WALL/SURFACE	3500K	2411		24	
DD	LITHONIA OR APPROVED SUBSTITUTION	DSXW1LED-20C-530-50K-TFTM-MVOLT-DDBXD	WALL/SURFACE	5000K	4394		36	
DDE	LITHONIA OR APPROVED SUBSTITUTION	DSXW1LED-20C-530-50K-TFTM-MVOLT-DDBXD-ELCW	WALL/SURFACE	5000K	4394		36	
E3	LITHONIA OR EQUAL	ECRG-HO-SQ-M6	UNIVERSAL	4000K			5	DIE-CAST SINGLE FACE LED EXIT SIGN W/ EM SELF DIAGNOSTIC BATTERY PACK
E3A	LITHONIA OR EQUAL	ERE-GY-T-SQ-WP	WALL/SURFACE	4000K		120 V	1	
F	LITHONIA OR EQUAL	ZL1N-L48-7000LM-FST-MVOLT-50K-80CRI-WH-HC36	CHAIN-HUNG	5000K	7035		52	
FE	LITHONIA OR EQUAL	ZL1N-L48-7000LM-FST-120-50K-80CRI-E7W-WH-HC36	CHAIN-HUNG	5000K	7035		52	
G	PEERLESS OR APPROVED SUBSTITUTION	BRM9L-LSL-4FT-MSL4-80CRI-35K-ID1200LMF-40/60-MIN1-ZT-MVOLT-SCT-F2/MCSJ/72A-C210	SUSPENDED CABLE	3500K	4800		45	
H	JUNO OR EQUAL	UCES-24IN-SWW6-90CRI-WH-M6UCES-24IN-SWW6-90CRI-WH-M6	SURFACE	3500K	825		11	2' LED UNDERCABINET LIGHTING. WHITE HOUSING. COLOR TEMPERATURE SWITCH SELECTABLE, 90CRI
J	JUNO OR EQUAL	T254L-G2-35K-90CRI-PDIM-SP-WH	CEIL/TRACK	3500K	1252		15	

NOTE:
FOR TYPE AA LUMINAIRE, PROVIDE POLE LITHONIA SSS-30-6G-DM19AS-VD-DBLXD OR APPROVED SUBSTITUTION.

GENERAL REQUIREMENTS:
1. LUMINAIRE TYPES DEFINED WITH A MANUFACTURER'S SERIES FOLLOWED BY "OR EQUAL" DO NOT REQUIRE PRIOR APPROVAL FOR SUBSTITUTED PRODUCTS TO BID. HOWEVER, THIS DOES NOT ALLEVIATE THE SUBSTITUTED PRODUCT FROM MEETING OR EXCEEDING THE QUALITIES AND STANDARDS SET FORTH OF THE LISTED MANUFACTURER AND SERIES.
2. LUMINAIRE TYPES DEFINED WITH A MANUFACTURER'S SERIES FOLLOWED BY "OR APPROVED SUBSTITUTION" REQUIRE PRIOR APPROVAL FOR SUBSTITUTED PRODUCTS TO BID. HOWEVER, THIS DOES NOT ALLEVIATE THE SUBSTITUTED PRODUCT FROM MEETING OR EXCEEDING THE QUALITIES AND STANDARDS SET FORTH OF THE LISTED MANUFACTURER AND SERIES.

STARTER, DISCONNECT, AND CONTROL SCHEDULE

UNIT NO	MOTOR HP	MOTOR VOLT PHASE	MOTOR LOCATION	STARTER NEMA SIZE	STARTER TYPE	STARTER LOCATION	CONTROL TYPE	CONTROL LOCATION	DISCONNECT SWITCH SIZE	DISCONNECT FUSE SIZE	REMARKS/NOTES
VAP-1	5.9 kW	208/3	PROPANE TANKS	N/A	N/A	N/A	PRESSURE	AT UNIT	30A/3P	(3) 25AF	NOTE 1,4,6,7
DWH-1	205 VA	120/1	MECH/ELEC 106	FRACTIONAL	MTS	AT UNIT	THERMOSTAT	AT UNIT	30A/1P	N/A	
AHU-1	118 MCA	200/3	OUTSIDE BLDG	<---------- WITH UNIT ---------->			TC	AT UNIT	N/A	N/A	NOTE 1
PUMP-1	1/2	200/3	OUTSIDE BLDG	<---------- WITH UNIT ---------->			FLOAT	AT UNIT	30A/1P	N/A	NOTE 1, 7
B-1	1.2 kW	120/1	MECH/ELEC 106	<---------- WITH UNIT ---------->			THERMOSTAT	AT UNIT	N/A	N/A	NOTE 1
B-2	1.2 kW	120/1	MECH/ELEC 106	<---------- WITH UNIT ---------->			THERMOSTAT	AT UNIT	N/A	N/A	NOTE 1
BP-1	.12 kW	115/1	MECH/ELEC 106	FRACTIONAL	MTS	AT WALL	B-1	AT UNIT	N/A	N/A	NOTE 1,2
BP-2	.12 kW	115/1	MECH/ELEC 106	FRACTIONAL	MTS	AT WALL	B-2	AT UNIT	N/A	N/A	NOTE 1,2
HWP-1	2	200/3	MECH/ELEC 106	N/A	VFD	AT WALL	B-1, B-2	AT UNIT	N/A	N/A	NOTE 1,2
HWP-2	2	200/3	MECH/ELEC 106	N/A	VFD	AT WALL	B-1, B-2	AT UNIT	N/A	N/A	NOTE 1,2
ZP-1	1/8	115/1	LOCKER 121	FRACTIONAL	MTS	AT UNIT	TC (RZ-1)	AT UNIT	30A/1P	N/A	NOTE 3
ZP-2	1/8	115/1	RESTROOM 125	FRACTIONAL	MTS	AT UNIT	TC (RZ-2)	AT UNIT	30A/1P	N/A	NOTE 3
ZP-3	1/8	115/1	STORAGE 109	FRACTIONAL	MTS	AT UNIT	TC (RZ-3)	AT UNIT	30A/1P	N/A	NOTE 3
ZP-4	1/8	115/1	OFFICE 112	FRACTIONAL	MTS	AT UNIT	TC (RZ-4)	AT UNIT	30A/1P	N/A	NOTE 3
ZP-5	1/8	115/1	MECH/ELEC 106	FRACTIONAL	MTS	AT UNIT	TC (RZ-5)	AT UNIT	30A/1P	N/A	NOTE 3
ZP-6	1/8	115/1	MECH/ELEC 106	FRACTIONAL	MTS	AT UNIT	TC (RZ-6)	AT UNIT	30A/1P	N/A	NOTE 3
ZP-7	1/8	115/1	WORKROOM 120	FRACTIONAL	MTS	AT UNIT	TC (RZ-7)	AT UNIT	30A/1P	N/A	NOTE 3
ZP-8	1/8	115/1	JANITOR 126	FRACTIONAL	MTS	AT UNIT	TC (RZ-8)	AT UNIT	30A/1P	N/A	NOTE 3
ZP-9	1/8	115/1	STORAGE 109	FRACTIONAL	MTS	AT UNIT	TC (RZ-9)	AT UNIT	30A/1P	N/A	NOTE 3
ZP-10	1/8	115/1	CONFERENCE 107	FRACTIONAL	MTS	AT UNIT	TC (RZ-10)	AT UNIT	30A/1P	N/A	NOTE 3
AGF-1	1/3	115/1	MECH/ELEC 106	<---------- WITH UNIT ---------->			THERMOSTAT	AT UNIT	RCPT	N/A	NOTE 5
EF-1	.0345 kW	115/1	RESTROOM 125	<---------- WITH UNIT ---------->			OC	AT ROOM	N/A	N/A	NOTE 1
EF-2	.0345 kW	115/1	JANITOR 126	<---------- WITH UNIT ---------->			WALL SWITCH	AT ROOM	N/A	N/A	NOTE 1
EF-3	.0345 kW	115/1	RESTROOM 115	<---------- WITH UNIT ---------->			OC	AT ROOM	N/A	N/A	NOTE 1
EF-4	.242 kW	115/1	MECH/ELEC 106	FRACTIONAL	MTS	AT WALL	WALL SWITCH	AT ROOM	N/A	N/A	NOTE 3
EF-5	.0345 kW	115/1	RESTROOM 104	<---------- WITH UNIT ---------->			OC	AT ROOM	N/A	N/A	NOTE 1
EF-6	.0345 kW	115/1	RESTROOM 103	<---------- WITH UNIT ---------->			OC	AT ROOM	N/A	N/A	NOTE 1
EF-7	.0345 kW	115/1	JANITOR 102	<---------- WITH UNIT ---------->			WALL SWITCH	AT ROOM	N/A	N/A	NOTE 1
EF-8	.096 kW	115/1	MECH/ELEC 106	FRACTIONAL	MTS	AT WALL	WALL SWITCH	AT ROOM	N/A	N/A	NOTE 3
CUH-1	.33 kW	120/1	VEST 100	N/A	N/A	N/A	THERMOSTAT	AT UNIT	N/A	N/A	NOTE 1

NOTE 1: SINGLE-POINT OF CONNECTION. ALL STARTERS, DISCONNECTS, THERMAL OVERLOADS, ETC ARE INTEGRAL WITH EQUIPMENT BY DIVISION 22/23.
NOTE 2: EQUIPMENT COMES WITH VFD BY DIVISION 22/23. VFD HAS INTEGRAL BYPASS STARTER AND DISCONNECT.
NOTE 3: EQUIPMENT COMES WITH INTEGRAL MOTOR STARTER.
NOTE 4: FUSE PER MANUFACTURER'S RECOMMENDATIONS.
NOTE 5: EQUIPMENT COMES WITH POWER SUPPLY CORD WITH NEMA 5-20P.
NOTE 6: CLASS I, DIV 1 EQUIPMENT BY DIVISION 22/23. CONNECT TO EXPLOSION PROOF BOX PROVIDED AT BASE OF EQUIPMENT.
NOTE 7: HEAVY-DUTY FUSED DISCONNECT SWITCH IS NEMA 3R RATED WITH LOCKING PROVISIONS.

KEY:
B= HAND-OFF-AUTO SELECTOR SWITCH
FT = CONTROL XFMR 120V FUSED
FVNR= FULL VOLTAGE NON-REVERSING STARTER
VFD= VARIABLE FREQUENCY DRIVE
MCA= MINIMUM CIRCUIT AMPACITY
G= GREEN "OFF" PILOT LIGHT
SPC= SINGLE POINT CONNECTION
FVR= FULL VOLTAGE REVERSING STARTER
MTS= MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION & LOCK-OFF GUARD (MOTOR THERMAL SWITCH)
TC= TEMPERATURE CONTROL
R= RED "ON" PILOT LIGHT
OC= OCCUPANCY SENSOR
RVS= REDUCED VOLTAGE STARTER

PROVIDE ALL MOTORS OVER 5 HP WITH SOLID STATE OVERLOADS.
COORDINATE EXACT REQUIREMENTS WITH MECHANICAL SHOP DRAWINGS PRIOR TO ORDERING EQUIPMENT OR RUNNING FEEDERS.
PROVIDE ALL STARTERS WITH 2 N.O & 2 N.C. AUXILIARY INTERLOCKING RELAYS, NEMA SIZE 1 UNLESS OTHERWISE NOTED.

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ELECTRICAL SCHEDULES

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET E003

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CG	CG	PK	2022.04.29		62 OF 74

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ELECTRICAL GENERAL NOTES

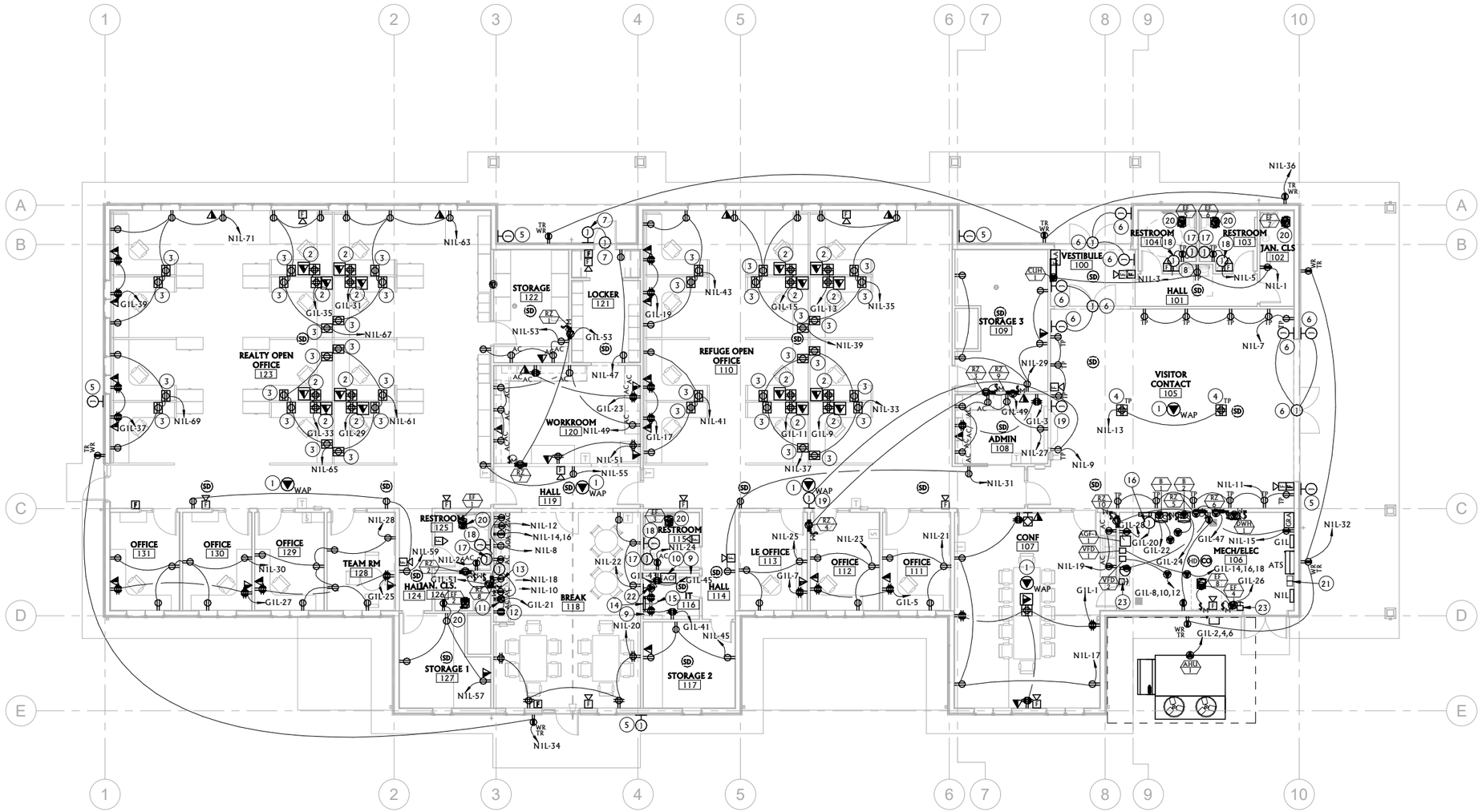
A	THE FIRE ALARM SYSTEM WIRING SHALL BE INSTALLED IN CONDUIT. DRAWINGS FOR THE FIRE ALARM SYSTEMS ARE DIAGRAMMATIC ONLY. EXACT WIRING REQUIREMENTS SHALL BE PROVIDED BY THE FA SYSTEM MANUFACTURER. REFERENCE DETAIL 5/E302 AND SPEC SECTION 283111 FOR ADDITIONAL REQUIREMENTS. FIRE ALARM DEVICES SHOULD BE MOUNTED CENTERED ABOVE SWITCHES WHENEVER POSSIBLE.
B	ALL LIMITED VOLTAGE TECHNOLOGY SYSTEM CABLING LOCATED WITHIN THE CEILING SPACE SHALL BE PLENUM RATED UNLESS IT IS COMPLETELY INSTALLED IN CONDUIT. ALL FIRE ALARM CABLING SHALL BE IN A FULL CONDUIT SYSTEM, NO EXCEPTIONS.
C	ALL ACCESS CONTROL SYSTEM DEVICES, CABLING, TERMINATION AND TESTING SHALL BE INSTALLED AS PART OF A SEPARATE PROJECT ADMINISTERED BY THE OWNER. EC SHALL PROVIDE ROUGH-IN AT LOCATIONS SHOWN AND PROVIDE 120VAC POWER AT LOCATIONS SHOWN. REFERENCE SPEC SECTION 270507 FOR ADDITIONAL REQUIREMENTS.
D	ALL VIDEO SURVEILLANCE SYSTEM DEVICES, CABLING, TERMINATION AND TESTING SHALL BE INSTALLED AS PART OF A SEPARATE PROJECT ADMINISTERED BY THE OWNER. REFERENCE SPEC SECTION 270507 FOR ADDITIONAL REQUIREMENTS.
E	FOR COMMUNICATIONS, AND TELEVISION SYSTEMS CONDUIT/CONDUCTORS, REFERENCE DETAIL 2/E301 FOR TYPICAL ROOM DETAILS AND REQUIREMENTS.

ELECTRICAL GENERAL NOTES

F	PROVIDE ALL COMMUNICATIONS OUTLETS PER DETAIL 1/E301 REQUIREMENTS.
G	ENSURE ALL EXTERIOR WALL PENETRATIONS HAVE A SLEEVE GROUTED INTO THE WALL AND THE CONDUIT ROUTED THROUGH THE SLEEVE IS CAULKED INTO THE SLEEVE.
H	ALL EXTERIOR RECEPTACLES SHALL HAVE A WEATHERPROOF WHILE-IN-USE EXTRA DUTY COVER IN ACCORDANCE WITH SPECIFICATION SECTION 262726 2.5D REQUIREMENTS.
I	REFERENCE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS, DIMENSIONS, ETC. CAREFULLY EXAMINE ARCHITECTURAL FLOOR PLANS, CEILING PLANS, ELEVATIONS, ETC. FOR INFORMATION THAT AFFECTS ELECTRICAL WORK. NOTIFY ARCHITECT/ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ARCHITECTURAL AND ELECTRICAL PLANS.
J	FOR EACH DIV 23 THERMOSTAT OR TEMPERATURE SENSOR, PROVIDE FOUR SQUARE BOX WITH SINGLE GANG MUD RING AND 3/4"C (WITH 1/2" MULE TAPE) UP TO A LOCATION ABOVE THE ACCESSIBLE CEILING. SELECT SINGLE GANG MUD RING TYPE DEPENDING UPON SHEETROCK DEPTH. FIELD COORDINATE EXACT LOCATION WITH DIV 23. REFERENCE DETAIL 3/E301 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

ELECTRICAL KEYNOTES

1	PROVIDE 2 1/8" DEEP, 4" SQUARE JUNCTION BOX WITH A SINGLE-GANG MUD RING ABOVE ACCESSIBLE CEILING FOR FUTURE WIRELESS ACCESS POINT (WAP). PROVIDE NUMBER OF DATA DROPS AND COMMUNICATIONS AS SHOWN. FIELD VERIFY EXACT LOCATION. PROVIDE ROUGH-IN AND 3/4"C TO NEAREST CORRIDOR LOCATION.
2	PROVIDE THREE-GANG FLOOR BOX IN COMPLIANCE WITH SPECIFICATIONS. PROVIDE TWO OPENINGS EACH WITH A GENERATOR POWER (RED) DUPLEX RECEPTACLE. PROVIDE ONE OPENING WITH 1 VOICE AND 1 DATA OUTLET. PROVIDE 3/4"C FOR EACH POWER OPENING FROM FLOOR BOX TO EMPTY JUNCTION BOX IN WALL. ROUTE CONDUIT IN FLOOR SLAB AND THEN UP WALL AND STUBBED TO CEILING SPACE. PROVIDE 1"C FOR VOICE/DATA OPENING FROM FLOOR BOX TO EMPTY JUNCTION BOX IN WALL. ROUTE CONDUIT IN FLOOR SLAB AND THEN UP WALL AND STUBBED TO CEILING SPACE. FIELD COORDINATE FINAL FLOOR BOX LOCATION WITH FINAL LOCATIONS OF ALL ROOM FURNITURE PRIOR TO INSTALLATION.
3	PROVIDE TWO-GANG FLOOR BOX IN COMPLIANCE WITH SPECIFICATIONS. PROVIDE ONE OPENING WITH A NORMAL POWER (LIGHT ALMOND) DUPLEX RECEPTACLE. PROVIDE ONE OPENING FOR FUTURE CABLING. PROVIDE 3/4"C FOR POWER OPENING FROM FLOOR BOX TO EMPTY JUNCTION BOX IN WALL. ROUTE CONDUIT IN FLOOR SLAB AND THEN UP WALL AND STUBBED TO CEILING SPACE. PROVIDE 1"C FOR FUTURE CABLING OPENING FROM FLOOR BOX TO EMPTY JUNCTION BOX IN WALL. ROUTE CONDUIT IN FLOOR SLAB AND THEN UP WALL AND STUBBED TO CEILING SPACE. FIELD COORDINATE FINAL FLOOR BOX LOCATION WITH FINAL LOCATIONS OF ALL ROOM FURNITURE PRIOR TO INSTALLATION.
4	PROVIDE TWO-GANG FLOOR BOX IN COMPLIANCE WITH SPECIFICATIONS. PROVIDE TWO OPENINGS EACH WITH A NORMAL POWER (LIGHT ALMOND) DUPLEX RECEPTACLE. PROVIDE 3/4"C FOR POWER OPENING FROM FLOOR BOX TO EMPTY JUNCTION BOX IN WALL. ROUTE CONDUIT IN FLOOR SLAB AND THEN UP WALL AND STUBBED TO CEILING SPACE. PROVIDE 1"C FOR FUTURE CABLING OPENING FROM FLOOR BOX TO EMPTY JUNCTION BOX IN WALL. ROUTE CONDUIT IN FLOOR SLAB AND THEN UP WALL AND STUBBED TO CEILING SPACE. FIELD COORDINATE FINAL FLOOR BOX LOCATION WITH FINAL LOCATIONS OF ALL ROOM FURNITURE PRIOR TO INSTALLATION.
5	FOR FUTURE EXTERIOR OFOI VSS CAMERA, PROVIDE WEATHERPROOF 2 1/8" DEEP, 4" SQUARE JUNCTION BOX WITH A SINGLE-GANG MUD RING RECESSED IN EXTERIOR WALL. PROVIDE TWO DATA DROPS AT LOCATION SHOWN. FIELD VERIFY EXACT LOCATION WITH OWNER AND GC. PROVIDE ROUGH-IN AND 3/4"C TO NEAREST CORRIDOR LOCATION. REFERENCE SPEC SECTION 270507 FOR ADDITIONAL REQUIREMENTS.
6	PROVIDE ROUGH-IN AT DOUBLE-DOOR AND CONDUIT AS REQUIRED FOR FUTURE OFOI ACCESS CONTROL SYSTEM DEVICES AND ADA DOOR OPERATOR AND ADA PUSH PLATES. FIELD COORDINATE WORK WITH GC AND OWNER. REFERENCE DETAIL 6/E301, SPEC SECTION 270507 AND DIVISION 08 FOR ADDITIONAL REQUIREMENTS. COORDINATE WORK WITH DIVISION 08 AND PROVIDE ALL INTERCONNECTING CONDUIT REQUIRED BY DIVISION 08.
7	PROVIDE ROUGH-IN AT SINGLE-DOOR AND CONDUIT AS REQUIRED FOR FUTURE OFOI ACCESS CONTROL SYSTEM DEVICES. FIELD COORDINATE WORK WITH GC AND OWNER. REFERENCE DETAIL 6/E301, SPEC SECTION 270507 AND DIVISION 08 FOR ADDITIONAL REQUIREMENTS. COORDINATE WORK WITH DIVISION 08 AND PROVIDE ALL INTERCONNECTING CONDUIT REQUIRED BY DIVISION 08.
8	CONNECTION TO ELECTRIC WATER COOLER. COORDINATE EXACT LOCATION WITH EQUIPMENT INSTALLATION.
9	PROVIDE 3/4" PLYWOOD PAINTED WITH GRAY FIRE RETARDANT PAINT ON BOTH SIDES LINING THE TELECOMMUNICATIONS ROOM TO A HEIGHT OF 8 FEET.
10	INSTALL FIRE ALARM CONTROL PANEL (FACP) AND DIGITAL ALARM COMMUNICATOR TRANSMITTER (DACT). PROVIDE TO DACT, DUAL TELEPHONE LINES WITH VOLTAGE DETECTION PER SPEC SECTION 283111 REQUIREMENTS.
11	PROVIDE SPECIFICATION GRADE, DEAD FRONT 120V, 20A GFCI DEVICE IN A 1-GANG BOX MOUNTED IN READILY ACCESSIBLE LOCATION ABOVE COUNTER. DEVICE IS CONNECTED UPSTREAM OF REFRIGERATOR RECEPTACLE.
12	RECEPTACLE FOR FULL-HEIGHT REFRIGERATOR. FIELD COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH EQUIPMENT INSTALLATION.
13	PROVIDE RECEPTACLE FOR GARBAGE DISPOSER. COORDINATE EXACT LOCATION WITH EQUIPMENT INSTALLATION. PROVIDE 20A/1P MOMENTARY CONTACT SWITCH MOUNTED ABOVE COUNTER TO CONTROL RECEPTACLE. SWITCH IS CONNECTED UPSTREAM OF RECEPTACLE.
14	PROVIDE 'TMGB' GROUND BAR IN ACCORDANCE WITH DETAILS 4/E301 AND 5/E301.
15	PROVIDE #6AWG INSULATED COPPER GROUNDING CONDUCTOR (BONDING JUMPER) FROM 'TMGB' GROUND BAR TO IT RACK AS SHOWN.
16	CONNECTION FOR DDC PANEL. COORDINATE EXACT LOCATION WITH DIVISION 23 CONTRACTOR.
17	PROVIDE NEMA5-20R GFCI RECEPTACLE OR HARD CONNECTION FOR LAVATORY OR SINK INFRARED SENSOR AS REQUIRED. COORDINATE EXACT REQUIREMENTS AND LOCATION WITH EQUIPMENT INSTALLATION.
18	PROVIDE ROUGH-IN FOR GC FURNISHED ELECTRIC HAND DRYER AT MOUNTING HEIGHT NOTED ON ARCHITECTURAL ELEVATIONS AND SPECIFICATION SECTION 102813. GC TO PROVIDE STRUCTURAL SUPPORT AND INSTALLATION OF ELECTRIC HAND DRYER. FIELD COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT INSTALLATION. PROVIDE MTS MOUNTED ABOVE ACCESS PANEL IN HARD CEILING AS SHOWN.
19	PROVIDE WALL ROUGH-IN FOR DOORBELL PUSHBUTTON AT RECEPTION AREA AND WALL ROUGH-IN FOR DOORBELL CHIME AT OFFICE AREA. PROVIDE 1/2"C (WITH 1/2" MULE TAPE) FROM DOORBELL PUSHBUTTON TO DOORBELL CHIME AS SHOWN FOR DOORBELL CONDUCTORS. FURNISH AND INSTALL TRADITIONAL RESIDENTIAL TYPE DOORBELL SYSTEM. PROVIDE 120VAC POWER CONNECTION, JUNCTION BOXES AND 2#12,#12G,3/4"C AS REQUIRED.
20	PROVIDE 2#12,#12G,3/4"C AS REQUIRED TO CONNECT EXHAUST FAN TO ROOM LIGHTING CIRCUIT.
21	LIGHTING CONTACTOR AND 24 HOUR TIMECLOCK. REFERENCE DETAIL 3/E302.
22	PROVIDE 2#10,#10G,3/4"C TO SINGLE RECEPTACLE NEMA L5-30R FOR IT RACK.
23	PROVIDE 120V, 20A EMERGENCY POWER CIRCUIT FROM G1L FOR BOILER EMERGENCY SHUTDOWN PER DETAIL 1/E302 REQUIREMENTS. PROVIDE ALL PUSHBUTTONS, ELECTRICAL CONNECTIONS AND 2#12,#12G,3/4"C AS REQUIRED FOR A FULLY FUNCTIONING SYSTEM.



N

1 / E101 — ELECTRICAL POWER AND SPECIAL SYSTEMS PLAN

1/8" = 1'-0"

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ELECTRICAL POWER AND SPECIAL SYSTEMS PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET E101

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CG	CG	PK	2022.04.29		63 OF 74

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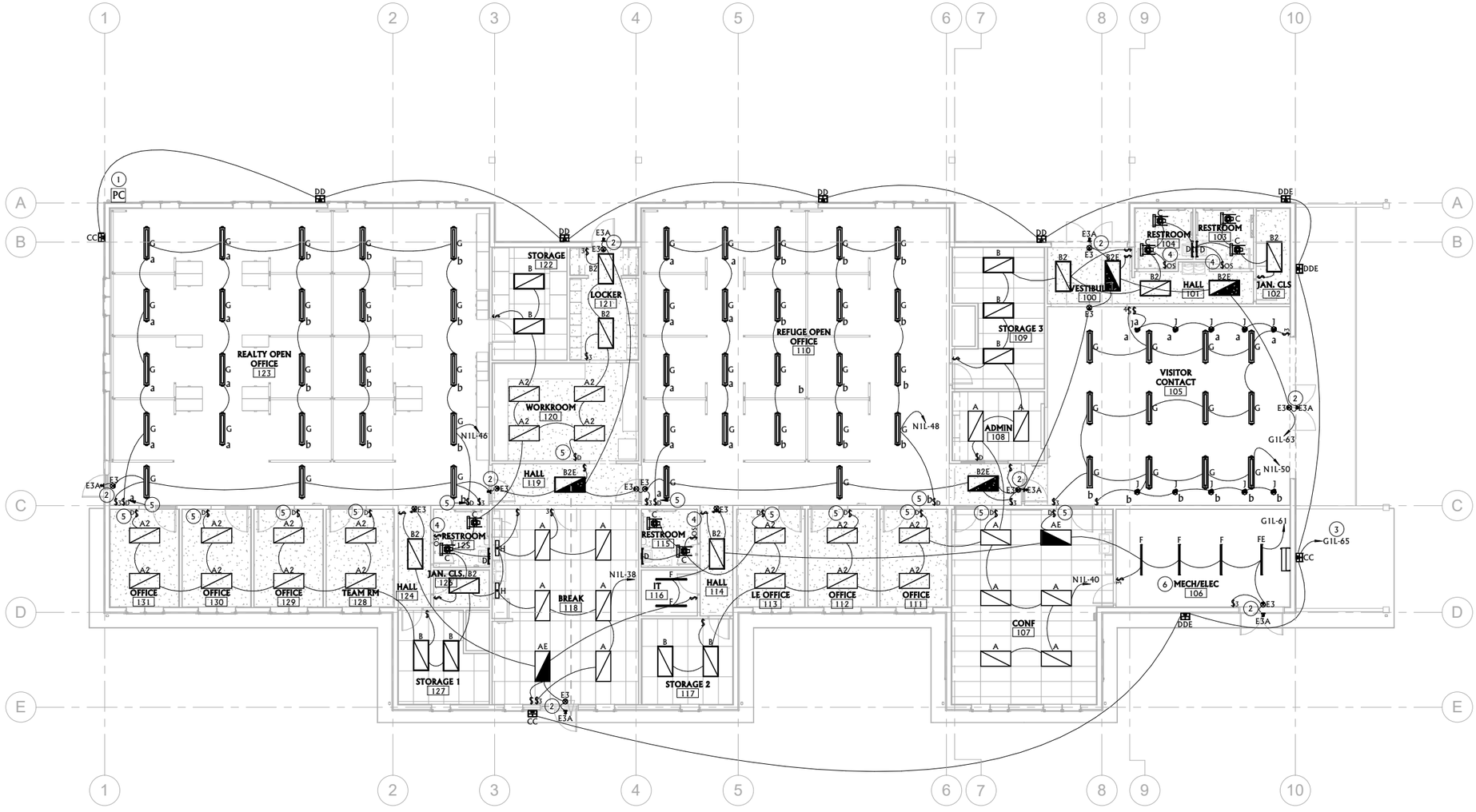

ELECTRICAL LIGHTING GENERAL NOTES

A	VERIFY THE EXACT LOCATION OF ALL LUMINAIRES WITH THE GENERAL CONTRACTOR PRIOR TO ROUGH-IN.
B	ENSURE ALL EXTERIOR WALL PENETRATIONS HAVE A SLEEVE GROUTED INTO THE WALL AND THE CONDUIT ROUTED THROUGH THE SLEEVE IS CAULKED INTO THE SLEEVE.
C	ALL CABLING LOCATED WITHIN THE CEILING SPACE SHALL BE PLENUM RATED UNLESS IT IS COMPLETELY INSTALLED IN CONDUIT. THIS INCLUDES, BUT IS NOT LIMITED TO: OCCUPANCY SENSOR/LIGHTING CONTROL CABLING.
D	FIRE SEAL ALL PENETRATIONS IN FIRE RATED WALLS. COORDINATE WITH ARCHITECT AND GC FOR LOCATIONS.
E	PROVIDE A COMPLETE WIRING SYSTEM CONSISTING OF PROPER QUANTITY OF SWITCH LEGS, NEUTRALS AND HOT CIRCUITS FOR A FUNCTIONAL INSTALLATION. ALL CIRCUITRY IS SHOWN FROM SWITCHES TO EACH CONTROLLED LUMINAIRE. EC SHALL MATCH SWITCH SUBSCRIPT TO ASSOCIATED LUMINAIRE AND CONNECT COMPLETE.
F	WHEN LIGHT SWITCHES ARE SHOWN LOCATED ON THE WALL THAT IS COMMON WITH THE END OF THE DOOR SWING INTO A SPACE. DO NOT LOCATE THE SWITCHES BEHIND THE DOOR, BUT RATHER A MINIMUM OF 6" FROM THE END OF THE SWING. VERIFY EXACT DOOR SWING PRIOR TO ROUGH-IN.
G	FOR ALL LUMINAIRES WITH AN EMERGENCY BALLAST/BATTERY PACK, PROVIDE HOT UNSWITCHED CONDUCTOR TO THE EMERGENCY BALLAST.
H	PROVIDE/INSTALL OCCUPANCY SENSORS AS SHOWN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. OCCUPANCY SENSORS SHALL BE INSTALLED TO REDUCE FALSE TRIPS.
I	PROVIDE/INSTALL DIMMERS COMPATIBLE WITH LED LUMINAIRES CONTROLLED. PROVIDE ALL CONDUIT/CONDUCTORS AS REQUIRED FROM LED DIMMER TO LED LUMINAIRES. ALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
J	CONNECT ALL OCCUPANCY SENSORS UPSTREAM OF ANY WALL SWITCHES SO THAT OCCUPANCY SENSOR RECEIVES CONTINUOUS UNSWITCHED POWER AND WALL SWITCH PROVIDES MANUAL/ LOCAL CONTROL. LUMINIARES SHALL ONLY TURN ON IF SWITCHES ARE ON AND OCCUPANCY IS SENSED. EC SHALL WIRE ALL OCCUPANCY SENSOR SYSTEMS PER MANUFACTURERS RECOMMENDATIONS.
K	PROVIDE ALL LOW VOLTAGE WIRING REQUIRED TO CONNECT OCCUPANCY SENSORS IN A SPACE TO THE POWER PACK ASSOCIATED WITH AN INDIVIDUAL AREA. WIRING NOT SHOWN FOR DRAWING CLARITY.
L	WHERE MULTIPLE OCCUPANCY SENSORS ARE IN A SINGLE ROOM, CONNECT SO THAT ANY SENSOR TURNS ALL LUMINAIRES ON.

ELECTRICAL KEYNOTES

1	PHOTOCELL TO BE LOCATED ON EXTERIOR OF BUILDING ON THE ROOF. ORIENT PHOTOCELL TO FACE NORTH.
2	PROVIDE 2#12,#12G,1/2"C AS REQUIRED TO CONNECT TYPE E3 LUMINAIRE TO TYPE E3A REMOTE HEADS.
3	CONNECT EXTERIOR BUILDING LIGHTING CIRCUIT TO PANELBOARD G1L THRU LIGHTING CONTACTOR. REFERENCE DETAIL 3/E302.
4	PROVIDE SENSORSWITCH #WSD-V-A-LT OR APPROVED EQUAL PIR WALL SWITCH.
5	PROVIDE 0-10VDC DIMMING CONTROL TO LED LUMINAIRES. PROVIDE DUAL ON/OFF/DIM PUSH-BUTTON WALLPOD IN LOCATION AS SHOWN, AND ALL REQUIRED CONTROLS AND CONDUIT/CONDUCTORS.
6	COORDINATE EXACT LOCATION OF LUMINAIRES IN THIS ROOM WITH MECHANICAL EQUIPMENT, DUCTWORK AND PIPING.

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ELECTRICAL LIGHTING PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET E102

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CG	CG	PK	2022.04.29		64 OF 74

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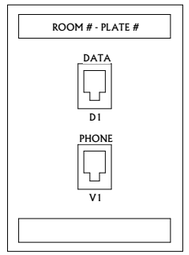
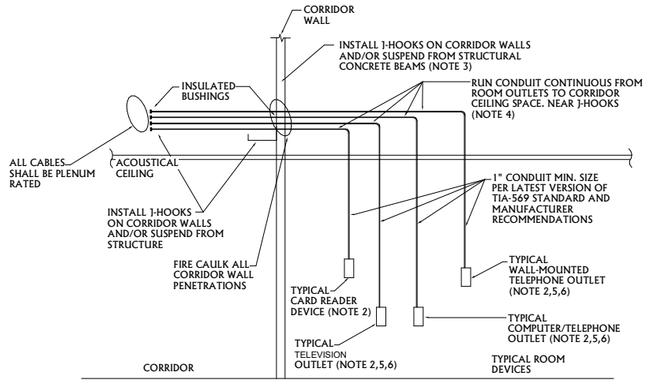


NOTES:

1. = (1) DATA (1) PHONE JACK.
2. SEE SPEC. SECTION 271021 FOR PLATE AND JACK REQUIREMENTS.
3. DATA JACKS TO BE BLUE COLOR, PHONE JACKS TO BE WHITE.
4. PLATES ARE LABELED AS SHOWN, COLOR WHITE NUMBER PLATES CLOCKWISE FROM THE DOOR.
5. LABEL ALL DATA CABLES AT BOTH ENDS WITH "ROOM # - PLATE # - JACK #".
6. RJ45 DATA JACK TO BE PROVIDED WITH CATEGORY 6 CABLE. RJ45 TELEPHONE JACK TO BE PROVIDED WITH CATEGORY 6 CABLE.

1 E301 COMMUNICATIONS OUTLET
NOT TO SCALE



W - TELEPHONE OUTLET, WALL-MOUNTED

3 - COMPUTER OUTLET. NUMBER INDICATES QUANTITY OF JACKS, NO NUMBER EQUALS 1 JACK.

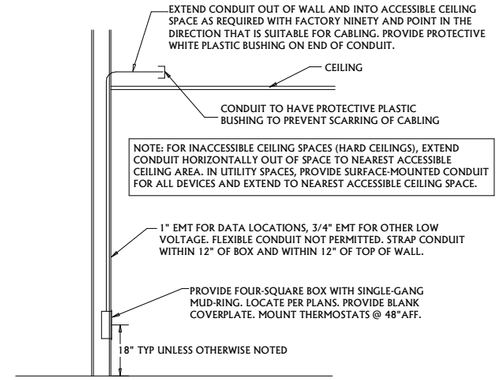
TV - TELEVISION OUTLET

3 - COMBINATION COMPUTER/TELEPHONE OUTLET, NUMBER INDICATES QUANTITY OF JACKS, NO NUMBER EQUALS 2 JACK.

NOTES:

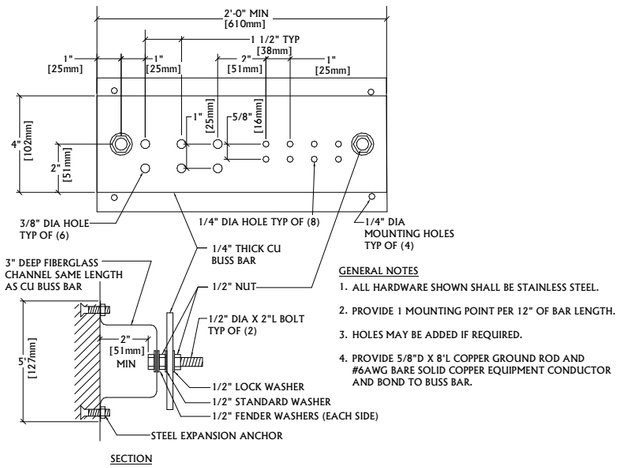
1. INSTALL CABLING, CONDUIT, TERMINATIONS, JACKS, DEVICES, AND PLATES. INSTALL BLANK PLATES ON ALL OUTLETS NOTED AS FUTURE.
2. UTILIZE MINIMUM 2 1/8" DEEP, 4 INCH SQUARE BOXES WITH A SINGLE GANG MUD RING, SEE SECTION 260537. BOX MUST MEET LATEST VERSION OF TIA-569 STANDARD AND MANUFACTURER RECOMMENDATIONS.
3. J-HOOK SYSTEM WILL BE USED FOR DATA WIRING, TELEPHONE WIRING, AND CATV WIRING. ALL FIRE ALARM AND ACCESS CONTROL SYSTEM WIRING TO BE IN CONDUIT.
4. STUB CONDUIT FROM OUTLET CONTINUOUS TO J-HOOKS, ROUTE CONDUIT ACROSS CORRIDOR WHERE J-HOOKS ARE ON THE OPPOSITE SIDE OR IN THE CENTER. WHERE J-HOOKS IS INSTALLED IN OPEN OFFICE AREA, ROUTE CONDUIT DIRECTLY TO J-HOOKS.
5. INSTALL A SEPARATE CABLE TO EACH DATA OUTLET, EACH TELEPHONE OUTLET, AND EACH CATV OUTLET FROM THE DATA PATCH PANELS, TELEPHONE PUNCH BLOCKS, AND CATV TERMINATION BOARD IN IT RM 116.
6. CABLE/WIRE IDENTIFICATION: WIRE MARKERS SHALL BE PERMANENT SELF-ADHESIVE MACHINE TYPED-ON TAPE WITH CLEAR ADHESIVE OVER-WRAP, ON EACH WIRE AT EACH TERMINATION. WIRE MARKERS SHALL RETAIN THEIR MARKINGS AFTER CLEANING. IDENTIFYING NUMBERS AND LETTERS ON THE WIRE MARKERS SHALL CORRESPOND TO THOSE ON THE DETAILS AND WIRING DIAGRAMS. IDENTIFICATION SHALL ALSO INCLUDE ROOM NUMBER AND JACK NUMBER. REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

2 E301 TYPICAL ROOM WIRING AND CONDUIT DIAGRAM
NOT TO SCALE



NOTE: CONDUIT SIZES SHALL BE AS DESCRIBED IN THE DETAIL UNLESS NOTED OTHERWISE ON THE DRAWINGS OR SPECIFICATIONS

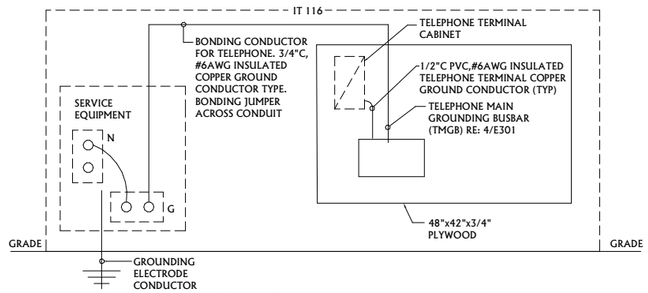
3 E301 LOW VOLTAGE RACEWAY DETAIL
NOT TO SCALE



GENERAL NOTES

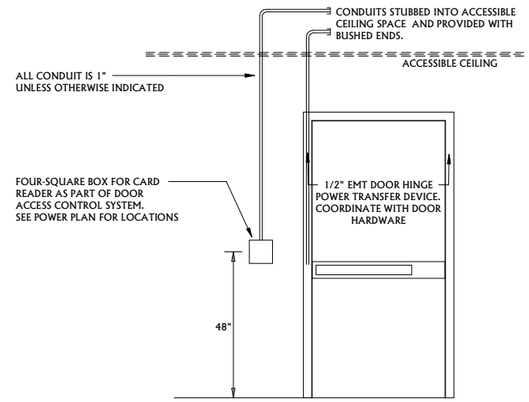
1. ALL HARDWARE SHOWN SHALL BE STAINLESS STEEL.
2. PROVIDE 1 MOUNTING POINT PER 12" OF BAR LENGTH.
3. HOLES MAY BE ADDED IF REQUIRED.
4. PROVIDE 5/8"D X 8'L COPPER GROUND ROD AND #6AWG BARE SOLID COPPER EQUIPMENT CONDUCTOR AND BOND TO BUSS BAR.

4 E301 TELEPHONE MAIN GROUND BAR DETAIL
NOT TO SCALE

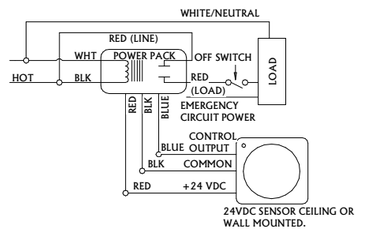


1. INSULATED #6AWG IN 3/4"C ROUTED UNDERGROUND
2. INCLUDE - NON-METALLIC LABEL "WARNING IF THIS CONNECTOR ON CABLE IS LOOSE OR MUST BE REMOVED PLEASE CALL THE BUILDING MANAGER." AT ALL GROUND BARS.
3. RUN CONDUCTOR FROM GROUND TO TELEPHONE TERMINAL CABINET.
4. ALL CONNECTORS TO GROUND BARS SHALL BE 2-HOLE COMPRESSION TYPE.
5. GROUNDING BARS:
   - ELECTROLYTIC COPPER
   - MOUNTED ON FIBERGLASS INSULATORS
   - NEMA BOLT HOLE SIZING AND SPACING
6. ALL BONDING CONDUCTORS SHALL BE CONTINUOUS AND ROUTED IN THE SHORTEST POSSIBLE STRAIGHT LINE PATH.
7. ROUTE INSULATED #6AWG FROM EACH TMGB TO NEAREST VERTICAL STRUCTURAL STEEL MEMBER AND CADWELD
8. ROUTE CONDUCTOR FROM TMGB TO EACH DATA RACK AND CONNECT TO EACH DATA RACK.
9. ALL TELECOMMUNICATIONS CLOSETS WITH MULTIPLE WIRE MANAGEMENT RACKS WILL HAVE BONDING JUMPER INSTALLED AS SHOWN.

5 E301 TELEPHONE GROUNDING DETAIL AND NOTES
NOT TO SCALE



6 E301 CARD READER ROUGH-IN DETAIL
NOT TO SCALE



7 E301 OCCUPANCY SENSOR DETAIL
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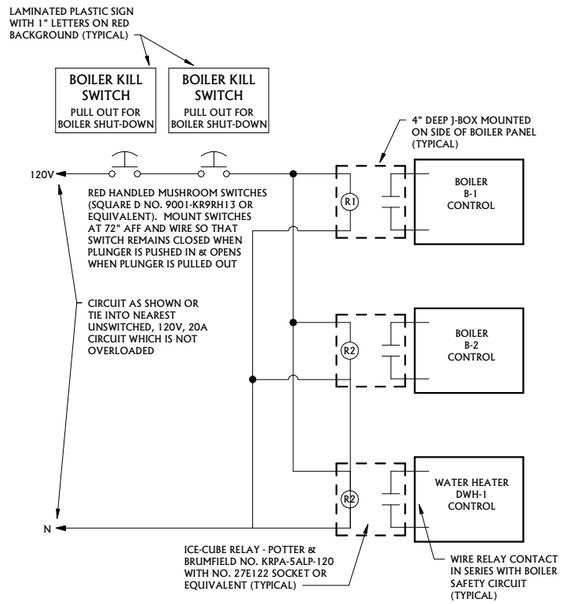
ELECTRICAL DETAILS

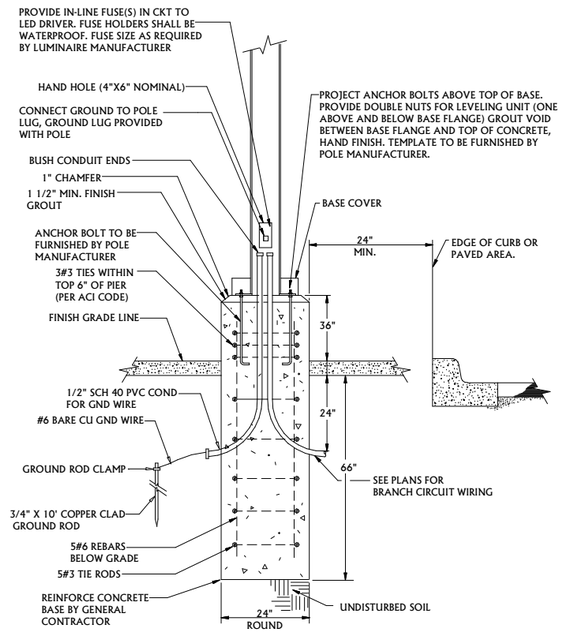
MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET E301

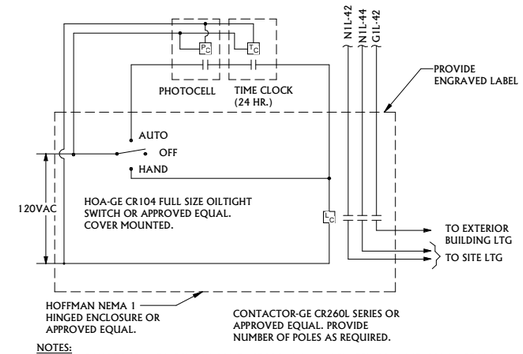
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CG	CG	PK	2022.04.29		65 OF 74



1 E302 BOILER EMERGENCY SHUTDOWN
NOT TO SCALE

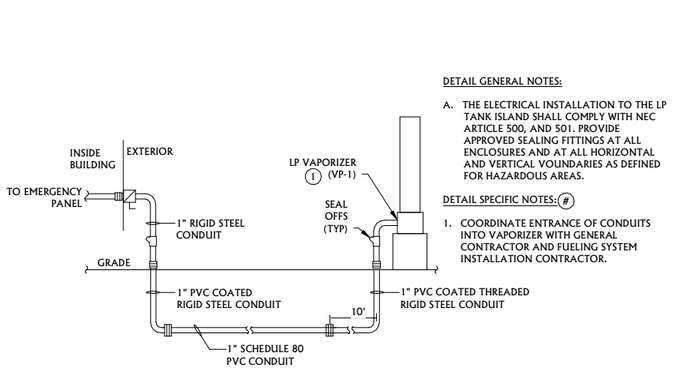


2 E302 POLE BASE DETAIL - RESTRAINED LOCATION
NOT TO SCALE



NOTES:
* PROVIDE PHOTOCELL, TIMECLOCK CONTACTORS AND ALL RELATED CONDUIT/CONDUCTORS.
* REFERENCE DETAIL 1/E102 FOR LOCATION OF PHOTOCELL.
* PROVIDE NUMBER OF CONTACTORS AS REQUIRED BY NEC FOR MULTIPLE POWER BRANCHES

3 E302 EXTERIOR LIGHTING CONTROL DIAGRAM
NOT TO SCALE



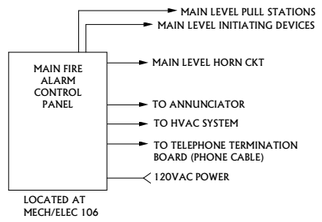
DETAIL GENERAL NOTES:

A. THE ELECTRICAL INSTALLATION TO THE LP TANK ISLAND SHALL COMPLY WITH NEC ARTICLE 500, AND 501. PROVIDE APPROVED SEALING FITTINGS AT ALL ENCLOSURES AND AT ALL HORIZONTAL AND VERTICAL VOUNDARIES AS DEFINED FOR HAZARDOUS AREAS.

DETAIL SPECIFIC NOTES: (#)

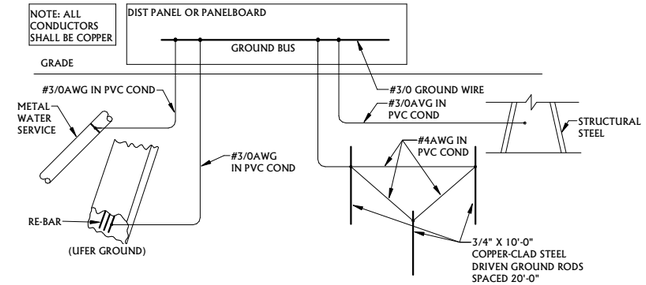
1. COORDINATE ENTRANCE OF CONDUITS INTO VAPORIZER WITH GENERAL CONTRACTOR AND FUELING SYSTEM INSTALLATION CONTRACTOR.

4 E302 POWER CONDUITS TO LP TANK ISLAND
NOT TO SCALE



NOTES:
- ALL FIRE ALARM WIRING SHALL BE INSTALLED IN METAL CONDUIT UNLESS AN EXCEPTION IS GRANTED BY AHU.
- COORDINATE WIRE COUNTS WITH FA SYSTEM SUPPLIER.
- SEE FLOOR PLANS AND TYPICAL UNIT WIRING PLANS FOR QUANTITIES OF SIGNALING & INTIATING DEVICES.
- PROVIDE NECESSARY INTERLOCKING TO HVAC SYSTEMS.
- PROVIDE POWER TO DOOR HOLD OPENERS AS NEEDED.

5 E302 FIRE ALARM RISER
NOT TO SCALE



NOTE:
CONCRETE-ENCASED ELECTRODE(UFER GROUND): PROVIDE CONNECTION TO CONCRETE-ENCASED ELECTRODE CONSISTING OF NOT LESS THAN 20 FEET (6.0m) OF EITHER STEEL REINFORCING BARS OR BARE COPPER CONDUCTOR NOT SMALLER THAN #4 AWG EMBEDDED WITHIN CONCRETE FOUNDATION OR FOOTING THAT IS IN DIRECT CONTACT WITH EARTH IN ACCORDANCE WITH NFPA 70. FIELD COORDINATE THE WORK WITH OTHER TRADES TO PROVIDE STEEL REINFORCEMENT COMPLYING WITH SPECIFIED REQUIREMENTS FOR CONCRETE-ENCASED ELECTRODE.

6 E302 GROUNDING ELECTRODE DIAGRAM
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ELECTRICAL DETAILS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET E302

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CG	CG	PK	2022.04.29		66 OF 74

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ELECTRICAL SITE PLAN SYMBOLS

THIS IS A COMPREHENSIVE SYMBOL SCHEDULE. NOT ALL SYMBOLS ARE APPLICABLE TO THESE DRAWINGS.

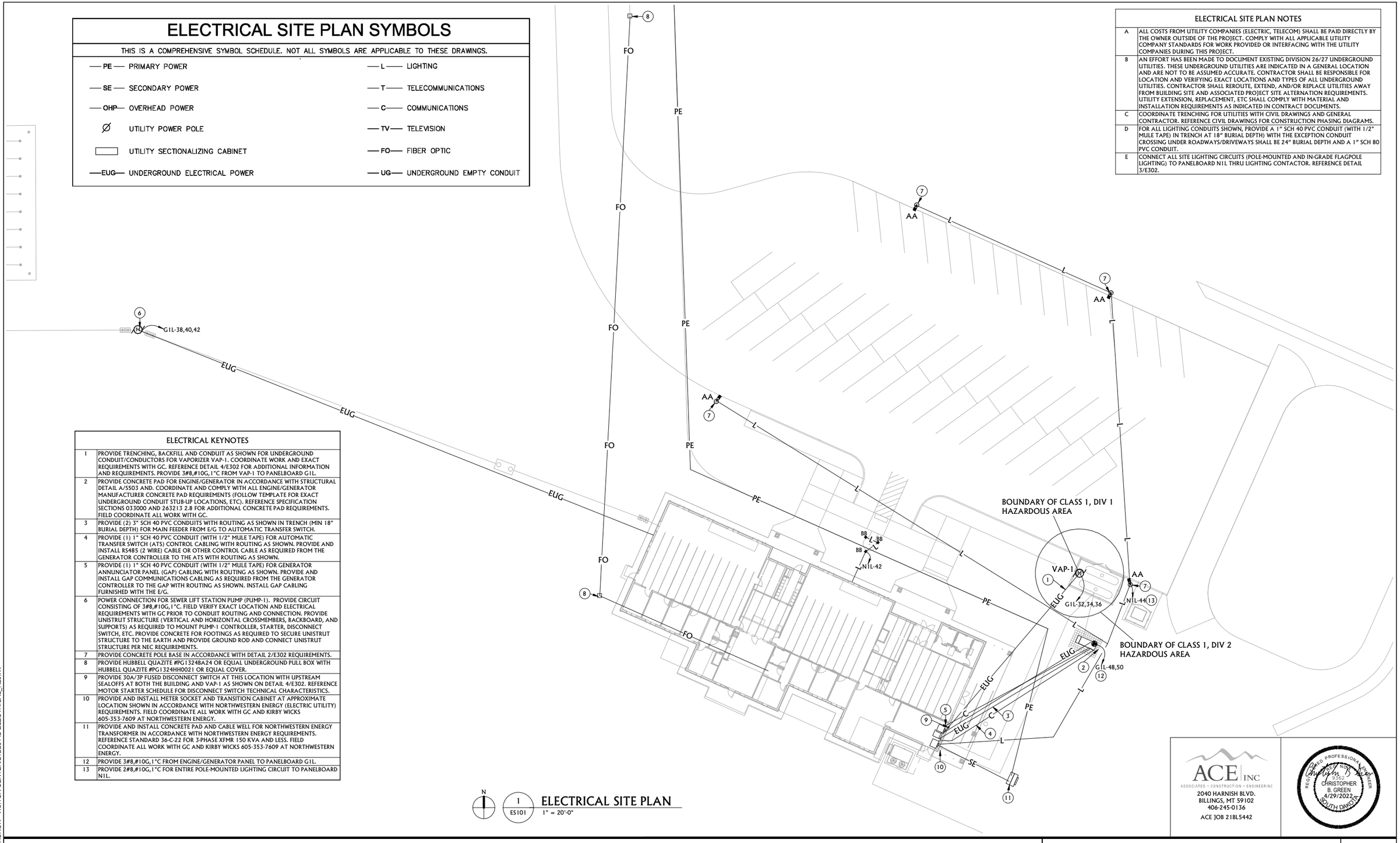
—PE— PRIMARY POWER	—L— LIGHTING
—SE— SECONDARY POWER	—T— TELECOMMUNICATIONS
—OHP— OVERHEAD POWER	—C— COMMUNICATIONS
∅ UTILITY POWER POLE	—TV— TELEVISION
▭ UTILITY SECTIONALIZING CABINET	—FO— FIBER OPTIC
—EUG— UNDERGROUND ELECTRICAL POWER	—UG— UNDERGROUND EMPTY CONDUIT

ELECTRICAL KEYNOTES

1	PROVIDE TRENCHING, BACKFILL AND CONDUIT AS SHOWN FOR UNDERGROUND CONDUIT/CONDUCTORS FOR VAPORIZER VAP-1. COORDINATE WORK AND EXACT REQUIREMENTS WITH GC. REFERENCE DETAIL 4/E302 FOR ADDITIONAL INFORMATION AND REQUIREMENTS. PROVIDE 3#8,#10G,1"C FROM VAP-1 TO PANELBOARD G1L.
2	PROVIDE CONCRETE PAD FOR ENGINE/GENERATOR IN ACCORDANCE WITH STRUCTURAL DETAIL A/S503 AND. COORDINATE AND COMPLY WITH ALL ENGINE/GENERATOR MANUFACTURER CONCRETE PAD REQUIREMENTS (FOLLOW TEMPLATE FOR EXACT UNDERGROUND CONDUIT STUB-UP LOCATIONS, ETC). REFERENCE SPECIFICATION SECTIONS 033000 AND 263213 2.8 FOR ADDITIONAL CONCRETE PAD REQUIREMENTS. FIELD COORDINATE ALL WORK WITH GC.
3	PROVIDE (2) 3" SCH 40 PVC CONDUITS WITH ROUTING AS SHOWN IN TRENCH (MIN 18" BURIAL DEPTH) FOR MAIN FEEDER FROM E/G TO AUTOMATIC TRANSFER SWITCH.
4	PROVIDE (1) 1" SCH 40 PVC CONDUIT (WITH 1/2" MULE TAPE) FOR AUTOMATIC TRANSFER SWITCH (ATS) CONTROL CABLING WITH ROUTING AS SHOWN. PROVIDE AND INSTALL RS485 (2 WIRE) CABLE OR OTHER CONTROL CABLE AS REQUIRED FROM THE GENERATOR CONTROLLER TO THE ATS WITH ROUTING AS SHOWN.
5	PROVIDE (1) 1" SCH 40 PVC CONDUIT (WITH 1/2" MULE TAPE) FOR GENERATOR ANNUNCIATOR PANEL (GAP) CABLING WITH ROUTING AS SHOWN. PROVIDE AND INSTALL GAP COMMUNICATIONS CABLING AS REQUIRED FROM THE GENERATOR CONTROLLER TO THE GAP WITH ROUTING AS SHOWN. INSTALL GAP CABLING FURNISHED WITH THE E/G.
6	POWER CONNECTION FOR SEWER LIFT STATION PUMP (PUMP-1). PROVIDE CIRCUIT CONSISTING OF 3#8,#10G,1"C. FIELD VERIFY EXACT LOCATION AND ELECTRICAL REQUIREMENTS WITH GC PRIOR TO CONDUIT ROUTING AND CONNECTION. PROVIDE UNISTRUT STRUCTURE (VERTICAL AND HORIZONTAL CROSSMEMBERS, BACKBOARD, AND SUPPORTS) AS REQUIRED TO MOUNT PUMP-1 CONTROLLER, STARTER, DISCONNECT SWITCH, ETC. PROVIDE CONCRETE FOR FOOTINGS AS REQUIRED TO SECURE UNISTRUT STRUCTURE TO THE EARTH AND PROVIDE GROUND ROD AND CONNECT UNISTRUT STRUCTURE PER NEC REQUIREMENTS.
7	PROVIDE CONCRETE POLE BASE IN ACCORDANCE WITH DETAIL 2/E302 REQUIREMENTS.
8	PROVIDE HUBBELL QUAZITE #PG1324BA24 OR EQUAL UNDERGROUND PULL BOX WITH HUBBELL QUAZITE #PG1324HH0021 OR EQUAL COVER.
9	PROVIDE 30A/3P FUSED DISCONNECT SWITCH AT THIS LOCATION WITH UPSTREAM SEALOFFS AT BOTH THE BUILDING AND VAP-1 AS SHOWN ON DETAIL 4/E302. REFERENCE MOTOR STARTER SCHEDULE FOR DISCONNECT SWITCH TECHNICAL CHARACTERISTICS.
10	PROVIDE AND INSTALL METER SOCKET AND TRANSITION CABINET AT APPROXIMATE LOCATION SHOWN IN ACCORDANCE WITH NORTHWESTERN ENERGY (ELECTRIC UTILITY) REQUIREMENTS. FIELD COORDINATE ALL WORK WITH GC AND KIRBY WICKS 605-353-7609 AT NORTHWESTERN ENERGY.
11	PROVIDE AND INSTALL CONCRETE PAD AND CABLE WELL FOR NORTHWESTERN ENERGY TRANSFORMER IN ACCORDANCE WITH NORTHWESTERN ENERGY REQUIREMENTS. REFERENCE STANDARD 36-C-22 FOR 3-PHASE XFMR 150 KVA AND LESS. FIELD COORDINATE ALL WORK WITH GC AND KIRBY WICKS 605-353-7609 AT NORTHWESTERN ENERGY.
12	PROVIDE 3#8,#10G,1"C FROM ENGINE/GENERATOR PANEL TO PANELBOARD G1L.
13	PROVIDE 2#8,#10G,1"C FOR ENTIRE POLE-MOUNTED LIGHTING CIRCUIT TO PANELBOARD N1L.

ELECTRICAL SITE PLAN NOTES

A	ALL COSTS FROM UTILITY COMPANIES (ELECTRIC, TELECOM) SHALL BE PAID DIRECTLY BY THE OWNER OUTSIDE OF THE PROJECT. COMPLY WITH ALL APPLICABLE UTILITY COMPANY STANDARDS FOR WORK PROVIDED OR INTERFACING WITH THE UTILITY COMPANIES DURING THIS PROJECT.
B	AN EFFORT HAS BEEN MADE TO DOCUMENT EXISTING DIVISION 26/27 UNDERGROUND UTILITIES. THESE UNDERGROUND UTILITIES ARE INDICATED IN A GENERAL LOCATION AND ARE NOT TO BE ASSUMED ACCURATE. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND VERIFYING EXACT LOCATIONS AND TYPES OF ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL REROUTE, EXTEND, AND/OR REPLACE UTILITIES AWAY FROM BUILDING SITE AND ASSOCIATED PROJECT SITE ALTERNATION REQUIREMENTS. UTILITY EXTENSION, REPLACEMENT, ETC SHALL COMPLY WITH MATERIAL AND INSTALLATION REQUIREMENTS AS INDICATED IN CONTRACT DOCUMENTS.
C	COORDINATE TRENCHING FOR UTILITIES WITH CIVIL DRAWINGS AND GENERAL CONTRACTOR. REFERENCE CIVIL DRAWINGS FOR CONSTRUCTION PHASING DIAGRAMS.
D	FOR ALL LIGHTING CONDUITS SHOWN, PROVIDE A 1" SCH 40 PVC CONDUIT (WITH 1/2" MULE TAPE) IN TRENCH AT 18" BURIAL DEPTH) WITH THE EXCEPTION CONDUIT CROSSING UNDER ROADWAYS/DRIVEWAYS SHALL BE 24" BURIAL DEPTH AND A 1" SCH 80 PVC CONDUIT.
E	CONNECT ALL SITE LIGHTING CIRCUITS (POLE-MOUNTED AND IN-GRADE FLAGPOLE LIGHTING) TO PANELBOARD N1L THRU LIGHTING CONTACTOR. REFERENCE DETAIL 3/E302.



N

1 ES101 ELECTRICAL SITE PLAN
1" = 20'-0"

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ELECTRICAL SITE PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET ES101

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
CG	CG	PK	2022.04.29		67 OF 74

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PLUMBING FIXTURE SCHEDULE

PLAN CODE	ITEM	MANUF.	MODEL NUMBER	MATERIAL & FINISH	TRIM	ROUGH-IN SIZE					REMARKS
						CW	HW	SAN	VENT	A.S.S.E. 1070 TMV	
EWC-1	ELECTRIC WATER COOLER	ELKAY	EZS8WSLK	STAINLESS STEEL	BOTTLE FILLER EZWSR	1/2"	-	2"	2"	--	WATER COOLER WTIH BOTTLE FILLING STATION. MOUNT TO CONFORM TO ALL A.N.S.I. & A.D.A. REQUIREMENTS.
FD-1	FLOOR DRAIN	SIOUX CHEIF	832-25D-NR-V	DURA COATED CAST IRON BODY	POLISHED NICKEL BRONZE TOP	--	--	2"	2"	--	PROVIDE WITH SHIM KIT #832-53, PROVIDE WITH TRAP PRIMER CONNECTION. SEE 1/P301 FOR DETAIL.
FS-1	FLOOR SINK	J.R. SMITH	3140Y-13	NICKEL BRONZE	--	--	--	3"	2"	--	PROVIDE WITH TRAP PRIMER CONNECTION, 3/4 GRATE. SEE 2/P301 FOR DETAIL.
HB-1	HOSE BIBB	WOODFORD	67	CHROME	"T" HANDLE KEY	3/4"	--	--	--	--	FREEZELESS, BACKFLOW PROTECTED HOSE BIBB.
LAV-1	WALL MOUNTED LAVATORY	AMERICAN STANDARD	LUCERNE #0356.421	VITREOUS CHINA	KOHLER K-7515-VS	1/2"	1/2"	2"	2"	X	PROVIDE ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, INSULATE HW, CW, SAN, & STOPS. INSTALL TO CONFORM TO ALL A.N.S.I. & A.D.A. REQUIRMENTS. PROVIDE FAUCET WITH 0.5 GPM AERATOR & COMMERCIAL CHAIR TYPE CARRIERS. TOUCHLESS FAUCET. 120V POWER BY E.C.
MS-1	MOP SINK	FIAT	MSB 2424	MOLDED-STONE	MOEN COMMERCIAL #8124	3/4"	3/4"	3"	2"	--	SERVICE SINK FAUCET SHALL HAVE VACUUM BREAKER, CHECKS, SERVICE STOPS, PAIL HOOK, TOP WALL BRACE & LEVER HANDLES, PROVIDE WITH FIAT HOSE & BRACKET #832-AA, MOP HANGER #830AA & WALL GUARDS MSG2424
S-1	DOUBLE COMPARTMENT SINK	ELKAY	LRAD332265PD	STAINLESS STEEL	KOHLER K-23766-VS	1/2"	1/2"	2"	2"	X	PROVIDE SINK WITH 4 HOLE CONFIGURATION, CENTER-REAR DRAIN IN BOTH BOWLS FOR DISPOSAL INSTALLATION, ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, INSULATE HW, CW, & STOPS AS REQ'D. INSTALL TO CONFORM TO ALL A.N.S.I. & A.D.A. REQUIRMENTS. PROVIDE FAUCET WITH 1.5 GPM AERATOR, TOUCHLESS FAUCET. 120V POWER BY E.C.
WB-1	ICEMAKER BOX	GUY GRAY	AB9702	PLASTIC	--	1/2"	--	--	--	--	--
WC-1	WATER CLOSET, FT, H.C.	AMERICAN STANDARD	CADET #215AA709	VITREOUS CHINA	--	1/2"	--	4"	2"	--	12" ROUGH-IN. PROVIDE W/ BEMIS 1655SSCT HEAVY DUTY OPEN FRONT SEAT LESS COVER. WATER CLOSET UTILIZES BATTERY POWERED TOUCHLESS FLUSH.

NOTES:
1. PROVIDE ALL FIXTURES WITH APPROPRIATE COMMERCIAL CARRIERS, CAST P-TRAPS, GRID STRAINERS, QUARTER TURN BALL STOPS AND MIXING VALVES FOR A COMPLETE INSTALLATION. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
2. VERIFY FLOOR FINISH THICKNESS BEFORE SETTING ANY FIXTURE.
3. ALL LAVATORIES AND SINKS TO BE PROVIDED WITH THERMOSTATIC MIXING VALVES TO TEMPER HOT WATER TO 110°F, MIXING VALVE SHALL CONFORM TO ASSE 1070.
4. PROVIDE FLUSH MOUNTED LOCKABLE ACCESS PANELS AS NEEDED FOR PLUMBING ACCESSORY ACCESS. COORDINATE LOCATION WITH ARCHITECT AND G.C. PRIOR TO ACCESSORY AND ACCESS DOOR INSTALLATION. REFER TO ARCHITECTURAL SPECIFICATIONS FOR ACCESS DOOR REQUIREMENTS.

DOMESTIC HOT WATER HEATER SCHEDULE

PLAN CODE	MANUF.	MODEL NUMBER	MBH INPUT @ SEA LEVEL	MBH OUTPUT @ SEA LEVEL	THERMAL EFF.	MAXIMUM FLOW RATE	FUEL SOURCE	ELECTRICAL	PHYSICAL SIZE	REMARKS
DWH-1	RINNAI	RUR199iP	199	183	92%	9.8 GPM	LPG	120V/205W	18.3" x10.1" x 31.2"	SEE NOTES

NOTES:
1. INTAKE AND VENTING SHALL BE OF THE SEALED-COMBUSTION DIRECT-VENT METHOD. FOLLOW MANUFACTURER'S INSTALLATION GUIDELINES.
2. PROVIDE AND INSTALL A GAS SHUT-OFF VALVE AND 6" DIRT LEG ON THE GAS LINE SERVING THE WATER HEATER, SEE 5/P301.
3. REFER TO DETAIL 3/P302 FOR ADDITIONAL INSTALLATION REQUIREMENTS.
4. PROVIDE WITH CONDENSATE NEUTRALIZER. INSTALL ON CONDENSATE DRAIN LINE FOR WATER HEATER (DWH-1).
5. WATER HEATER PROVIDED WITH INTEGRATED RECIRCULATION PUMP.

POTABLE WATER EXPANSION TANK SCHEDULE

PLAN CODE	MANUF.	MODEL NUMBER	ACCEPTANCE VOLUME	TANK VOLUME	PIPE SIZE	REMARKS
PET-1	WATTS	PLT-5	1.26	2.1	3/4"	SEE NOTES.

NOTES:
1. REFER TO DETAIL 3/P302 FOR EXPANSION TANK LOCATION.
2. EXPANSION TANK AND ALL ASSOCIATED COMPONENTS SHALL BE CERTIFIED FOR POTABLE WATER USE.

ELECTRIC PROPANE VAPORIZER

PLAN CODE	MANUF.	MODEL	CAPACITY	VOLT	POWER	PH	SIZE (L X W X H)	REMARKS
V-1	ALGAS	TORREX TX50	2200 MBH	208	5.9 KW, 16.4A	3	19" x 19" x 54"	SEE 1/P302

NOTES:
1. PROVIDE WITH VALVE AND STRAINER KIT, WALL MOUNTING KIT.
2. VAPORIZER TO BE DESIGNED FOR INSTALLATION ON OR NEAR PROPANE TANK, EXPLOSION PROOF ENCLOSURE.

PROPANE FUEL LOAD SUMMARY

ITEM		INPUT DEMAND	DEMAND UNITS
TAG	DESCRIPTION		
DWH-1	DOMESTIC HOT WATER HEATER	199	MBH
B-1	BOILER	399	MBH
B-2	BOILER	399	MBH
AHU-1	AIR HANDLER	270	MBH
GEN	ENGINE GENERATOR	1063	MBH
TOTAL GAS LOAD		2330	MBH

NOTES:
1. PROPANE DELIVERY PRESSURE 11" W.C. IN BUILDING. PROVIDE REGULATOR TO 11" W.C. AT GENERATOR CONNECTION TO PROPANE TANK ASSEMBLY.
2. DISTANCE TO MOST REMOTE FIXTURE APPROX. 15' FROM REGULATOR TO AHU-1
3. (2) 1000 GAL PROPANE TANK TO BE PURCHASED BY OWNER. M.C. TO MOUNT & PIPE TANKS IN PARALLEL WITH APPROPRIATE SHUT OFF VALVES AND ACCESSORIES. SEE 1/P30. SEE CIVIL PLANS FOR MORE INFORMATION.

PLUMBING SYMBOLS LEGEND

GENERAL PIPING

DIRECTION OF FLOW
REDUCER FITTING
ELBOW TURNED UP
ELBOW TURNED DN.
DROP IN HORIZ. RUN
TEE TURNED UP
TEE TURNED DN.
BELL AND SPIGOT
TEE IN HORIZ. RUN
BRANCH TEE W/ OFFSET
BRANCH TEE TURNED UP
BRANCH TEE TURNED DN.
CROSS IN HORIZ. RUN
90° AND 45° ELBOWS
END CAP CONNECTION
UNION FITTING

DOMESTIC PIPING TYPES

DOMESTIC COLD WATER
DOMESTIC HOT WATER
DOMESTIC HOT WATER RECIRC.
SANITARY WASTE
VENT

MISCELLANEOUS/MECHANICAL PIPING TYPES

CONDENSATE DRAIN
LIQUID PETROLEUM GAS

PIPING FITTINGS, VALVES & SPECIALTIES

NEW PLUMBING FIXTURE

P-1 or P1 — FIXT. NUMBER - SEE SCHED.
BALL VALVE
GATE VALVE
GLOBE VALVE
PLUG VALVE
CHECK VALVE
SOLENOID GATE VALVE
BALANCING VALVE
FLOAT VALVE
DRAIN
WALL HYDRANT OR HOSE BIBB
FLEX. CONNECTION
SENSOR (TEMP./FLOW)
TEMP. GAUGE
PRESSURE GAUGE
FIRE EXTINGUISHER
ANGLE VALVE
BUTTERFLY VALVE
PRESS. REDUCING
2-WAY (ELECTRIC)
2-WAY (PNEU. MTR.)
2-WAY (SOLENOID)
PNEUMATIC MOTOR
3-WAY (ELECTRIC)
3-WAY (PNEUMATIC)
3-WAY (PNEU. MTR.)
STRAINER
STRAINER W/ BLOW-OFF
VENT THRU ROOF
PUMP
P.O.D.C. - POINT OF DISCONNECTION
P.O.C. - POINT OF CONNECTION

THIS IS A STANDARDIZED SYMBOLS LEGEND, ALL SYMBOLS SHOWN MAY NOT APPEAR ON OR WITHIN THIS SET OF CONTRACT DOCUMENTS.

PLUMBING SHEET LIST

ACE INC
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REGISTERED PROFESSIONAL ENGINEER
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TODD A. MELING
4/29/2022
SOUTH DAKOTA

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HURON FISH AND WILDLIFE

PLUMBING COVER SHEET

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET P001

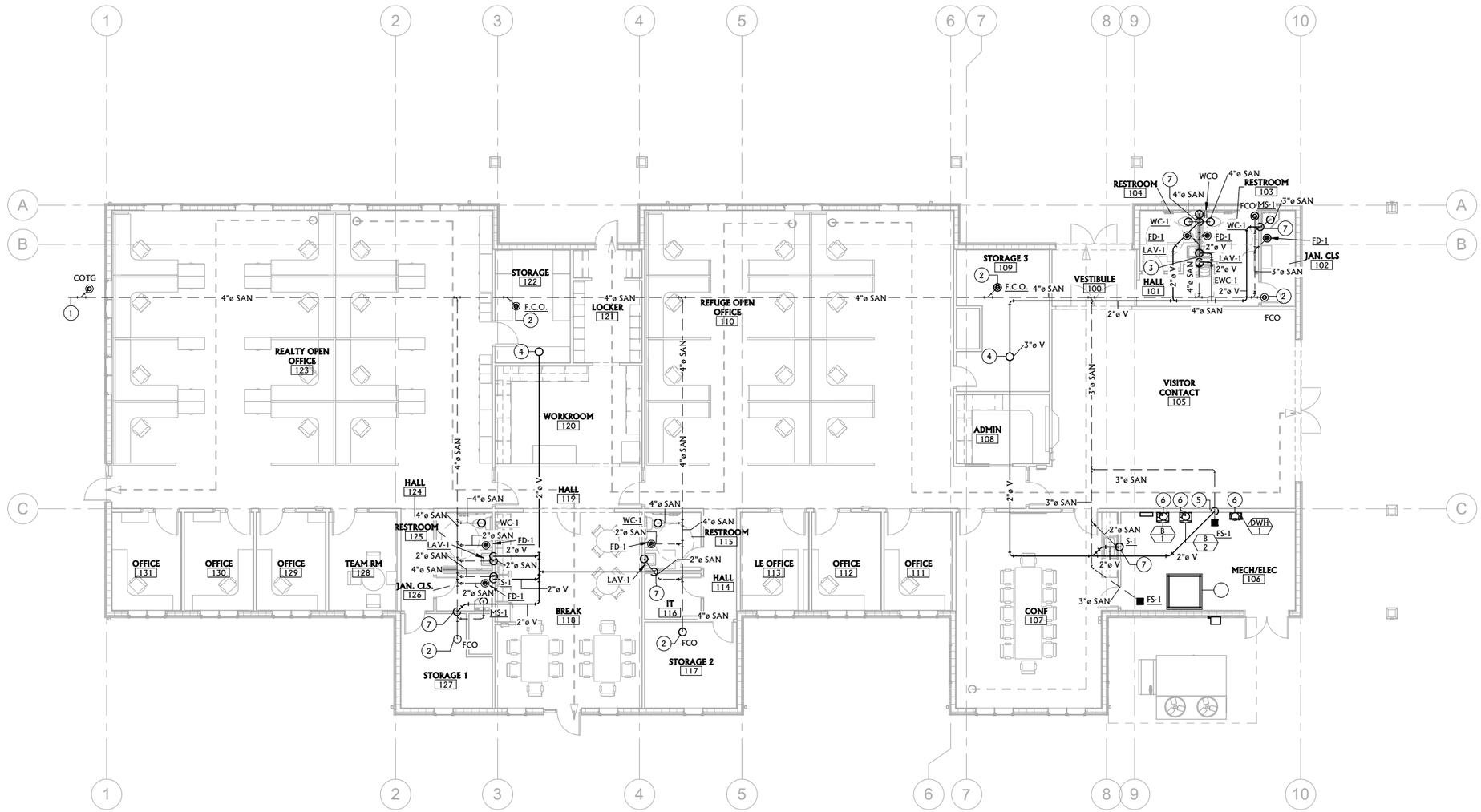
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
AS	TA	TM	2022.04.29	29320.07	68 OF 74

PLUMBING GENERAL DOMESTIC WASTE AND VENT NOTES

1	CONTRACTOR SHALL CUT ALL FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO PERFORM THE WORK DEPICTED IN THESE CONTRACT DOCUMENTS AND SPECIFICATIONS. GENERAL CONTRACTOR SHALL PATCH ALL ASSOCIATED FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.
2	COORDINATE PLUMBING EQUIPMENT AND PIPING WITH ALL OTHER TRADES AS REQUIRED. COORDINATE PLUMBING SYSTEMS WITH THE OWNER PROVIDED EQUIPMENT.
3	REFERENCE ARCHITECTURAL PLANS FOR EXACT FIXTURE LOCATIONS.
4	COORDINATE LINDERSLAB PIPING WITH FOOTINGS AND STEM WALLS.
5	PROVIDE ALL FLOOR DRAINS AND FLOOR SINKS WITH TRAP PRIMERS. PROVIDE WALL ACCESS PANEL FOR TRAP PRIMER ACCESS AS REQUIRED. ACCESS PANELS SHALL BE RATED WHERE REQUIRED.
6	ALL UNDERFLOOR VENT SHALL BE MINIMUM 2".
7	PROVIDE CLEANOUTS ON ALL LINES SERVING SINKS.
8	CONTRACTOR SHALL COORDINATE PIPE ROUTING AND EQUIPMENT PLACEMENT WITH THE SHEET METAL, HYDRONIC PIPING, FIRE PROTECTION, AND EXISTING SYSTEMS PRIOR TO INSTALLING. THE SHEET METAL DUCT WORK SHALL HAVE THE ROUTING PRIORITY. PROVIDE OFFSETS AND TRANSITIONS AS REQUIRED.
9	CONTRACTOR SHALL VERIFY ALL SANITARY AND STORM DRAINAGE INVERT ELEVATIONS PRIOR TO INITIATING ANY WORK.
10	DRAWINGS REPRESENT GENERAL ROUTING. NOT ALL EXISTING CONDITIONS ARE SHOWN. CONTRACTOR SHALL MAKE PIPING OFFSETS AND TRANSITIONS AS NEEDED. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SIZES AND LOCATIONS PRIOR TO BIDDING AND CONSTRUCTING.
11	1.COORDINATE ALL PIPE PENETRATIONS WITH THE NEW STRUCTURAL LAYOUTS.
12	SPACE ABOVE CEILING BEING USED AS A RETURN AIR PLENUM. ALL MATERIALS TO BE RATED FOR PLENUM USE. MUST MEET 25/50 FLAME AND SMOKE SPREAD RATING.

PLUMBING KEYNOTES

1	SEE CIVIL DRAWINGS FOR CONTINUATION.
2	SEE 4/P301 FOR PLUMBING CLEANOUT DETAILS, TYP.
3	2" VENT FROM (2) LAV-1 AND EWC-1. ROUTE OVER TO VTR.
4	3" VTR. SEE 3/P301 FOR VTR INSTALLATION DETAIL.
5	2" VENT DOWN UP IN WALL AND OVER TO VTR.
6	SEE 6/P301 FOR CONCENTRIC VENT DETAIL. CONFIRM CONCENTRIC VENT SIZING WITH MANUFACTURER'S REQUIREMENTS.
7	CIRCUIT VENT UP IN WALL. CONNECT TO VENT SYSTEM.



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1 / P101 FIRST FLOOR PLUMBING DOMESTIC WASTE AND VENT PLAN

1/8" = 1'-0"

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SOUTH DAKOTA

HURON FISH AND WILDLIFE
FIRST FLOOR PLUMBING DOMESTIC WASTE AND VENT PLAN
MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET P101

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
AS	TA	TM	2022.04.29	29320.07	69 OF 74

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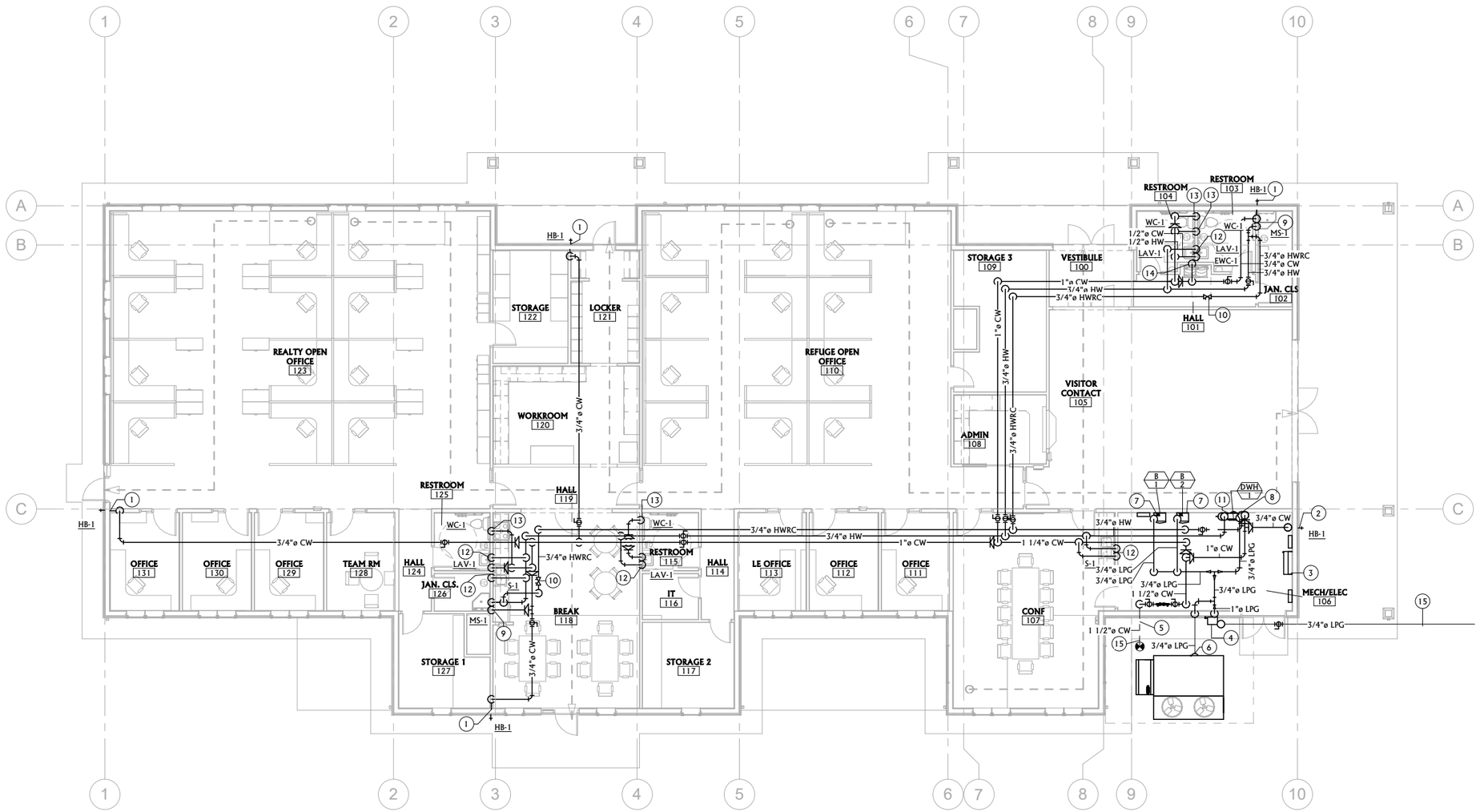
PLUMBING GENERAL NOTES

1	PLUMBING CONTRACTOR SHALL CUT ALL FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO PERFORM THE WORK DEPICTED IN THESE CONTRACT DOCUMENTS AND SPECIFICATIONS. GENERAL CONTRACTOR SHALL PATCH ALL ASSOCIATED FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.
2	COORDINATE HVAC AND PLUMBING EQUIPMENT WITH ALL OTHER TRADES AS REQUIRED.
3	REFERENCE ARCHITECTURAL PLANS FOR EXACT FIXTURE LOCATIONS.
4	ALL VALVES LESS THAN 2" SHALL BE BALL VALVES UNLESS OTHERWISE NOTED.
5	COORDINATE UNDERSLAB PIPING WITH FOOTINGS AND STEM WALLS.
6	INSULATION ON ALL DOMESTIC COLD WATER PIPING SHALL BE PROVIDED WITH A CONTINUOUS VAPOR BARRIER. OVERSIZE HANGERS FOR INSULATION SO NO PENETRATION OF THE VAPOR BARRIER OCCURS. PROVIDE INSERTS AND SADDLES AS REQUIRED TO PREVENT INSULATION DAMAGE FROM SUPPORTS.
7	NO DOMESTIC WATER PIPING SHALL BE ROUTED IN ANY EXTERIOR WALLS.
8	PROVIDE ALL FLOOR DRAINS AND FLOOR SINKS WITH TRAP PRIMERS. PROVIDE WALL ACCESS PANEL FOR TRAP PRIMER ACCESS AS REQUIRED. ACCESS PANELS SHALL BE RATED WHERE REQUIRED.
9	ALL UNDERFLOOR VENT SHALL BE MINIMUM 2".
10	ALL UNDERFLOOR COPPER SHALL BE TYPE "K" SEAMLESS.
11	PROVIDE CLEANOUTS ON ALL LINES SERVING SINKS AND URINALS.

PLUMBING KEYNOTES

1	ROUTE 3/4" CW DOWN IN PERPENDICULAR WALL TO SERVE HOSE BIBB ON BUILDING EXTERIOR. PROVIDE S.O.V. IN ACCESSIBLE LOCATION.
2	ROUTE 3/4" CW DOWN EXPOSED IN MECHANICAL ROOM TO SERVE HOSE BIBB ON BUILDING EXTERIOR.
3	MAINTAIN CODE REQUIRED CLEARANCES FROM ELECTRICAL PANELS.
4	3/4" LPG FROM PROPANE TANK ASSEMBLY TO PROPANE REGULATOR ON BUILDING EXTERIOR, SEE 1/P302.
5	1-1/2" CW ENTERING BUILDING AT THIS LOCATION. INSTALL WATER RISER HORIZONTALLY ON MECHANICAL ROOM WALL PER 2/P302.
6	3/4" LPG CONNECTION TO AHU-1. SEE 5/P301 FOR GAS CONNECTION DETAIL.
7	3/4" LPG CONNECTION TO BOILER. SEE 5/P301 FOR GAS CONNECTION DETAIL.
8	3/4" LPG CONNECTION TO DWH-1. SEE 5/P301 FOR GAS CONNECTION DETAIL.
9	ROUTE 3/4" HW, 3/4" CW DOWN IN WALL TO SERVE MS-1.
10	HWRC BALANCING VALVE, BALANCE TO 1.0 GPM.
11	SEE 3/P302 FOR DOMESTIC WATER HEATER INSTALLATION DETAIL.
12	1/2" HW/CW DOWN IN WALL TO SERVE SINK/LAV.
13	1/2" CW DOWN IN WALL TO SERVE WATER CLOSET.
14	1/2" CW DOWN IN WALL TO SERVE EWC-1.
15	SEE CIVIL FOR CONTINUATION.



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1 / P102 FIRST FLOOR PLUMBING DOMESTIC WATER PLAN

1/8" = 1'-0"

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HURON FISH AND WILDLIFE
FIRST FLOOR PLUMBING DOMESTIC WATER PLAN
MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET P102

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AS	TA	TM	2022.04.29	29320.07	70 OF 74

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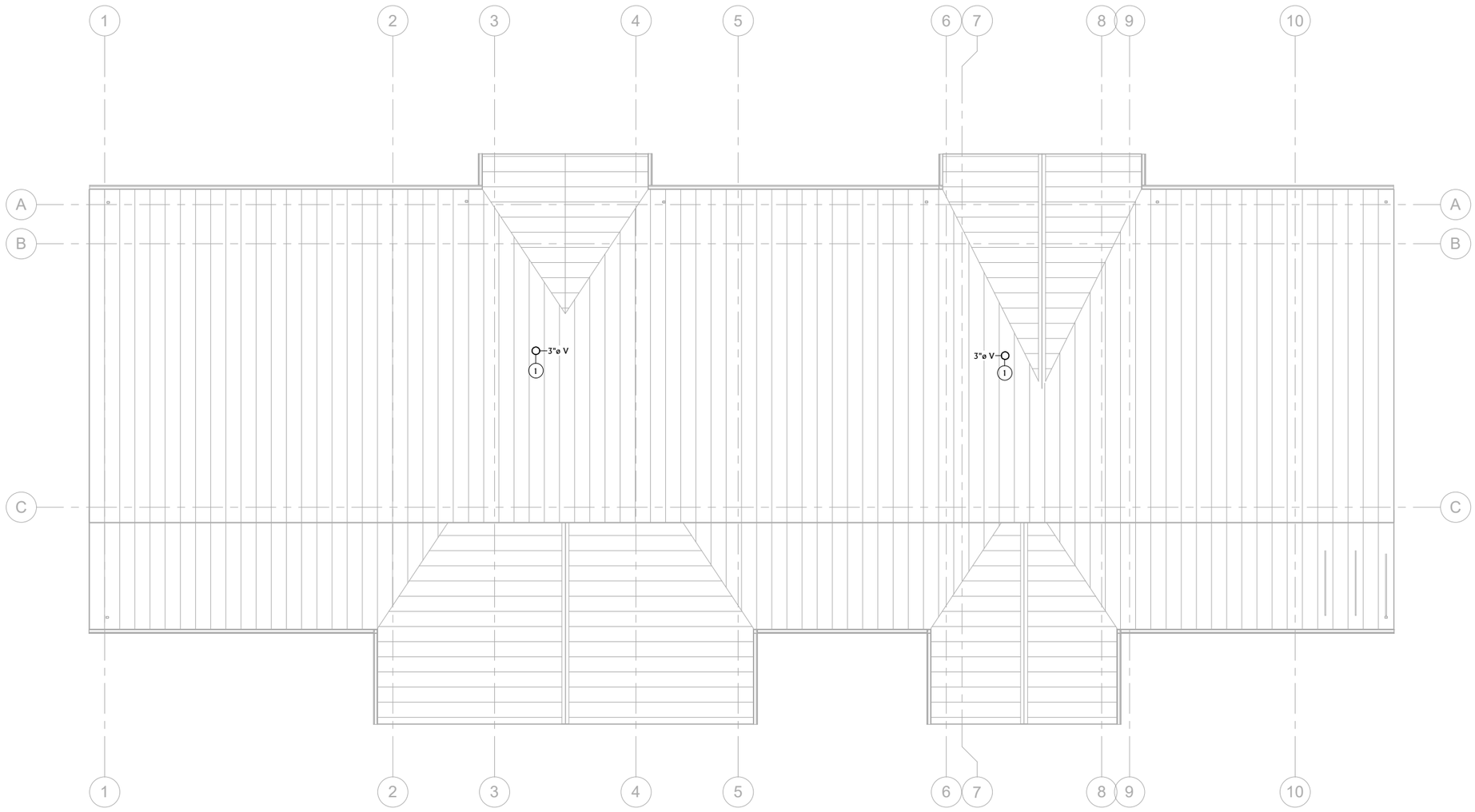

N

1 / P103 ROOF PLUMBING PLAN

1/8" = 1'-0"

PLUMBING GENERAL NOTES

1	PLUMBING CONTRACTOR SHALL CUT ALL FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO PERFORM THE WORK DEPICTED IN THESE CONTRACT DOCUMENTS AND SPECIFICATIONS. GENERAL CONTRACTOR SHALL PATCH ALL ASSOCIATED FLOORS, WALLS, CEILINGS, AND ROOF AS REQUIRED TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.
2	COORDINATE HVAC AND PLUMBING EQUIPMENT WITH ALL OTHER TRADES AS REQUIRED.
3	REFERENCE ARCHITECTURAL PLANS FOR EXACT FIXTURE LOCATIONS.
4	ALL VALVES LESS THAN 2" SHALL BE BALL VALVES UNLESS OTHERWISE NOTED.
5	COORDINATE UNDERSLAB PIPING WITH FOOTINGS AND STEM WALLS.
6	INSULATION ON ALL DOMESTIC COLD WATER PIPING SHALL BE PROVIDED WITH A CONTINUOUS VAPOR BARRIER. OVERSIZE HANGERS FOR INSULATION SO NO PENETRATION OF THE VAPOR BARRIER OCCURS. PROVIDE INSERTS AND SADDLES AS REQUIRED TO PREVENT INSULATION DAMAGE FROM SUPPORTS.
7	NO DOMESTIC WATER PIPING SHALL BE ROUTED IN ANY EXTERIOR WALLS.
8	PROVIDE ALL FLOOR DRAINS AND FLOOR SINKS WITH TRAP PRIMERS. PROVIDE WALL ACCESS PANEL FOR TRAP PRIMER ACCESS AS REQUIRED. ACCESS PANELS SHALL BE RATED WHERE REQUIRED.
9	ALL UNDERFLOOR VENT SHALL BE MINIMUM 2".
10	ALL UNDERFLOOR COPPER SHALL BE TYPE "K" SEAMLESS.
11	PROVIDE CLEANOUTS ON ALL LINES SERVING SINKS AND URINALS.

PLUMBING KEYNOTES

1	3" VTR. SEE 3/P301 FOR VTR INSTALLATION DETAIL.

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ROOF PLUMBING PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET P103

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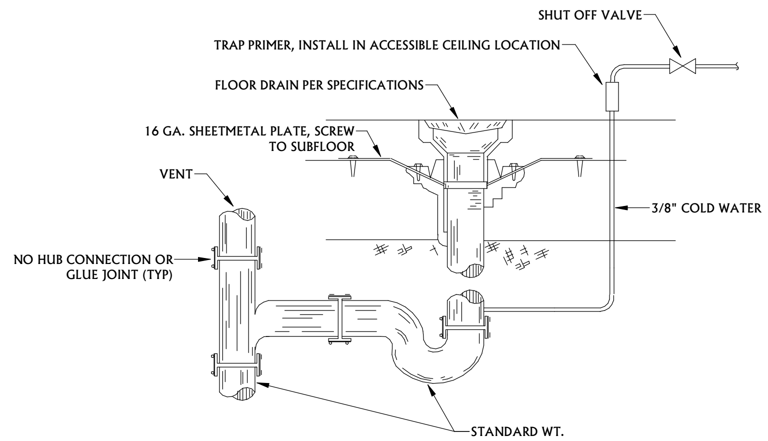
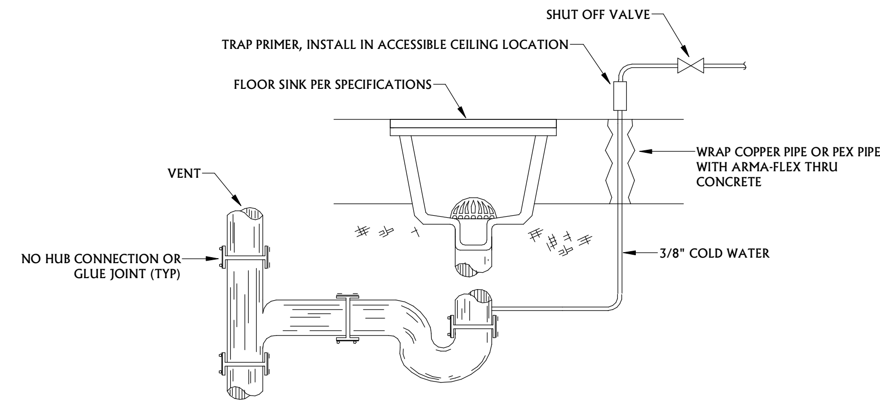
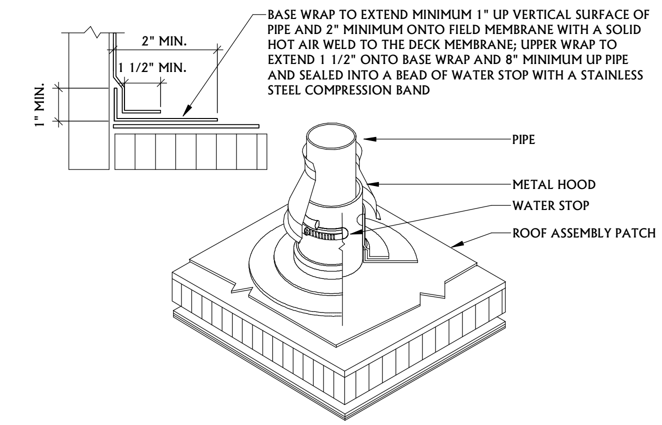


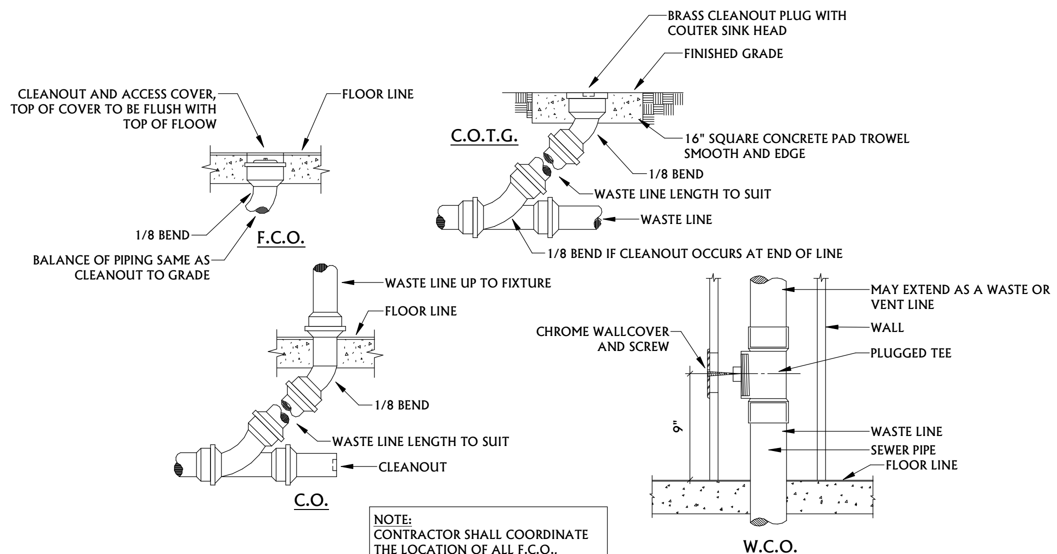
1 FLOOR DRAIN DETAIL
NOT TO SCALE



2 FLOOR SINK DETAIL
NOT TO SCALE

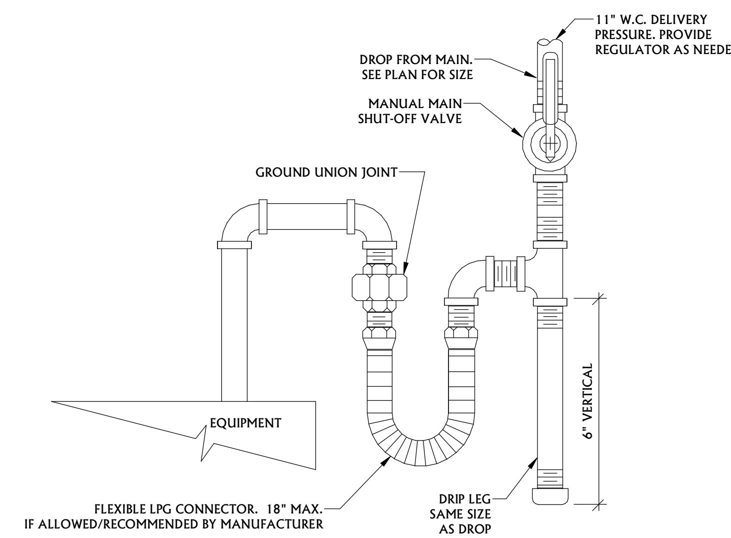


3 VENT THROUGH ROOF DETAIL
NOT TO SCALE

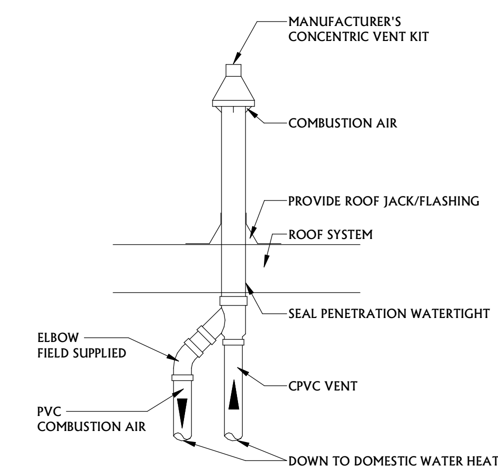


NOTE:
CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL F.C.O., W.C.O., AND C.O.T.G. WITH THE ARCHITECT

4 CLEAN OUT DETAILS
NOT TO SCALE

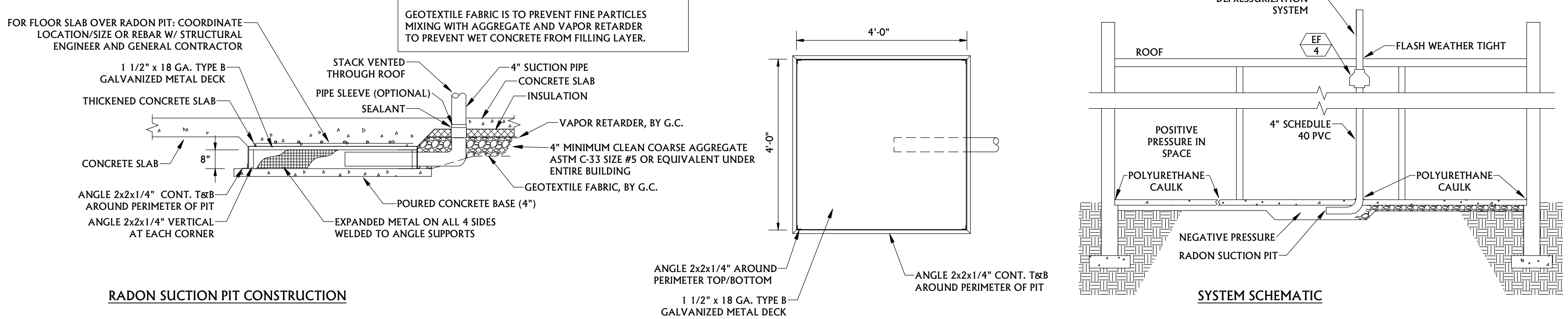


5 LPG CONNECTION DETAIL
NOT TO SCALE



6 CONCENTRIC VENT DETAIL
NOT TO SCALE

NOTE:
GEOTEXTILE FABRIC IS TO PREVENT FINE PARTICLES MIXING WITH AGGREGATE AND VAPOR RETARDER TO PREVENT WET CONCRETE FROM FILLING LAYER.



NOTES:

1) SEAL ALL PENETRATIONS AND CRACKS/JOINTS IN CONCRETE FLOOR WITH POLYURETHANE (NO SILICONE CAULKS) SEALANT/CAULK. THIS SHALL INCLUDE SEWER PIPE, CONDUIT, AND OTHER PENETRATIONS INCLUDING SLAB JOINTS, POUR JOINTS, FLOOR/WALL JOINTS, ETC. USE BACKER ROD WHEN APPLYING CAULK IN LARGE CRACKS.

2) PROVIDE 4 - 6 INCHES OF ASTM SIZE #5 AGGREGATE OR EQUIVALENT UNDER ENTIRE SLAB.

3) INSTALL SYSTEM PER DETAILS ON THIS SHEET.

4) REFERENCE EPA "RADON PREVENTION IN THE DESIGN OF CONSTRUCTION OF SCHOOLS AND OTHER LARGE BUILDINGS" DOCUMENT DATED 6/1994.

7 RADON COLLECTION SYSTEM DETAIL
NOT TO SCALE

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4/29/2022
SOUTH DAKOTA

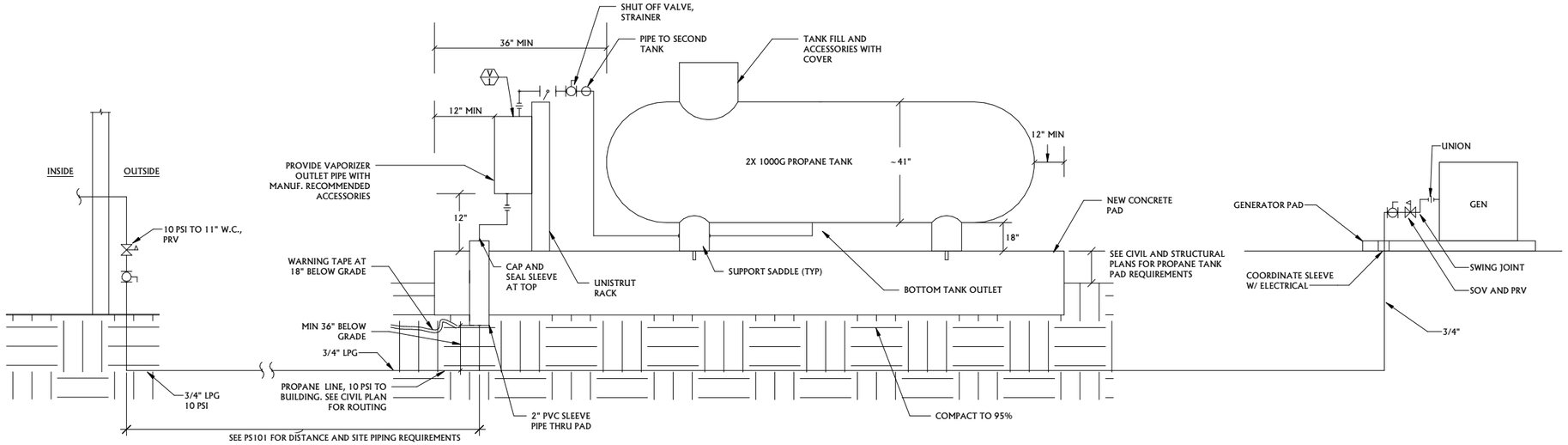
HURON FISH AND WILDLIFE

PLUMBING DETAILS

MULTIPURPOSE BUILDING AND VISITOR CENTER

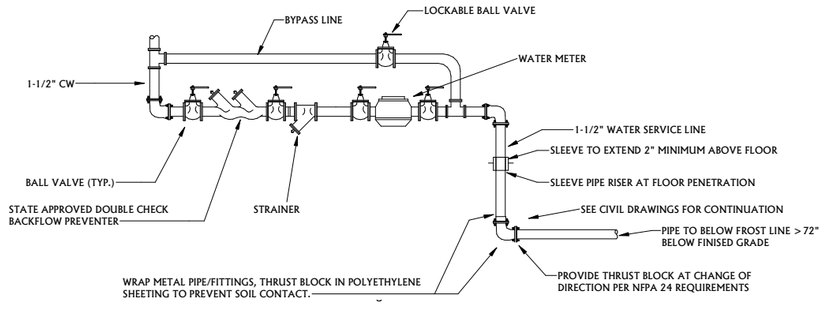
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
AS	TA	TM	2022.04.29	29320.07

SUB-SHEET
P301



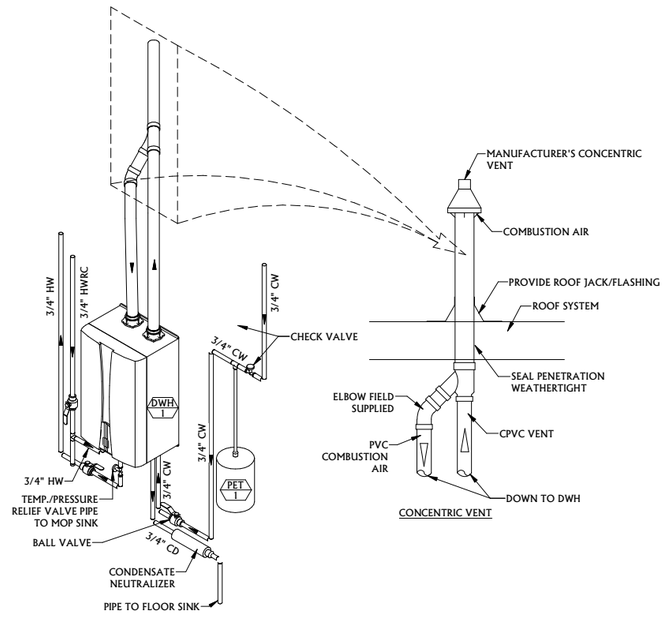
1 PROPANE TANK CONFIGURATION DETAIL

NOT TO SCALE



2 WATER RISER DETAIL

NOT TO SCALE



3 DOMESTIC WATER HEATING PIPING DETAILS

NOT TO SCALE

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HURON FISH AND WILDLIFE

PLUMBING DETAILS

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET P302

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
AS	TA	TM	2022.04.29	29320.07	73 OF 74

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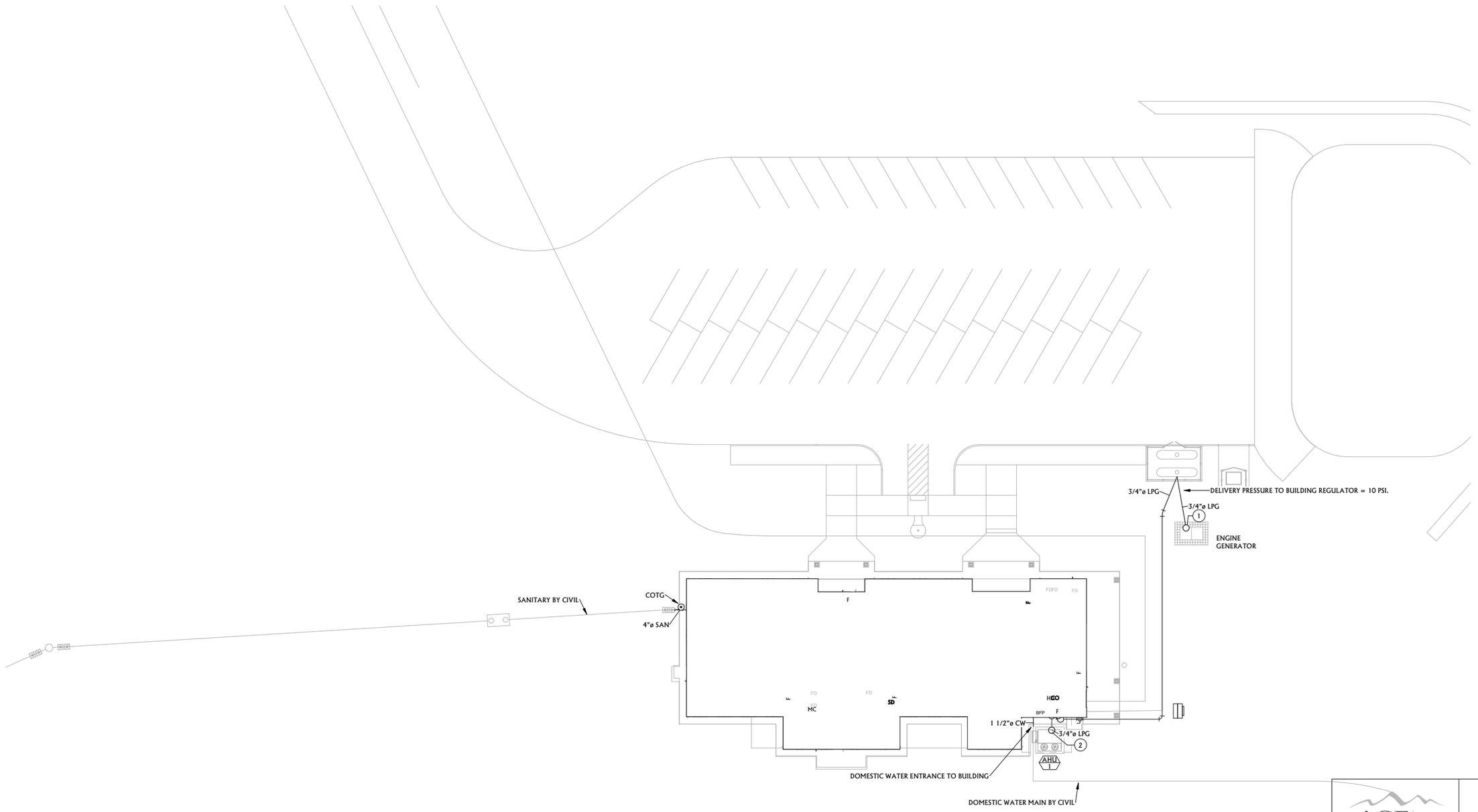
PLUMBING KEYNOTES	
1	3/4" LPG CONNECTION TO ENGINE GENERATOR. SEE 5/P301 FOR GAS CONNECTION. PROVIDE REGULATOR FROM 10PSI TO 11" W.C.
2	3/4" LPG CONNECTION TO AHU-1. SEE 5/P301 FOR GAS CONNECTION DETAIL.



N

1 / PS101 PLUMBING SITE PLAN

1" = 20'-0"

ACE INC
ASSOCIATED • CONSTRUCTION • ENGINEERING
2040 HARNISH BLVD.
BILLINGS, MT 59102
406-245-0136
ACE JOB 21BL5442

REGISTERED PROFESSIONAL ENGINEER
11498
TODD A. MELING
4/29/2022
SOUTH DAKOTA

HURON FISH AND WILDLIFE

PLUMBING SITE PLAN

MULTIPURPOSE BUILDING AND VISITOR CENTER

SUB-SHEET: PS101

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.	SHEET
AS	AS	TM	2022.04.29	29320.07	74 OF 74

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