ADDENDUM NO. 2

TO
CONSTRUCTION DOCUMENTS
FOR:

Arkansas Forest Health Research Center
University of Arkansas at Monticello

November 18, 2024

This addendum forms a part of the contract documents and modifies or interprets the Project Manual and Drawings, as noted below. Acknowledge receipt of this addendum in the space provided on the Bid Form. Failure to do so may subject bidder to disqualification.

THIS ADDENDUM CONTAINS *THIRTY-EIGHT* (38) 8 ½" x 11" and *FIFTEEN* (15) 22" x 34" PAGES, IF THIS COPY OF ADDENDUM NO. 2 DOES NOT CONTAIN THE ABOVE PAGE COUNT, PLEASE CONTACT SCM ARCHITECTS.

SPECIFICATIONS:

1. Refer to Section 01 20 00 – Allowances, 1.2 ALLOWANCES, Add " C. Cost to be included in the Bid: Provide a $14,000 Allowance for the installation (including power and data) of any owner provided furniture or equipment not listed in the drawings, specifications or Addendums."
2. Refer to Section 02 10 00 – Geotechnical Investigation. Add attached asphalt and concrete paving details to section. Refer to attached C2.00 for locations.
3. Refer to Section 04 45 10 – Stone Veneer, 2.01 STONE VENEER, ADD Sub-Section "B. Stone Venner to be supplied by Schwartz Stone, Cherry Blend, 479-938-2317, www.schwartzstone.com - substitutions should be submitted and approved by the architect before the bid.
4. Refer to Section 09 90 00 – Paints and Coatings, 3.06 SCHEDULE – PAINT SYSTEMS, Add the following:
   M. 2X6 Exposed Wood Decking:
      1. First Coat: Exterior transparent oil based wood stain and preservative equal to SW SuperDeck® Exterior Transparent Wood Stain - 250
5. Refer to Section 11 00 00 – Installation of Owner Provided Equipment, Refer to Attached Equipment List and Attached Cut Sheets for Owner Provided and Contractor Installed Equipment. This list also Contains Contractor Provided and Installed Equipment.
6. Refer to Section 11 10 00 – Contractor Provided and Installed Equipment, Please add the 2 Ice Makers shown on the attached Equipment List to be purchased and installed by the contractor. The cut sheet attached shows the size and capacity required by the owner. Substitutions are encouraged but should be submitted and approved before the bid.
7. Refer to Section 23 00 86 Piping Insulation – Replace with revised specification attached.
8. Add attached new specification section 23 21 00 Hydronic Pumps.

DRAWINGS:

1. Refer to Drawings Sheet C2.00, Paving designations updated per attached C2.00.
2. Refer to Drawings Sheet C3.00, curb inlet labeled 31Z shall be 30B Concrete inlet.

3. Refer to Drawings Sheet C3.00, Note 32F designates (2) trench drains to parking lot. These (2) downspouts do not tie into underground drainage system.
4. Refer to Drawings Sheet C5.00, Updated paving sections per geotechnical recommendations.
5. Refer to Drawings Sheet C5.00, Detail 20A shall provide 4” compacted base.
6. Refer to Drawings Sheet C5.03, Added Sanitary Sewer Line Abandonment detail. Northern existing SS line to be abandoned between connections at new SS line routed around the north side of the building.
7. Refer to Drawings Sheet S0.02, METAL DECKING, Note 2: Change “1.5VLR20” to “1.5VLR22.”
8. Refer to the Drawings Sheet S3.03, at 6” Concrete Slab Note: Change “1.5VLR-19 GA” to “1.5VLR-22 GA.”
9. Refer to Drawings Sheet S4.05, FRAMING DETAILS, Detail 4, Relace with Revised Detail 4 on attached Supplemental Drawing S7.
10. Refer to Drawings Sheet S5.04, BRACE FRAME ELEVATIONS, Elevation 1 “Brace Frame Elevation @ Grid R”, Replace with Revised Elevation on attached Supplemental Drawing S8.
11. Refer to Drawings Sheet S6.02, BRACE FRAME DETAILS, Detail 4, ADD Detail 7 on attached Supplemental Drawing S9.
12. Refer to Sheets A2.00, A2.01 and A2.02 – the partitions/walls between the labs and all other spaces are to be completely sealed from the concrete slab up to the metal decking including all penetrations through the partitions. Refer to the attached Sheet A1.00 with color shading showing the areas that are to be totally sealed off from the exterior and other spaces within the building. Each color shaded area will be pressure tested separately to insure there is no air transfer between spaces.
13. Refer to Drawings Sheet A3.06, ENLARGED PLANS – RESTROOMS, elevations revised to show correct toilet partition height on attached SUP A5.
14. Refer to Drawings Sheet A5.01, CONDUCTOR HEAD DETAILS, Add steel lintel and flashing per attached SUP A4.
15. Refer to Drawings Sheet A8.01, WALL SECTIONS AND DETAILS, Replace with revised attached A8.01. Add framing, insulation, gypsum board, and spray foam insulation at exterior walls and roof deck, typical.
16. Refer to Drawings Sheet A8.02, WALL SECTIONS AND DETAILS, Detail 5D, Copper parapet cap changed to prefinished metal parapet cap.
17. Refer to Drawings Sheet A9.00, DOOR SCHEDULE, Door 132B, Add Door Gasketing and Door Bottom to Door 132B. Refer to Section 08 71 00 – Hardware for Gasketing and Door Bottom specification.
18. Refer to Drawings Sheet E1.00, Revised legend clarifying structured cabling items.
19. Refer to Drawings Sheet E4.02, Added refrigerator power to pathology lab
20. Refer to Drawings Sheet E5.01, Added reference to smartboard detail
21. Refer to Drawings Sheet E8.03, Added refrigerator circuit
22. Refer to Drawings Sheet E9.02, Updated data outlet and smartboard/monitor details
23. Refer to Drawings Sheet P1.01, Revised fixture schedule
24. Refer to Drawings Sheet P2.01, Revised Annotation
25. Refer to Drawings Sheet P2.02, Sanitary Sewer Trench Drain designated as TD1, TD2 and TD3. This drain is the MiFab T2001-PB with a Load Class A galvanized grate. It comes in two lengths 39.4" and 19.7". See attached Specification Sheet.

26. Refer to Drawings Sheet P3.01, Chemistry Lab 110 and Chemistry Lab 112, Cast-In-Place Utility Trench. This Utility Trench is the Dura-Trench model DTUTPF12 polymer concrete utility trench, no slope, with a solid stainless steel cover. These utility trenches do not require a drain. See attached Specification Sheet.
27. Refer to Drawings Sheet P6.04, Revised detail.

ATTACHMENTS

Specifications: Paving Sections, Equipment List, MiFAB T2001, Dura-Trench, 23 00 86, 23 21 00
Supplemental Drawings: SUP S7, SUP S8, SUP S9, SUP A4, SUP A5
Sheets: C2.00, C5.00, C5.03, A1.00, A8.01, E1.00, E4.02, E5.01, E8.03, E9.02, P1.01, P2.01, P2.02, P3.01, P6.04

End of Addendum 2

September 18, 2024
Job No. A24184.00055

SCM Architects
1400 Kirk Road, Suite 220
Little Rock, Arkansas 72223

Attn: Mr. John Connell, AIA
Principal

REF: SUPPLEMENTAL COMMENTS – PAVEMENT SECTIONS
FOREST HEALTH RESEARCH CENTER
UNIVERSITY of ARKANSAS at MONTICELLO
MONTICELLO, ARKANSAS

Mr. Connell,

Provided herein are recommendations for pavement sections for the new Forest Health Research Center planned at the University of Arkansas at Monticello campus in Monticello, Arkansas. We provided the report of the geotechnical investigation on August 7, 2024. This additional information was requested by Mr. Connell on September 17, 2024.

These pavement section alternatives have been developed based on the assumption of light traffic in parking areas and drives, with traffic limited to automobiles and light utility vehicles.

We recommend the following pavement sections .

Parking

2 in. Asphalt Concrete Hot Mix Surface Course (ARDOT Standard Specifications, Section 407, ⅜ inch, N_{max} = 115)
7 in. Crushed Stone Base (ARDOT Standard Specifications Section 303, Class 7) or approved equal

Drives

3 in. Asphalt Concrete Hot Mix Surface Course (ARDOT Standard Specifications, Section 407, ⅜ inch, N_{max} = 115)
8 in. Crushed Stone Base (ARDOT Standard Specifications Section 303, Class 7) or approved equal

We recommend that all subgrade be proof-rolled prior to placing base course. Depending on seasonal site conditions and the final grading plans, some undercut could be required to develop a stable subgrade. Consideration may be given to utilizing geotextiles and select granular fill to limit undercut amounts. This concept is illustrated on the attached sketch. The aggregate base of the pavement section should be compacted to a minimum of 98 percent of the AASHTO T 180 maximum dry density as per ARDOT criteria. Recommendations for subgrade preparation and site grading were discussed in our August 7, 2024 report.

Positive drainage must be incorporated into pavement design. The importance of positive drainage for satisfactory pavement performance cannot be overemphasized. Grades should direct

water off paved areas and ditches or storm drains should be used to develop positive flow away from pavement edges. Periodic maintenance of pavements should include sealing of all joints and cracks to prevent surface water infiltration.

We appreciate the opportunity to be of continued service to you during this phase of the project. Should you have any questions regarding this supplemental information, or if we may be of additional assistance during final design or construction, please call on us.

Sincerely,

GRUBBS, HOSKYN,
BARTON & WYATT, LLC

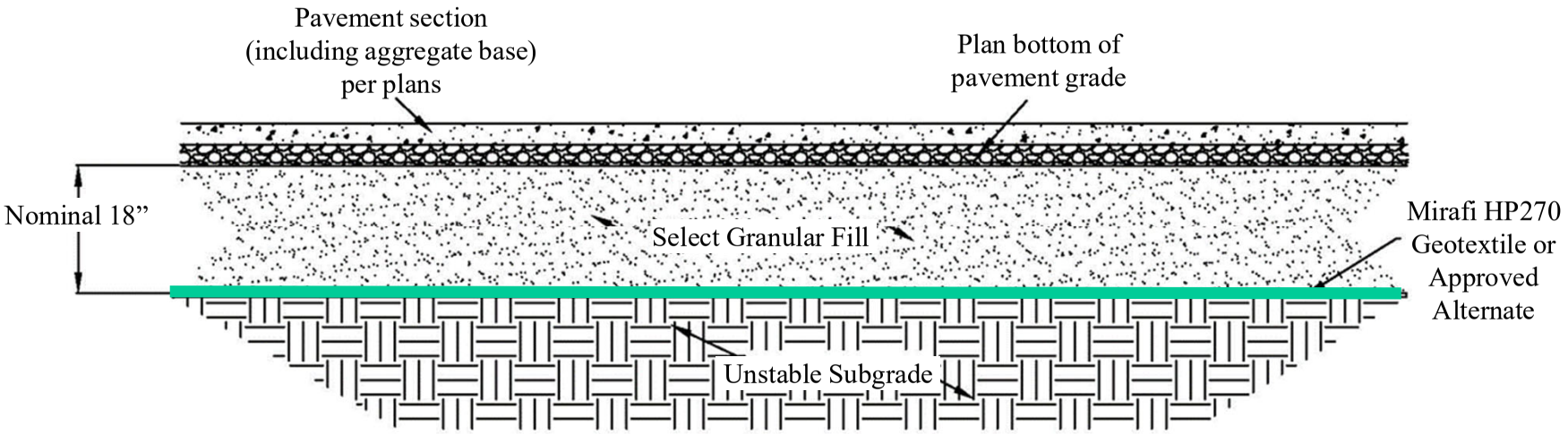
Mark E. Wyatt, P.E.
President

MEW:jw

Attachment

Copies submitted: SCM Architects
Attn: Mr. John Connell, AIA (1-email)
Attn: Mr. Tommy Wise-Ehlers (1-email)

McClelland Consulting Engineers
Attn: Mr. Dan Beranek, P.E. (1-email)



Notes:

1. Stability of subgrade to be field verified by the Geotechnical Engineer.
2. Granular fill thickness may require field modification, either thickening or thinning. Unsuitable subgrade may warrant additional undercut.
3. Fill/backfill thickness can be attained by raising grade, undercut, or a combination of both.
4. Suitable select granular fill materials include ARDOT Class 7 base or approved alternates.
5. The surface of the select granular fill should be compacted to a stable density by static rolling as directed by the Geotechnical Engineer.
6. All select granular fill to be approved by the Geotechnical Engineer.

Grubbs, Hoskyn, Barton & Wyatt, LLC CONSULTING ENGINEERS A UES Company	**Pavement Area** **Subgrade Stabilization Concept** **Select Granular Fill on Geotextile**	**UAM Forest Health Research Center** **Monticello, Arkansas** **GHBW Job No. A24184.00055**

November 14, 2024
Job No. A24184.00055

SCM Architects
1400 Kirk Road, Suite 220
Little Rock, Arkansas 72223

Attn: Mr. John Connell, AIA
Principal

REF: SUPPLEMENTAL RECOMMENDATIONS for
CONCRETE PAVEMENT SECTION
FOREST HEALTH RESEARCH CENTER
UNIVERSITY of ARKANSAS at MONTICELLO
MONTICELLO, ARKANSAS

Mr. Connell,

As requested, we have developed recommendations for Portland cement concrete pavement sections for the new Forest Health Research Center planned at the University of Arkansas at Monticello campus in Monticello, Arkansas. As you know, we provided the report of the geotechnical investigation on August 7, 2024 and recommendations for flexible pavement sections in our submittal of September 18, 2024.

These pavement section alternatives have been developed based on the assumption of light traffic in parking areas and drives, with traffic limited to automobiles and light utility vehicles.

We recommend the following rigid pavement section for drives and the planned overflow swale.

6 in.	Portland cement concrete (4000 psi compressive strength)
4 in.	Crushed Stone Base (ARDOT Standard Specifications Section 303, Class 7) on stable subgrade, minimum CBR of 8

We recommend that all subgrade be proof-rolled prior to placing base course. Depending on seasonal site conditions and final grading plans, some undercut could be required to develop a stable subgrade in pavement areas. To limit undercut depths, consideration may be given to utilizing geotextiles and select granular fill to limit undercut depth. This concept is illustrated on the attached sketch.

The aggregate base of the pavement section should be compacted to a minimum of 98 percent of the AASHTO T 180 maximum dry density as per ARDOT criteria. Recommendations for subgrade preparation and site grading were discussed in our August 7, 2024 report.

Positive drainage must be incorporated into pavement design. The importance of positive drainage for satisfactory pavement performance cannot be overemphasized. Grades should direct water off paved areas and ditches or storm drains should be used to develop positive flow away from pavement edges. Periodic maintenance of pavements should include sealing of all joints and cracks to prevent surface water infiltration.

We appreciate the opportunity to be of continued service to you during this phase of the project. Should you have any questions regarding this supplemental information, or if we may be of additional assistance during final design or construction, please call on us.

Sincerely,

GRUBBS, HOSKYN,
BARTON & WYATT, LLC

Mark E. Wyatt, P.E.
President

MEW:jw

Attachment

Copies submitted: SCM Architects
Attn: Mr. John Connell, AIA (1-email)
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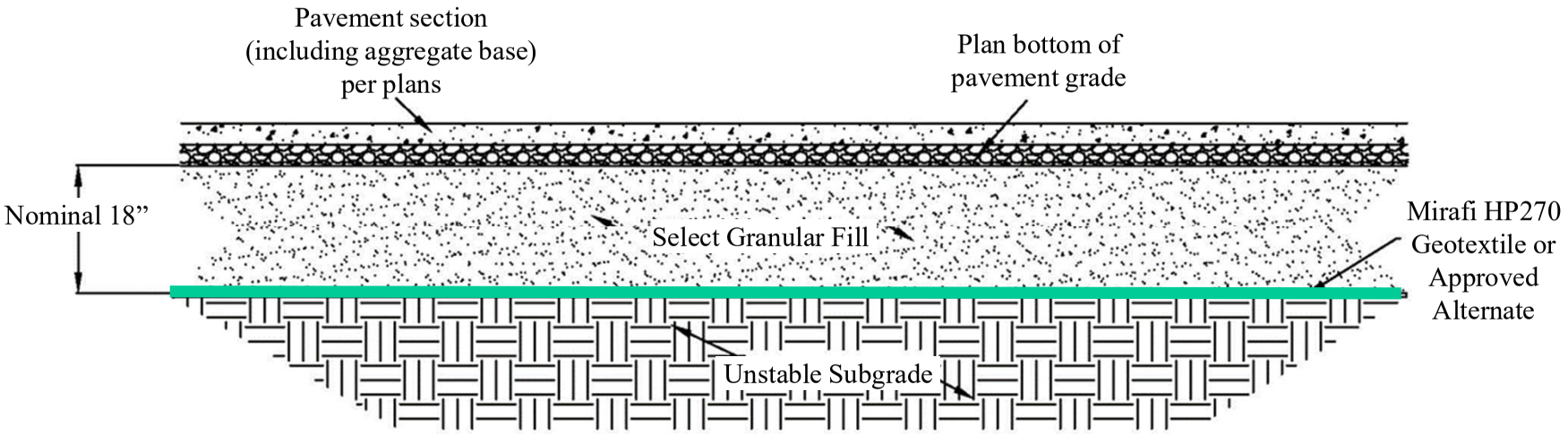


Notes:

1. Stability of subgrade to be field verified by the Geotechnical Engineer.
2. Granular fill thickness may require field modification, either thickening or thinning. Unsuitable subgrade may warrant additional undercut.
3. Fill/backfill thickness can be attained by raising grade, undercut, or a combination of both.
4. Suitable select granular fill materials include ARDOT Class 7 base or approved alternates.
5. The surface of the select granular fill should be compacted to a stable density by static rolling as directed by the Geotechnical Engineer.
6. All select granular fill to be approved by the Geotechnical Engineer.

Grubbs, Hoskyn, Barton & Wyatt, LLC CONSULTING ENGINEERS A UES Company	**Pavement Area** **Subgrade Stabilization Concept** **Select Granular Fill on Geotextile**	**UAM Forest Health Research Center** **Monticello, Arkansas** **GHBW Job No. A24184.00055**

Lab Equipment List information and location code							
Name	Location ref.	Manufacturer	Electrical Requirements	Owner Provided Owner Installed	Owner Provided Contractor Installed	Contractor Provided Contractor Installed	Comments
DNA lab							
Large capacity fully automatic autoclave	a-1	Heidolph	230 V 3 Phase	**X**			AUTOCLAVE 132
VIP ECO natural refrigerant lab freezer	a-2	PHCbi	208/230V UN3358	**X**			
desktop 5c incubator	a-3	1154J61	120 V	**X**			
desktop freezer	a-4	1154J61	120V	**X**			
pcr workstation	a-5	AirClean	120V	**X**			
~~Sample prep station~~	a-6	MP Biomedicals FastPrep-24 Sample Preparation System					**Not in this Project**
PCR System (thermocycler)	a-7	Applied BioSystems	120v	**X**			
Real-time PCR system (with computer and software)	a-8	Applied BioSystems	120v	**X**			
PCR plate spinner	a-9	Fishbrand	115v	**X**			
Microcentrifuge (mini)	a-10	Corning® LSE™ mini microcentrifuges	120v	**X**			
Biosafety cabinet	a-11	ESCO		**X**			
Microcentrifuge	a-12	Fisherbrand™	120v	**X**			
vortex mixer	a-13			**X**			
balance (analytic)	a-14	Cole-Parmer	120v	**X**			
Pathology lab (+research lab)							
spore plate reader	b-1	biosense	120v	**X**			
Oribital Shaker	b-2	Ohaus	120v	**X**			
centrifuge	b-3	Fisherbrand™	120v	**X**			
Incubator (variable temp)	b-4	Cole-Parmer	120v AC	**X**			
Dissecting microscope (camera)	b-5		120v	**X**			
Dissecting microscope with boom arm (camera)	b-6	Zeiss	120v	**X**			
Standard microscope	b-7		120v	**X**			
compound microscope with camera	b-8	Zeiss	120v	**X**			
Laminar Flow clean bench	b-9	AirClean	240v	**X?**			
Commercial microwave oven	b-10		120v	**X**			
stir/hot plate	b-11		120v	**X**			
lab balance (analytic)	b-12	Cole-Parmer	120v	**X**			
47MM vacuum filtration system	b-13		120V	**X**			
freeze dryer	b-14	HarvestRight	120V	**X**			
Entomology/Environmental Lab:							
Insect chamber	c-1	caron insect growth chamber	120v	**X**			
Fume hood	c-2	Labconco	230v			**X**	**In Lab Casework Package**
Mini cutting mill	c-3	Thomas Wiley	dualv 115/230v	**X**			
~~Pelletizer~~	c-4		220v				**Not in this Project**
~~ICP-AES spectrometer~~	c-5	Agilent	240v and 230v				**Not in this Project**
PH scale	c-6	Thermo Scientific	120v	**X**			
Commercial microwave oven	c-7		120v	**X**			
stir/hot plate	c-8	Fisherbrand™ Isotemp™ Digital Hotplate Stirrer	120v	**X**			
Lab Balance portable	c-9	Mettler Toledo™	120v	**X**			
weighing platform	c-10	uline washdown platform scale	120v	**X**			
Ice Maker - Research Labs	LS1					**X**	STORAGE 124
Growth Chamber	LS2	GMI - Binder Model KBWF 720	230v / 50Hz	**X**			STORAGE 124
Walk-In Cooler/Freezer	LS3, LS4, LS5					**X**	STORAGE 124
Ice Maker - Biology Storage Room 108						**X**	STORAGE 108
Reach-In Refrigerator		Pathology Lab		**X**			
Break Room Appliances		Refrigerator, Microwave, Coffee Maker		**X**			

Location: _____

MIFAB® T2000-PB

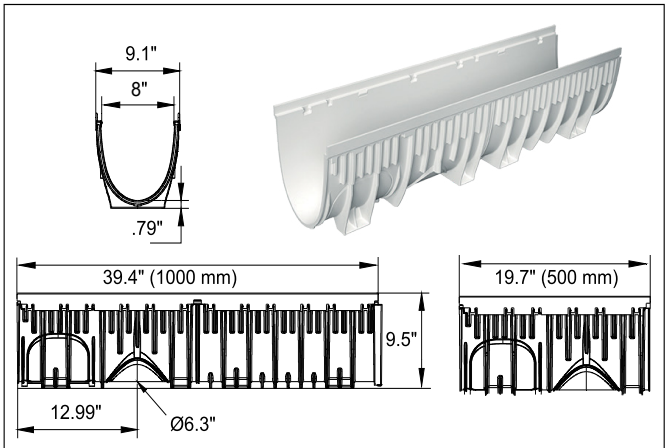
8" Glass Reinforced Polyester (GRP) Channel with No Edge Rail

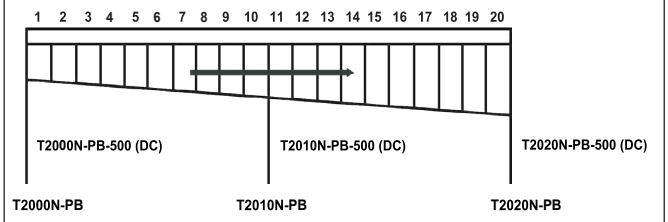
Specification: MIFAB® T2000-PB series channels shall be 39.4" (1000 mm) long with a 8" (200 mm) internal width and radius bottom. Interconnecting channel sections are made of high strength Glass Fiber Reinforced Polyester (GRP) and available in sloping (0.5%) and non-sloping (neutral) channels. Each channel comes with no edge rail. Directional Change Channels available at neutral locations. MIFAB's GRP channels are designed with a sealant groove in accordance with the EN1433 Standard, Section 7.5 - Connecting Channel Elements. This Standard requires all channels to have the joint between channels to be designed in such a way that it can be permanently sealed. Sealant manufacturers recommend a 3/8" bead, which the MIFAB GRP conforms to.

MEA BUILDING SUCCESS

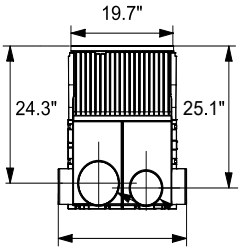
Installation devices, plastic end cap/outlet cap, catch basins and bottom outlets are available accessories. Grates (separate Specification Sheets) are available in in Load Class A-C in a variety of materials. Grates utilize the patented "Clipfix" locking mechanism.

	Channel Model #	BODY TYPE	INVERT BODY DEPTH		OVERALL BODY DEPTH		MAXIMUM FLOW RATE	WEIGHT (LESS GRATE)
		Sloped - .5% Neutral - 0%	E1 (Min.)	E2 (Max.)	E1 (Min.)	E2 (Max.)	GPM	Lbs.
☐	T2000N-PB	Neutral	8.74"	8.74"	9.53"	9.53"	525	13.23
☐	T2000N-PB-500	Neutral	8.74"	8.74"	9.53"	9.53"	525	7.39
☐	T2000N-PB-500-DC	Neutral	8.74"	8.74"	9.53"	9.53"	525	7.39
☐	T2001-PB	Sloped	8.74"	8.93"	9.53"	9.73"	580	13.36
☐	T2002-PB	Sloped	8.93"	9.13"	9.73"	9.93"	605	13.52
☐	T2003-PB	Sloped	9.13"	9.33"	9.93"	10.12"	632	13.69
☐	T2004-PB	Sloped	9.33"	9.53"	10.12"	10.32"	650	13.86
☐	T2005-PB	Sloped	9.53"	9.72"	10.32"	10.52"	686	14.03
☐	T2006-PB	Sloped	9.72"	9.92"	10.52"	10.71"	715	14.19
☐	T2007-PB	Sloped	9.92"	10.12"	10.71"	10.91"	759	14.36
☐	T2008-PB	Sloped	10.12"	10.31"	10.91"	11.11"	789	14.53
☐	T2009-PB	Sloped	10.31"	10.51"	11.11"	11.30"	819	14.70
☐	T2010-PB	Sloped	10.51"	10.71"	11.30"	11.50"	850	14.86
☐	T2010N-PB	Neutral	10.71"	10.71"	11.50"	11.50"	850	15.65
☐	T2010N-PB-500	Neutral	10.71"	10.71"	11.50"	11.50"	850	7.83
☐	T2010N-PB-500-DC	Neutral	10.71"	10.71"	11.50"	11.50"	850	7.83
☐	T2011-PB	Sloped	10.71"	10.90"	11.50"	11.70"	881	15.03
☐	T2012-PB	Sloped	10.90"	11.10"	11.70"	11.89"	915	15.20
☐	T2013-PB	Sloped	11.10"	11.30"	11.89"	12.09"	948	15.37
☐	T2014-PB	Sloped	11.30"	11.49"	12.09"	12.29"	983	15.53
☐	T2015-PB	Sloped	11.49"	11.69"	12.29"	12.49"	1018	15.70
☐	T2016-PB	Sloped	11.69"	11.89"	12.49"	12.68"	1052	15.87
☐	T2017-PB	Sloped	11.89"	12.08"	12.68"	12.88"	1119	16.04
☐	T2018-PB	Sloped	12.08"	12.28"	12.88"	13.08"	1155	16.20
☐	T2019-PB	Sloped	12.28"	12.48"	13.08"	13.27"	1194	16.37
☐	T2020-PB	Sloped	12.48"	12.67"	13.27"	13.47"	1233	16.54
☐	T2020N-PB	Neutral	12.67"	12.67"	13.47"	13.47"	1233	17.50
☐	T2020N-PB-500	Neutral	12.67"	12.67"	13.47"	13.47"	1233	8.75
☐	T2020N-PB-500-DC	Neutral	12.67"	12.67"	13.47"	13.47"	1233	8.75

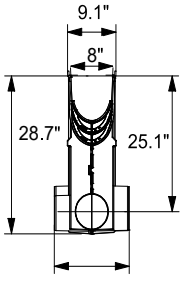




T2000-CB820
No Edge



6" OUTLET CATCH BASIN
(8" OUTLET ALSO AVAILABLE)
Sediment bucket, 4 filler plates and end cap included



CLIPFIX ADVANTAGE
The MEA Glass Fiber Reinforced Polyester (GRP) channels have been designed for our universal CLIPFIX grate locking mechanism. The system (channel and grate) provide longitudinal shift protection.

CALIFORNIA PROPOSITION 65 WARNING. This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

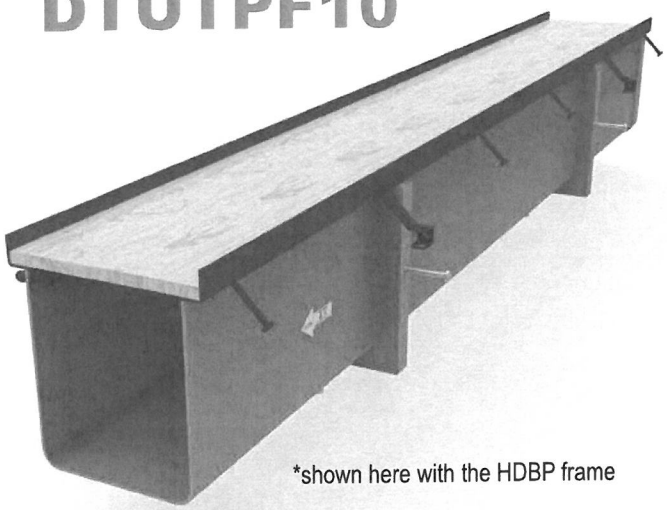
Job Name: _____ Page No: _____

Section No: _____ Contractor: _____

Schedule No: _____ Purchase Order No: _____

USA: 1-800-465-2736 www.mifab.com CAN: 1-800-387-3880

DTUTPF10



*shown here with the HDBP frame

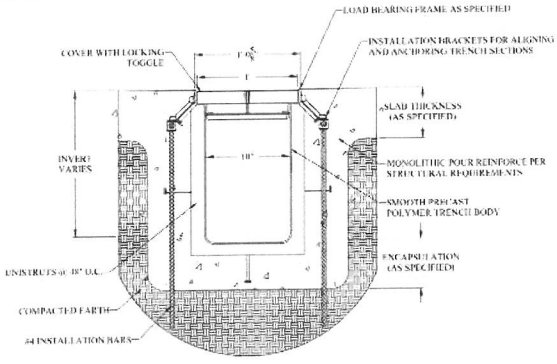
SYSTEM CHARACTERISTICS:

- Secondary containment utility trench
- Built in 1 5/8" channel strut (48" o.c. typ)
- No internal cross braces to obstruct pipe installation
- Significantly increases speed of installation
- All load classes

FRAME OPTIONS	MDGS, MDSS, MDAL, HDBP, HDGS, HDSS, HDFG, EXGS, EXSS, EXDI, CUSTOM
GRATES	12" WIDE COVERS (OPTIONAL GASKETS)
SYSTEM DEPTH	12" - 36" TYP
SECTION LENGTH	8' TYP (16' OPTION)
SLOPE	0.0%, 0.5% & 1% OR SPECIFY INVERTS

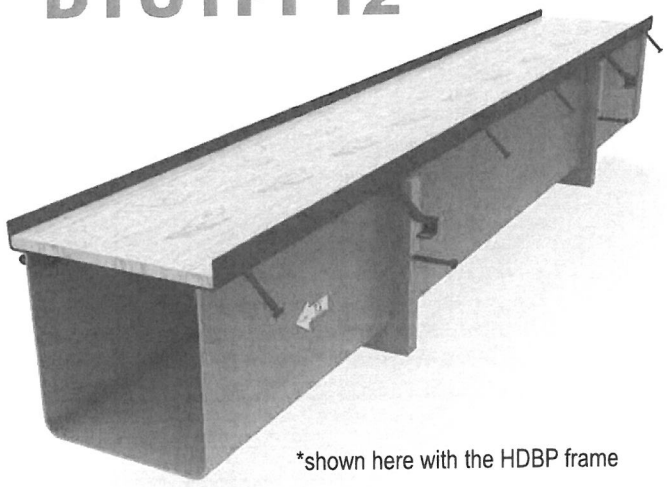
Engineering Specification:

Utility trench shall be DuraTrench as manufactured by Eric'sons, 574C Industrial Way N., Dallas, GA 30132 - (770-505-6575). The utility trench body shall act as secondary containment and be composed of polyester fiber reinforced polymer concrete. The trench shall have a 10" clear open throat and have a rectangular bottom. The trench body shall be gray in color to closely resemble the color of concrete. Sections shall be 96" long (typical) and have a 2" receiving flange on the upstream end for receiving and sealing the trench sections together. Each of the sections shall be labeled to indicate proper placement. The trench body shall mate to the frame and form a grate seat that shall accept the specified cover. The body shall be supplied with a factory fit protective top for rail alignment and fastening of the channels in the field ensuring that the rails are cast in a coplanar manner. The trench shall not have any cross bars that will interfere with later installation of utilities in the trench. The trench shall have 1 5/8" x 1 5/8" galvanized strut channel cast into the trench walls for mounting of utilities. The strut shall have 3" x 3/8" dia. concrete anchors locking the strut into the surrounding concrete once cast. The trench body shall have the following properties: 12,600 psi minimum tensile strength per ASTM C307, 11,600 psi. minimum compressive strength per ASTM C579, 26,500 psi minimum flexural strength per ASTM C580, less than 0.35% water absorption, shall be frost proof, salt proof, and be resistant to dilute acids and alkalis per ASTM C267.



TYPICAL DTUTPF10 TRENCH SECTION

DTUTPF12



*shown here with the HDBP frame

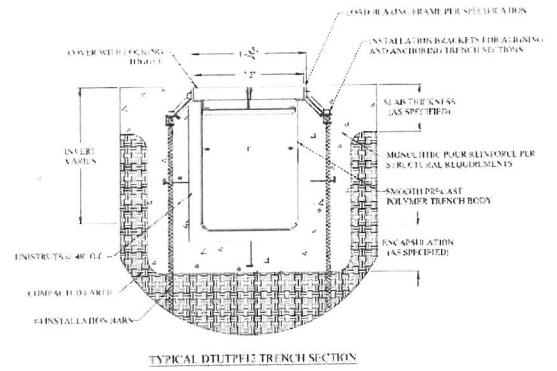
SYSTEM CHARACTERISTICS:

- Secondary containment utility trench
- Built in 1 5/8" channel strut (48" o.c. typ)
- No internal cross braces to obstruct pipe installation
- Significantly increases speed of installation
- All load classes

FRAME OPTIONS	MDGS, MDSS, MDAL, HDBP, HDGS, HDSS, HDFG, EXGS, EXSS, EXDI, CUSTOM
GRATES	14" WIDE COVERS (OPTIONAL GASKETS)
SYSTEM DEPTH	12" - 36" TYP
SECTION LENGTH	8' TYP (16' OPTION)
SLOPE	0.0%, 0.5% & 1% OR SPECIFY INVERTS

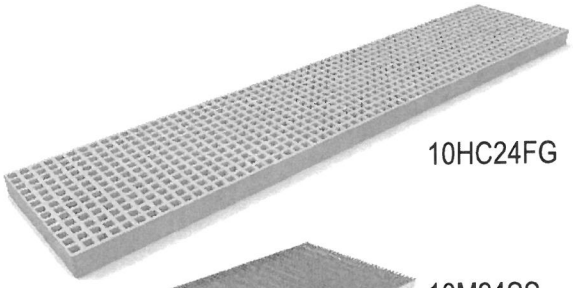
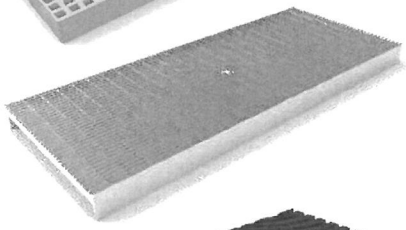
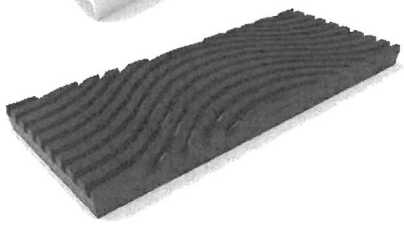
Engineering Specification:

Utility trench shall be DuraTrench as manufactured by Eric'sons, 574C Industrial Way N., Dallas, GA 30132 - (770-505-6575). The utility trench body shall act as secondary containment and be composed of polyester fiber reinforced polymer concrete. The trench shall have a 12" clear open throat and have a rectangular bottom. The trench body shall be gray in color to closely resemble the color of concrete. Sections shall be 96" long (typical) and have a 2" receiving flange on the upstream end for receiving and sealing the trench sections together. Each of the sections shall be labeled to indicate proper placement. The trench body shall mate to the frame and form a grate seat that shall accept the specified cover. The body shall be supplied with a factory fit protective top for rail alignment and fastening of the channels in the field ensuring that the rails are cast in a coplanar manner. The trench shall not have any cross bars that will interfere with later installation of utilities in the trench. The trench shall have 1 5/8" x 1 5/8" galvanized strut channel cast into the trench walls for mounting of utilities. The strut shall have 3" x 3/8" dia. concrete anchors locking the strut into the surrounding concrete once cast. The trench body shall have the following properties: 12,600 psi minimum tensile strength per ASTM C307, 11,600 psi. minimum compressive strength per ASTM C579, 26,500 psi minimum flexural strength per ASTM C580, less than 0.35% water absorption, shall be frost proof, salt proof, and be resistant to dilute acids and alkalis per ASTM C267.

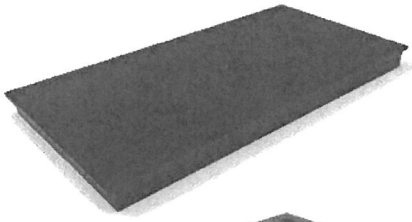
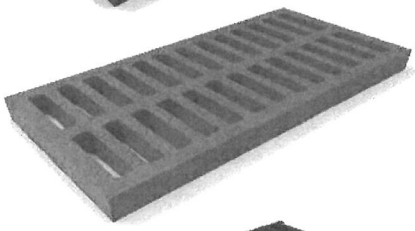
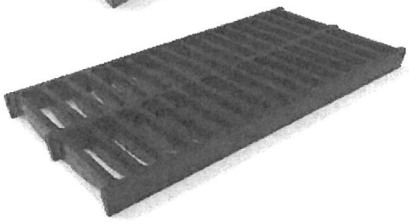
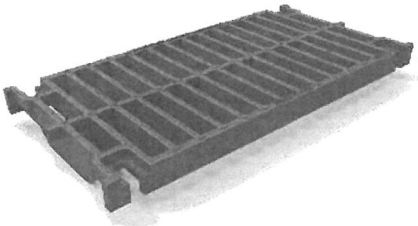


TYPICAL DTUTPF12 TRENCH SECTION

10" WIDE GRATES

	PART #	DESCRIPTION	DIN LOAD
	10HC24FG	FIBERGLASS ADA MESH GRATE	B
	10M24SS	STAINLESS STEEL MESH GRATE	B
	10W24DI	DUCTILE IRON ADA WAVE GRATE	D

12" WIDE GRATES

	PART #	DESCRIPTION	DIN LOAD
	12A24BP	BLACK POWDER PAINTED STEEL SOLID COVER	E
	12A24GS	GALVANIZED STEEL SOLID COVER	E
	12A24SS	STAINLESS STEEL SOLID COVER	E
	12B24CI	CAST IRON SLOTTED GRATE	D
	12B24DI	DUCTILE IRON SLOTTED GRATE	E
	12B24DG	GALVANIZED IRON SLOTTED GRATE	E
	12B24DIF	DUCTILE IRON SLOTTED GRATE	F

SECTION 23 0086

PIPING INSULATION

PART 1 - GENERAL

1.01. SUMMARY

A. Perform all Work required to provide and install piping insulation, jackets, and accessories indicated by the Contract Documents with supplementary items necessary for proper installation.

B. Insulation of Underground Piping is specified elsewhere and not work of this Section.

1.02. REFERENCE STANDARDS

C. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

D. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

E. All materials, installation and Workmanship shall comply with the applicable requirements and standards addressed within the following references:

1. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.

2. ASTM C168 - Terminology Relating to Thermal Insulation Materials.

3. ASTM C177 - Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded- Hot-Plate Apparatus.

4. ASTM C195 - Mineral Fiber Thermal Insulating Cement.

5. ASTM C335 - Steady-State Heat Transfer Properties of Horizontal Pipe Insulation.

6. ASTM C449 - Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement.

7. ASTM C518 - Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

8. ASTM C534 - Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.

9. ASTM C547 - Mineral Fiber Pipe Insulation.

10. ASTM C552 - Cellular Glass Thermal Insulation.

11. ASTM C578 - Rigid, Cellular Polystyrene Thermal Insulation.

12. ASTM C585 - Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System).

13. ASTM C591 - Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.

14. ASTM C450 - Thermal Insulating Fitting Covers for NPS Piping, and Vessel Lagging.

15. ASTM C610 - Molded Expanded Perlite Block and Pipe Thermal Insulation.

16. ASTM C921 - Jackets for Thermal Insulation.

17. ASTM C1126 - Faced or Unfaced Rigid Cellular Phenolic Thermal Insulation.

18. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.

19. ASTM D1667 - Flexible Cellular Materials – Poly (Vinyl Chloride) Foam (Closed- Cell).

20. ASTM D2842 - Water Absorption of Rigid Cellular Plastics.

21. ASTM C795 - Insulation For Use Over Austenitic Steel.

22. ASTM E84 - Surface Burning Characteristics of Building Materials.

23. ASTM E96 - Water Vapor Transmission of Materials.

24. NFPA 255 - Surface Burning Characteristics of Building Materials.

25. UL 723 - Surface Burning Characteristics of Building Materials.

26. ASTM D5590 - Standard Test Method for Determining the Resistance of Paint Films and Related Coatings to Fungal Defacement by Accelerated Four-Week Agar Plate Assay

1.03. DEFINITIONS

F. Concealed: Areas that cannot be seen by the building occupants.

G. Interior Exposed: Areas that are exposed to view by the building occupants, including underneath countertops, inside cabinets and closets, and all equipment rooms.

H. Interior: Areas inside the building exterior envelope that are not exposed to the outdoors.

I. Exterior: Areas outside the building exterior envelope that are exposed to the outdoors, including building crawl spaces and loading dock areas.

J. Unconditioned Space: Interior space that is not temperature-controlled by cooling and/or heating system. Includes attics, chases, unconditioned living spaces and non-conditioned equipment rooms.

1.04. QUALITY ASSURANCE

K. All piping requiring insulation shall be insulated as specified herein and as required for a complete system. In each case, the insulation shall be equivalent to that specified and materials applied and finished as described in these Specifications.

L. All insulation, jacket, adhesives, mastics, sealers, and accessories utilized in the fabrication of these systems shall meet NFPA for fire resistant ratings (maximum of 25 flame spread and 50 smoke developed ratings) and shall be approved by the insulation manufacturer for guaranteed performances when incorporated into their insulation system, unless a specific product is specified for a specific application and is stated as an exception to this requirement.

1. Certificates to this effect shall be submitted along with submittal data.

2. No material shall be used that, when tested by the ASTM E84-89 test method, is found to melt, drip or delaminate to such a degree that the continuity of the flame front is destroyed, thereby resulting in an artificially low flame spread rating.

M. Application Company Qualifications: Company performing the Work of this Section shall have minimum three (3) years experience specializing in the trade.

N. All insulation shall be applied by mechanics skilled in this particular Work and regularly engaged in such occupation.

O. All insulation shall be applied in strict accordance with these Specifications and with factory printed recommendations on items not herein mentioned. Unsightly, inadequate, damaged or water-soaked Work will not be acceptable.

P. Stainless Steel: Insulation applied on stainless steel shall meet requirements of ASTM C795 and NRC 1.36. These requirements are for prevention of external stress Corrosion Cracking (ESCC) for austenitic stainless steel.

1.05. SUBMITTALS

Q. Prepare a schedule of piping insulation showing systems insulated. For each system, show insulation type, thickness, temperature rating, and special conditions where applicable.

R. Submit product data for each piping system. Product data shall include but not be limited to the following:

1. Manufacturer's name

2. Insulation material and thickness

3. Jacket

4. Adhesives

5. Fastening methods

6. Fitting materials

7. Manufacturer's data sheets indicating density, thermal characteristics, temperature ratings

8. Insulation installation details (manufacturer's installation instructions/details, Contractor's installation details, MICA plates where applicable)

9. Other appropriate data

S. Samples: When requested, submit three (3) samples of any representative size illustrating each insulation type.

T. Operation and Maintenance Data: Indicate procedures that ensure acceptable standards will be achieved. Submit certificates to this effect.

1.06. DELIVERY, STORAGE AND HANDLING

U. Deliver materials to the Project Site in original factory packaging, labeled with manufacturer's identification including product thermal ratings and thickness.

V. Store insulation in original wrapping and protect from weather and construction traffic. Protect insulation against dirt, water, chemical, and mechanical damage.

W. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics and insulation cements.

PART 2 - PRODUCTS

2.01. GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

2.02. MANUFACTURERS

B. Insulation:

1. Owens-Corning

2. Certainteed Corporation

3. Johns Manville Corporation

4. Knauf Corporation

5. Armstrong/Armacell (Armaflex)

6. RBX Industries/Rubatex

7. FOAMGLAS (Cellular Glass) by Pittsburgh Corning

C. Jackets:

1. Childers Products Company

2. PABCO

3. RPR Products, Inc.

4. John Mansfield Speedline

5. Foamglas

D. Coatings, Sealants, and Adhesives:

1. Foster

2. Childers

2.03. INSULATION MATERIALS

E. Products shall not contain asbestos, lead, mercury, or mercury compounds.

F. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

G. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

H. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

I. Piping Insulation Type P1: Glass-Fiber, Preformed Pipe Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A with factory applied ASJ-SSL vapor barrier jacket with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I. Provide one of the following:

1. Owens Corning; Evolution Fiberglas Pipe Insulation.

2. Johns Manville; Micro-Lok Pipe Insulation.

3. Knauf; Earthwool 1000 degree Pipe Insulation.

J. Piping Insulation Type P2: Flexible Elastomeric Pipe Insulation: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials. Provide one of the following:

1. Armacell LLC; AP Armaflex

2. Aeroflex USA Inc; Aerocel

3. K-Flex USA; Insul-Lock, Insul-Tube, and K-FLEX LS.

K. Piping Insulation Type P3: Handicap Lavatory and Sink Piping Insulation Kit:

1. Handicap lavatory and sink drain piping, P-trap, cold and hot water assemblies and valves shall be insulated with fully molded insulation kit specifically designed for handicap lavatories and sinks. ADA conforming.

2. Material shall be 3/16" thick molded closed cell vinyl with nylon fasteners, white finish and be self-extinguishing per ASTM D635, with K value of 1.17 BTU/in./hr./sq. ft./deg. F.

L. Piping Insulation Type P4: Preformed Cellular Glass: Comply with ASTM C 585, ASTM C 450. Provide one of the following:

1. Pittsburgh Corning; Foamglas

2.04. FIELD-APPLIED FABRIC-REINFORCING MESH

M. Woven Polyester Fabric: Approximately 1 oz./sq. yd. with a thread count of 10 strands by 10 strands/sq. in., in a Leno weave, for pipe. Provide one of the following:

1. Foster Brand, Specialty Construction Brands, Inc; Mast-A-Fab.

2. Vimasco Corporation; Elastafab 894.

2.05. FIELD-APPLIED JACKETS

N. Field-applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.

O. Piping Jacket Type J1: High-impact-resistant, UV-resistant PVC complying with ASTM D 1784, Class 16354-C; 40 mil thickness, roll stock ready for shop or field cutting and forming. Provide factory-fabricated fitting covers to match jacket. Provide one of the following

1. Johns Manville; Zeston.

2. Proto Corporation; LoSmoke

P. Piping Jacket Type J2: Aluminum Jacket: Comply with ASTM B 209, Alloy 3003, 3005, 3105, or 5005, Temper H-14. Provide factory-fabricated fitting covers or field fabricate covers only if factory-fabricated fitting covers are not available. Provide one of the following:

1. Provide Childers Brand Metal Jacketing Systems.

2. Provide shop fabricated smooth aluminum jacket 0.016".

2.06. TAPES

Q. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.

1. Width: 3 inches.

2. Thickness: 11.5 mils.

3. Adhesion: 90 ounces force/inch in width.

4. Elongation: 2 percent.

5. Tensile Strength: 40 lbf/inch in width.

6. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

R. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive; suitable for indoor and outdoor applications.

1. Width: 2 inches.

2. Thickness: 6 mils.

3. Adhesion: 64 ounces force/inch in width.

4. Elongation: 500 percent.

5. Tensile Strength: 18 lbf/inch in width.

2.07. INSULATION INSERTS

S. Provide insert between support shield and piping on piping 1 1/2" diameter or larger. Inserts shall be factory fabricated of heavy density insulating material suitable for temperature. Insulation inserts shall not be less than the following lengths:

1. 1 1/2" to 2 1/2" pipe size 10" long

2. 3" to 6" pipe size 12" long

3. 8" to 10" pipe size 16" long

4. 12" and over 22" long

2.08. PIPE INSULATION ACCESSORIES

T. Vapor Retarder Lap Adhesive: Compatible with insulation.

U. Covering Adhesive Mastic: Compatible with insulation.

V. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12-inch centers.

W. Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement: ASTM C449/C449M.

X. Insulating Cement: ASTM C195; hydraulic setting on mineral wool.

Y. Adhesives: Compatible with insulation.

Z. Banding:

1. Aluminum bands, 3/4" x 0.02 inches

2. Stainless Steel, 304, 3/4" by 0.02 inches

PART 3 - EXECUTION

3.01. PREPARATION

A. Thoroughly clean all surfaces to be insulated as required to remove all oil, grease, loose scale, rust, and foreign matter. Piping shall be completely dry at the time of application. Insulating piping where condensate is occurring is unacceptable. Wet insulation is unacceptable and shall be removed and replaced before acceptance by the Owner.

B. Coordinate insulation installation with trade installing heat trace. Comply with requirements for heat tracing that apply to insulation.

C. Verify that piping has been tested for leakage before applying insulation.

3.02. GENERAL INSTALLATION REQUIREMENTS

D. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards, and shall conform to codes and ordinances of authorities having jurisdiction.

E. Installation of insulation and jacket materials shall be in accordance with manufacturer's published instructions.

F. Handle and install materials in accordance with manufacturer's instructions in the absence of specific instructions herein.

G. On exposed piping, locate insulation cover seams with the ridge of the lap joint is directed down.

H. Provide dams in insulation at intervals not to exceed 20 feet on cold piping systems to prevent migration of condensation or fluid leaks. Indicate visually where the dams are located for maintenance personnel to identify and also provide dams at butt joints of insulation at fittings, flanges, valves, and hangers.

I. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping including fittings, valves, and specialties.

J. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of pipe system as specified in insulation system schedules.

K. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

L. Install insulation with longitudinal seams at top and bottom of horizontal runs.

M. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

N. Keep insulation materials dry during application and finishing.

O. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

P. Install insulation with least number of joints practical.

Q. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.

1. Install insulation continuously through hangers and around anchor attachments.

2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.

3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.

4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.

R. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

S. Install insulation with factory-applied jackets as follows:

1. Draw jacket tight and smooth.

2. Cover circumferential joints with 3-inch- wide strips, of same material as insulation jacket. Secure strips with adhesive.

3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap.

4. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.

5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to pipe flanges and fittings.

T. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

U. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

V. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere and seal patches similar to butt joints.

W. For above-ambient services, do not install insulation to the following:

1. Vibration-control devices.

2. Testing agency labels and stamps.

3. Nameplates and data plates.

4. Manholes.

5. Handholes.

6. Cleanouts.

3.03. PENETRATIONS

X. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.

1. Seal penetrations with flashing sealant.

2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.

3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.

4. Seal jacket to roof flashing with flashing sealant.

Y. Insulation Installation at Underground Exterior Wall Penetrations: Terminate insulation flush with sleeve seal. Seal terminations with flashing sealant.

Z. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.

1. Seal penetrations with flashing sealant.

2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.

3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.

4. Seal jacket to wall flashing with flashing sealant.

AA. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

BB. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions. Comply with requirements in Section 15050 for firestopping and fire-resistive joint sealers.

CC. Insulation Installation at Floor Penetrations:

1. Pipe: Install insulation continuously through floor penetrations.

2. Seal penetrations through fire-rated assemblies. Comply with requirements in Section 15050."

3.04. GENERAL PIPE INSULATION INSTALLATION

DD. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.

EE. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:

1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity unless otherwise indicated.

2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.

3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.

4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.

5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below-ambient services, provide a design that maintains vapor barrier.

6. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.

7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below-ambient services and a breather mastic for above-ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.

8. For services not specified to receive a field-applied jacket, install fitted PVC cover over elbows, tees, strainers, valves, flanges, and unions. Terminate ends with PVC end caps. Tape PVC covers to adjoining insulation facing using PVC tape.

9. Stencil or label the outside insulation jacket where concealed unions, check valve or piping specialties are insulated. Provide descriptive label at device under the insulation. For example at each union stencil with the word "union." Match size and color of pipe labels.

FF. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.

GG. Install removable insulation covers at locations indicated. Installation shall conform to the following:

1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.

2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.

3. Construct removable valve insulation covers in same manner as for flanges, except divide the two-part section on the vertical center line of valve body.

4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.

5. Unless a PVC jacket is indicated in field-applied jacket schedules, finish exposed surfaces with a metal jacket.

3.05. INSTALLATION OF FLEXIBLE ELASTOMERIC INSULATION

HH. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

II. Insulation Installation on Pipe Flanges:

1. Install pipe insulation to outer diameter of pipe flange.

2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.

3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.

4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

JJ. Insulation Installation on Pipe Fittings and Elbows:

1. Install mitered sections of pipe insulation.

2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

KK. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed valve covers manufactured of same material as pipe insulation when available.

2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.

3. Install insulation to flanges as specified for flange insulation application.

4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.06. INSTALLATION OF GLASS-FIBER PREFORMED PIPE INSULATION

LL. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of preformed pipe insulation to pipe with wire or bands and tighten bands without deforming insulation materials.

2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.

3. For insulation with factory-applied jackets on below-ambient surfaces, secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

MM. Insulation Installation on Pipe Flanges:

1. Install preformed pipe insulation to outer diameter of pipe flange.

2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.

3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.

4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch, and seal joints with flashing sealant.

NN. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed sections of same material as straight segments of pipe insulation when available.

2. When preformed insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with bands.

OO. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed sections of same material as straight segments of pipe insulation when available.

2. When preformed sections are not available, install mitered sections of pipe insulation to valve body.

3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.

4. Install insulation to flanges as specified for flange insulation application.

3.07. FIELD-APPLIED JACKET INSTALLATION

PP. Where PVC jackets are indicated, install with 1-inch overlap at longitudinal seams and end joints; for horizontal applications. Seal with manufacturer's recommended adhesive. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.

QQ. Where metal jackets are indicated, install with 2-inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches o.c. and at end joints.

3.08. FINISHES

RR. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.

SS. Do not field paint aluminum jackets.

3.09. PIPING SYSTEMS INSULATION SCHEDULE

PIPING SYSTEMS INSULATION SCHEDULE					
SERVICE	INSULATION TYPE	LOCATION	JACKET TYPE	PIPE SIZE	INSULATION THICKNESS BY PIPE SIZE
COLD PIPING					
CHILLED WATER	P1	INTERIOR CONCEALED	--	3.0" AND SMALLER	1.0"
				4.0" AND LARGER	1.5"
COOLING TOWER CONDENSER WATER	P1	INTERIOR EXPOSED	J1	3.0" AND SMALLER	1.0"
		EXPOSED		4.0" AND LARGER	1.5"
		UNCONDITIONED SPACE	--	3.0" AND SMALLER	1.0"
				4.0" AND LARGER	1.5"
		UNCONDITIONED SPACE	--	3.0" AND SMALLER	1.5"
				4.0" AND LARGER	2.0"
		EXTERIOR	J2	3.0" AND SMALLER	1.5"
				4.0" AND LARGER	2.0"
		EQUIPMENT ROOMS	J1	3.0" AND SMALLER	1.5"
		BELOW 7.0" ABOVE FLOOR		4.0" AND LARGER	2.0"
MAKE-UP WATER	P1	INTERIOR	J1	0.5" AND SMALLER	0.5"
		EXPOSED		1.0" THROUGH 2.0"	1.0"
				2.5" AND LARGER	1.5"
		UNCONDITIONED SPACE	--	0.5" AND SMALLER	0.5"

				1.0" THROUGH 2.0"	1.0"
				2.5" AND LARGER	1.5"
		UNCONDITIONED SPACE	--	0.5" AND SMALLER	0.5"
				1.0" THROUGH 2.0"	1.0"
				2.5" AND LARGER	1.5"
		EXTERIOR	J2	0.5" AND SMALLER	1.0"
				1.0" THROUGH 2.0"	1.5"
				2.5" AND LARGER	2.0"
		EQUIPMENT ROOMS BELOW 7.0" ABOVE FLOOR	J1	0.5" AND SMALLER	0.5"
				1.0" THROUGH 2.0"	1.0"
				2.5" AND LARGER	1.5"
REFRIGERANT SUCTION	P2	INTERIOR CONCEALED	--	3.0" AND SMALLER	0.75"
				4.0" AND LARGER	1.0"
		INTERIOR EXPOSED	J1	3.0" AND SMALLER	0.75"
				4.0" AND LARGER	1.0"
		UNCONDITIONED SPACE	--	3.0" AND SMALLER	0.75"
				4.0" AND LARGER	1.0"
		EXTERIOR	J2	3.0" AND SMALLER	0.75"

				4.0" AND LARGER	1.0"
		EQUIPMENT ROOMS: BELOW 7.0" ABOVE FLOOR	J1	3.0" AND SMALLER	0.75"
				4.0" AND LARGER	1.0"
COOLING COIL CONDENSATE DRAIN BRANCH LINES	P2	INTERIOR CONCEALED	--	3.0" AND SMALLER	0.5"
				4.0" AND LARGER	0.75"
COOLING COIL CONDENSATE DRAIN MAIN LINES	P2	INTERIOR EXPOSED	J1	3.0" AND SMALLER	0.5"
				4.0" AND LARGER	0.75"
SEWER/STORM DRAIN LINES CARRYING COOLING COIL CONDENSATE	P2	UNCONDITIONED SPACE	--	3.0" AND SMALLER	0.5"
				4.0" AND LARGER	0.75"
		EXTERIOR	J2	3.0" AND SMALLER	0.5"
HOT PIPING					
HEATING WATER	P1	INTERIOR CONCEALED	--	3.0" AND SMALLER	1.0"
				4.0" AND LARGER	1.5"
		INTERIOR EXPOSED	J1	3.0" AND SMALLER	1.5"
				4.0" AND LARGER	2.0"
		UNCONDITIONED SPACE	--	3.0" AND SMALLER	1.5"
				4.0" AND LARGER	2.0"
		EXTERIOR	J2	3.0" AND SMALLER	1.5"
				4.0" AND	2.0"

				LARGER	
		EQUIPMENT ROOMS < 7.0" ABOVE FLOOR	J1	3.0" AND SMALLER	1.5"
				4.0" AND LARGER	2.0"
REFRIGERANT HOT GAS	P2	INTERIOR CONCEALED	--	3.0" AND SMALLER	0.75"
				4.0" AND LARGER	1.0"
		INTERIOR EXPOSED		3.0" AND SMALLER	0.75"
				4.0" AND LARGER	1.0"
		UNCONDITIONED SPACE	--	3.0" AND SMALLER	0.75"
				4.0" AND LARGER	1.0"
		EXTERIOR	J2	3.0" AND SMALLER	0.75"
				4.0" AND LARGER	1.0"
		EQUIPMENT ROOMS < 7.0" ABOVE FLOOR		3.0" AND SMALLER	0.75"
				4.0" AND LARGER	1.0"

END OF SECTION 23 0086

SECTION 23 21 00 - BASE MOUNTED, FLEXIBLE COUPLED, END-SUCTION PUMPS

PART 1 - GENERAL

1.01. SCOPE

A. Furnish and install pumps with performance characteristics as shown on plans. Pumps shall be base mounted, single stage, end suction design with a foot mounted volute to allow removal and service of the entire rotating assembly without disturbing the pump piping, electrical motor connections or pump to motor alignment.

PART 2 - PRODUCTS

2.01. Pump volute shall be Class 30 cast iron with integrally-cast pedestal support feet. The impeller shall be a cast stainless steel enclosed type, balanced to ANSI/HI 9.6.4-2016 balance grade G6.3 and secured to the shaft by a locking cap screw or nut.

2.02. The liquid cavity shall be sealed off at the pump shaft by an internally-flushed mechanical seal with ceramic seal seat and carbon seal ring, suitable for continuous operation at 225°F (107°C). A replaceable stainless steel shaft sleeve shall completely cover the wetted area under the seal.

2.03. Pump shall be rated for minimum of 175 psi (12 bar) working pressure. Volute shall have gauge tappings at the suction and discharge nozzles and vent and drain tappings at the top and bottom.

2.04. The pump(s) vibration limits shall conform to Hydraulic Institute ANSI/HI 9.6.4- 2016 for recommend acceptable unfiltered field vibration limits (as measured per ANSI/HI 9.6.4-2016 Figure 9.6.4.2.3.1) for pumps with rolling contact bearings.

2.05. Baseplate shall be of structural steel or fabricated steel channel with fully enclosed sides and ends, and securely welded cross members. Grouting area shall be fully open. The combined pump and motor baseplate shall be sufficiently stiff as to limit the susceptibility of vibration. The minimum baseplate stiffness shall conform to ANSI/HI 1.3.8.2.1-2019 for grouted Horizontal Baseplate Design standards.

2.06. A flexible type, center drop-out design coupling, capable of absorbing torsional vibration, shall be employed between the pump and motor. Pumps for variable speed application shall be provided with a suitable coupling sleeve. The coupling shall be shielded by a dual rated ANSI B15.1 & OSHA 1910.219 compliant coupling guard and contain viewing windows for inspection of the coupling.

2.07. Motor shall meet NEMA and EISA 2007 (where applicable) specifications and shall be of the size, voltage and enclosure called for on the plans. Pump and motor shall be factory aligned, and shall be realigned by the contractor per factory recommendations after installation.

2.08. The pump(s) selected shall conform to ANSI/HI 9.6.3.1-2012 standards for Preferred Operating Region (POR) unless otherwise approved by the engineer. Each pump shall be factory hydrostatically tested per Hydraulic Institute standards. It shall then be thoroughly cleaned and painted with at least one coat of high grade paint prior to shipment.

2.09. The pump(s) shall be manufactured, assembled and tested in an ISO 9001 approved facility.

2.10. Pumps shall be Series e-1510 as manufactured by Xylem Bell &Gossett or equal.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 23 21 00

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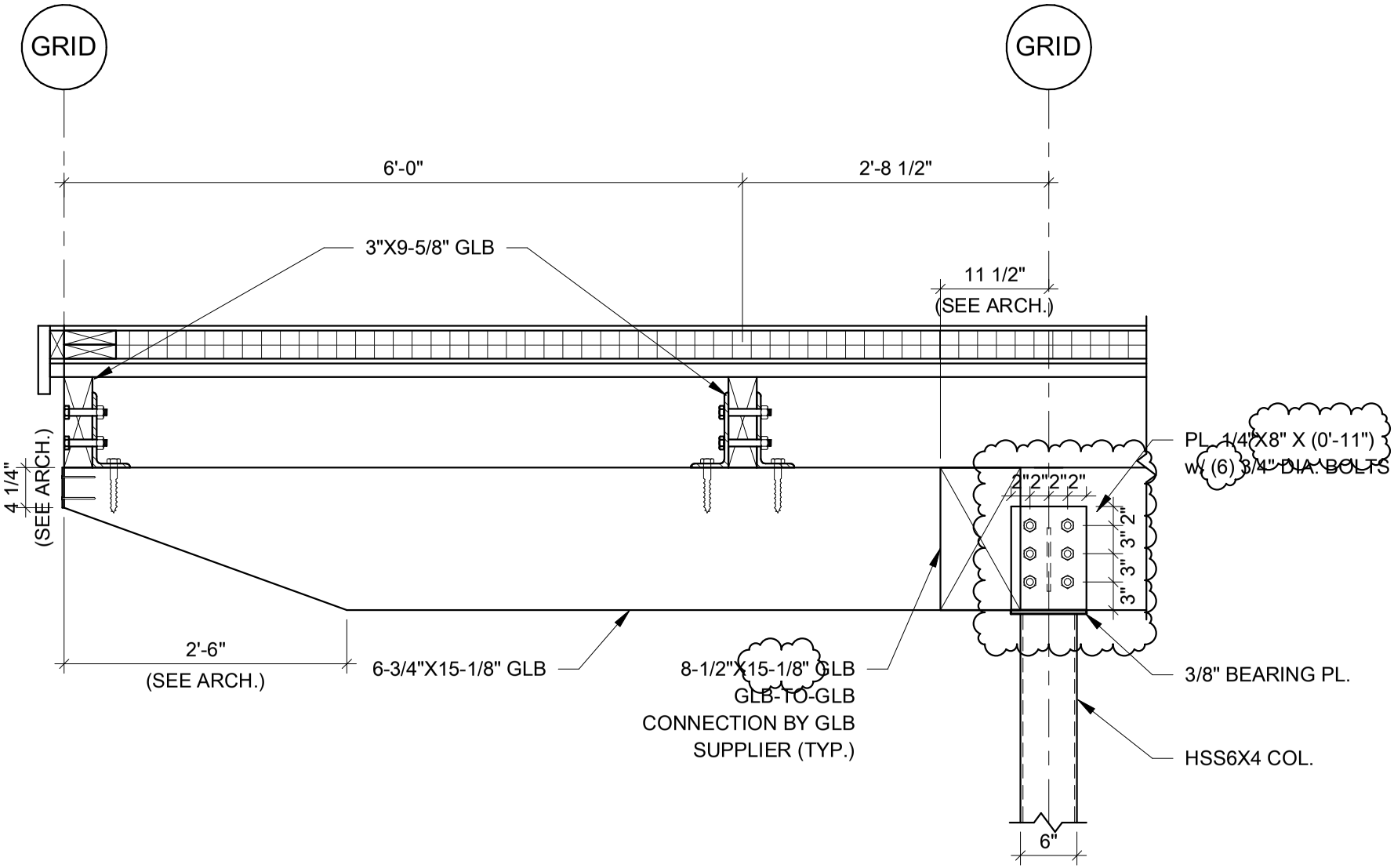

4 SECTION

3/4" = 1'-0" (REF SHEET S4.05)

24011

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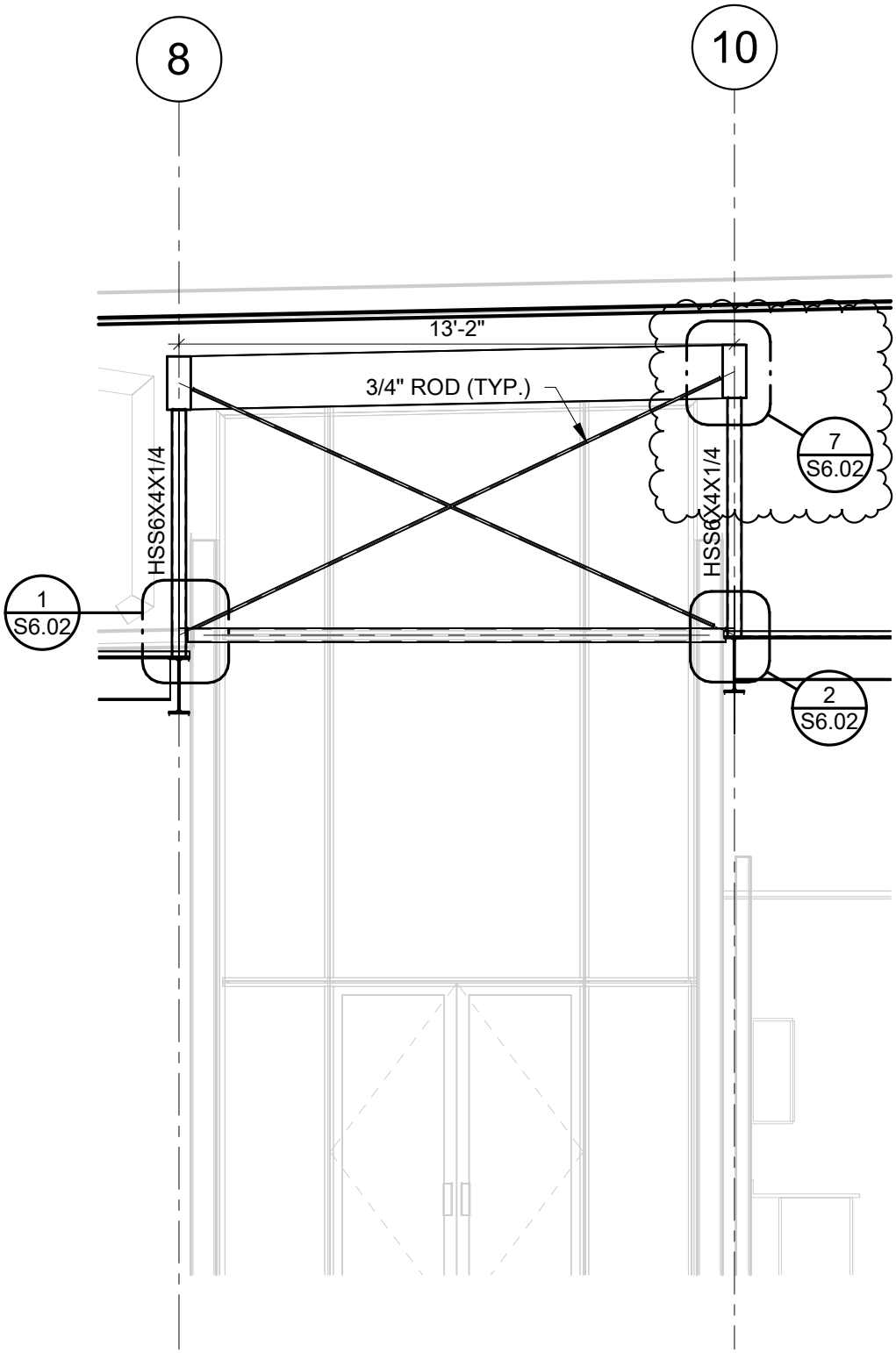
SUP S7



1 BRACE FRAME ELEVATION @ GRID R

1/4" = 1'-0"

(REF SHEET S5.04)

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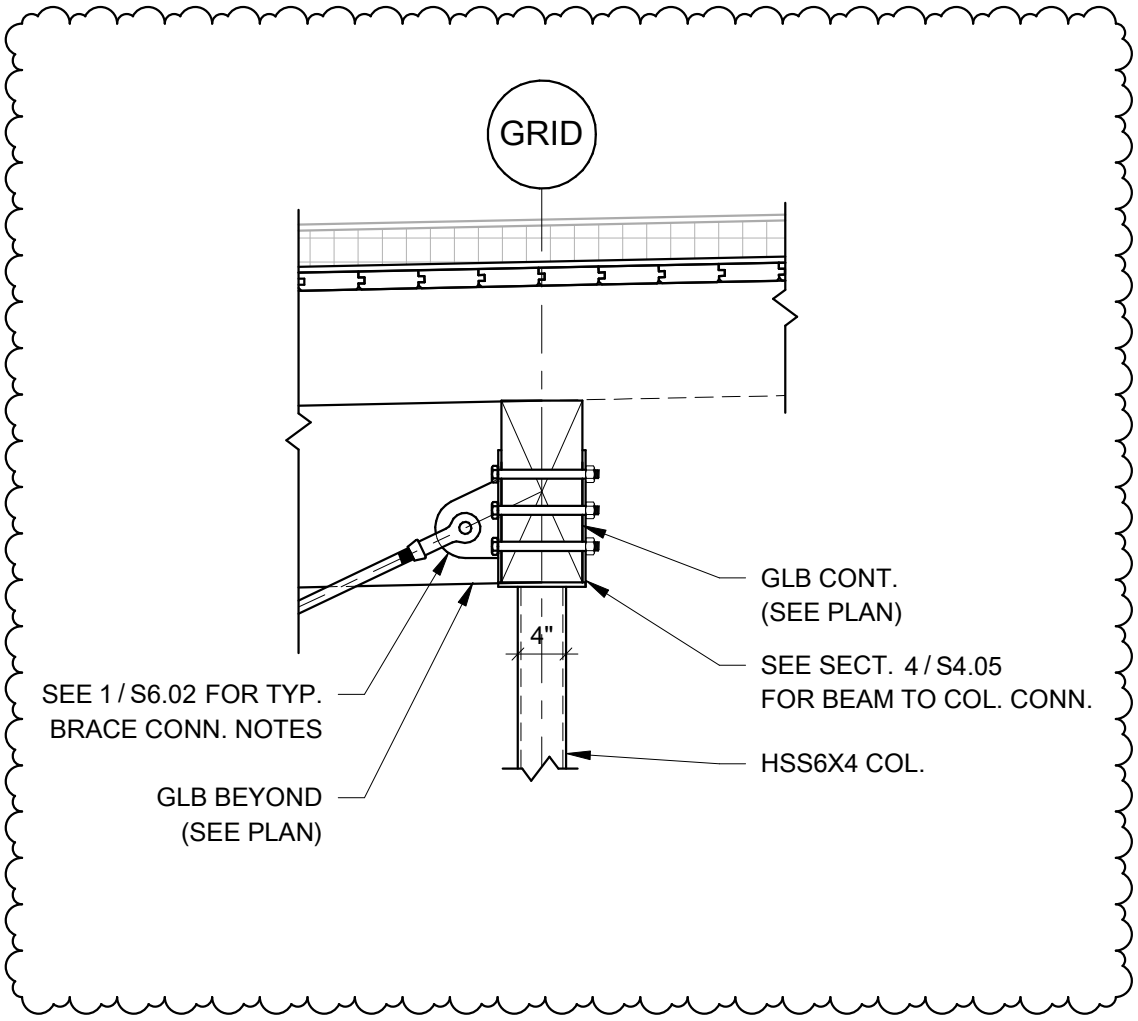

7 SECTION

3/4" = 1'-0" (REF SHEET S6.02)

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SUP S9

1 CONDUCTOR HEAD DETAILS - REV

1 1/2" = 1'-0"

RE: 5C/A5.01

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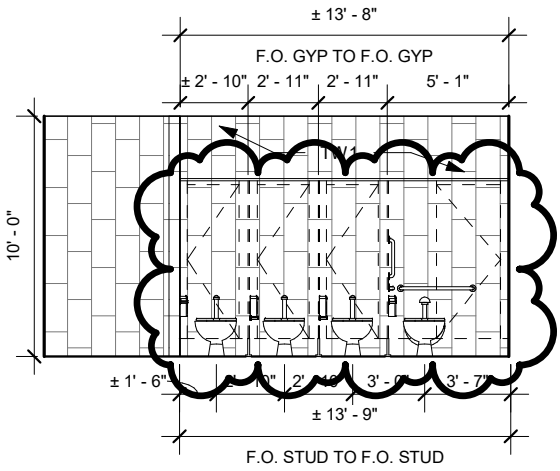
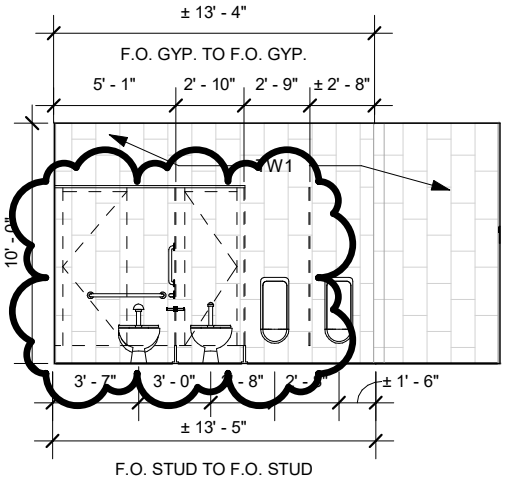
SUP A4



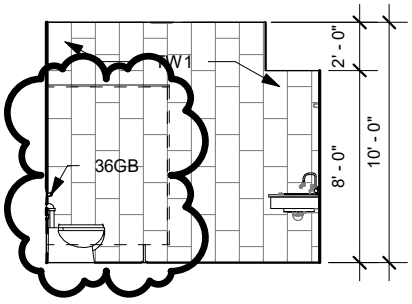
1 RESTROOM 103 EAST ELEV.

1/8" = 1'-0"



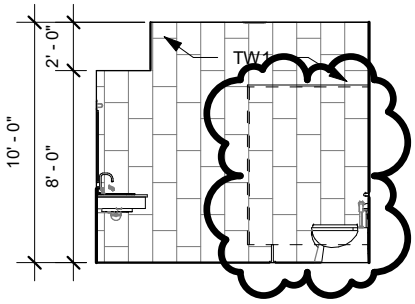
4 RESTROOM 105 EAST ELEV.

1/8" = 1'-0"



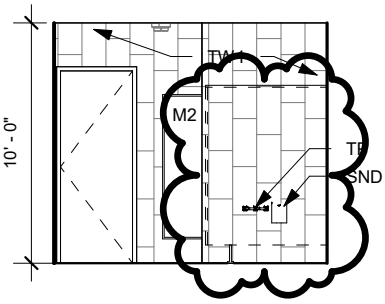
2 RESTROOM 103 SOUTH ELEV.

1/8" = 1'-0"



5 RESTROOM 105 NORTH ELEV.

1/8" = 1'-0"



3 RESTROOM 103 NORTH ELEV.

1/8" = 1'-0"

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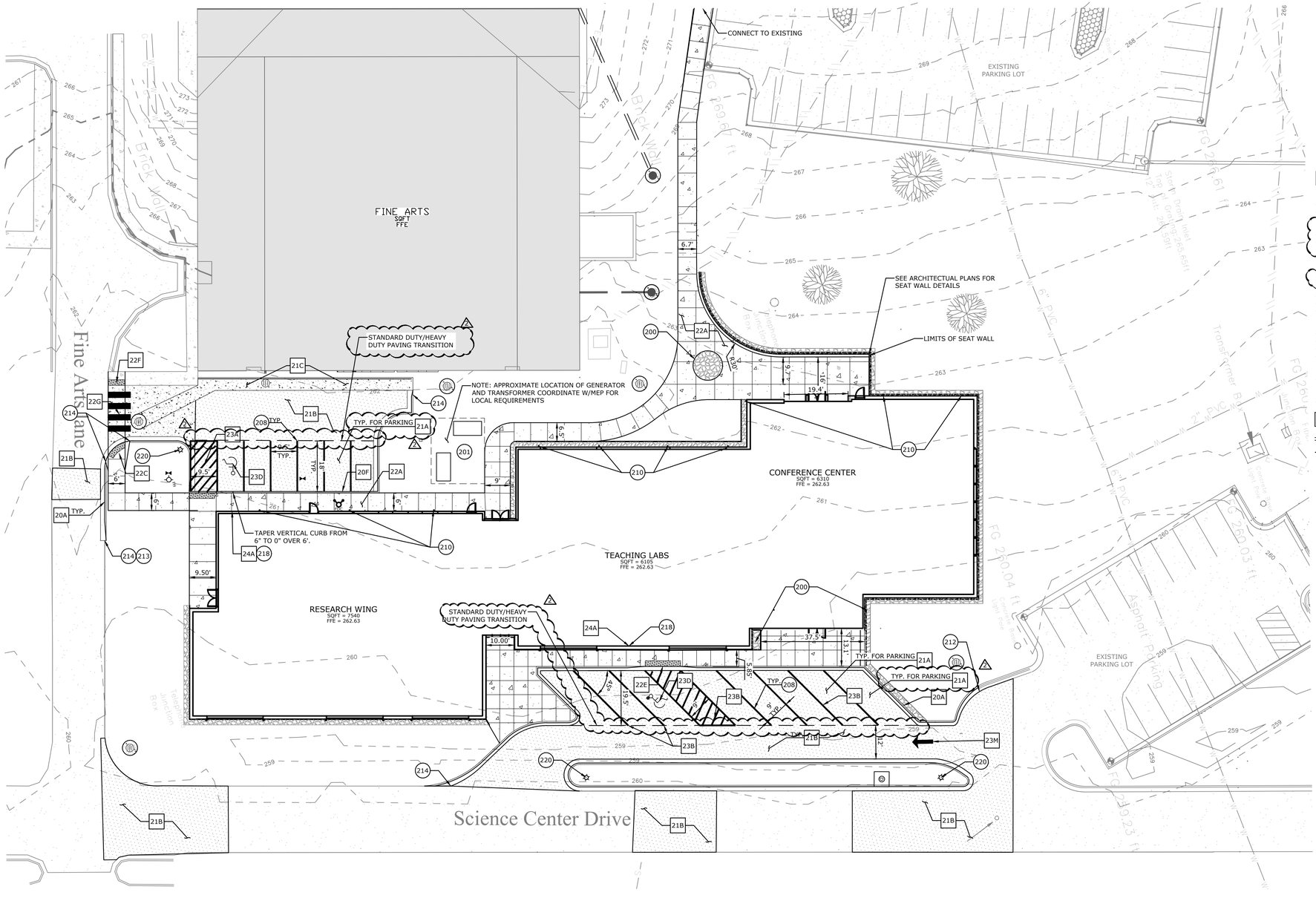

4 CIVIL SITE PLAN
1" = 20'-0"

SITE KEYNOTES

200 LANDSCAPED AREA
201 TRANSFORMER PAD (PER ELECTRIC COMPANY REQUIREMENTS)
204 4" WIDE YELLOW TRAFFIC LANE STRIPE (SEE LENGTH INDICATED AT SYMBOL)
205 4" WIDE DOUBLE YELLOW TRAFFIC LANE STRIPE (SEE LENGTH INDICATED AT SYMBOL)
206 4" WIDE REFLECTIVE WHITE TRAFFIC LANE STRIPE (SEE LENGTH INDICATED AT SYMBOL)
207 4" WIDE DOUBLE REFLECTIVE WHITE TRAFFIC LANE STRIPE (SEE LENGTH INDICATED AT SYMBOL)
208 4" WIDE PAINTED WHITE PARKING STRIPES
209 4" WIDE PAINTED STRIPES, 24" O.C. @ 45° (SEE COLOR INDICATED AT SYMBOL)
210 DOWNSPOUT / ROOF DRAIN (SEE ARCH. PLANS)
212 REPLACE / RESTORE CURBS TO MATCH EXISTING OR TO LOCAL CODES
213 TAPER CURB TO MATCH EXISTING
214 TAPER CURB HEIGHT FROM 6" TO 0" OVER 2'
218 SIGN MOUNTED ON BUILDING EXTERIOR (SEE ARCH. PLANS)
220 LIGHT POLE / FIXTURE (SEE PHOTOMETRIC PLANS)

SITE DETAILS

20 SERIES: CURB AND GUTTER DETAILS
20A TYPE 'A' STANDARD CONCRETE CURB & GUTTER
20F VERTICAL CONCRETE CURB

21 SERIES: PAVEMENT DETAILS
21A STANDARD DUTY ASPHALT PAVEMENT
21B HEAVY DUTY ASPHALT PAVEMENT
21C STANDARD DUTY CONCRETE PAVEMENT

22 SERIES: SIDEWALK AND CURB RAMP DETAILS
22A CONCRETE SIDEWALK
22C PEDESTRIAN RAMP (PERPENDICULAR)
22D PEDESTRIAN RAMP (CURB RETURN)
22E PEDESTRIAN RAMP (PARALLEL)
22F DETECTABLE WARNING SURFACE
22G CROSSWALK STRIPING

23 SERIES: PAVEMENT MARKINGS
23A 90° PARKING / ADA ACCESSIBLE PARKING SPACE STRIPING
23B 60°, 45°, 30° PARKING / ADA ACCESSIBLE PARKING SPACE STRIPING
23D ACCESSIBLE PARKING SYMBOL
23M TRAFFIC FLOW ARROW PAVEMENT MARKING

24 SERIES: POST AND SIGNAGE
24A ACCESSIBLE PARKING SIGN

25 SERIES: SITE STRUCTURES
25A WHEEL STOP

PROPOSED LEGEND

- CURB AND GUTTER
- PAINTED / THERMOPLASTIC STRIPING
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- GRAVEL
- CATCH BASIN
- FLARED END SECTION
- SANITARY SEWER MANHOLE
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- POST INDICATOR VALVE
- WATER METER
- LIGHT POLE
- ELECTRICAL TRANSFORMER

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2	ADD 02	11-18-24

PROJECT NO. 24011
DATE: OCTOBER 22, 2024

SITE PLAN

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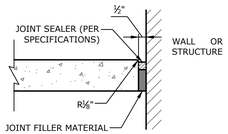
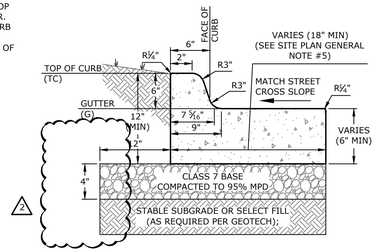
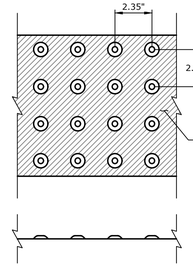
NOTES:
1. CONCRETE FOR CURB AND GUTTER TO HAVE A COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS (MIN).
2. ALL CURB AND GUTTER SHALL HAVE A BROOMED FINISH UNLESS OTHERWISE SPECIFIED.
3. SAW CUT JOINTS AT 15' O.C. SEAL WITH ONE PART COLD APPLIED SILICONE JOINT SEALER OR OTHER APPROVED SEALANT. ALL JOINTS TO BE SEALED PRIOR TO FINAL ASPHALT PLACEMENT.
4. PROVIDE 1/2" PREFORMED ISOLATION JOINT MATERIAL (ASPHALT IMPREGNATED FIBERBOARD OR OTHER APPROVED MATERIAL) AT STATIONARY STRUCTURES, (DROP INLETS, END OF CURBS, DRIVEWAYS - SEE DETAIL) OR AS DIRECTED BY ENGINEER.
5. WHEN CURB / GUTTER IS USED IN ROADWAY OR DRIVEWAY, 12" BASE BEHIND CURB SHALL BE REQUIRED. WHEN CURB / GUTTER IS USED IN PARKING LOTS, 12" BASE BEHIND CURB NOT REQUIRED - UNLESS 5:1 OR STEEPER SLOPE AWAY FROM BACK OF CURB IS PRESENT.



ISOLATION JOINT



20A TYPE 'A' STANDARD CONCRETE CURB & GUTTER
NTS



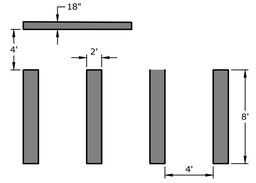
TRUNCATED DOME SPACING

TRUNCATED DOME SECTION

NOTES:
1. THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS LOCATED AT THE BACK OF CURB.
2. TRUNCATED DOMES SHALL HAVE A DIAMETER OF 0.9 INCH AT THE BOTTOM, A DIAMETER OF 0.4 INCH AT THE TOP, A HEIGHT OF 0.2 INCH, AND A CENTER-TO-CENTER SPACING OF 2.35 INCHES MEASURED ALONG ONE SIDE OF A SQUARE ARRANGEMENT.
3. DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
4. DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE. (MIN 4')
5. THE CAST-IN-PLACE TACTILE PANELS SHALL BE MANUFACTURED USING VITRIFIED POLYMER COMPOSITE MATERIAL. THE PANELS SHALL BE SET INTO WET CONCRETE.

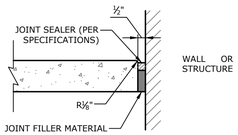
22F DETECTABLE WARNING SURFACE
NTS

NOTES:
1. ALL PAVEMENT MARKING SHALL BE OF THERMOPLASTIC MATERIAL (WHITE).
2. CROSSWALK SHALL BE CENTERED ON ADA RAMP AND RUN PERPENDICULAR TO THE STREET CENTERLINE.
3. ANY EXISTING LANE MARKINGS SHALL BE REMOVED WHERE THEY CONFLICT W/ THE NEW MARKINGS.

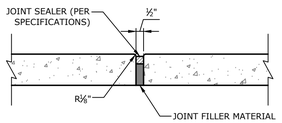


22G CROSSWALK STRIPING
NTS

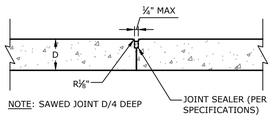
NOTES:
1. CONCRETE FOR SIDEWALK SHALL HAVE A COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS (MIN).
2. ALL SIDEWALKS SHALL HAVE A BROOMED FINISHED UNLESS OTHERWISE SPECIFIED.
3. ALL JOINTING TO BE LOCATED PER SIDEWALK JOINTING TABLE.
4. ALL CONTROL JOINTING TO BE SAWCUT OR TOOLED JOINTED PER SIDEWALK JOINTING.
5. CURING COMPOUND IS REQUIRED UNLESS TEMPERATURES STAY BELOW 50° FAHRENHEIT FOR 7 DAYS. CURING COMPOUND MUST BE COLORED WHITE, RED, OR PINK. CLEAR CURING COMPOUND IS UNACCEPTABLE. IF CONCRETE IS NOT CURED WHEN REQUIRED, IT WILL BE CONSIDERED GROUNDS FOR REMOVAL AND REPLACEMENT.



ISOLATION JOINT



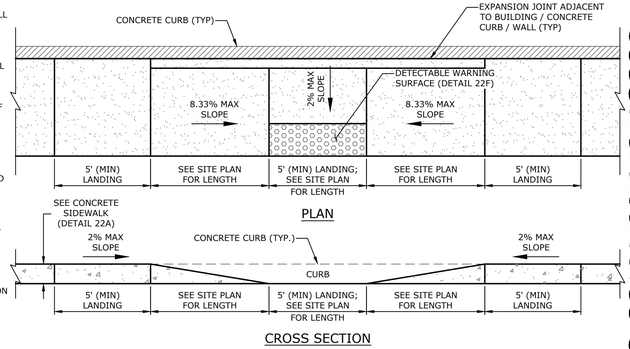
EXPANSION JOINT



NOTE: SAWED JOINT D/4 DEEP

CONTROL JOINT
(LONGITUDINAL OR TRANSVERSE)

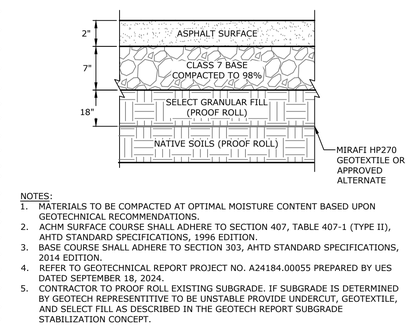
NOTES:
1. THE SURFACE OF THE RAMP SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK.
2. THE BOTTOM OF THE RAMP SHALL BE FLUSH TO ADJOINING PAVEMENT AND HAVE NO LIP.
3. RAMP SIDE SLOPE VARIES UNIFORMLY FROM A MAXIMUM OF UP TO 8.33% AT CURB TO CONFORM WITH LONGITUDINAL SIDEWALK SLOPE ADJACENT TO TOP OF THE RAMP.
4. CONSTRUCT PER A.D.A. STANDARDS.
5. CURING COMPOUND IS REQUIRED UNLESS TEMPERATURES STAY BELOW 50° FAHRENHEIT FOR 7 DAYS. CURING COMPOUND MUST BE COLORED WHITE, RED, OR PINK. CLEAR CURING COMPOUND IS UNACCEPTABLE. IF CONCRETE IS NOT CURED WHEN REQUIRED, IT WILL BE CONSIDERED GROUNDS FOR REMOVAL AND REPLACEMENT.
6. THE PLAN VIEW & CROSS SECTION SHOWN ON THIS DETAIL IS SCHEMATIC IN NATURE; CONTRACTOR SHALL REFER TO GRADING PLAN FOR EXACT RAMP CONFIGURATION(S).



PLAN

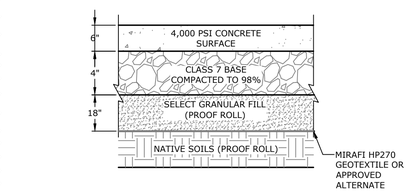
CROSS SECTION

22E PEDESTRIAN RAMP (PARALLEL)
NTS



NOTES:
1. MATERIALS TO BE COMPACTED AT OPTIMAL MOISTURE CONTENT BASED UPON GEOTECHNICAL RECOMMENDATIONS.
2. ACHM SURFACE COURSE SHALL ADHERE TO SECTION 407, TABLE 407-1 (TYPE II), AHTD STANDARD SPECIFICATIONS, 1996 EDITION.
3. BASE COURSE SHALL ADHERE TO SECTION 303, AHTD STANDARD SPECIFICATIONS, 2014 EDITION.
4. REFER TO GEOTECHNICAL REPORT PROJECT NO. A24184.00055 PREPARED BY UES DATED SEPTEMBER 18, 2024.
5. CONTRACTOR TO PROOF ROLL EXISTING SUBGRADE. IF SUBGRADE IS DETERMINED BY GEOTECH REPRESENTITIVE TO BE UNSTABLE PROVIDE UNDERCUT, GEOTEXTILE, AND SELECT FILL AS DESCRIBED IN THE GEOTECH REPORT SUBGRADE STABILIZATION CONCEPT.

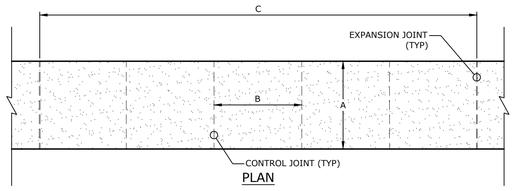
21A STANDARD DUTY ASPHALT PAVING
NTS



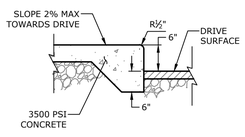
NOTES:
1. MATERIALS TO BE COMPACTED AT OPTIMAL MOISTURE CONTENT BASED UPON GEOTECHNICAL RECOMMENDATIONS.
2. BASE COURSE SHALL ADHERE TO SECTION 303, AHTD STANDARD SPECIFICATIONS, 2014 EDITION.
3. CONTRACTOR TO PROOF ROLL EXISTING SUBGRADE. IF SUBGRADE IS DETERMINED BY GEOTECH REPRESENTITIVE TO BE UNSTABLE PROVIDE UNDERCUT, GEOTEXTILE, AND SELECT FILL AS DESCRIBED IN THE GEOTECH REPORT SUBGRADE STABILIZATION CONCEPT.
4. REFER TO GEOTECHNICAL REPORT PROJECT NO. A24184.00055 PREPARED BY UES DATED SEPTEMBER 18, 2024.

21C STANDARD DUTY CONCRETE PAVING
NTS

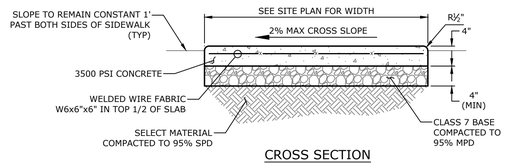
SIDEWALK JOINTING TABLE	
A	SEE SITE PLAN
B	A
C	Bx5



PLAN

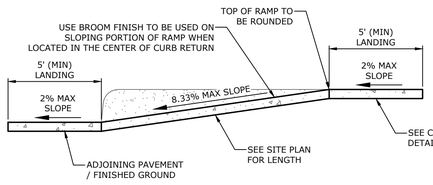


SIDEWALK ADJACENT TO DRIVE SURFACES



CROSS SECTION

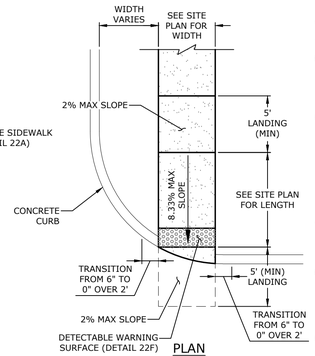
22A CONCRETE SIDEWALK
NTS



CROSS SECTION

NOTES:
1. THE SURFACE OF THE RAMP SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK.
2. THE BOTTOM OF THE RAMP SHALL BE FLUSH TO ADJOINING PAVEMENT AND HAVE NO LIP.
3. RAMP SIDE SLOPE VARIES UNIFORMLY FROM A MAXIMUM OF UP TO 8.33% AT CURB TO CONFORM WITH LONGITUDINAL SIDEWALK SLOPE ADJACENT TO TOP OF THE RAMP.
4. CONSTRUCT PER A.D.A. STANDARDS.
5. CURING COMPOUND IS REQUIRED UNLESS TEMPERATURES STAY BELOW 50° FAHRENHEIT FOR 7 DAYS. CURING COMPOUND MUST BE COLORED WHITE, RED, OR PINK. CLEAR CURING COMPOUND IS UNACCEPTABLE. IF CONCRETE IS NOT CURED WHEN REQUIRED, IT WILL BE CONSIDERED GROUNDS FOR REMOVAL AND REPLACEMENT.
6. THE PLAN VIEW & CROSS SECTION SHOWN ON THIS DETAIL IS SCHEMATIC IN NATURE; CONTRACTOR SHALL REFER TO GRADING PLAN FOR EXACT RAMP CONFIGURATION(S).

22C PEDESTRIAN RAMP (PERPENDICULAR)
NTS



PLAN

2

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2	ADD 02	11-18-24

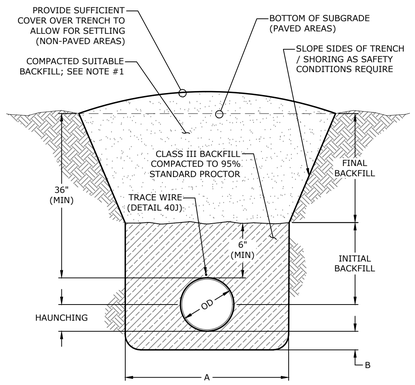
PROJECT NO.
24011
DATE:
OCTOBER 22, 2024

MISCELLANEOUS DETAIL I

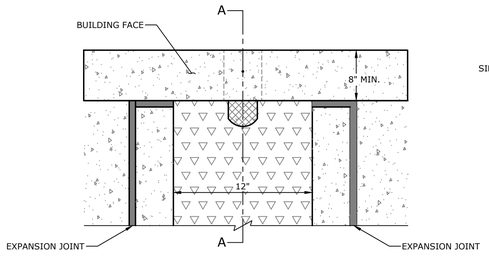
C5.00

6/25/2024 4:47:44 PM

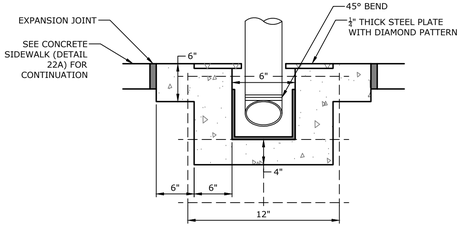
NOTES:
1. FOR AREAS WHERE PIPE IS LOCATED UNDER NON-PAVED AREAS, BACKFILL SHALL BE COMPACTED SUITABLE NATIVE MATERIAL (DO NOT INCORPORATE FROZEN MATERIAL OR SOFT, MUCK, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILL). FOR AREAS WHERE PIPE IS LOCATED UNDER PAVED AREAS, BACKFILL SHALL BE SELECT FILL COMPACTED PER THE GEOTECHNICAL REPORT PROJECT NO. [PROJECT #] PREPARED BY [GEOTECH COMPANY NAME] DATED [REPORT DATE].



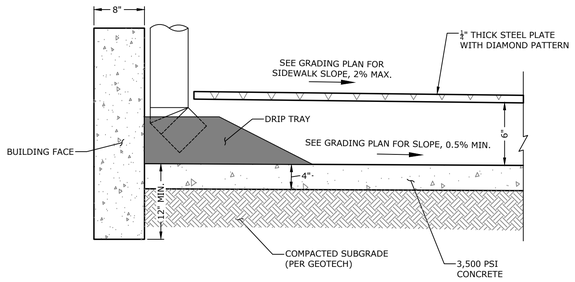
TRENCHING, BACKFILL, & BEDDING TABLE	
'A'	OD + 18" (MIN) OD + 24" (MAX)
'B'	.25 x OD (4" MIN)



PLAN



PROFILE

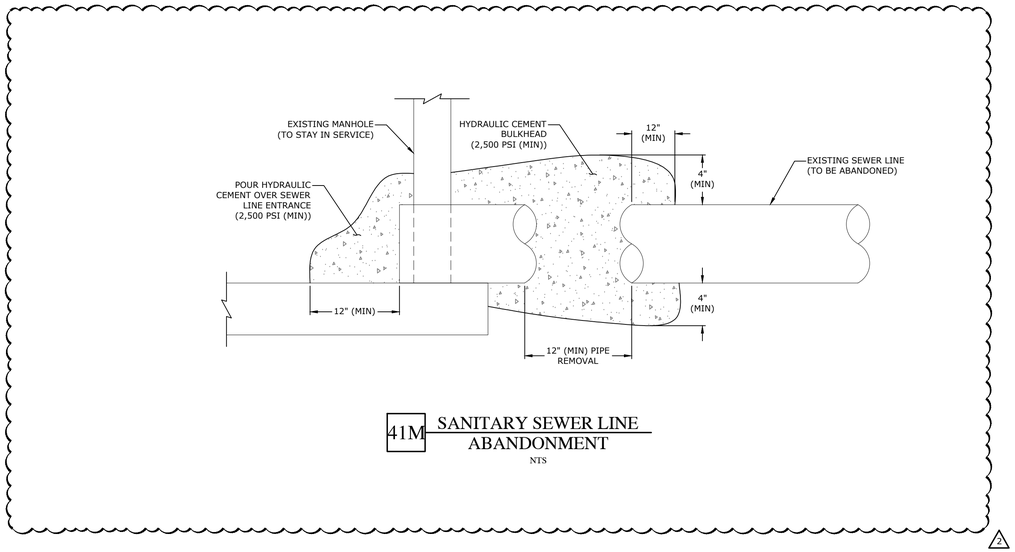


CROSS SECTION
'A'

NOTES:
1. REBAR SHALL BE GRADE 60 AND HAVE A MINIMUM 1½" COVER, UNLESS OTHERWISE NOTED.
2. ALL REBAR SPLICES SHALL BE 30 BAR DIAMETER, UNLESS OTHERWISE NOTED.
3. PROVIDE CORNER BARS AT BOTH WALL CORNERS AND WALL SLAB INTERSECTIONS.
4. ALL 'J' HOOKS SHALL BE 85°, UNLESS OTHERWISE NOTED.
5. CONCRETE FOR STRUCTURE SHALL HAVE A COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS (MIN) W/ 4%-7% AIR ENTRAINMENT.
6. SUBGRADE SHALL BE COMPACTED TO 98% STANDARD PROCTOR.
7. STRUCTURE TO BE CENTERED ON MIDDLE OF PIPE, UNLESS DIRECTED OTHERWISE BY THE ENGINEER OR AS REQUIRED BY FINISHED GRADING.
8. ELEVATIONS AT STRUCTURE ARE AT THE END OF THE APRON. APRON SLOPE TO MATCH PIPE SLOPE, UNLESS OTHERWISE INDICATED.
9. ALL EXPOSED EDGES TO HAVE ¾" CHAMFER.
10. ALL SIDEWALKS SHALL HAVE A BROOMED FINISHED UNLESS OTHERWISE SPECIFIED.
11. ALL JOINTING TO BE LOCATED PER SIDEWALK JOINTING (DETAIL 22C)
12. CURING COMPOUND IS REQUIRED UNLESS TEMPERATURES STAY BELOW 50° FAHRENHEIT FOR 7 DAYS. CURING COMPOUND MUST BE COLORED WHITE, RED, OR PINK. CLEAR CURING COMPOUND IS UNACCEPTABLE. IF CONCRETE IS NOT CURED WHEN REQUIRED, IT WILL BE CONSIDERED GROUNDS FOR REMOVAL AND REPLACEMENT.
13. ALL CONTROL JOINTING TO BE SAWCUT OR TOOLED JOINTED PER SIDEWALK JOINTING (DETAIL 22C).

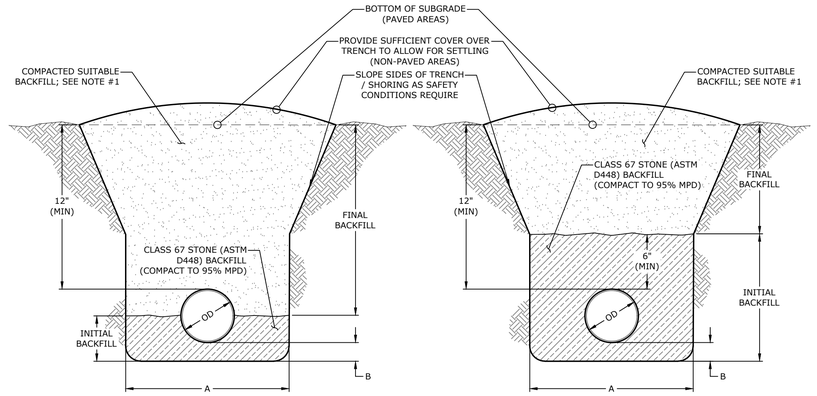
40Q WATER LINE TRENCHING, BACKFILL, & BEDDING
NTS

32F CONCRETE FOOTWALL TO UNDERDRAIN
NTS



41M SANITARY SEWER LINE ABANDONMENT
NTS

NOTES:
1. FOR AREAS WHERE PIPE IS LOCATED UNDER NON-PAVED AREAS, BACKFILL SHALL BE COMPACTED SUITABLE NATIVE MATERIAL (DO NOT INCORPORATE FROZEN MATERIAL OR SOFT, MUCK, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILL). FOR AREAS WHERE PIPE IS LOCATED UNDER PAVED AREAS, BACKFILL SHALL BE SELECT FILL COMPACTED PER THE GEOTECHNICAL REPORT PROJECT NO. [PROJECT #] PREPARED BY [GEOTECH COMPANY NAME] DATED [REPORT DATE].

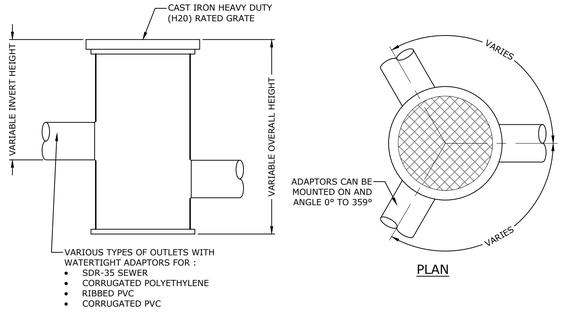


RIGID PIPE

NON-RIGID PIPE

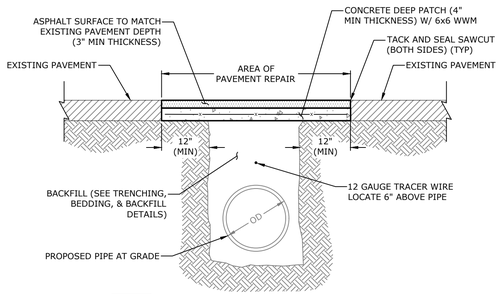
TRENCHING, BACKFILL, & BEDDING TABLE	
'A'	OD + 24" (MIN) OD + 36" (MAX)
'B'	.10 x OD (6" MIN)

33G STORM SEWER TRENCHING, BACKFILL, & BEDDING
NTS



PLAN

31Z NYOPLAST DRAIN BASIN DETAIL NTS



42A ASPHALT PAVEMENT REPAIR
NTS

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MISCELLANEOUS DETAIL IV

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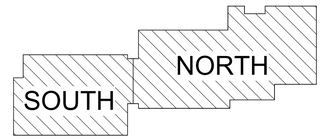
5A FLOOR PLAN - OVERALL
3/32" = 1'-0"

NORTH

KEY PLAN:



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PROJECT NO.
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DATE:
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OVERALL FLOOR PLAN

A1.00

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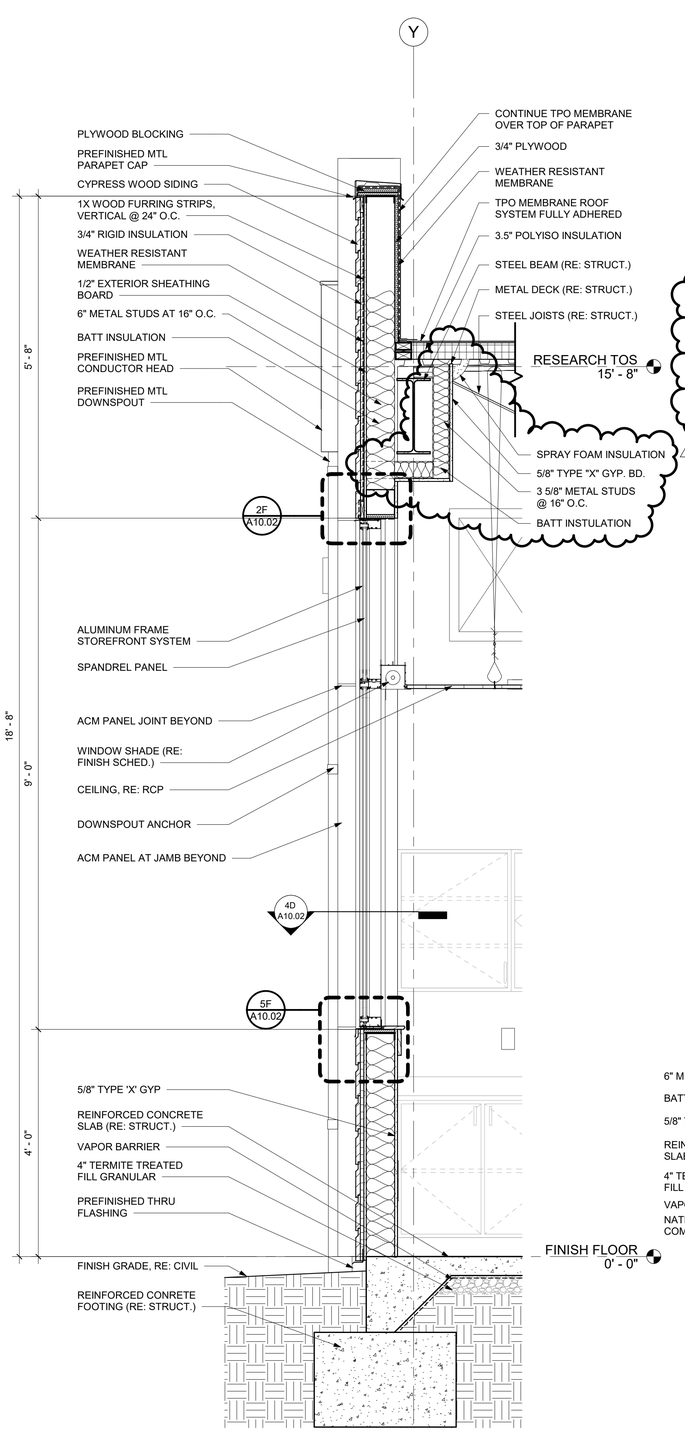
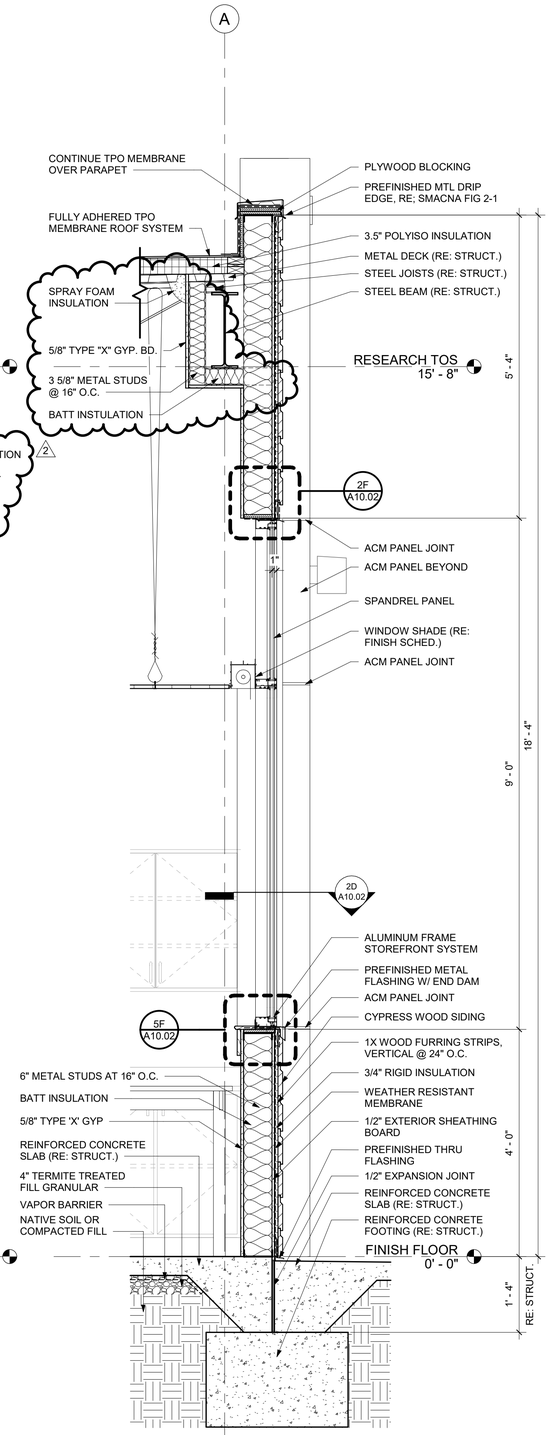
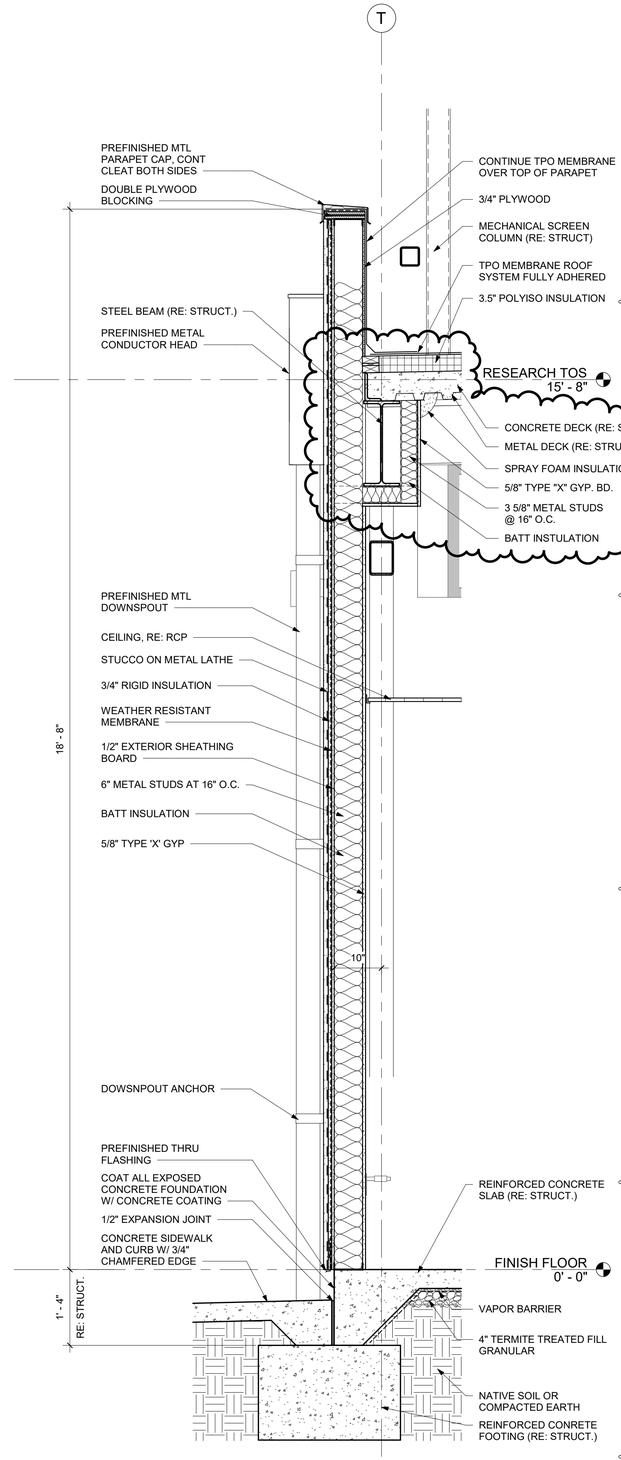


5B WALL SECTION
3/4" = 1'-0"



5D WALL SECTION
3/4" = 1'-0"



5F WALL SECTION
3/4" = 1'-0"

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WALL SECTIONS AND DETAILS

A8.01

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POWER AND LIGHTING LEGEND

ABBREVIATION OR SYMBOL	DESCRIPTION
FIXTURE DESIGNATION	
L	2x4 LAY-IN OR SURFACE MOUNTED FIXTURE
	2x4 LAY-IN OR SURFACE MOUNTED FIXTURE; SHADING INDICATES EMERGENCY POWERED BATTERY
	2x2 LAY-IN OR SURFACE MOUNTED FIXTURE
	2x2 LAY-IN OR SURFACE MOUNTED FIXTURE; SHADING INDICATES EMERGENCY POWERED BATTERY
	SURFACE OR STRIP FIXTURE
	RECESSED STRIP FIXTURE; SHADING INDICATES EMERGENCY POWERED BATTERY
	RECESSED DOWNLIGHT
	RECESSED DOWNLIGHT; SHADING INDICATES EMERGENCY POWERED BATTERY
	WALL-MOUNTED LINEAR FIXTURE
	DOWNLIGHT FIXTURE
	DOWNLIGHT FIXTURE. SHADING INDICATES EMERGENCY POWERED BATTERY
	WALL-MOUNTED FIXTURE
	EXIT SIGN; LED TYPE. DARKENED AREA INDICATES FACE, ARROWS INDICATE DIRECTION OF EGRESS
	RECESSED ELECTRICAL PANEL WITH REQUIRED CLEARANCE
	SURFACE MOUNTED ELECTRICAL PANEL WITH REQUIRED CLEARANCE
	COMBINATION STARTER DISCONNECT SWITCH
	NON FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MOTOR STARTER
M	ELECTRIC MOTOR, HORSEPOWER AS SHOWN.
J	JUNCTION BOX
J XYZ	SPECIALTY JUNCTION BOX WITH DESIGNATION "XYZ". REFER TO JBOX ABBREVIATION LEGEND.

POWER -- J-BOX ABBREVIATION SCHEDULE

FH	FUME HOOD

DATA DEVICES

A F	TELEPHONE OUTLET; ABOVE COUNTER, & FIREMAN'S
A C	DATA OUTLET; ABOVE COUNTER & CEILING MOUNTED. REFER TO DETAIL FOR WALL OUTLETS. PROVIDE (1) DATA JACK AT ALL CEILNG OUTLETS (2)
A	COMBINATION DATA/TELEPHONE OUTLET & COMBINATION DATA/TELEPHONE OUTLET ABOVE COUNTER
TV/84"	(1) DATA JACK AND (1) COAX CABLE CONNECTION AT HEIGHT A.F.F. DESIGNATION (2)

ABBREVIATION OR SYMBOL	DESCRIPTION

FLOOR BOXES

FLOOR/WALL BOX WITH DESIGNATION "XYZ". REFER TO FLOOR/WALL BOX ABBREVIATION SCHEDULE.

XYZ

(1) (2) (4) (3)
(1) DUPLEX RECEPTACLE
(2) GFI DUPLEX RECEPTACLE
(3) QUADRUPLEX RECEPTACLE
(4) GFI QUADRUPLEX RECEPTACLE

(6) (7) (9) AV (8)
(6) TELEPHONE OUTLET
(7) DATA OUTLET
(8) COMBO TELE/DATA OUTLET
(9) AUDIO VISUAL

POWER -- FLOOR/WALL BOX ABBREVIATION SCHEDULE

DUPLEX	QUADRUPLEX	
		STANDARD
		ABOVE COUNTER
		GFCI
		GFCI ABOVE COUNTER
		WEATHER PROOF
		CEILING MOUNT

ABC — MULTI POLE RECEPTACLE. REFER TO RECEPTACLE ABBREVIATION LEGEND FOR DETAILS.

XYZ — SIMPLEX RECEPTACLE. REFER TO RECEPTACLE ABBREVIATION LEGEND FOR DETAILS.

SPECIALTY RECEPTACLES WITH DESIGNATION "XYZ", "ABC", etc. REFER TO RECEPTACLE ABBREVIATION LEGEND BELOW.

POWER -- RECEPTACLE ABBREVIATION LEGEND

PRJ/96"	STANDARD DUPLEX RECEPTACLE 96" AFF FOR PROJECTOR
SB	SMART BOARD RECEPTACLE 48" AFF
TV/84"	RECEPTACLE FOR TV MOUNTED 84" AFF
6-15R	NEMA 6-15R

ROOM CONTROLLERS / POWER PACKS

P XX	SPECIALTY POWER PACK WITH DESIGNATION "XX", REFER TO ABBREVIATION LEGEND BELOW.
R XX	SPECIALTY ROOM CONTROLLER WITH DESIGNATION "XX", REFER TO ABBREVIATION LEGEND BELOW.

LIGHTING -- ROOM CONTROLLER ABBREVIATION SCHEDULE

WA	WATTSTOPPER LRMC-101: SINGLE RELAY ROOM CONTROLLER
WD	WATTSTOPPER LMRC-212: DUAL RELAY 0-10V DIMMING ROOM CONTROLLER. PROVIDE 0-10V CABLING TO EACH FIXTURE CONNECTED TO DIMMING ROOM CONTROLLER.
WE	WATTSTOPPER LMRC-213: THREE RELAY 0-10V DIMMING ROOM CONTROLLER. PROVIDE 0-10V CABLING TO EACH FIXTURE CONNECTED TO DIMMING ROOM CONTROLLER.

ABBREVIATION OR SYMBOL	DESCRIPTION

SWITCHES

S	SINGLE POLE LIGHT SWITCH
S_M	PADLOCKABLE HP RATED SWITCH
S_X	SPECIALTY SWITCH. FOR "X" DESIGNATION, SEE LIGHTING SWITCH ABBREVIATION SCHEDULE BELOW.

LIGHTING -- SWITCH ABBREVIATION SCHEDULE

4	WATTSTOPPER LMSW-104-ENG2
8	WATTSTOPPER LMSW-108-ENG3
WA	LMSW-101: SINGLE BUTTON DIGITAL WALL SWITCH
WB	WATTSTOPPER LMSW-102: TWO BUTTON DIGITAL WALL SWITCH
WF	WATTSTOPPER LMDM-101: DIMMING DIGITAL WALL SWITCH
WJ	WATTSTOPPER PW-301: PASSIVE INFRARED WALL OCCUPANCY SENSOR SWITCH

COMMON ABBREVIATIONS

A	AMP
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AUX	AUXILIARY
BKR	BREAKER
C	CONDUIT
CBA	COLOR BY ARCHITECT
CGRS	PVC COATED GALVANIZED RIGID STEEL
CKT	CIRCUIT
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
EC	EMPTY OR EMBEDDED CONDUIT
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EL	ELEVATION
EMT	ELECTRICAL METALLIC TUBING
ERMS	ENERGY REDUCTION MAINTENANCE SWITCH
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FAN COIL
FLR	FLOOR
FOC	FIBER OPTIC CABLE
FT	FEET
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND-OFF-AUTO
HP	HORSEPOWER OR HEAT PUMP
JB	JUNCTION BOX
kVA	KILOVOLT-AMPERE
kVAR	KILOVOLT-AMPERE, REACTIVE
kW	KILOWATT
L.O.	LUGS ONLY
LSIG	ADJUSTABLE TRIP UNIT WITH LONG TIME, SHORT TIME, INSTANTANEOUS, AND GROUND FAULT SETTINGS
LV	LOW VOLTAGE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR	MANUFACTURER
MIN	MINIMUM
MLO	MAIN LUG ONLY
MTD	MOUNTED
NFDS	NON-FUSED DISCONNECT SWITCH
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
OL	OVERLOAD
PEC	PHOTO ELECTRIC CELL
PL	PILOT LIGHT
PNL	PANEL
PVC	SCHEDULE 40 POLYVINYL CONDUIT
RA	FIRE ALARM REMOTE ANNUNCIATOR
RECPT	RECEPTACLE
RM	ROOM
SE	SERVICE ENTRANCE
SHT	SHEET
SN	SOLID NEUTRAL
SPD	SURGE PROTECTIVE DEVICE
SW	SWITCH
TEL	TELEPHONE
TYP	TYPICAL
TC	TIME CLOCK
UG	UNDER GROUND
UH	UNIT HEATER
VA	VOLT-AMP
VFD	VARIABLE FREQUENCY DRIVE
W	WATT OR WIRE
WH	WATER HEATER
WP	WEATHERPROOF
XMFR	TRANSFORMER

ABBREVIATION OR SYMBOL	DESCRIPTION

SENSORS

XX	SPECIALTY CEILING MOUNT SENSOR WITH DESIGNATION "XX", REFER TO ABBREVIATION LEGEND BELOW.
XX	SPECIALTY CORNER MOUNT SENSOR WITH DESIGNATION "XX", REFER TO ABBREVIATION LEGEND BELOW.

LIGHTING -- SENSOR ABBREVIATION SCHEDULE

DT	DIGITAL DUAL TECHNOLOGY CEILING MOUNT OCCUPANCY SENSOR

COMMUNICATIONS DEVICES

I	INTERCOM STATION
M I	MASTER INTERCOM STATION
C	CLOCK
D C	CLOCK, DUAL SIDED
WG C	CLOCK, WITH WIREGUARD
H	HORN SPEAKER
WP H	HORN SPEAKER - WEATHERPROOF
P	PAGING SPEAKER
C	CAMERA WITH PAN, TILT, & ZOOM
WP C	CAMERA - WEATHERPROOF WITH PAN, TILT, & ZOOM
V J A J	SPECIAL SYSTEMS JUNCTION BOX ABOVE CEILING. ROUTE 1" C WITH PULL STRING TO DATA/ELECTRICAL ROOM. (V) VIDEO, (A) ALARM/ACCESS
A	ACCESS CONTROL - PROVIDE ACCESS CONTROL ROUGH-IN AT DOOR. REFER TO DETAILS FOR ACCESS CONTROL ROUGH-IN REQUIREMENTS.
D	MAGNETIC DOOR HOLDER
F	FIRE ALARM PULL STATION
F	FIRE ALARM COMBINATION HORN/STROBE DEVICE
S	FIRE ALARM COMBINATION SPEAKER/STROBE DEVICE
F	FIRE ALARM STROBE DEVICE
I Z C Z M Z	FIRE ALARM ZAM DEVICE; IAM (I), CONTROL (C), OR MONITOR MODULE (M)
S	SMOKE DETECTOR
H	HEAT DETECTOR
D S	DUCT SMOKE DETECTOR
DA S	DUCT SMOKE DETECTOR WITH AUXILIARY CONTACTS
TS FS	TAMPER SWITCH / FLOW SWITCH
ATS	SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH
M	MANHOLE, HANDHOLE DESIGNATION REFER TO SCHEDULE.

GENERAL NOTES

1. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT BE UTILIZED ON THE PROJECTS.

WIRE TYPES

	LIGHTING CONTROL CABLING

EQUIPMENT AND CONDUIT LINE TYPES

	FURNISH + INSTALL NEW
	EXISTING
	DEMOLISH
	UNDERGROUND CONNECT TO EXISTING

2 (3#8 + 1#8 + 1#10EG) 3/4" GRS

- GRS — CONDUIT TYPE (SEE ABBREVIATIONS) REFER TO SPECIFICATIONS IF NOT SHOWN
- 3/4" — CONDUIT SIZE
- (1#10EG) — GROUNDED (NEUTRAL) CONDUCTOR, NUMBER AND SIZE
- 1#8 — GROUNDED (NEUTRAL) CONDUCTOR, NUMBER AND SIZE
- 3#8 — PHASE (HOT) CONDUCTOR, NUMBER & SIZE
- 2 — NUMBER OF SETS

XX - ## — HOME RUN TO PANEL. LETTER(S) INDICATE NAME OF PANEL, NUMBER(S) INDICATE CIRCUIT NUMBERS.

ONE LINE SYMBOLS

*	CIRCUIT BREAKER, TRIP RATING SHOWN, 3-POLE UNLESS NOTED.
*	FUSE, CURRENT LIMITING, RATING AS SHOWN.
480V ** kVA 208V	TRANSFORMER, RATINGS AS SHOWN.
M 10 HP	ELECTRIC MOTOR, HORSEPOWER SHOWN.
*	MOTOR STARTER, SIZE AS SHOWN OR REQUIRED. FVNR UNLESS NOTED.
SPD	SURGE PROTECTION DEVICE.
G *KW	GENERATOR
	GROUNDING ROD, 3/4" x 10' MINIMUM, COPPER CLAD.
	VARIABLE FREQUENCY DRIVE.
ATS-1 200A / 3P /BP	AUTOMATIC TRANSFER SWITCH

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MONTICELLO, AR

REVISIONS:

2	ADDENDUM 2	11/18/24

PROJECT NO. SCM-098
DATE: OCTOBER 22, 2024

ELECTRICAL POWER AND LIGHTING LEGEND

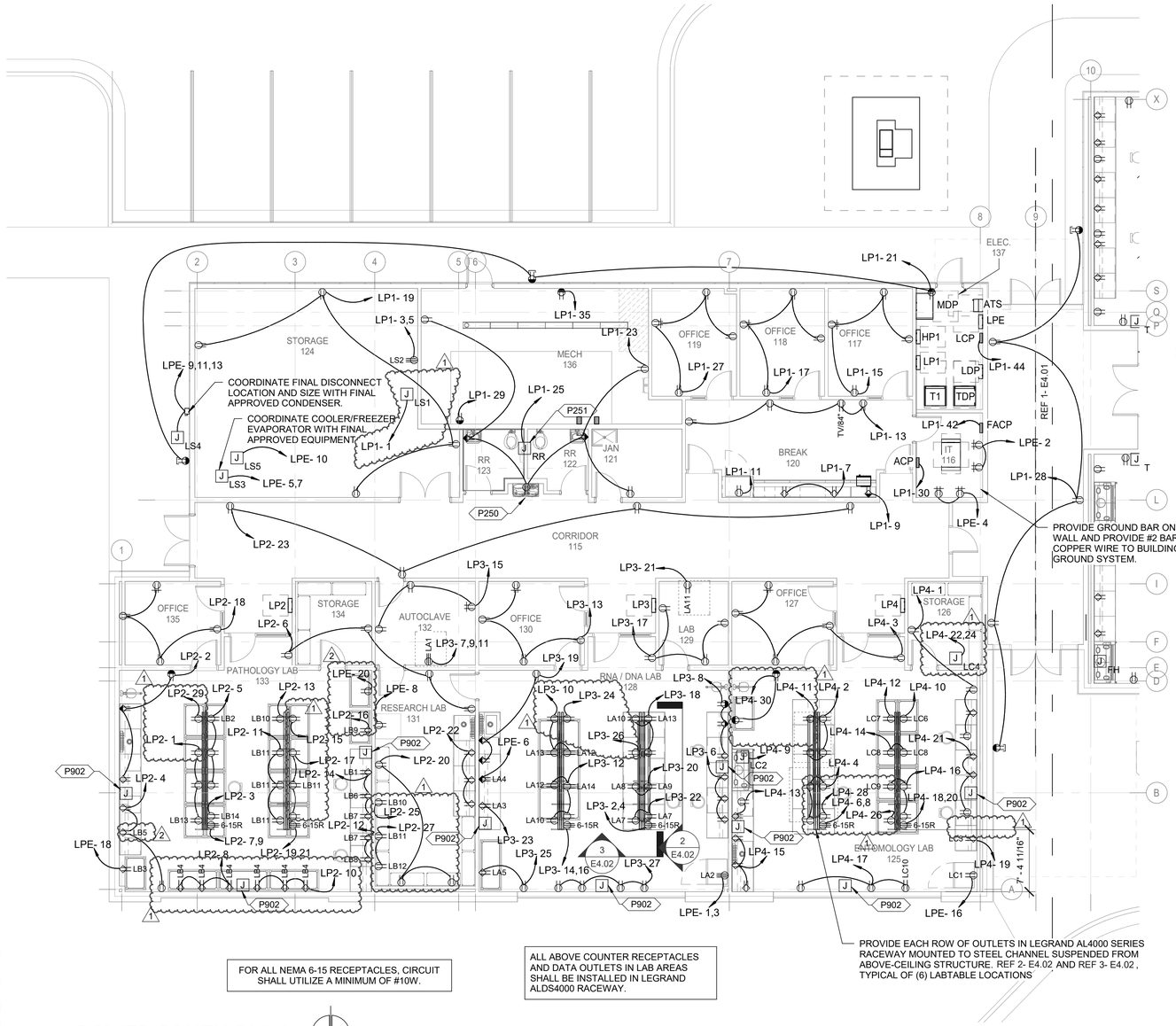
E1.00

11/18/2024 3:44:46 PM

KEYNOTES

P250	ELECTRIC WATER COOLER RECEPTACLE: CONCEAL WITHIN CABINET PER MANUFACTURER'S REQUIREMENTS.
P251	PROVIDE 120V CONNECTION TO POWER CONVERTER FOR HARDWIRED AUTOMATIC SENSOR-CONTROLLED PLUMBING FIXTURES IN RESTROOMS. HARDWIRE POWER FROM CONVERTER TO URINAL, WATER CLOSETS, AND LAVATORIES. MAKE ALL FINAL CONNECTIONS.
P902	PROVIDE DOUBLE GANG BOX WITH 1"C BACK TO NEAREST PANELBOARD FOR FUTURE USE. PROVIDE WITH PULLSTRING AND BLANK COVERPLATE.

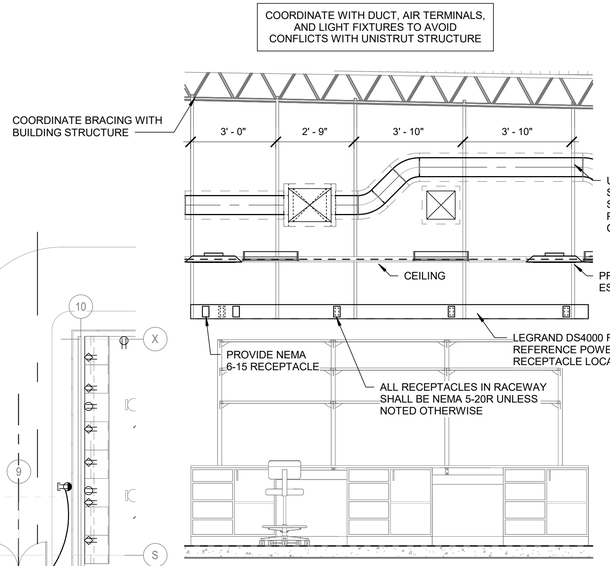
IN ALL RESEARCH AND TEACHING LAB AREAS PROVIDE LABEL ON EVERY DEVICE AND/OR EQUIPMENT DISCONNECT TO INDICATE THE CIRCUIT THAT SERVES EACH DEVICE OR PIECE OF EQUIPMENT. ALL RECEPTACLE AND LIGHT SWITCH WALL PLATES SHALL INCLUDE PRINTED LABEL INDICATING ITS ASSOCIATED CIRCUIT. ALL DISCONNECTS OR WALL PLATES FOR HARD-WIRED CONNECTIONS SHALL INCLUDE LABEL INDICATING EQUIPMENT NAME, VOLTAGE, AND ASSOCIATED CIRCUIT.



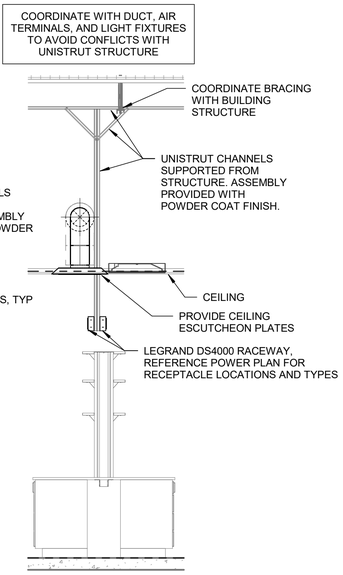
FOR ALL NEMA 6-15 RECEPTACLES, CIRCUIT SHALL UTILIZE A MINIMUM OF #10W.

ALL ABOVE COUNTER RECEPTACLES AND DATA OUTLETS IN LAB AREAS SHALL BE INSTALLED IN LEGRAND ALDS4000 RACEWAY.

1 POWER SOUTH PLAN
1/8" = 1'-0"



2 NORTH RACEWAY DETAIL
3/8" = 1'-0"



3 EAST RACEWAY DETAIL
3/8" = 1'-0"

LAB EQUIPMENT SCHEDULE

ITEM NUMBER	DESCRIPTION	MANUFACTURER	MODEL	VOLTAGE	POLES	kVA	TERMINATION
LA1	AUTOCLAVE	HEIDOLPH	13-890-052	208 V	3	18.00 kVA	DIRECT CONNECTION
LA2	LAB FREEZER	PHCBI	MDF-DU702VH-PA	208 V	2	2.00 kVA	NEMA 6-15R
LA3	DESKTOP INCUBATOR	THOMAS SCIENTIFIC	1154J61	120 V	1	1.00 kVA	NEMA 5-20R
LA4	DESKTOP FREEZER	THOMAS SCIENTIFIC	1154J61	120 V	1	1.00 kVA	GFI NEMA 5-20R
LA5	PCR WORKSTATION	AIRCLEAN	AC6000HLF	120 V	1	0.18 kVA	NEMA 5-15R
LA7	THERMOCYCLER	APPLIED BIOSYSTEMS	A48141	120 V	1	0.70 kVA	NEMA 5-20R
LA8	REAL-TIME PCR SYSTEM	APPLIED BIOSYSTEMS	A43186	120 V	1	0.96 kVA	NEMA 5-20R
LA9	PLATE SPINNER	FISHERBRAND	14-955-300	120 V	1	0.18 kVA	NEMA 5-20R
LA10	MICROCENTRIFUGE	CORNING	CLS6770	120 V	1	0.18 kVA	NEMA 5-20R
LA11	BIOSAFETY CABINET	ESCO	LABCULTURE TYPE A2	120 V	1	1.20 kVA	NEMA 5-15R
LA12	MICROCENTRIFUGE	FISHERBRAND	13-100-675	120 V	1	0.18 kVA	NEMA 5-20R
LA13	VORTEX MIXER	FISHERBRAND	14-955-151	120 V	1	0.18 kVA	NEMA 5-20R
LA14	ANALYTIC BALANCE	COLE-PARMER	TB-800	120 V	1	0.18 kVA	NEMA 5-20R
LB1	SPORE PLATE READER	BIOSENSE	OCELLOSCOPE	120 V	1	0.18 kVA	NEMA 5-15R
LB2	ORBITAL SHAKER	OHAUS	SHHD6850DG	120 V	1	0.08 kVA	NEMA 5-20R
LB3	CENTRIFUGE	FISHERBRAND	75-888-617	120 V	1	1.30 kVA	NEMA 5-15R
LB4	INCUBATOR	PARMER	INC-400G-50-120	120 V	1	0.30 kVA	NEMA 5-15R
LB5	DISSECTING MICROSCOPE (CAMERA)			120 V	1	0.18 kVA	NEMA 5-15R
LB6	DISSECTING MICROSCOPE (STEREO)	ZEISS		120 V	1	0.04 kVA	NEMA 5-15R
LB7	STANDARD MICROSCOPE	ZEISS	STEMI DRC	120 V	1	0.18 kVA	NEMA 5-15
LB8	COMPOUND MICROSCOPE	ZEISS	AxioObserver 3	120 V	1	0.44 kVA	NEMA 5-15R
LB9	LAMINAR FLOW HOOD	AIRCLEAN	AC6000HLF	120 V	1	0.18 kVA	NEMA 5-15R
LB10	MICROWAVE OVEN	PANASONIC	24406-39	120 V	1	1.00 kVA	NEMA 5-20R
LB11	HOT PLATE	CORNING	PC-220	120 V	1	0.31 kVA	NEMA 5-20R
LB12	ANALYTIC BALANCE	COLE-PARMER	TB-800	120 V	1	0.18 kVA	NEMA 5-20R
LB13	47MM VACUUM SYSTEM			120 V	1	0.07 kVA	NEMA 5-20R
LB14	FREEZE DRYER	HARVESTRIGHT	MEDIUM PHARMA	120 V	1	1.44 kVA	NEMA 5-20R
LC1	INSECT CHAMBER	CARON	7340-25-1	120 V	1	1.92 kVA	NEMA 5-20R
LC2	FUME HOOD	LABCONCO	3' PROTECTOR XL	120 V	1	1.20 kVA	DIRECT CONNECTION
LC3	MINI CUTTING MILL	LABFORCE	1173U48	120 V	1	1.00 kVA	NEMA 5-20R
LC4	PELLETIZER			208 V	2	3.00 kVA	DIRECT CONNECTION
LC6	PH SCALE	THERMO SCIENTIFIC	STARA2110	120 V	1	0.18 kVA	NEMA 5-20R
LC7	MICROWAVE OVEN	PANASONIC	24406-39	120 V	1	1.00 kVA	NEMA 5-20R
LC8	HOT PLATE	FISHERBRAND	ISOTEMP	120 V	1	0.40 kVA	NEMA 5-20R
LC9	PORTABLE BALANCE	METTLER TOLEDO	MA12001L	120 V	1	0.06 kVA	NEMA 5-20R
LC10	WEIGHING PLATFORM	ULINE	H-5837	120 V	1	0.03 kVA	NEMA 5-15R
LS1	ICE MACHINE	HOSHIZAKI	KM-350MAJ	120 V	1	1.09 kVA	DIRECT CONNECTION
LS2	GROWTH CHAMBER	BINDER	KBWF720-230V	208 V	2	2.70 kVA	NEMA 6-15R
LS3	WALK-IN EVAPORATOR			208 V	2	1.09 kVA	DIRECT CONNECTION
LS4	WALK-IN CONDENSER			208 V	3	4.00 kVA	DIRECT CONNECTION
LS5	WALK-IN DOOR HEATER/LIGHTS			120 V	1	0.50 kVA	DIRECT CONNECTION

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REVISIONS:

1	ADDENDUM 1	11/7/24
2	ADDENDUM 2	11/18/24

PROJECT NO.
SCM-098
DATE:
OCTOBER 22, 2024

POWER SOUTH PLAN

E4.02

11/18/2024 3:44:54 PM

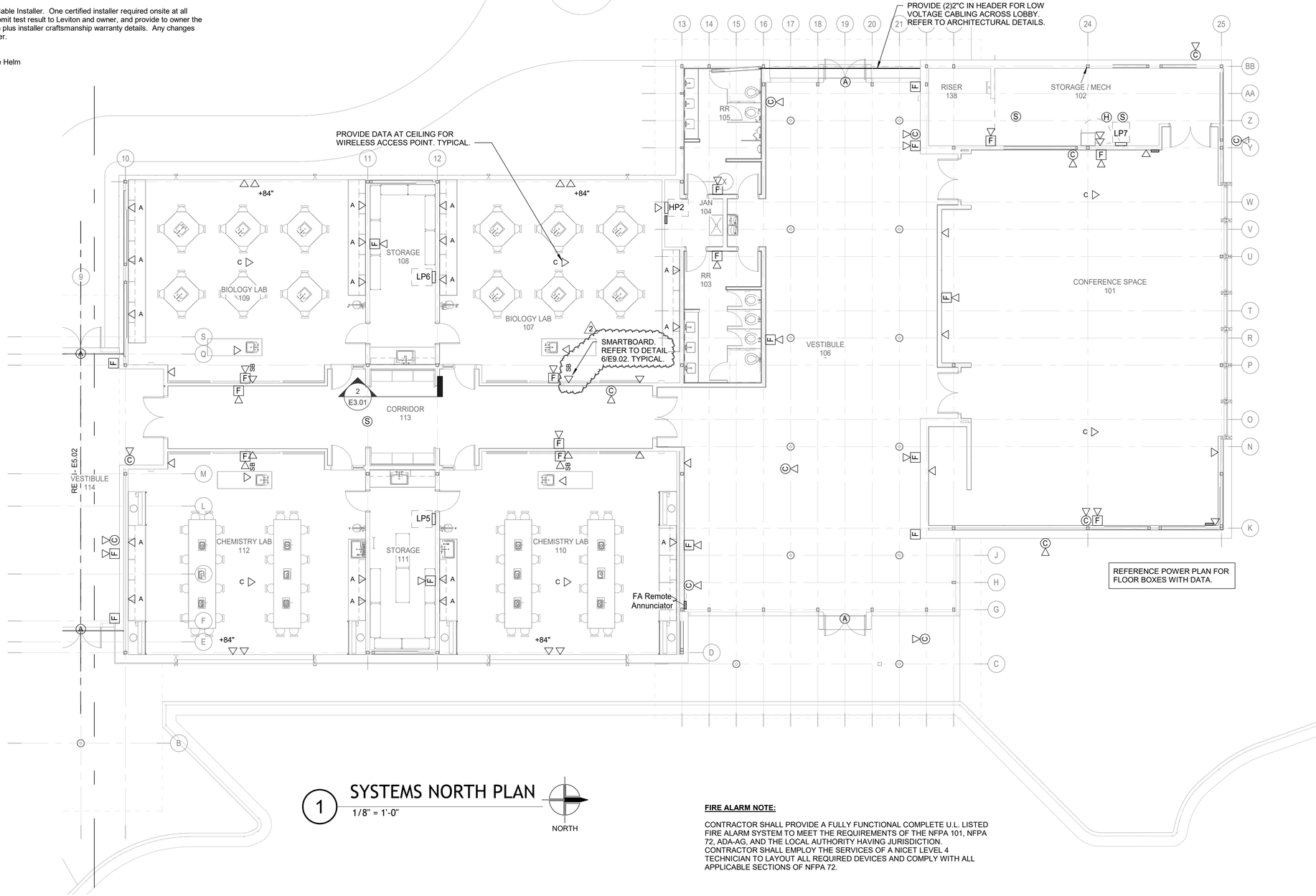
STRUCTURED CABLING NOTES:

Cable System:
CX 6300 : Leviton CAT 6 Premium+ UTP
Cable: Berk-Tek LANMARK 2000, Plenum, Part No. 10170669 (Green)
Jacks: ATLAS-X1 CAT 6 UTP Part No. 61UJK-RC6 (Crimson)
Patch Panel: Leviton CAT 6 Flat 110 style Part No. 69586-U24
Patch Cables: Cat 6 SlimLine Boot UTP Part No. 6D560-03G (quantity TBD)
Patch Cables: Cat 6 SlimLine Boot UTP Part No. 6D560-05G (quantity TBD)
Patch Cables: Cat 6 SlimLine Boot UTP Part No. 6D560-07G (quantity TBD)

Fiber:
Leviton OPT-X SDX Fiber Optic System
Enclosure: 2000i, 1RU, White with Sliding Tray Part No. 5R1UH-WH03
Cable: Tight Buffered, Single Mode, Indoor/Outdoor, Yellow Jacket
Splice Module: (still working on some details with Leviton)
Connectors: FASTCam
Patch Cords: OM3 LC-LC, 2M

All Cable to be installed by certified Leviton Cable Installer. One certified installer required onsite at all times while work performed. Installer will submit test result to Leviton and owner, and provide to owner the final Leviton Limited Warranty documentation plus installer craftsmanship warranty details. Any changes or modifications will be pre-approved by owner.

Leviton Regional Specification Engineer: Joe Helm
jhelm@leviton.com



1 SYSTEMS NORTH PLAN
1/8" = 1'-0"

NORTH

FIRE ALARM NOTE:

CONTRACTOR SHALL PROVIDE A FULLY FUNCTIONAL COMPLETE U.L. LISTED FIRE ALARM SYSTEM TO MEET THE REQUIREMENTS OF THE NFPA 101, NFPA 72, ADA-AG, AND THE LOCAL AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL EMPLOY THE SERVICES OF A NICET LEVEL 4 TECHNICIAN TO LAYOUT ALL REQUIRED DEVICES AND COMPLY WITH ALL APPLICABLE SECTIONS OF NFPA 72.

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REVISIONS:

2	ADDENDUM 2	11/18/24

PROJECT NO.
SCM-098
DATE:
OCTOBER 22, 2024

SYSTEMS NORTH PLAN

E5.01

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Branch Panel: LPE

Location: ELEC. 137
Supply From: LDP
Mounting: Surface
Enclosure: 1

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

A.I.C. Rating: 10kA
Panel Rating: 125 A MLO

Notes:

CKT	Load Name	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Load Name	CKT
1	LA2 LAB FREEZER	20 A	2	1.00			0.72			1	20 A	RECEPTACLES IT 116	2
3					1.00			0.72		1	20 A	RECEPTACLES IT 116	4
5	LS3 WALK-IN EVAPORATOR	20 A	2			0.55			1.00	1	20 A	LA4 DESKTOP FREEZER	6
7				0.55			0.18			1	20 A	FREEZER	8
9	LS4 WALK-IN CONDENSER	20 A	3		1.33			0.50		1	20 A	LS5 WALK-IN DOOR HTR/LTS	10
11						1.33			1.50	1	20 A	BATTERY CHARGER	12
13				1.33			1.50			1	20 A	BLOCK HEATER	14
15	SPARE	20 A	2		0.00			1.92		1	20 A	LC1 INSECT CHAMBER	16
17						0.00			1.30	1	20 A	LB3 CENTRIFUGE	18
19	SPARE	20 A	2	0.00			0.18			1	20 A	REFRIGERATOR PATHOLOGY 133	20
21					0.00			0.00		1	20 A	SPARE	22
23	SPARE	20 A	3			0.00			0.00	1	20 A	SPARE	24
25				0.00			0.00			1	20 A	SPARE	26
27					0.00			0.00		1	20 A	SPARE	28
29	SPACE	--	1			--			0.00	1	20 A	SPARE	30

Panel Totals

	PHASE A	PHASE B	PHASE C
Total Load:	5.46 kVA	5.47 kVA	5.68 kVA
Total Amps:	45 A	46 A	47 A
Total Conn. Load:	16.61 kVA		
Total Design Current:	72 A		

Notes:

Branch Panel: LP5

Location: STORAGE 111
Supply From: LP1
Mounting: Surface
Enclosure: 1

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

A.I.C. Rating: 14kA
Panel Rating: 100 A MLO

Notes:

CKT	Load Name	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Load Name	CKT
1	EV ROOM CONTROLLERS	20 A	1	0.35			0.72			1	20 A	RECEPTACLES CHEMISTRY LAB 110	2
3	RECEPTACLES CHEMISTRY LAB 112	20 A	1		0.72			0.00		1	20 A	LAB GAS CONTROLLER	4
5	FUME HOOD CHEMISTRY LAB 112	20 A	1			1.20			1.20	1	20 A	FUME HOOD CHEMISTRY LAB 110	6
7	RECEPTACLES CHEMISTRY LAB 112	20 A	1	0.54			0.54			1	20 A	RECEPTACLES CHEMISTRY LAB 110	8
9	RECEPTACLES CHEMISTRY LAB 112	20 A	1		0.54			0.54		1	20 A	RECEPTACLES CHEMISTRY LAB 110	10
11	RECEPTACLES CHEMISTRY LAB 112	20 A	1			0.72			0.54	1	20 A	RECEPTACLES CHEMISTRY LAB 110	12
13	RECEPTACLES CHEMISTRY LAB 112	20 A	1	0.54			0.54			1	20 A	RECEPTACLES CHEMISTRY LAB 110	14
15	RECEPTACLES CHEMISTRY LAB 112	20 A	1		0.54			0.54		1	20 A	RECEPTACLES CHEMISTRY LAB 110	16
17	RECEPTACLES CHEMISTRY LAB 112	20 A	1			0.54			0.72	1	20 A	RECEPTACLES CHEMISTRY LAB 110	18
19	FUME HOOD CHEMISTRY LAB 112	20 A	1	1.20			0.54			1	20 A	RECEPTACLES CHEMISTRY LAB 110	20
21	RECEPTACLES CHEMISTRY LAB 112	20 A	1		0.54			1.20		1	20 A	FUME HOOD CHEMISTRY LAB 110	22
23	RECEPTACLES STORAGE 111	20 A	1			0.72			0.90	1	20 A	RECEPTACLES VESTIBULE 106	24
25	VAVS	20 A	1	0.15			0.25			2	20 A	REF-02 DAMPER ACTUATOR	26
27	LAB GAS CONTROLLER	20 A	1		0.00			0.25					28
29	RECEPTACLES CHEMISTRY LAB 110	20 A	1			0.72			0.00	1	20 A	SPARE	30
31	RECEPTACLES CHEMISTRY LAB 112	20 A	1	0.72			0.00			1	20 A	SPARE	32
33	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	34
35	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	36
37	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	38
39	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	40
41	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	42

Panel Totals

	PHASE A	PHASE B	PHASE C
Total Load:	6.08 kVA	4.87 kVA	7.26 kVA
Total Amps:	52 A	41 A	62 A
Total Conn. Load:	18.21 kVA		
Total Design Current:	81 A		

Notes:

Branch Panel: LP6

Location: STORAGE 108
Supply From: LP1
Mounting: Surface
Enclosure: 1

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

A.I.C. Rating: 14kA
Panel Rating: 225 A MLO

Notes:

CKT	Load Name	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Load Name	CKT
1	LP7	100 A	3	3.06						1	20 A	RECEPTACLES BIOLOGY LAB 109	2
3					2.98			0.72		1	20 A	RECEPTACLES BIOLOGY LAB 109	4
5						3.59			0.72	1	20 A	RECEPTACLES BIOLOGY LAB 109	6
7	RECEPTACLES BIOLOGY LAB 107	20 A	1	0.72			0.72			1	20 A	RECEPTACLES BIOLOGY LAB 109	8
9	RECEPTACLES BIOLOGY LAB 107	20 A	1		0.72			0.72		1	20 A	RECEPTACLES BIOLOGY LAB 109	10
11	RECEPTACLES BIOLOGY LAB 107	20 A	1			0.72			0.72	1	20 A	RECEPTACLES BIOLOGY LAB 109	12
13	RECEPTACLES BIOLOGY LAB 107	20 A	1	0.72			0.72			1	20 A	RECEPTACLES BIOLOGY LAB 109	14
15	RECEPTACLES BIOLOGY LAB 107	20 A	1		0.72			0.72		1	20 A	RECEPTACLES BIOLOGY LAB 109	16
17	RECEPTACLES BIOLOGY LAB 107	20 A	1			0.72			0.72	1	20 A	RECEPTACLES BIOLOGY LAB 109	18
19	RECEPTACLES BIOLOGY LAB 107	20 A	1	0.72			0.72			1	20 A	RECEPTACLES BIOLOGY LAB 109	20
21	RECEPTACLES BIOLOGY LAB 107	20 A	1		0.72			0.72		1	20 A	RECEPTACLES BIOLOGY LAB 109	22
23	RECEPTACLES BIOLOGY LAB 107	20 A	1			0.72			0.72	1	20 A	RECEPTACLES STORAGE 108	24
25	RECEPTACLES BIOLOGY LAB 107	20 A	1	0.72			0.72			1	20 A	RECEPTACLES CORRIDOR 113	26
27	ROOFTOP RECEPTACLES	20 A	1		0.36			0.58		1	20 A	RESTROOM SENSORS	28
29	VAVS	20 A	1			0.15			1.08	1	20 A	RECEPTS JANITOR / RESTROOM (4)	30
31	EF-1	20 A	1	0.48			0.36			1	20 A	RECEPTACLES VESTIBULE 106	32
33	ICE MAKER STORAGE 108	20 A	1		1.09			0.25		1	20 A	EV ROOM CONTROLLERS	34
35	SPARE	20 A	1			0.00			0.54	1	20 A	RECEPTACLES BIOLOGY LAB 107	36
37	SPARE	20 A	1	0.00			0.54			1	20 A	RECEPTACLES BIOLOGY LAB 109	38
39	SPARE	20 A	1		0.00			0.06		1	20 A	LCP2	40
41	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	42

Panel Totals

	PHASE A	PHASE B	PHASE C
Total Load:	10.92 kVA	10.36 kVA	10.39 kVA
Total Amps:	91 A	86 A	87 A
Total Conn. Load:	31.66 kVA		
Total Design Current:	137 A		

Notes:

Branch Panel: LP7

Location: STORAGE / MECH 102
Supply From: LP6
Mounting: Surface
Enclosure: 1

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

A.I.C. Rating: 14kA
Panel Rating: 100 A MLO

Notes:

CKT	Load Name	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Load Name	CKT
1	RECEPTACLES Room 138, 102, 106	20 A	1	1.08			0.90			1	20 A	RECEPTACLES Room 101, 106	2
3	RECEPTACLES A/V 101A	20 A	1		0.54			0.72		1	20 A	RECEPTACLES CONFERENCE SPACE...	4
5	RECEPTACLES CONFERENCE SPACE...	20 A	1			0.72			0.18	1	20 A	PROJECTOR	6
7	AV RACK	20 A	1	0.18			0.18			1	20 A	AV RACK	8
9	ROOFTOP RECEPTACLE	20 A	1		0.18			1.00		1	20 A	MOTORIZED SHADES	10
11	MOTORIZED SHADES	20 A	1			0.75			1.40	1	20 A	LIGHTING CONFERENCE SPACE 101	12
13	RECEPTACLES CONFERENCE SPACE...	20 A	1	0.36			0.00			1	20 A	SPARE	14
15	RECEPTACLES CONFERENCE SPACE...	20 A	1		0.54			0.00		1	20 A	SPARE	16
17	RECEPTACLES CONFERENCE SPACE...	20 A	1			0.54			0.00	1	20 A	SPARE	18
19	RECEPTACLES CONFERENCE SPACE...	20 A	1	0.36			0.00			1	20 A	SPARE	20
21	SPACE	--	1		--			0.00		1	20 A	SPARE	22
23	SPACE	--	1			--			0.00	1	20 A	SPARE	24
25	SPACE	--	1	--			0.00			1	20 A	SPARE	26
27	SPACE	--	1		--			0.00		1	20 A	SPARE	28
29	SPACE	--	1			--			0.00	1	20 A	SPARE	30

Panel Totals

	PHASE A	PHASE B	PHASE C
Total Load:	3.06 kVA	2.98 kVA	3.59 kVA
Total Amps:	26 A	25 A	30 A
Total Conn. Load:	9.63 kVA		
Total Design Current:	42 A		

Notes:

PANELBOARD NOTES

(1) INSTALL LOCKING DEVICE (LOCK-OFF FOR MAINTENANCE)

(2) INSTALL LOCKING DEVICE (LOCK-ON FOR CRITICAL LOAD).

(3) REFER TO SITE LIGHTING PLAN FOR WIRE SIZES.

(4) PROVIDE GFI CIRCUIT BREAKER OR INLINE GFI FOR PERSONNEL PROTECTION (5 mA).

(5) PROVIDE GFI CIRCUIT BREAKER OR INLINE GFI FOR EQUIPMENT PROTECTION (30 mA).

(6) PROVIDE U.L. LISTED OVERCURRENT DEVICE TO COORDINATE AND MAINTAIN MANUFACTURER'S SERIES RATED SYSTEM.

(7) EXISTING CIRCUIT TO REMAIN.

(8) EXISTING CIRCUIT BREAKER TO REMAIN. VERIFY CONDITION OF CIRCUIT BREAKER TO ENSURE THAT IT IS OPERATIONAL AND MEETS ALL U.L. RATINGS.

(9) TRACE EXISTING CIRCUIT, IDENTIFY LOAD AND PROVIDE TYPEWRITTEN PANELBOARD SCHEDULE AND PLACE ON INTERIOR OF PANELBOARD DOOR. IF CIRCUIT IS A "SPARE", REFER TO NOTE (8).

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1	ADDENDUM 1	11/7/24
2	ADDENDUM 2	11/18/24

PROJECT NO.
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DATE:
OCTOBER 22, 2024

PANEL SCHEDULES III

E8.03

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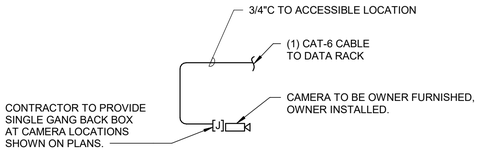
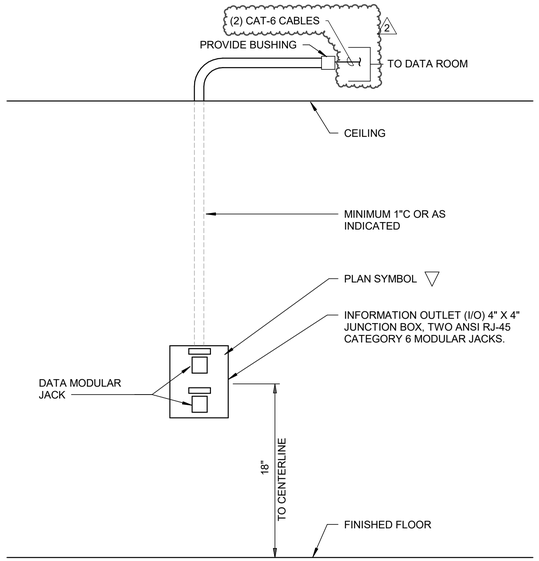


7 CAMERA LOCATION DETAIL

NOT TO SCALE

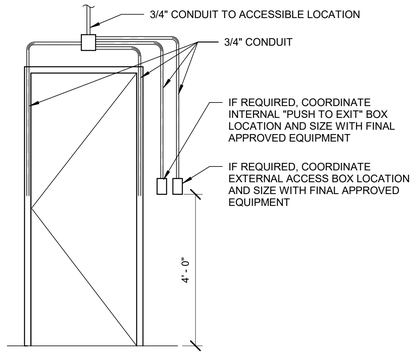


NOTES:

1. FLUSH MOUNTED INFORMATION OUTLET: 1 BOX, 2 JACKS, 2 CABLES, 1 CONDUIT. ROUTE UP THROUGH WALL AND STUB ABOVE CEILING. CAP, TAG, AND IDENTIFY ALL CONDUIT. PROVIDE PULLWIRE IN ALL CONDUIT. PULLWIRE TO REMAIN AFTER CABLE INSTALLATION. TWO JACKS AND CABLES UNLESS OTHERWISE NOTED.

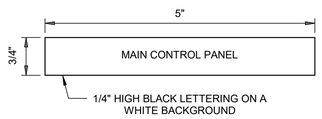
8 TYPICAL INFORMATION OUTLET

NOT TO SCALE



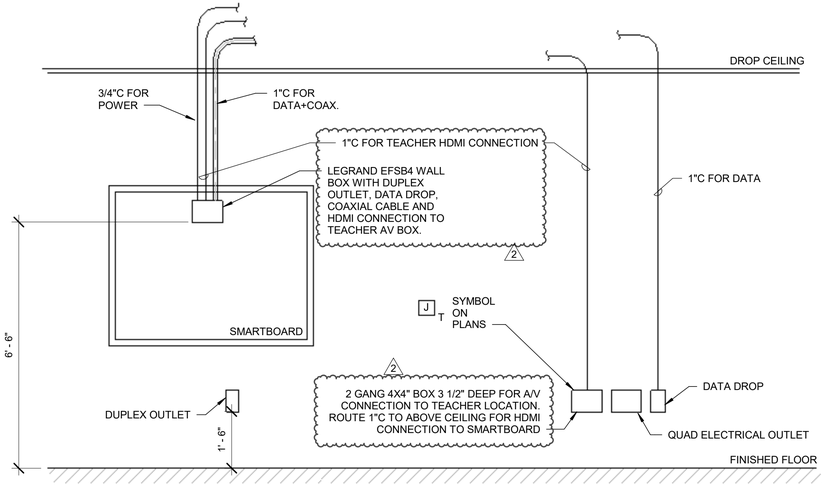
4 ACCESS CONTROL TYPE 2 - SINGLE DOOR

NOT TO SCALE



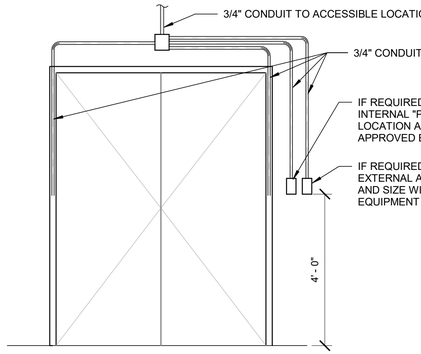
5 NAMEPLATE DETAIL

NOT TO SCALE



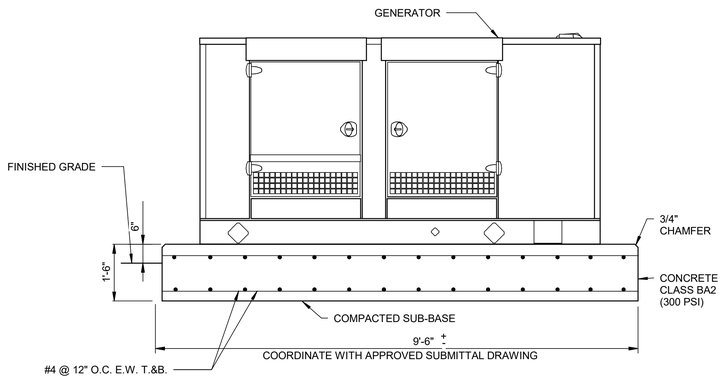
6 MONITOR DETAIL

NOT TO SCALE



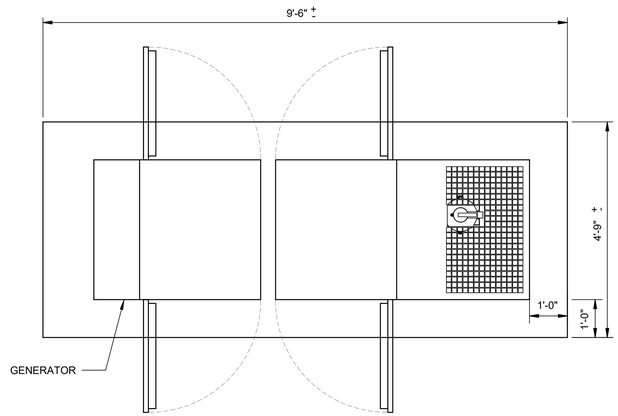
1 ACCESS CONTROL TYPE 1 - DOUBLE DOOR

NOT TO SCALE



2 GENSET CONCRETE PAD ELEVATION

NOT TO SCALE



3 GENSET CONCRETE PAD PLAN

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OCTOBER 22, 2024

ELECTRICAL DETAILS II

E9.02

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PLUMBING -- FIXTURE SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	ACCESSORIES	FAUCETS & FITTINGS	STOPS	TRAPS	MOUNTING	BRANCH CONNECTIONS			REMARKS
									DCW	DHW	SS	
	POLYMER CONCRETE TRENCH DRAIN	MIFAB	T2001-PB									
COTG	CLEAN OUT TO GRADE	ZURN	Z1400-**-AR	EPOXY COATED FINISH	HEAVY DUTY COVER	-	-	AT GRADE			<varies>	SHALL BE PROVIDED WITH HEAVY DUTY TOP. MATCH SIZE TO LINE SERVED.
FCO	FLOOR CLEANOUT	ZURN	ZN1400	-	LIGHT DUTY NB TOP	-	-	FLOOR			3"	MATCH SIZE TO SANITARY LINE SERVED.
FCO1	FLOOR CLEANOUT - SQUARE COVER	ZURN	ZN1400-SZ-4NH	-	NB SQUARE COVER	-	-	FLOOR			4"	
FCO2	FLOOR CLEANOUT - ROUND	ZURN	ZN1400	-	NB ROUND COVER	-	-	FLOOR			4"	MATCH SIZE TO SANITARY LINE SERVED.
FD1	FLOOR DRAIN, 6" SQUARE STRAINER	ZURN	Z415-3-6S	TRAP GUARD	-	-	P-TRAP	FLOOR			2"	STRAINER SHALL BE HEEL-PROOF
FD2	FLOOR DRAIN	ZURN	Z415-3-8B	TRAP GUARD	-	-	P-TRAP	FLOOR			3"	
FD-4	FLOOR DRAIN WITH TYPE I STRAINER	ZURN	Z415I	TRAP GUARD			P-TRAP				3"	
FPHB	ENCLOSED WALL HYDRANT - EXTERIOR	ZURN	Z1320XL	-	-	BALL VALVE	-	WALL	3/4"			SHALL BE FREEZE-PROOF, SELF-DRAINING, KEY OPERATED, AND ANTI-SIPHON IN LOCKABLE BOX.
FS1	12x12 FLOOR SINK - 6" DEPTH	ZURN	ZN1900	TRAP GUARD	NICKEL BRONZE FRAME AND GRATE	-	P-TRAP	FLOOR			4"	SHALL HAVE ACID-RESISTANT COATING
FS-2	12x12 FLOOR SINK - 6" DEPTH	ZURN	Z1900	DOME STRAINER; TRAP GUARD	FULL GRATE	-	CAST IRON	FLOOR			3"	SHALL HAVE ACID-RESISTANT COATING
HB-1	ENCLOSED WALL HYDRANT - INTERIOR	ZURN	Z1350	-	-	BALL VALVE	-	WALL	3/4"			SHALL HAVE VACUUM BREAKER
P1	WATER CLOSET - ADA HEIGHT	ZURN	Z5665	SEAT; HARDWIRED POWER CONVERTER	ZEMS6000AV-WS1-IS (1.6GPF HARDWIRED SENSOR FV)	INTEGRAL	INTEGRAL	FLOOR	1"		4"	SEAT SHALL HAVE CHECK HINGE WITH STAINLESS STEEL HARDWARE.
P1A	WATER CLOSET - STANDARD HEIGHT	ZURN	Z5655	SEAT; HARDWIRED POWER CONVERTER	ZEMS6000AV-WS1-IS (1.6GPF HARDWIRED SENSOR FV)	INTEGRAL	INTEGRAL	FLOOR	1"		4"	SEAT SHALL HAVE CHECK HINGE WITH STAINLESS STEEL HARDWARE.
P2	URINAL	ZURN	Z5755-U	HARDWIRED POWER CONVERTER; WALL CARRIER	Z6003PL-EWS (0.5GPF HARDWIRED SENSOR FV)	INTEGRAL	INTEGRAL	WALL	3/4"		2"	
P2B	WALL MOUNT LAVATORY	ZURN	Z5310	GRID DRAIN; HARDWIRED POWER CONVERTER; WALL CARRIER	Z6950-XL (HARDWIRED SENSOR FAUCET)	MCGUIRE COMMERCIAL	MCGUIRE COMMERCIAL	WALL	1/2"	1/2"	2"	
P3	LAVATORY - SQUARE UNDERMOUNT	KOHLER	K-2214	GRID DRAIN; HARDWIRED POWER CONVERTER	Z6950-XL (HARDWIRED SENSOR FAUCET)	MCGUIRE COMMERCIAL	MCGUIRE COMMERCIAL	UNDERMOUNT	1/2"	1/2"	1 1/2"	
P4	LAB SINK (SMALL) - SINGLE COMPARTMENT	BY CASEWORK VENDOR	INTEGRAL SINK	GRID DRAIN	ZURN Z825V (LAB FAUCET w/VACUUM BREAKER)	MCGUIRE COMMERCIAL	ACID WASTE P-TRAP	COUNTER	1/2"	1/2"	2"	PROVIDE SINK WITH UNDER-COUNTER NEUTRALIZER TANK EQUAL TO ORION T10 POU TANK.
P5	LAB SINK(LARGE) - SINGLE COMPARTMENT	BY CASEWORK VENDOR	INTEGRAL SINK	GRID DRAIN	ZURN Z825V (LAB FAUCET w/VACUUM BREAKER)	MCGUIRE COMMERCIAL	ACID WASTE P-TRAP	COUNTER	1/2"	1/2"	2"	PROVIDE SINK WITH UNDER-COUNTER NEUTRALIZER TANK EQUAL TO ORION T10 POU TANK.
P6	BREAKROOM SINK - SINGLE COMPARTMENT	JUST MFG.	SL-2133-A-GR	GRID DRAIN	J-990-WF (FAUCET W/SPRAYER)	MCGUIRE COMMERCIAL	MCGUIRE COMMERCIAL	COUNTER	1/2"	1/2"	2"	
P7	BI-LEVEL WATER COOLER	ELKAY	EZSTLDDWSSK	BOTTLE FILLER	-	-	-	WALL	1/2"		1 1/2"	
P8	MOP SINK	ZURN	Z1996-36	MOP HANGER; HOSE AND HOSE BRACKET; STAINLESS STEEL SPLASH GUARD; GRID DRAIN	SERVICE FAUCET WITH VACUUM BREAKER	INTEGRAL	P-TRAP	FLOOR	1/2"	1/2"	3"	PROVIDE WITH BUCKET HOOK, REINFORCING BAR, HOSE AND HOSE HOLDER, MOP HANGER, DRAIN AND FAUCET.
P9	EMERGENCY SHOWER/EYEWASH	BRADLEY	S19314		GUARDIAN EMERGENCY TMV (SET FOR 65°F)	BALL VALVE	P-TRAP	FLOOR	1 1/4"	1 1/4"		
P10	LAB SINK - SINGLE COMPARTMENT	BY CASEWORK VENDOR	INTEGRAL SINK	GRID DRAIN	ZURN Z825V (LAB FAUCET w/VACUUM BREAKER)	MCGUIRE COMMERCIAL	ACID WASTE P-TRAP	COUNTER	1/2"	1/2"	2"	PROVIDE SINK WITH UNDER-COUNTER NEUTRALIZER TANK EQUAL TO ORION T10 POU TANK.
PH SAMPLING	PH MONITORING SYSTEM	ORION	NEUTRAGARD III	ORION T5 SAMPLING TANK	MONITOR PANEL; DIGITAL CHART RECORDER; REMOTE ALARM; BMS INTERLOCK	-	-	BELOW GRADE			4"	SAMPLING TANK SHALL HAVE REINFORCED STEEL COVER SUITABLE FOR PEDESTRIAN TRAFFIC AND LAB EQUIPMENT. PH PROBE SHALL EXTEND FULLY INTO WASTEWATER STREAM WITH HIGH AND LOW PH ALARMS INTERLOCKED WITH BUILDING BMS SYSTEM AND LOCAL, AUDIBLE ALARMS.
RD1	ROOF-CEPTOR INDIRECT WASTE DRAIN	JAY R. SMITH	3960-UDC	UNDERDECK CLAMP	-	-	-	ROOF			3"	INSULATE ALL CONDENSATE-CARRYING DRAIN LINES WITHIN BUILDING ENVELOPE.
RH	ROOF HYDRANT	ZURN	Z1388	VACUUM BREAKER	-	-	-	ROOF	3/4"		1/2"	PROVIDE 1/2" DRAIN LINE DISCHARGING LOW THRU EXTERIOR WALL OR TO FLOOR SINK AS SHOWN ON PLAN.
TD1	POLYMER CONCRETE TRENCH DRAIN	MIFAB	T2000-PB									PROVIDE SLOPING CHANNELS COMPLETE WITH END CAP AND BOTTOM OUTLET. NO EDGE RAIL. LOAD CLASS A GRATE
UT	POLYMER CONCRETE UTILITY TRENCH	DURA-TRENCH	DTUTPF12									WITH STAINLESS STEEL SOLID COVER
WB1	WALL BOX	GUY GRAY			1/4 TURN VALVE			WALL	1/2"			
WB2	MINI-ICE MAKER WALL BOX	GUY GRAY	MIB1AB	-	1/4 TURN VALVE	-	-	WALL	1/2"			

1 ALL FIXTURES SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.
2 CONTRACTOR IS RESPONSIBLE FOR COORDINATING FAUCET SPACING AND STYLE WITH MOUNTING HOLES IN FIXTURE.
3 ALL FIXTURES WITH HOT WATER FEEDS SHALL BE PROVIDED WITH THERMOSTATIC MIXING VALVE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION. HANDWASH FIXTURES SHALL HAVE TMVs SET TO 105°F.
4 CONTRACTOR SHALL INSTALL ALL PLUMBING FIXTURES IN COMPLIANCE WITH ALL APPLICABLE CODES AND ALL AUTHORITIES HAVING JURISDICTION.

PLUMBING -- WATER HEATER SCHEDULE

TAG	MARK	DESCRIPTION	MANUFACTURER	MODEL	MOUNTING	TANK VOLUME	BRANCH CONNECTIONS		SYSTEM TEMPERATURES			GAS HEAT		ELECTRICAL DATA		REMARKS
							DCW	DHW	DESIGN EWT	TANK STORAGE SETPOINT	DESIGN LWT	GAS HEATING INPUT	GAS HEATING OUTPUT	VOLTAGE (V)	PHASE	
WH	1	TRITON HD - 100 GALLON WATER HEATER	RHEEM	GHE100SS-200	HOUSEKEEPING PAD	100 gal	2 1/2"	2 1/2"	50 °F	140 °F	120 °F	199,900 Btu/h	191,000 Btu/h	120 V	1	

1 PROVIDE WATER HEATER WITH EXPANSION TANK EQUAL TO WATTS PLT, SIZED FOR TOTAL SYSTEM VOLUME OF 8 gal. SUPPORT TANK FROM MOUNTING BRACKET EQUAL TO HOLD-RITE 'QUICKSTRAP'.
2 PROVIDE WATER HEATER WITH 6" CONCRETE HOUSEKEEPING PAD; PAD DIMENSIONS SHALL BE 4" WIDER THAN WATER HEATER DIAMETER, MINIMUM. PROVIDE GALVANIZED STEEL SEISMIC STRAP EQUAL TO HOLD-RITE QUICK STRAP. SECURE STRAP TO STRUCTURE.
3 PROVIDE DIGITAL THERMOSTATIC MASTER MIXING VALVE EQUAL TO LEONARD PROTON SERIES. MIXING VALVE SHALL BE SIZED FOR PRESSURE DROP OF 5psi, _____gpm PEAK FLOW. SET SYSTEM TEMPERATURES PER SCHEDULE.

PLUMBING -- PUMP SCHEDULE

DESIGNATION		MANUFACTURER	MODEL	MOTOR HORSEPOWER	FLOW	TOTAL HEAD	MOTOR RPM	VOLTAGE	PHASE	POWER	REMARKS
RP	1	BELL & GOSSETT	PR-1	0.167	5.5 GPM	15.0 ftH2O	1750	120 V	1	219 W	

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DATE:
OCTOBER 22, 2024

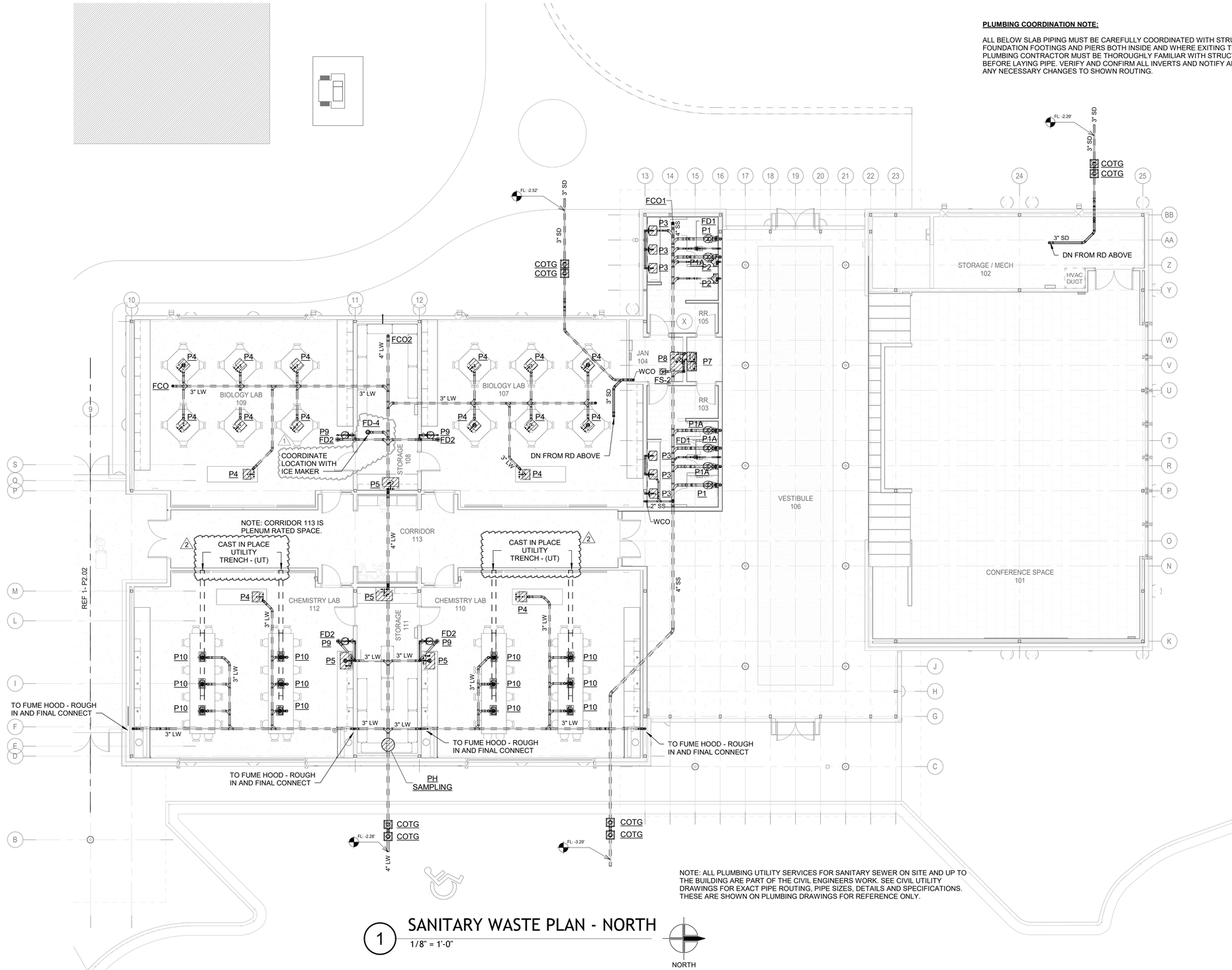
PLUMBING SCHEDULES

P1.01

11/18/2024 3:45:09 PM

PLUMBING COORDINATION NOTE:

ALL BELOW SLAB PIPING MUST BE CAREFULLY COORDINATED WITH STRUCTURAL FOUNDATION FOOTINGS AND PIERS BOTH INSIDE AND WHERE EXITING THE BUILDING. PLUMBING CONTRACTOR MUST BE THOROUGHLY FAMILIAR WITH STRUCTURAL SYSTEM BEFORE LAYING PIPE. VERIFY AND CONFIRM ALL INVERTS AND NOTIFY ARCHITECT OF ANY NECESSARY CHANGES TO SHOWN ROUTING.



NOTE: ALL PLUMBING UTILITY SERVICES FOR SANITARY SEWER ON SITE AND UP TO THE BUILDING ARE PART OF THE CIVIL ENGINEERS WORK. SEE CIVIL UTILITY DRAWINGS FOR EXACT PIPE ROUTING, PIPE SIZES, DETAILS AND SPECIFICATIONS. THESE ARE SHOWN ON PLUMBING DRAWINGS FOR REFERENCE ONLY.

1 SANITARY WASTE PLAN - NORTH

1/8" = 1'-0"

NORTH

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DATE:
OCTOBER 22, 2024

SANITARY WASTE PLAN - NORTH

P2.01

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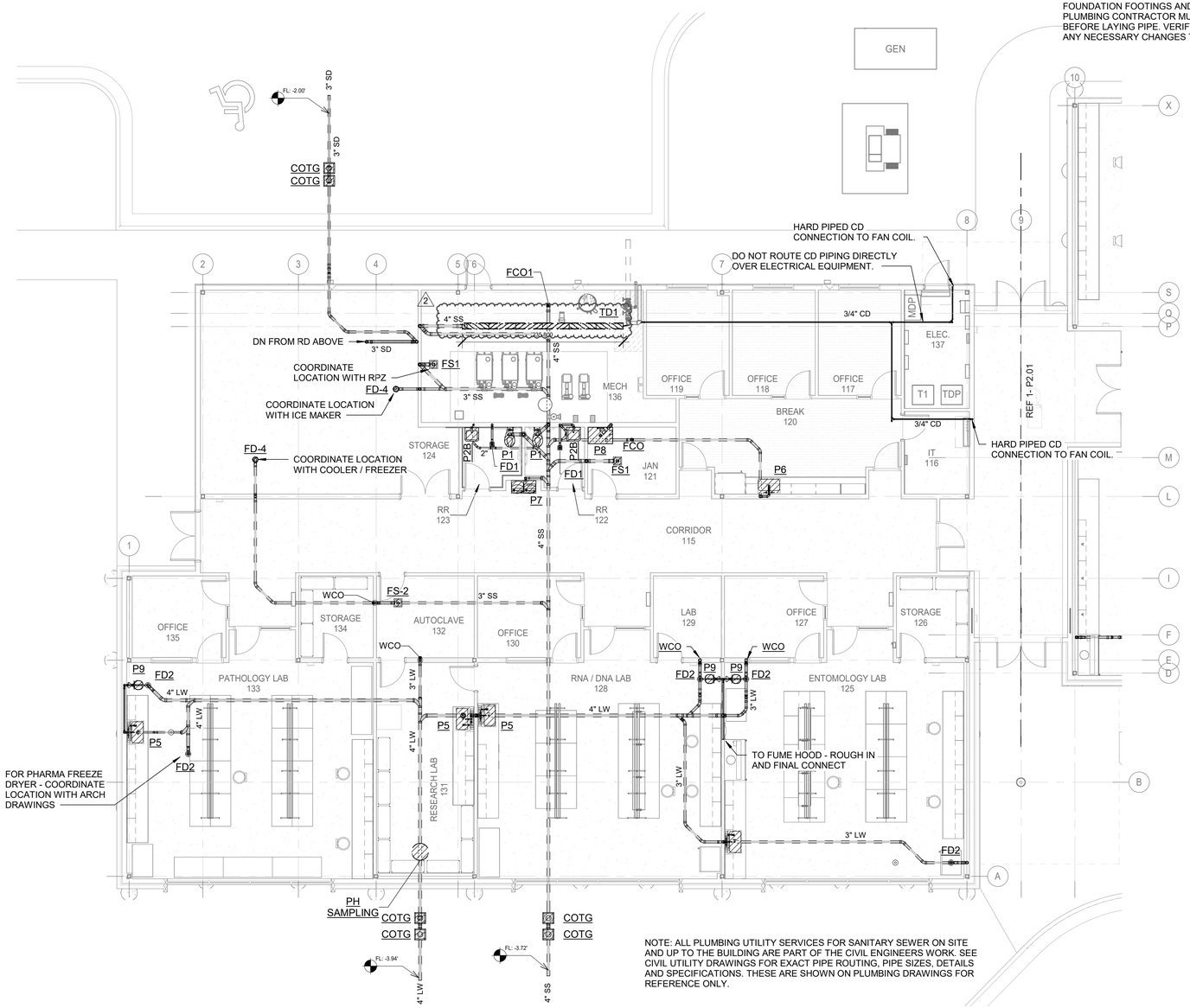
11/18/2024 3:45:21 PM

PLUMBING COORDINATION NOTE:

ALL BELOW SLAB PIPING MUST BE CAREFULLY COORDINATED WITH STRUCTURAL FOUNDATION FOOTINGS AND PIERS BOTH INSIDE AND WHERE EXITING THE BUILDING. PLUMBING CONTRACTOR MUST BE THOROUGHLY FAMILIAR WITH STRUCTURAL SYSTEM BEFORE LAYING PIPE. VERIFY AND CONFIRM ALL INVERTS AND NOTIFY ARCHITECT OF ANY NECESSARY CHANGES TO SHOWN ROUTING.



NOTE: ALL PLUMBING UTILITY SERVICES FOR SANITARY SEWER ON SITE AND UP TO THE BUILDING ARE PART OF THE CIVIL ENGINEERS WORK. SEE CIVIL UTILITY DRAWINGS FOR EXACT PIPE ROUTING, PIPE SIZES, DETAILS AND SPECIFICATIONS. THESE ARE SHOWN ON PLUMBING DRAWINGS FOR REFERENCE ONLY.

1 SANITARY WASTE PLAN - SOUTH

1/8" = 1'-0"

NORTH

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SANITARY WASTE PLAN - SOUTH

P2.02

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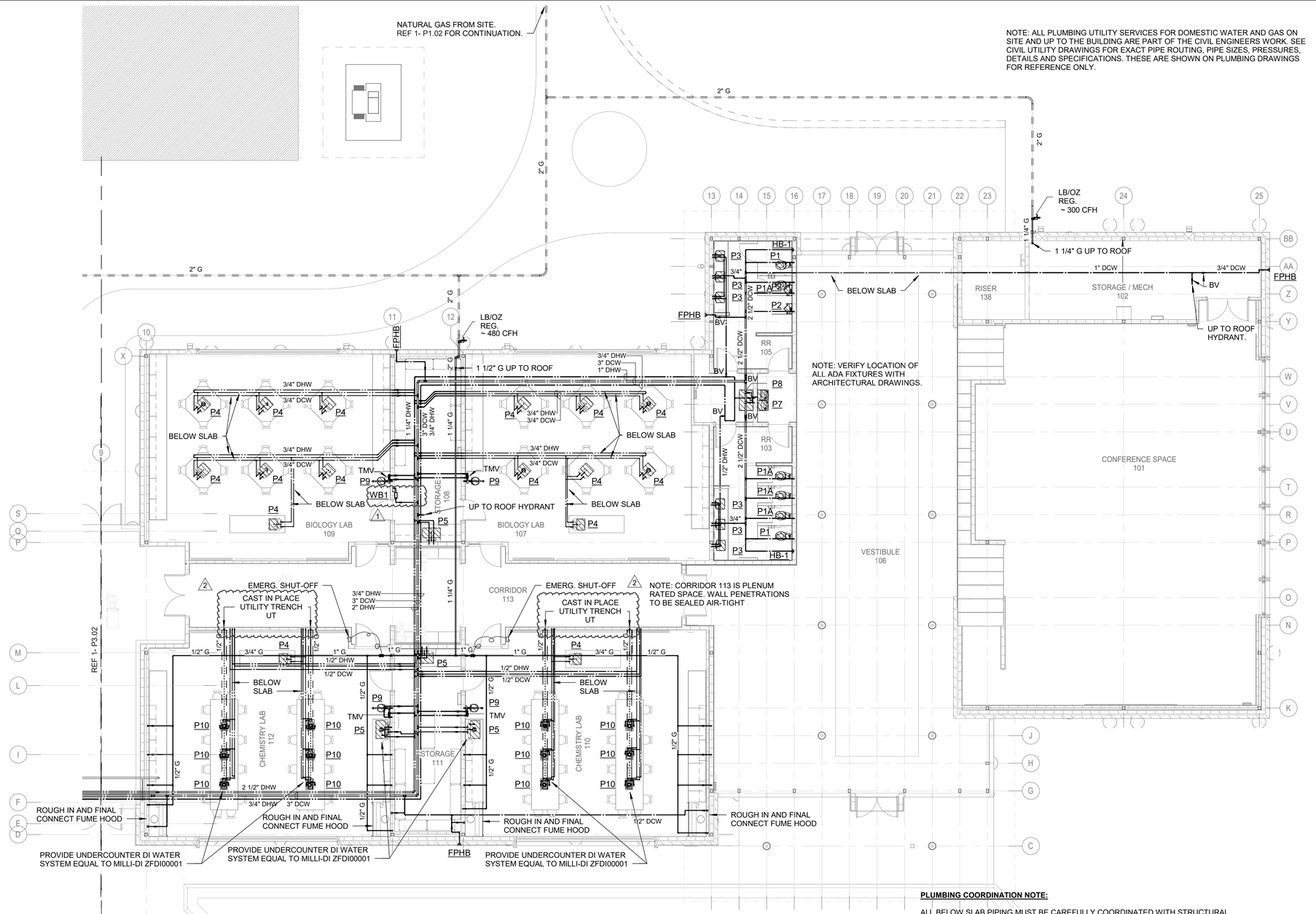
11/18/2024 3:45:35 PM

NATURAL GAS FROM SITE.
REF 1- P1.02 FOR CONTINUATION.

NOTE: ALL PLUMBING UTILITY SERVICES FOR DOMESTIC WATER AND GAS ON SITE AND UP TO THE BUILDING ARE PART OF THE CIVIL ENGINEERS WORK. SEE CIVIL UTILITY DRAWINGS FOR EXACT PIPE ROUTING, PIPE SIZES, PRESSURES, DETAILS AND SPECIFICATIONS. THESE ARE SHOWN ON PLUMBING DRAWINGS FOR REFERENCE ONLY.



1 DOMESTIC WATER / GAS PLAN - NORTH

1/8" = 1'-0"

NORTH

PLUMBING COORDINATION NOTE:

ALL BELOW SLAB PIPING MUST BE CAREFULLY COORDINATED WITH STRUCTURAL FOUNDATION FOOTINGS AND PIERS BOTH INSIDE AND WHERE EXITING THE BUILDING. PLUMBING CONTRACTOR MUST BE THOROUGHLY FAMILIAR WITH STRUCTURAL SYSTEM BEFORE LAYING PIPE. VERIFY AND CONFIRM ALL INVERTS AND NOTIFY ARCHITECT OF ANY NECESSARY CHANGES TO SHOWN ROUTING.

NATURAL GAS GENERAL NOTES:

1. ALL GAS PIPE SIZING IS BASED ON SYSTEM LONGEST LENGTH FROM THE REGULATOR AND EQUIPMENT DEMAND SHOWN ON THE SCHEMATIC. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER IF CONDITIONS DIFFER FROM SCHEMATIC PLAN.
2. REFER TO CIVIL DETAILS AND SPECIFICATIONS FOR INSTALLATION OF EXTERIOR OR BELOW GRADE PIPING.
3. REFER TO DETAILS FOR GAS CONNECTION TO MECHANICAL EQUIPMENT REQUIREMENTS.

DOMESTIC WATER GENERAL NOTES:

1. PROVIDE LEAD-FREE ISOLATION VALVE FOR EACH RESTROOM MAIN AND EACH BRANCH MAIN SERVING A BATTERY OF FIXTURES.
2. PERMANENTLY LABEL ALL VALVES TO INDICATED AREA THAT VALVE SERVES.
3. PROVIDE WATER HAMMER ARRESTOR AT END OF ALL DCW AND DHW BRANCH LINES BEFORE LAST FIXTURE. REFER TO DETAILS FOR WATER HAMMER ARRESTOR SCHEDULE. PROVIDE ACCESS TO WATER HAMMER ARRESTORS WHEN REQUIRED BY THE MANUFACTURER.
4. ROUTE ALL DOMESTIC WATER LINES CONCEALED ABOVE CEILING. WHERE DOMESTIC WATER LINES MUST BE ROUTED EXPOSED, PAINT EXPOSED PIPE AND COORDINATE WITH ARCHITECT FOR COLOR.

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REVISIONS:

1	ADDENDUM 1	11/7/24
2	ADDENDUM 2	11/18/24

PROJECT NO.
SCM-098
DATE:
OCTOBER 22, 2024

DOMESTIC WATER / GAS PLAN - NORTH

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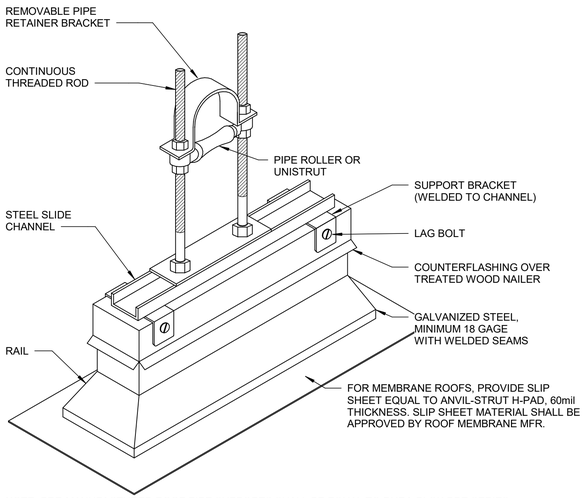

NOTE: PRE-MANUFACTURED ROOF PIPE SUPPORTS SHALL BE EQUAL TO DURA-BLOK DBE SERIES

1 ROOF MOUNTED PIPE SUPPORT

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HAMMER ARRESTOR SCHEDULE		
SUPPLY BRANCH SIZE	PDI HAMMER ARRESTOR SIZE	FIXTURE UNITS
1/2" - 1"	A	1-11
1-1/4"	B	12-32
1-1/2"	C	33-60
2"	D	61-113
2-1/2"	E	114-154
3"	F	155-330

COMMON PUBLIC FIXTURE GROUPS		
PLUMBING GROUP FIXTURES	C.W.F.U.	
	FLUSH TANK	FLUSH VALVE
1 TLT, 1 LAV	6.5	11.5
2 TLT, 2 LAV	13.5	23
1 TLT, 1 UR, 1 LAV	13	18
3 TLT, 3 LAV	19.5	34.5
2 TLT, 1 UR, 3 LAV	19.5	29.5
4 TLT, 4 LAV	26	46

NOTES:

1. ALL BATHROOM GROUPS SHALL INCLUDE A MINIMUM OF ONE DCW ARRESTOR AND ONE DHW ARRESTOR SIZED PER HAMMER ARRESTOR SCHEDULE. ADDITIONAL ARRESTORS SHALL BE INSTALLED WHERE INDICATED.
2. ARRESTORS SHALL BE P.D.I.-WH201 APPROVED AND CERTIFIED.
3. ARRESTORS SHALL HAVE WROUGHT COPPER SHELL WITH THREADED CONNECTIONS AND HYDRO-PNEUMATIC AIR CUSHION.
4. PROVIDE ACCESS TO ARRESTORS.
5. FURNISH AND INSTALL WITH ISOLATION VALVES INDEPENDENT OF ASSEMBLY.

2 WATER HAMMER ARRESTOR SCHEDULE

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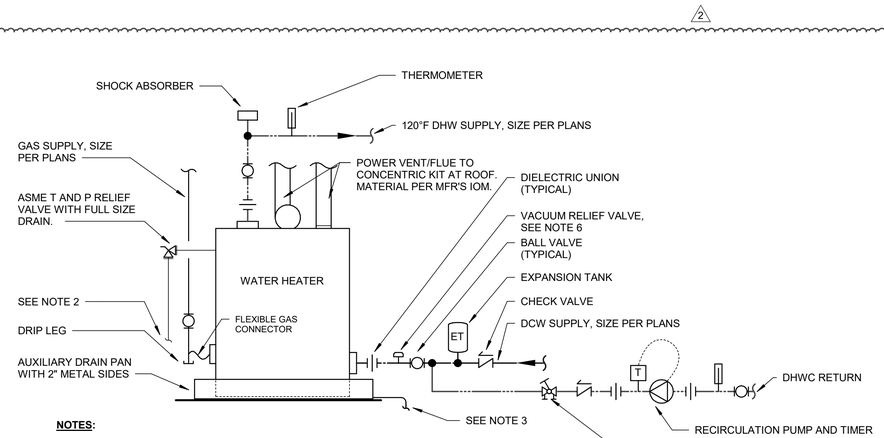
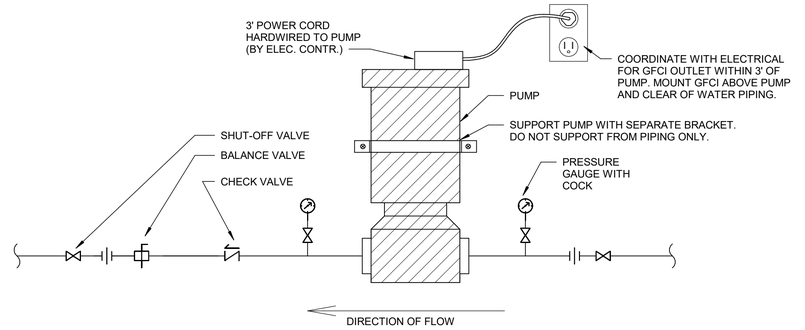


NOTES:

1. PROVIDE THERMAL EXPANSION TANK ON COLD WATER INLET. SIZE PER MANUFACTURER'S RECOMMENDATION.
2. T & P RELIEF VALVE SHALL DISCHARGE FULL SIZE TO SANITARY. T&P DISCHARGE SHALL NOT CAUSE A THREAT TO OR INTERFERE WITH FACILITY OPERATIONS, FACILITY ITSELF, EQUIPMENT OR PERSONNEL. THE DISCHARGE PIPE SHALL NOT HAVE ANY TRAPPED SECTIONS.
3. PAN DRAIN SHALL EXTEND FULL SIZE TO SANITARY.
4. T & P RELIEF VALVE AND DRAIN PAN DISCHARGE SHALL CONFORM TO ALL LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.
5. FOR SUSPENDED WATER HEATERS, PROVIDE PRE-MANUFACTURED PLATFORM EQUAL TO 'HOLD-RITE'. PLATFORM SHALL BE RATED FOR FULL WEIGHT OF WATER HEATER AND ACCESSORIES WHEN FILLED. PROVIDE SECONDARY SEISMIC STRAP AROUND WATER HEATER AND SECURED TO STRUCTURE.
6. PROVIDE BOTTOM FED WATER HEATERS WITH VACUUM RELIEF VALVE WHICH MEETS ANSI Z21.22.
7. SET PUMP TIMER SO THAT RECIRCULATION PUMP OPERATES ONLY DURING OCCUPIED HOURS.

3 WATER HEATER - SINGLE TEMP. W/RECIRC.

6" = 1'-0"



4 DHW RECIRCULATION PUMP

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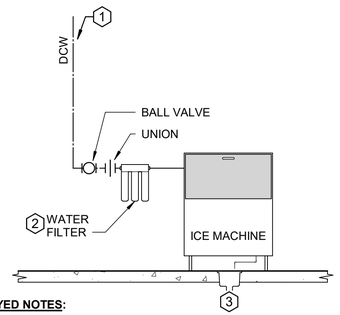

#KEYED NOTES:

1. COLD WATER SUPPLY FROM BUILDING DCW SYSTEM. DROP INSIDE WALLS OR SURFACE MOUNT ON BLOCK WALLS. SUPPORT SURFACE-MOUNT PIPING WITH UNISTRUT AND PIPE CLAMPS.
2. THREE-STAGE WATER FILTER, EQUAL TO WATTS PWICE1. SURFACE MOUNT ON WALL WITH VALVES AND UNIONS ACCESSIBLE FOR MAINTENANCE.
3. ROUTE ICE MACHINE DRAINS TO DRAIN WITH AIR GAP. SEE SANITARY WASTE PLANS FOR DRAIN TYPE AND LOCATION.

5 COMMERCIAL ICE MACHINE PLUMBING

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2	ADDENDUM 2	11/18/24

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PLUMBING DETAILS IV

P6.04

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