500 West Big Beaver
Troy, MI 48084
troymi.gov

248.524.3364
planning@troymi.gov

PLANNING COMMISSION
MEETING AGENDA
SPECIAL MEETING

David Lambert, Chairman, Marianna Perakis, Vice Chairman
Toby Buechner, Carlton Faison, Michael W. Hutson, Tom Krent,
Lakshmi Malalahalli, Sadek Rahman and John J. Tagle

November 1, 2022 **7:00 P.M.** **Council Chambers**

1. ROLL CALL

2. APPROVAL OF AGENDA

3. PUBLIC COMMENT – For Items Not on the Agenda

PRELIMINARY SITE PLAN REVIEW

4. PRELIMINARY SITE PLAN REVIEW (SP JPLN2022-0024) - Proposed Jeanne M. Stine Community Park Pavillion and Ice Skating Amenity, Southeast corner of Town Center Drive and Civic Center Drive, City of Troy Civic Center Campus, Section 21, Currently Zoned BB (Big Beaver) District

OTHER ITEMS

5. TROY DDA BIG BEAVER LANDSCAPE IMPROVEMENTS

6. PUBLIC COMMENT – For Items on the Agenda

7. PLANNING COMMISSION COMMENT

8. ADJOURN

NOTICE:*People with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk by e-mail at clerk@troymi.gov or by calling (248) 524-3317 at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations*

Televised Live, Government Channel WTRY (10 WideOpenWest and 17 Comcast) Replayed Wednesdays 3:00 pm, 6:00 pm and 11:00 pm

DATE: October 27, 2022

TO: Planning Commission

FROM: R. Brent Savidant, Community Development Director

SUBJECT: PRELIMINARY SITE PLAN REVIEW (SP JPLN2022-0024) - Proposed Jeanne M. Stine Community Park Pavillion and Ice Skating Amenity, Southeast corner of Town Center Drive and Civic Center Drive, City of Troy Civic Center Campus, Section 21, Currently Zoned BB (Big Beaver) District

Location

The site is located at the southeast corner of Town Center Drive and Civic Center Drive, within the 6.3-acre Jeanne M. Stine Community Park. This park was established and dedicated in 2022 and is home to the Troy Farmers' Market and other events in the spring and summer seasons.

Project Description

The project includes a Pavilion and ice skating facility. The Pavilion building includes a heated indoor concession area, restrooms and storage. A Great Hall area connected to the Pavilion provides a covered outdoor area with natural gas heating elements in the ceiling. The ice skating facility will be designed to appear like a natural pond with central island feature. Significant landscaping will enhance the site and provide an attractive and natural setting. A small Utility building for ice resurfacing machine and storage is also proposed. Numerous amenities are proposed to complement the facility.

The Corporate Head statue presently sits on the site and will need to be relocated. A location has not yet been determined.

Visitors to the site will utilize existing parking spaces on the Civic Center campus. There are hundreds of existing public parking spaces available within a short walk from the site. This includes parking lots located at the Troy Skate Park, Troy Family Aquatic Center, Troy Public Library, Troy Community Center, Troy Police Department and the 52-4 District Court.

Zoning

The property is zoned BB (Big Beaver) Zoning District. Public parks are permitted by right in this district.

Policy and Background

The Civic Center property is classified as Public and Quasi-Public in the City of Troy Master Plan.

The City of Troy continually receives requests for a public gathering space for residents and business people. The Civic Center Campus has long been recognized as a location to provide this desired space. This has been most recently substantiated by the Troy Parks and Recreation Advisory Board, Green Space Sub-Committee by stating, “As with all of our parks, the development of the Troy Civic Center must be considered as an area for community interaction that embraces the natural landscape that is vital to preserving the ecosystem. The community must move forward from thinking that managing our parks is just cutting the grass or picking up the garbage. All of our parks should be considered as regional community centers with the development of the Troy Civic Center being the central legacy showpiece and evidence of our planning for tomorrow.” (Troy Parks and Recreation Advisory Board, Green Space Sub-Committee Final Report, P.25).

The Troy Community Foundation also recognized this opportunity and provided renderings to engage the community in a large-scale project that they intended to participate in. The idea and renderings were used in the successful capture of a Community Project Funding grant of $1.5 million. During these efforts the City of Troy released a resident survey that resulted in a high percentage of respondents indicating a desire for additional winter recreation opportunities and specifically an ice-skating facility. City Administration responded to this desire by incorporating an ice-skating facility into the pavilion design.

City Administration engaged OHM Advisors, one of its current consultants, to perform a feasibility study for the addition of a pavilion and ice-skating facility. City Administration and OHM visited several similar facilities in the Metro-Detroit region to obtain best practices to successfully design a facility for Troy.

The pavilion and ice-skating facility conceptual design was presented to the Parks and Recreation Advisory Board on April 28, 2022. Comments were positive and there was unanimous support to bring the concept to design and eventually construction. On May 9, 2022 the concept was presented to City Council and it was warmly received. City Council approved a proposal from OHM to complete the schematic design of Troy Civic Center Pavilion and Ice-Skating Facility. On May 24, 2022 the concept was presented to the Planning Commission and feedback was supportive.

The next step in the engagement process is to present the Preliminary Site Plan to the Planning Commission for feedback. Public Works Director Kurt Bovensiep and Architect Chris Ozog from OHM Advisors will present the Preliminary Site Plan to the Planning Commission at the November 1, 2022 Special Meeting.

Attachments:

1. Maps
2. Combined drawing set: Site Plans and Building Plans
3. Renderings

GIS Online

595 0 297 595 Feet

Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

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595 0 297 595 Feet

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10/10/2022 8:54:16 AM

NUMBER	SHEET NAME	22/10/10 - DD PACKAGE
GENERAL		
G-000	COVER & DRAWING INDEX	•
G-101	CODE COMPLIANCE PLANS	•
CIVIL		
C-010	LEGEND SHEET	•
C-110	EXISTING CONDITIONS PLAN	•
C-120	DEMOLITION PLAN	•
C-130	SITE LAYOUT PLAN	•
C-140	UTILITY PLAN	•
C-150	STORMWATER PLAN	•
C-160	GRADING PLAN	•
C-501	CIVIL NOTES AND SPECIFICATIONS	•
C-502	CIVIL NOTES AND SPECIFICATIONS	•
C-503	CIVIL DETAILS - STANDARD STORM SEWER DETAILS	•
C-504	CIVIL DETAILS - SANITARY	•
C-701	SOIL EROSION AND SEDIMENT CONTROL PLAN	•
C-702	SESC DETAILS	•
LANDSCAPE		
L-100	LANDSCAPE NOTES	•
L-200	TREE PLAN	•
L-201	PLANTING PLAN	•
L-300	MATERIALS PLAN	•
L-400	LANDSCAPE DETAILS	•
L-401	LANDSCAPE DETAILS	•
L-402	LANDSCAPE DETAILS	•
L-403	LANDSCAPE DETAILS	•
L-404	LANDSCAPE DETAILS	•
L-405	LANDSCAPE DETAILS	•
STRUCTURAL		
S-001	STRUCTURAL GENERAL INFORMATION	•
S-002	STRUCTURAL NOTES	•
S-003	SPECIAL INSPECTIONS	•
S-101	PAVILION FOUNDATION PLAN	•
S-102	PAVILION FRAMING PLAN	•
S-103	MAINTENANCE SHED AND SCREEN WALL FOUNDATION AND FRAMING PLANS	•
S-131	NORTH AND SOUTH CULVERTS - PROPOSED	•
S-501	STRUCTURAL DETAILS	•
S-502	STRUCTURAL DETAILS	•
S-503	SITE DETAILS AND HYDRAULICS	•
ARCHITECTURAL		
A-001	ARCHITECTURAL NOTES & SYMBOLS	•
A-010	BUILDING ASSEMBLIES	•
A-011	ASSEMBLY TYPES & DETAILS	•
AS101	ARCHITECTURAL SITE PLAN	•
AS102	ARCHITECTURAL SITE FINISH PLAN	•
A-101	BUILDING 'A' - FLOOR PLAN	•
A-102	BUILDING 'B' - FLOOR & ROOF PLAN	•
A-111	BUILDING 'A' - ROOF PLAN	•
A-201	BUILDING 'A' EXTERIOR ELEVATIONS	•
A-202	BUILDING 'B' EXTERIOR ELEVATIONS	•
A-211	BUILDING 'A' COVERED ELEVATIONS	•
A-301	BUILDING SECTIONS	•
A-302	BUILDING SECTIONS	•
A-311	WALL SECTIONS	•
A-312	WALL SECTIONS	•
A-313	WALL SECTIONS	•
A-411	ENLARGED PLANS	•
A-451	INTERIOR ELEVATIONS	•
A-452	INTERIOR ELEVATIONS	•
A-501	TYPICAL DETAILS	•
A-511	PLAN DETAILS	•
A-521	EXTERIOR DETAILS	•
A-531	SECTION DETAILS	•
A-541	INTERIOR DETAILS	•
A-601	OPENING SCHEDULE & TYPICAL DETAILS	•
A-602	OPENING SCHEDULE & TYPICAL DETAILS	•
A-701	BUILDING 'A' - REFLECTED CEILING PLAN	•
A-801	BUILDING 'A' - FLOOR FINISH PLAN	•

NUMBER	SHEET NAME	22/10/10 - DD PACKAGE
MECHANICAL		
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M-200	UNDERGROUND PLUMBING PLANS	•
M-201	ABOVEGROUND PLUMBING PLANS	•
M-401	SHEET METAL PLANS	•
M-601	MECHANICAL DETAILS	•
M-602	MECHANICAL DETAILS	•
M-603	MECHANICAL DETAILS	•
M-604	MECHANICAL DETAILS	•
M-701	MECHANICAL SCHEDULES	•
M-702	MECHANICAL SCHEDULES	•
M-703	MECHANICAL SCHEDULES	•
M-801	TEMPERATURE CONTROL STANDARDS AND GENERAL NOTES	•
M-802	TEMPERATURE CONTROLS	•
M-803	TEMPERATURE CONTROLS	•
ELECTRICAL		
E-001	ELECTRICAL STANDARDS AND DRAWING INDEX	•
E-002	ELECTRICAL STANDARD SCHEDULES	•
ESL101	ELECTRICAL SITE LIGHTING PLAN	•
E-003	ELECTRICAL SITE PLAN	•
E-201	LIGHTING PLANS	•
E-301	POWER AND AUXILIARY SYSTEM PLANS	•
E-501	ONE LINE DIAGRAM	•
E-502	PANEL SCHEDULES	•
E-701	ELECTRICAL DETAILS	•
TELECOMMUNICATIONS		
TC101	CABLING	•
TC102	CABLING	•
TC103	CABLING	•
TC104	CABLING	•
TC501	SECURITY	•
TC502	SECURITY	•
TC503	SECURITY	•
TC504	SECURITY	•
TC505	SECURITY	•
TC900	SITE PLAN	•
TC901	TECH FLOOR PLAN	•

CITY OF TROY

TROY PAVILION

Town Center Dr
Troy, MI 48084

OHM PROJECT No. 0128-21-0020

PROJECT LOCATION MAP

DESIGN DEVELOPMENT

ISSUED: 10/10/2022

OWNER
CITY OF TROY
4693 ROCHESTER ROAD
TROY, MI 48085
248.524.3392

SITE/CIVIL ENGINEER
OHM ADVISORS
34000 PLYMOUTH ROAD
LIVONIA, MI 48150
734.522.6711

LANDSCAPE ARCHITECT
OHM ADVISORS
34000 PLYMOUTH ROAD
LIVONIA, MI 48150
734.522.6711

STRUCTURAL ENGINEER
OHM ADVISORS
34000 PLYMOUTH ROAD
LIVONIA, MI 48150
734.522.6711

ARCHITECT
OHM ADVISORS
34000 PLYMOUTH ROAD
LIVONIA, MI 48150
734.522.6711

MEP ENGINEER
PETER BASSO ASSOC.
5145 LIVERNOIS ROAD
TROY, MI 48098
248.879.5666

BUILDING TECHNOLOGY
COMMTECH DESIGN
6581 BELDING ROAD
ROCKFORD, MI 49341
616.863.8132

OHM
ARCHITECTS ENGINEERS PLANNERS
OHM-ADVISORS.COM

PRELIMINARY - NOT FOR CONSTRUCTION

ISSUE: DESIGN DEVELOPMENT
REVISIONS:

DATE	PROJ NUMBER	PROJ MGR
10/10/2022	0128-21-0020	CO

CITY OF TROY
TROY PAVILION
Town Center Dr
Troy, MI 48084

COVER & DRAWING INDEX

SHEET G-000

BIM 360://0128-21-0020 Troy Pavilion/0128210020_A_TroyPavilion_2021_CEN.rvt

BUILDING SUMMARY

PROJECT DESCRIPTION

LOCATION — Troy, MI

Project Description: Construction of a new 5,300 sf open-air community pavilion (Building A), 700 sf building for storage of Zamboni and ice rink equipment (Building B), and 700 sf screened outdoor mechanical space within the City of Troy Civic Center Campus. Proposed design includes site/civil and landscape updates to the existing project site, with proposed outdoor ice rink, public seating areas and pathways.

BUILDING CODE INFORMATION

BUILDING	2015 Michigan Building Code
MECHANICAL	2015 Michigan Mechanical
PLUMBING	2018 Michigan Plumbing Code
ELECTRICAL	2017 National Electrical Code
ENERGY	2015 Michigan Uniform Energy Code referencing ANSI/ASHRAE/IESNA standard 90.1-2013
FUEL GAS CODE	2015 International Fuel Gas
FIRE	2015 International Fire Code
LIFE SAFETY	NFPA 101, 2012
ACESSIBILITY	2009 ICC/ANSI A117.1 & Michigan Barrier Free Design 2010 & Americans with Disabilities Act Accessible Guidelines (ADAAG)

PROJECT INFORMATION

PROJECT SUMMARY

USE & OCCUPANCY CLASSIFICATION	**MIXED USE: A-5, U, B**
SPECIAL USE / PROVISIONS	BUILDING 'B': Enclosed Parking garage
OCCUPANCY SEPARATION	NO
INCIDENTAL USE AREAS	NO
ACCESSORY SPACES	NO
MEZZANINES/EQUIPMENT PLATFORMS	NO
TYPE OF CONSTRUCTION	**VB**
FIRE & SMOKE PROTECTION FEATURES	BUILDING 'A': UNPROTECED; NON-SPRINKLERED BUILDING 'B': UNPROTECED; NON-SPRINKLERED (Less than 5,000 SF)

GENERAL BUILDING HEIGHTS AND AREAS

	ALLOWED	ACTUAL
[TABLE 504.3] HEIGHT	40'	VARIES; BUILDING 'A': HP=25'-0", LP=14'-10" BUILDING 'B': HP=19'-10", LP=12'-9"
[TABLE 504.4] STORIES	UNSPRINKLERED: A-5: UNLIMITED; B: 2; S-2: 2	1
[TABLE 506.2] AREA	UNLIMITED; B: 9,000; S-2: 13,500 SPRINKLERED: S-2: 2	BUILDING 'A': Enclosed = 2,170 SF, Open = 3,439 SF BUILDING 'B': Enclosed = 587 SF, Open = 600 SF

MIXED USE & OCCUPANCY

NON-SEPERATED OCCUPANCIES		BUILDING 'A': A-5, A-2
[TABLE 504.3] MOST RESTRICTIVE HEIGHT	40'-0"	
[TABLE 504.4] MOST RESTRICTIVE STORIES	1	
[TABLE 506.2] MOST RESTRICTIVE AREA	9,000 SF	

FIRE RESISTANT CONSTRUCTION

ITEM	REQ'D RATING / HR	UL/FM # WHERE APPLICABLE
PRIMARY STRUCTURE	0	
COLUMNS	0	
BEAMS	0	
BEARING WALLS	0	
EXTERIOR	0	
INTERIOR	0	
NONBEARING WALLS AND PARTITIONS	0	
EXTERIOR	0	
NONBEARING WALLS AND PARTITIONS	0	
INTERIOR	0	
ROOF CONSTRUCTION AND ASSOCIATED SECONDARY MEMBERS	0	

FIRE AND SMOKE PROTECTION FEATURES

EXTERIOR WALL OPENINGS (TABLE 705.8)	UNPROTECTED, NONSPRINKLERED (UP,NS)
FIRE SEPARATION 30' OR GREATER	NO LIMIT

FIRE PROTECTION SYSTEMS

AUTOMATIC SPRINKLER SYSTEM:	BUILDING 1: NO ; BUILDING 2: NO
PORTABLE FIRE EXTINGUISHERS	YES CLASS: A, B, C
FIRE ALARM AND DETECTION:	NONE
EMERGENCY ALARM SYSTEMS	
CO2 SYSTEM	Building 1: NO; Building 2: YES

MEANS OF EGRESS

COMMON PATH OF TRAVEL	A: 75'; S: 100'
MEANS OF EGRESS SIZING	
STAIRS	.3 INCHES PER OCCUPANT
OTHER EGRESS COMPONENTS	.2 INCHES PER OCCUPANT
NUMBER OF EXITS	
OCCUPANT LOAD PER STORY 1-500	MINIMUM NUMBER OF EXITS 2
TRAVEL DISTANCE	200'
DEAD END CORRIDORS	20'

ENERGY EFFICIENCY [ASHRAE 90.1-2013]

CLIMATE ZONE	**SPACE CATEGORY**	**COMPLIANCE PATH**
[TABLE B1-1] 5A	NONRESIDENTIAL	PRESCRIPTIVE
COMPONENT	**CODE [TABLE 5.5-5]**	
BUILDING ENVELOPE	ASSEMBLY MAX	INSULATION MIN / PROVIDED
WALLS, BELOW GRADE	C-0.119	R-7.5 C.I. / R-7.5 C.I.
WALLS, ABOVE GRADE		
MASS	U-0.090	R-11.4 C.I. / R-12.347 C.I.
WOOD FRAMED	U-0.051	R-19 + R-5 C.I.
FLOORS	N/A	N/A / N/A
SLAB-ON-GRADE FLOORS		
UNHEATED	F-0.520	R-15 FOR 24 IN
HEATED	F-0.688	R-20 FOR 48 IN
OPAQUE DOORS	U-0.500	U-0.500
ROOF	U-0.032	R-30 C.I.
FENESTRATION [TABLE 5.5.5]		ASSEMBLY MAX. / SHGC / VT
VERTICAL FENESTRATION	NONMETAL FRAMING, ALL	U-0.32
	METAL FRAMING, FIXED	U-0.42
0% - 40%	OPERABLE	U-0.50 / SHGC-0.40 / 1.10
METAL FRAMING	ENTRANCE DOORS	U-0.77

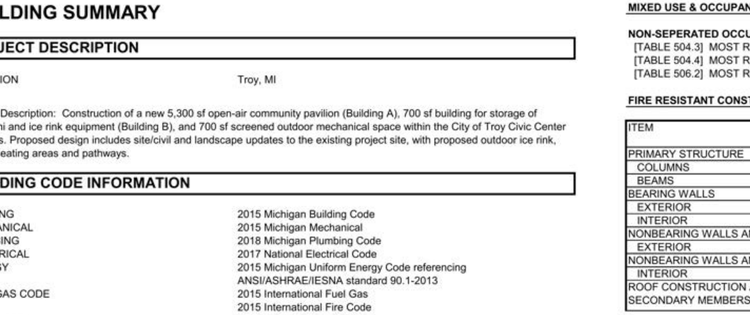
PLUMBING FIXTURE CALCULATIONS

CLASSIFICATION / OCCUPANCY — [TABLE 403.1] ASSEMBLY, A-5

DESCRIPTION — OUTDOOR MUNICIPAL VENUE NOT LARGER THAN 3,000 SPECTATORS

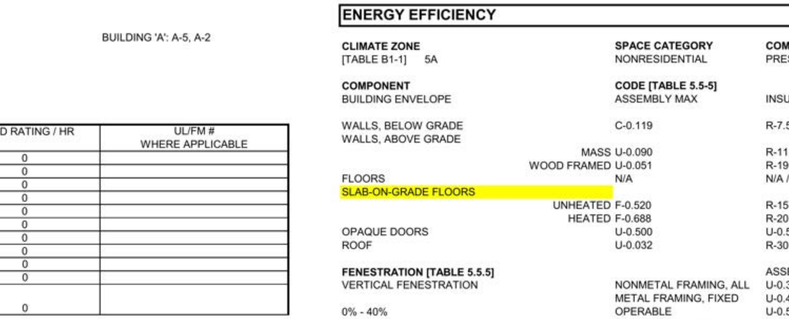
Total Occupants: 300	REQUIRED	PROVIDED
MEN		
WC [1 PER 125]	2	3
UR [67% ALLOWED PER WC]	0	2
LAV [1 PER 200]	1	2
WOMEN		
WC [1 PER 65]	3	3
LAV [1 PER 150]	1	3
OTHER [1 SERVICE SINK]	1	1
DRINKING FOUNTAINS [1 PER 1,000]	1	1

AREA PER OCCUPANT



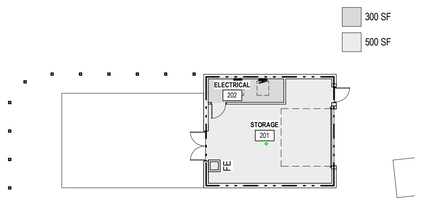
4 BLDG 'A' COMPLIANCE PLAN - PAVILION
1/16" = 1'-0"

OCCUPANCY



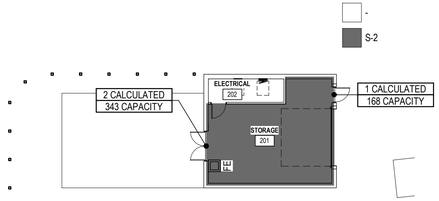
3 BLDG 'A' OCCUPANCY PLAN - PAVILION
1/16" = 1'-0"

AREA PER OCCUPANT



2 BLDG 'B' COMPLIANCE PLAN - UTILITY
1/16" = 1'-0"

OCCUPANCY



1 BLDG 'B' OCCUPANCY PLAN - UTILITY
1/16" = 1'-0"

CODE PLAN LEGEND

ROOM NAME 101 150 SF 1,254 Occ	ROOM NAME ROOM NUMBER ROOM AREA NUMBER OF OCCUPANTS
XXX CALCULATED XXX CAPACITY	CALCULATED OCCUPANT LOAD AT EGRESS COMPONENT CAPACITY OF EGRESS COMPONENT
(X'-X")	TRAVEL DISTANCE TO NEAREST EXIT
Path Label	PATH OF EGRESS TRAVEL TRAVEL DISTANCE TO EXITS = 300 FT MAX COMMON PATH OF TRAVEL = 75' MAX DEAD ENDS = 20' MAX
MAX DIAGONAL DISTANCE: 13' - 0" EXIT SEPARATION REQUIRED: 6' - 6"	MAXIMUM DIAGONAL DISTANCE & REQUIRED EXIT SEPARATION
EXIT SEPARATION: 10' - 0"	EXIT SEPARATION DISTANCE
	0-HOUR SMOKE PARTITION
	1-HOUR SMOKE BARRIER
	1-HOUR FIRE RATING
	2-HOUR FIRE RATING

PORTABLE FIRE EXTINGUISHERS

	FIRE EXTINGUISHERS	FIRE EXTINGUISHER CABINET	FIRE-X RATED CABINET
MULTI-PURPOSE CHEMICAL (CLASS ABC)	FE	FEC	FEC-X

OHM
ARCHITECTS ENGINEERS PLANNERS
OHM-ADVISORS.COM

PRELIMINARY - NOT FOR CONSTRUCTION

ISSUE: DESIGN DEVELOPMENT
REVISIONS:

DATE 10/10/2022
PROJ NUMBER 0128-21-0020
PROJ MGR CO

CITY OF TROY
TROY PAVILION
Town Center Dr
Troy, MI 48084

CODE COMPLIANCE PLANS

SHEET G-101

WATER & SEWER UTILITY SYMBOLS

EXISTING

- ST STORM MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- CULVERT
- CULVERT W/O END SECTION
- CULVERT W/END SECTION
- S SANITARY MANHOLE
- CO CLEAN OUT
- GW GATE VALVE & WELL
- GATE VALVE & BOX
- W WATER STOP BOX
- FIRE HYDRANT
- MP METER PIT
- WATER METER
- SH SPRINKLER HEAD
- W IRRIGATION VALVE

PROPOSED

- STORM MANHOLE
- SQUARE INLET/CATCH BASIN
- ROUND INLET/CATCH BASIN
- CULVERT END SECTION
- SANITARY MANHOLE
- CO CLEAN OUT
- GATE VALVE
- GV&W GATE VALVE & WELL
- GV&B GATE VALVE & BOX
- TSV&W TAPPING SLEEVE VALVE & WELL
- TSV&B TAPPING SLEEVE VALVE & BOX
- FIRE HYDRANT

REAL ESTATE SYMBOLS

- CONTIGUOUS PROPERTY SYMBOL
- XXXX PARCEL NUMBER BOX
- XXXX NO ROW IMPACTS

MISCELLANEOUS UTILITY SYMBOLS

EXISTING

- GUY WIRE
- GP GUY POLE
- U UTILITY POLE
- U UTILITY POLE W/LIGHT
- LIGHT/DECOR LAMP POLE
- GAS VALVE
- G GAS METER
- G GAS RISER
- E TRANSFORMER PAD
- U PRIVATE UTILITY MANHOLE
- E ELECTRIC METER
- TS TRAFFIC SIGNAL CONTROLLER
- HAND HOLE
- E ELECTRIC RISER
- W MONITORING WELL
- PEDESTRIAN SIGNAL

REMOVAL LEGEND

- SIDEWALK REMOVAL
- HMA SURFACE REMOVAL
- PAVEMENT REMOVAL
- CLEARING AND GRUBBING
- CURB AND GUTTER, REM
- TREE, REM
- SIGN, REM
- S SALVAGE
- B BULKHEAD
- A ABANDON
- C CLEARING
- R REMOVE
- REL RELOCATE
- REC RECONSTRUCT
- REL B/O RELOCATE BY OTHERS
- ADJ B/O ADJUST BY OTHERS

MISCELLANEOUS SYMBOLS

EXISTING

- RIPRAP
- SIGN
- FLOW DIRECTION
- STUMP
- CONIFEROUS TREE
- DECIDUOUS TREE

CL 1 1" TO 5"
CL 2 6" TO 17"
CL 3 18" TO 35"
CL 4 36" AND UP

- CONIFEROUS SHRUB
- DECIDUOUS SHRUB
- SB# SOIL BORING
- SECTION CORNER
- IRON ROD/PIPE
- PK PK NAIL
- BM #XXX SURVEY BENCHMARK
- TP # SURVEY TRAVERSE POINT
- CONCRETE
- GRAVEL

PROPOSED

- RIPRAP
- SIGN
- FLOW DIRECTION
- XX XX XXX STRUCTURE NUMBER WM SAN STM
- CURB AND GUTTER, STD
- CURB AND GUTTER, SPILLOUT
- ASPHALT, HEAVY
- ASPHALT
- CONCRETE
- SF SILT FENCE
- INLET FILTER
- CHECK DAM, STONE

GRADING

- FLOW DIRECTION
- 753.68 EXISTING SPOT GRADE
- 749.25 FG PROPOSED SPOT GRADE
- 665 664 EXISTING CONTOUR
- 840 839 PROPOSED CONTOUR

UTILITY PATTERN

EXISTING

- ELEC ELECTRICAL *
- GAS GAS\OIL
- CABLE/TEL CABLE/TELEPHONE *
- 12" WM WATER MAIN/SERVICE
- 12" SAN SANITARY SEWER
- 12" STM STORM SEWER

*OH = OVERHEAD , UG = UNDERGROUND

PROPOSED

- 12" WM WATER MAIN/SERVICE
- 12" SAN SANITARY SEWER
- 12" STM STORM SEWER
- 4" UD UNDERDRAIN
- SITE ELEC / LIGHTING

ROW PATTERN

EXISTING

- ROW ROW
- SECTION
- PROPERTY/PARCEL

TOPO PATTERN

EXISTING

- HEDGE/TREE
- FENCE
- GUARDRAIL
- CENTERLINE OF DITCH
- WETLAND/EDGE OF WATER

PROPOSED

- CENTERLINE OF DITCH
- FENCE

SITE LAYOUT

- 10 12 EX AND PROP PARKING SPACE COUNT
- EX AND PROP BARRIER FREE PARKING SPACE

ABBREVIATION KEY

AC	ACRE
ADJ	ADJUST
ASPH	ASPHALT
BC	BACK OF CURB
BF	BARRIER FREE
C+G	CURB AND GUTTER
CB	CATCH BASIN (STORM)
CF	CUBIC FEET
CL	CENTERLINE
COMM	COMMUNICATION UTILITY (PHONE, CABLE, DATA, ETC)
CONC	CONCRETE
CPE	CORRUGATED POLYETHYLENE (PIPE)
CY	CUBIC YARD
DI	DUCTILE IRON
DIA	DIAMETER
ELEC	ELECTRICAL
EX	EXISTING
FC	FACE OF CURB
FL	FLOWLINE
FG	FINISH GRADE / SURFACE (NON-PAVED AREA)
FM	FORCEMAIN
FT	FEET
GV	GATE VALVE
GV+B	GATE VALVE AND BOX
GV+W	GATE VALVE AND WELL
IN	INCHES
MH	MANHOLE STRUCTURE
OHM	OHM ADVISORS
PAVT	PAVEMENT
PROP	PROPOSED
RCP	REINFORCED CONCRETE PIPE
REM	REMOVE (AND DISPOSE)
RIM	TOP OF STRUCTURE CASTING
SAN	SANITARY SEWER / SERVICE
SF	SQUARE FEET
STM	STORM SEWER
SVC	SERVICE (WATER/SANITARY)
SY	SQUARE YARD
T/	TOP OF ________
TC	TOP OF CURB
TP	TOP OF PAVEMENT
TW	TOP OF WALK
WM	WATER MAIN / SERVICE

LANDSCAPE HATCHES AND SYMBOLS

- ▨ LAWN
- ▨ SPECIALTY SEED
- ▨ SPECIALTY SEED
- ▨ SPECIALTY SEED

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DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

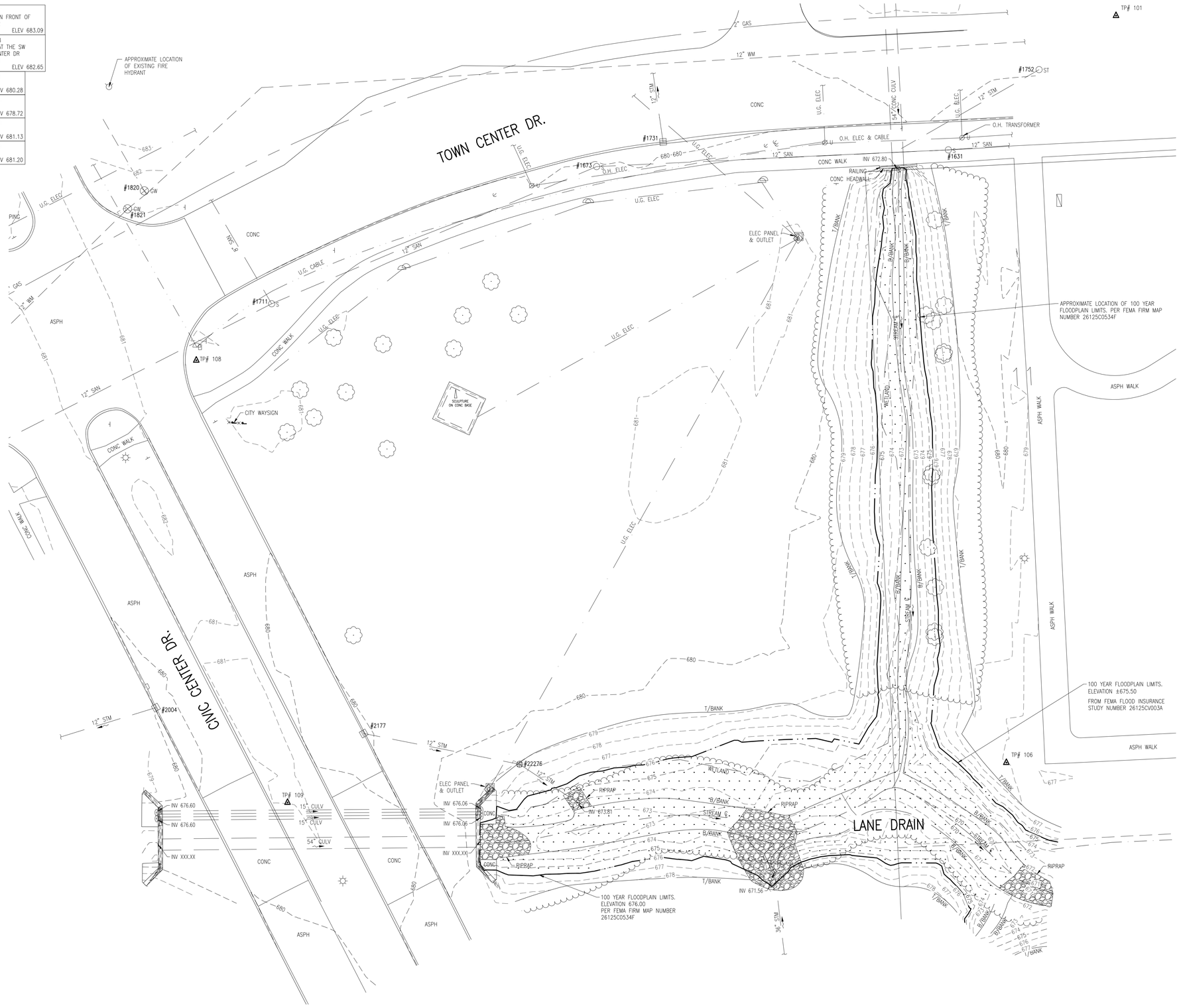
CITY OF TROY
TROY PAVILION

LEGEND

SHEET C-010

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020LEG.dwg Oct 07, 2022 - 4:20pm

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR ELEV 682.65
TRAVERSE POINT #101 N 391460.64 E 13450420.17 ELEV 680.28
TRAVERSE POINT #106 N 391163.37 E 13450376.51 ELEV 678.72
TRAVERSE POINT #108 N 391323.48 E 13450054.04 ELEV 681.13
TRAVERSE POINT #109 N 391147.49 E 13450090.36 ELEV 681.20



1975 EX SAN MH
T/CAST 680.86
12" INV NE 670.31
12" INV SW 670.86
12" INV NW 670.76

1711 EX SAN MH
T/CAST 680.82
12" INV SW 669.46
12" INV NE 669.33
8" INV NW 674.12

1672 EX SAN MH
T/CAST 680.12
12" INV SW 668.49

1631 EX SAN MH
T/CAST 680.80
12" INV E 667.87

1731 EX STM SQ CB
T/CAST 679.17
12" INV N 675.43

1752 EX STM MH
T/CAST 680.04
12" INV SW 674.28
12" INV E 674.30

2004 EX STM SQ CB
T/CAST 679.54
12" INV W 674.61

2177 EX STM SQ CB
T/CAST 679.21
12" INV E 674.29

22276 EX STM RD CB
T/CAST 678.68
12" INV W 673.83
12" INV SE 673.93

1820 EX WM GATE WELL
T/CAST 681.31
12" T/PIPE SW 673.89
12" T/PIPE NE 673.89
12" T/PIPE NW 673.89

1821 EX WM GATE WELL
T/CAST 681.07
12" T/PIPE NE 673.56
12" T/PIPE SW 673.56

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ISSUE	DESIGN DEVELOPMENT
REVISIONS	
1	
2	
3	
4	
5	

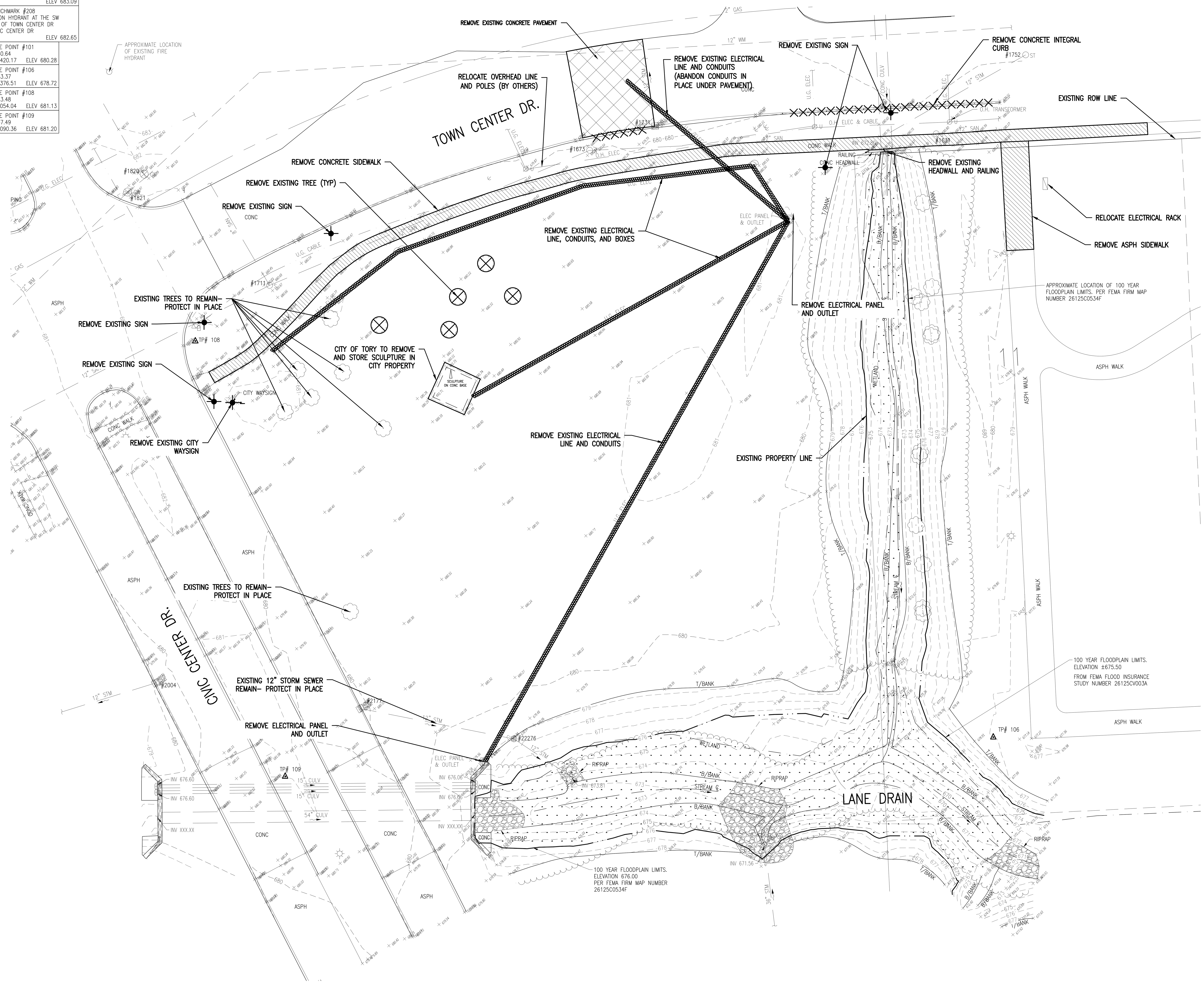
DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0128-21-0020	Vallve	CO	Vallve	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION
EXISTING CONDITIONS PLAN

SHEET C-110

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020tSUR.dwg Oct 07, 2022 - 4:20pm

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR	ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR	ELEV 682.65
TRAVERSE POINT #101 N 391460.64 E 13450420.17	ELEV 680.28
TRAVERSE POINT #106 N 391163.37 E 13450376.51	ELEV 678.72
TRAVERSE POINT #108 N 391323.48 E 13450054.04	ELEV 681.13
TRAVERSE POINT #109 N 391147.49 E 13450090.36	ELEV 681.20



TOWN CENTER DR.
CIVIC CENTER DR.
LANE DRAIN
REMOVE EXISTING CONCRETE PAVEMENT
RELOCATE OVERHEAD LINE AND POLES (BY OTHERS)
REMOVE EXISTING ELECTRICAL LINE AND CONDUITS (ABANDON CONDUITS IN PLACE UNDER PAVEMENT)
REMOVE EXISTING SIGN
REMOVE CONCRETE INTEGRAL CURB
EXISTING ROW LINE
REMOVE CONCRETE SIDEWALK
REMOVE EXISTING TREE (TYP)
REMOVE EXISTING SIGN
REMOVE EXISTING ELECTRICAL LINE, CONDUITS, AND BOXES
REMOVE EXISTING HEADWALL AND RAILING
RELOCATE ELECTRICAL RACK
REMOVE ASPH SIDEWALK
EXISTING TREES TO REMAIN- PROTECT IN PLACE
REMOVE EXISTING SIGN
REMOVE ELECTRICAL PANEL AND OUTLET
APPROXIMATE LOCATION OF 100 YEAR FLOODPLAIN LIMITS. PER FEMA FIRM MAP NUMBER 26125C0534F
CITY OF TORY TO REMOVE AND STORE SCULPTURE IN CITY PROPERTY
SCULPTURE ON CONC BASE
REMOVE EXISTING SIGN
REMOVE EXISTING CITY WAYSIGN
REMOVE EXISTING ELECTRICAL LINE AND CONDUITS
EXISTING PROPERTY LINE
EXISTING TREES TO REMAIN- PROTECT IN PLACE
EXISTING 12" STORM SEWER REMAIN- PROTECT IN PLACE
REMOVE ELECTRICAL PANEL AND OUTLET
100 YEAR FLOODPLAIN LIMITS. ELEVATION ±675.50
FROM FEMA FLOOD INSURANCE STUDY NUMBER 26125CV003A
100 YEAR FLOODPLAIN LIMITS. ELEVATION 676.00 PER FEMA FIRM MAP NUMBER 26125C0534F
APPROXIMATE LOCATION OF EXISTING FIRE HYDRANT
TP# 106
TP# 108
TP# 109
INV 676.60
INV 676.60
INV XXX.XX
15" CULV
15" CULV
54" CULV
INV 676.06
INV 676.06
INV XXX.XX
INV 673.81
INV 671.56
INV 672.80
RIPRAP
WETLAND
STREAM ℄
B/BANK
T/BANK
CONC WALK
ASPH WALK
ASPH
CONC
ELEC PANEL & OUTLET
CONC HEADWALL
RAILING
O.H. TRANSFORMER
O.H. ELEC & CABLE
U.G. ELEC
U.G. CABLE
CITY WAYSIGN
12" STM
36" STM
12" WM
2" GAS
8" SAN
12" SAN
CONC CULV

N

GRAPHIC SCALE: HALF 40 feet; FULL 20 feet (0, 10, 20, 40, 60)

LEGEND

▨	SIDEWALK REMOVAL
▦	PAVEMENT REMOVAL
XXXXXX	CURB AND GUTTER, REM
⊗	TREE, REM
●	SIGN, REM
▬	ELECTRICAL, REM
- - - -	LIMITS OF DISTURBANCE/GRADING LIMITS
× 1000.68	EXISTING SPOT GRADE
—1000— / —999—	EXISTING CONTOUR

1975 EX SAN MH
T/CAST 680.86
12" INV NE 670.31
12" INV SW 670.86
12" INV NW 670.76

1711 EX SAN MH
T/CAST 680.82
12" INV SW 669.46
12" INV NE 669.33
8" INV NW 674.12

1673 EX SAN MH
T/CAST 680.12
12" INV SW 668.49

1631 EX SAN MH
T/CAST 680.80
12" INV E 667.87

1731 EX STM SQ CB
T/CAST 679.17
12" INV N 675.43

1752 EX STM MH
T/CAST 680.04
12" INV SW 674.28
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T/CAST 678.68
12" INV W 673.83
12" INV SE 673.93

1820 EX WM GATE WELL
T/CAST 681.31
12" T/PIPE SW 673.89
12" T/PIPE NE 673.89
12" T/PIPE NW 673.89

1821 EX WM GATE WELL
T/CAST 681.07
12" T/PIPE NE 673.56
12" T/PIPE SW 673.56

811
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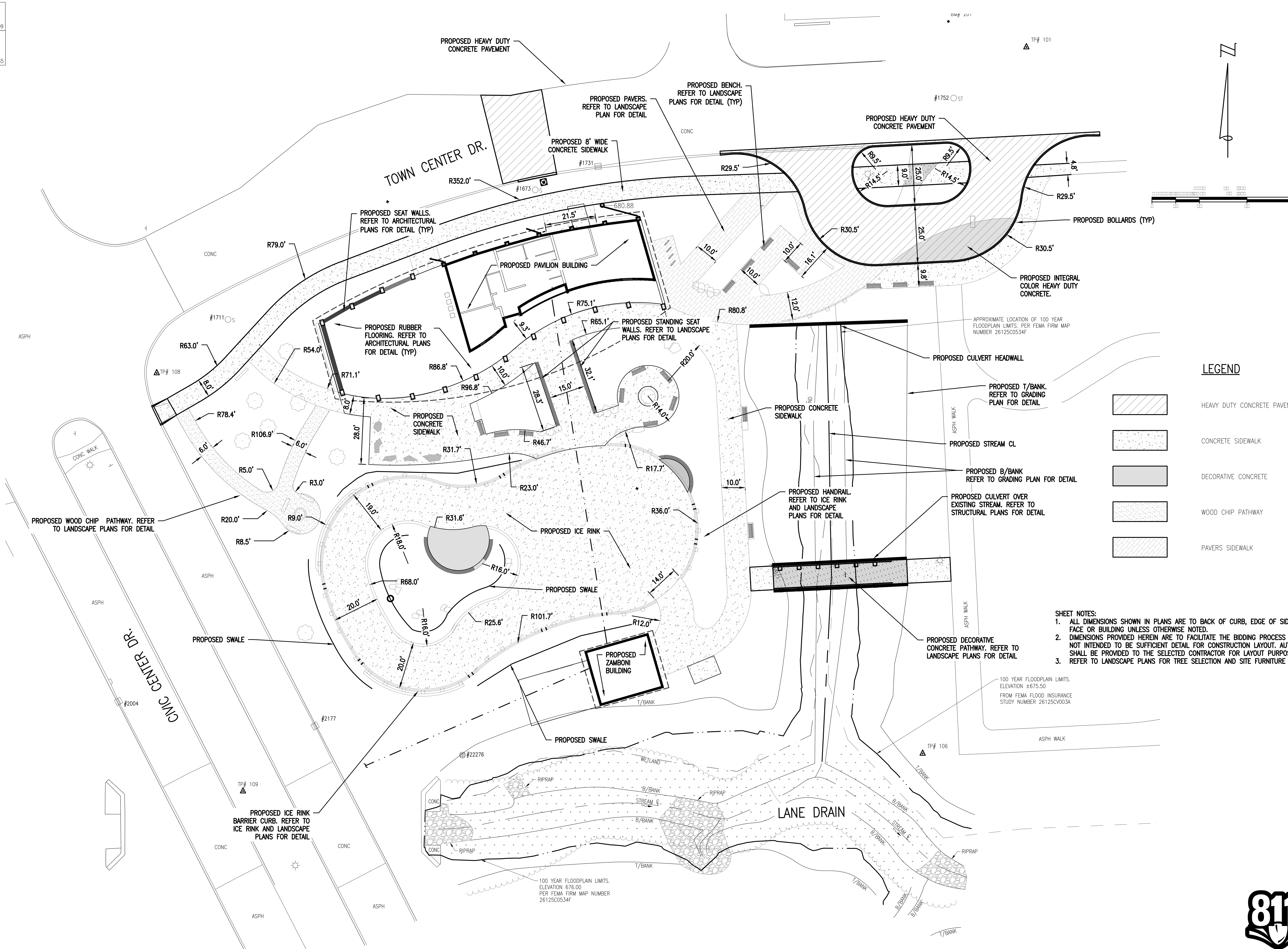
CITY OF TROY
TROY PAVILION
DEMOLITION PLAN

SHEET C-120

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020REM.dwg Oct 07, 2022 - 4:32pm

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR	ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR	ELEV 682.65
TRAVERSE POINT #101 N 391460.64 E 13450420.17	ELEV 680.28
TRAVERSE POINT #106 N 391163.37 E 13450376.51	ELEV 678.72
TRAVERSE POINT #108 N 391323.48 E 13450054.04	ELEV 681.13
TRAVERSE POINT #109 N 391147.49 E 13450090.36	ELEV 681.20



PROPOSED HEAVY DUTY CONCRETE PAVEMENT
TOWN CENTER DR.
PROPOSED 8' WIDE CONCRETE SIDEWALK
PROPOSED PAVERS. REFER TO LANDSCAPE PLAN FOR DETAIL
PROPOSED BENCH. REFER TO LANDSCAPE PLANS FOR DETAIL (TYP)
PROPOSED HEAVY DUTY CONCRETE PAVEMENT
TP# 101
#1752 ST
#1731
#1673 S
CONC
R352.0'
R29.5'
R9.5'
R14.5'
9.0'
25.0'
4.8'
R30.5'
PROPOSED BOLLARDS (TYP)
PROPOSED INTEGRAL COLOR HEAVY DUTY CONCRETE.
9.8'
12.0'
16.1'
10.0'
680.88
21.5'
PROPOSED SEAT WALLS. REFER TO ARCHITECTURAL PLANS FOR DETAIL (TYP)
R79.0'
PROPOSED PAVILION BUILDING
PROPOSED RUBBER FLOORING. REFER TO ARCHITECTURAL PLANS FOR DETAIL (TYP)
R75.1'
R65.1'
PROPOSED STANDING SEAT WALLS. REFER TO LANDSCAPE PLANS FOR DETAIL
R80.8'
9.3'
R86.8'
R96.8'
28.3'
15.0'
32.1'
R20.0'
R14.0'
R46.7'
APPROXIMATE LOCATION OF 100 YEAR FLOODPLAIN LIMITS. PER FEMA FIRM MAP NUMBER 26125C0534F
PROPOSED CULVERT HEADWALL
PROPOSED T/BANK. REFER TO GRADING PLAN FOR DETAIL
PROPOSED CONCRETE SIDEWALK
PROPOSED STREAM CL
PROPOSED B/BANK REFER TO GRADING PLAN FOR DETAIL
PROPOSED HANDRAIL. REFER TO ICE RINK AND LANDSCAPE PLANS FOR DETAIL
PROPOSED CULVERT OVER EXISTING STREAM. REFER TO STRUCTURAL PLANS FOR DETAIL
ASPH WALK
#1711 S
ASPH
R63.0'
R54.0'
R71.1'
TP# 108
8.0'
28.0'
PROPOSED CONCRETE SIDEWALK
R78.4'
R106.9'
6.0'
CONC WALK
R5.0'
R3.0'
R31.7'
R23.0'
R17.7'
10.0'
R36.0'
19.0'
R31.6'
PROPOSED ICE RINK
PROPOSED WOOD CHIP PATHWAY. REFER TO LANDSCAPE PLANS FOR DETAIL
R20.0'
R9.0'
R8.5'
R18.0'
R16.0'
R68.0'
PROPOSED SWALE
14.0'
20.0'
R16.0'
R25.6'
R101.7'
R12.0'
PROPOSED DECORATIVE CONCRETE PATHWAY. REFER TO LANDSCAPE PLANS FOR DETAIL
PROPOSED SWALE
PROPOSED ZAMBONI BUILDING
100 YEAR FLOODPLAIN LIMITS. ELEVATION ±675.50
FROM FEMA FLOOD INSURANCE STUDY NUMBER 26125CV003A
CIVIC CENTER DR.
#2004
#2177
T/BANK
PROPOSED SWALE
ASPH WALK
TP# 106
#22276
WETLAND
RIPRAP
B/BANK
STREAM ℄
CONC
LANE DRAIN
PROPOSED ICE RINK BARRIER CURB. REFER TO ICE RINK AND LANDSCAPE PLANS FOR DETAIL
TP# 109
100 YEAR FLOODPLAIN LIMITS. ELEVATION 676.00 PER FEMA FIRM MAP NUMBER 26125C0534F

LEGEND

▨	HEAVY DUTY CONCRETE PAVEMENT
░	CONCRETE SIDEWALK
▩	DECORATIVE CONCRETE
░	WOOD CHIP PATHWAY
▨	PAVERS SIDEWALK

SHEET NOTES:
1. ALL DIMENSIONS SHOWN IN PLANS ARE TO BACK OF CURB, EDGE OF SIDEWALK OR FACE OR BUILDING UNLESS OTHERWISE NOTED.
2. DIMENSIONS PROVIDED HEREIN ARE TO FACILITATE THE BIDDING PROCESS AND ARE NOT INTENDED TO BE SUFFICIENT DETAIL FOR CONSTRUCTION LAYOUT. AUTOCAD FILE SHALL BE PROVIDED TO THE SELECTED CONTRACTOR FOR LAYOUT PURPOSES.
3. REFER TO LANDSCAPE PLANS FOR TREE SELECTION AND SITE FURNITURE DETAILS.

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ISSUE: DESIGN DEVELOPMENT
REVISIONS:

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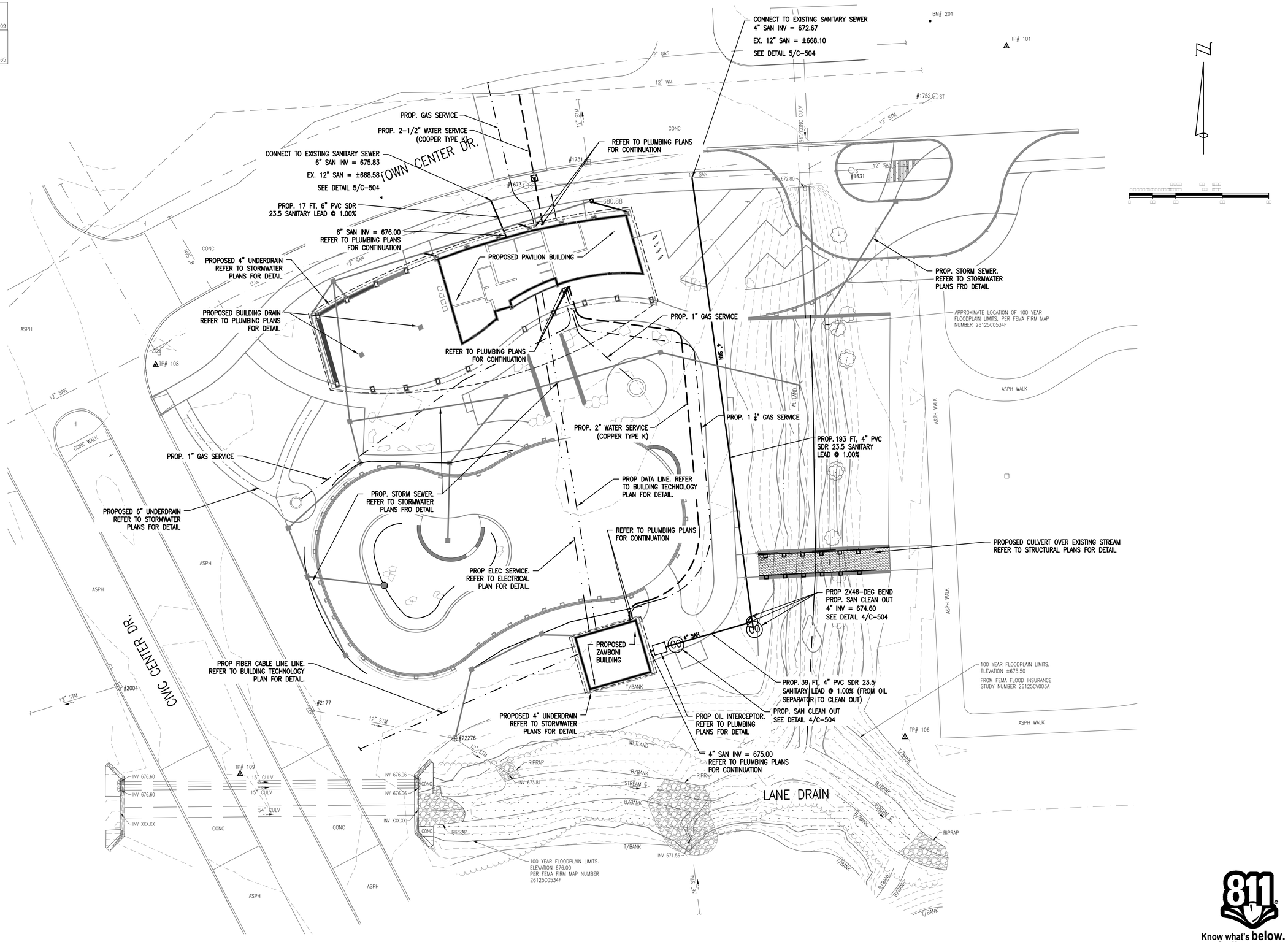
10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION
SITE LAYOUT PLAN

SHEET C-130

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020STE.dwg Oct 07, 2022 - 4:22pm

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR ELEV 682.65
TRAVERSE POINT #101 N 391460.64 E 13450420.17 ELEV 680.28
TRAVERSE POINT #106 N 391163.37 E 13450376.51 ELEV 678.72
TRAVERSE POINT #108 N 391323.48 E 13450054.04 ELEV 681.13
TRAVERSE POINT #109 N 391147.49 E 13450090.36 ELEV 681.20



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ISSUE	DESIGN DEVELOPMENT
REVISIONS	

DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CAD/D	COUNTY	MUNICIPALITY
10/10/2022	0126-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION

UTILITY PLAN

SHEET C-140

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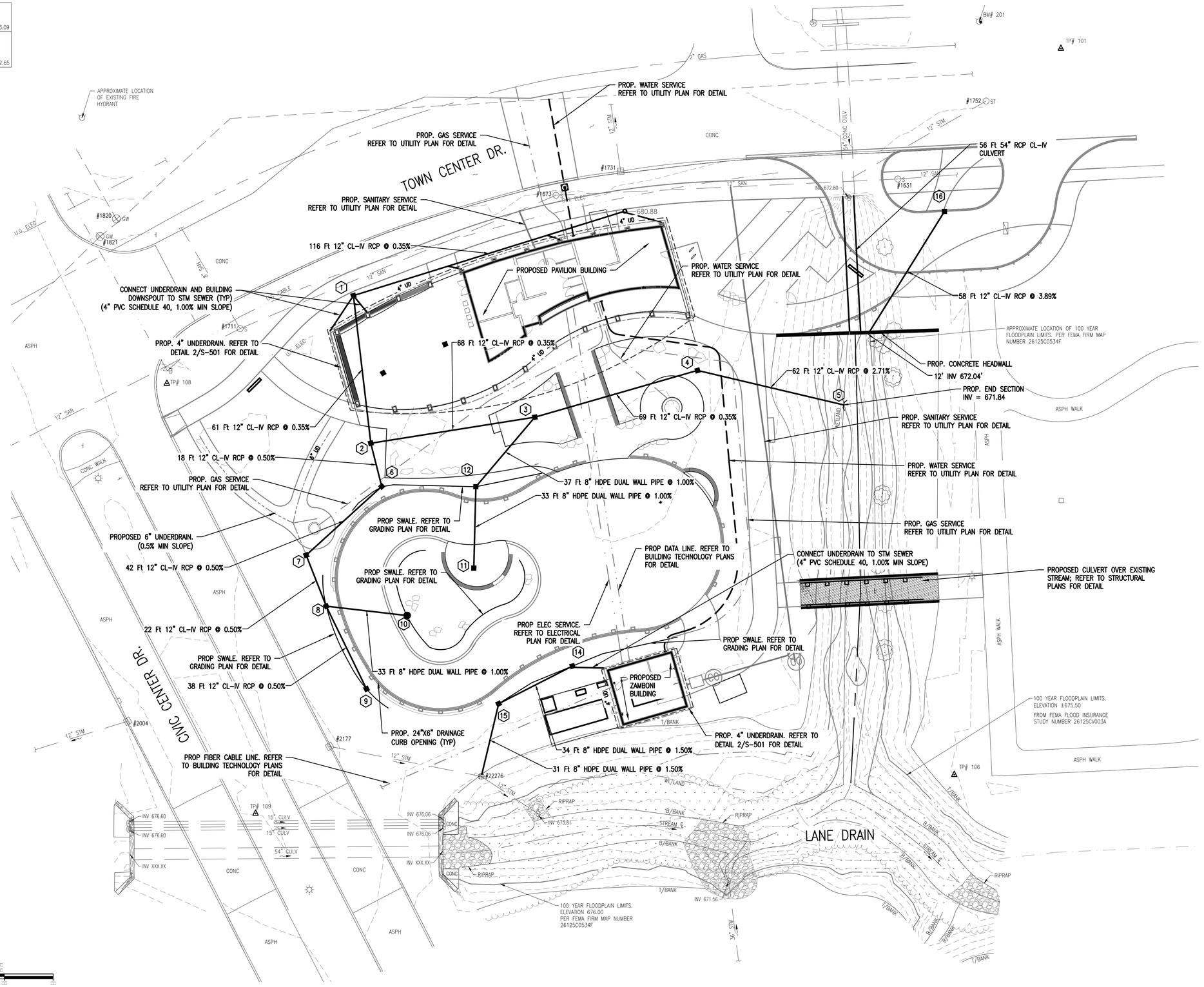
DRAWING PATH: P:\0126_016501828210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020UTL.dwg Oct 07, 2022 - 4:24pm

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR ELEV 682.65
TRAVERSE POINT #101 N 391460.64 E 13450420.17 ELEV 680.28
TRAVERSE POINT #106 N 391163.37 E 13450376.51 ELEV 678.72
TRAVERSE POINT #108 N 391323.48 E 13450054.04 ELEV 681.13
TRAVERSE POINT #109 N 391147.49 E 13450090.36 ELEV 681.20



1. FRAME AND COVER: SEE SHEET C-503
   4 FT DIAMETER CATCH BASIN
   T/CAST 680.88
   12" INV E 676.09
   12" INV S 675.91
   4" INV SW 677.00
   4" INV SE 676.91

2. FRAME AND COVER: SEE SHEET C-503
   4 FT DIAMETER CATCH BASIN
   T/CAST 679.75
   12" INV S 674.29
   12" INV E 674.19
   12" INV N 675.70

3. FRAME AND COVER: SEE SHEET C-503
   4 FT DIAMETER CATCH BASIN
   T/CAST 679.50
   12" INV W 673.95
   12" INV E 673.85
   8" INV SW 675.12

4. FRAME AND COVER: SEE SHEET C-503
   4 FT DIAMETER CATCH BASIN
   T/CAST 680.34
   12" INV W 673.61
   12" INV E 673.51

6. FRAME AND COVER: SEE SHEET C-503
   4 FT DIAMETER CATCH BASIN
   T/CAST 679.31
   12" INV SW 674.48
   12" INV N 674.38

7. FRAME AND COVER: SEE SHEET C-503
   4 FT DIAMETER CATCH BASIN
   T/CAST 682.84
   12" INV S 674.79
   12" INV NE 674.69

8. FRAME AND COVER: SEE SHEET C-503
   4 FT DIAMETER CATCH BASIN
   T/CAST 680.28
   12" INV SE 675.31
   12" INV N 674.90
   8" INV E 675.00

9. FRAME AND COVER: SEE SHEET C-503
   2 FT DIAMETER CATCH BASIN
   T/CAST 680.33
   12" INV NW 675.50

10. FRAME AND COVER: SEE SHEET C-503
    2 FT DIAMETER CATCH BASIN
    T/CAST 681.00
    8" INV W 675.33

11. FRAME AND COVER: SEE SHEET C-503
    2 FT DIAMETER CATCH BASIN
    T/CAST 680.30
    8" INV N 675.93

12. FRAME AND COVER: SEE SHEET C-503
    4 FT DIAMETER CATCH BASIN
    T/CAST 679.26
    8" INV S 675.59
    8" INV NE 675.49

14. FRAME AND COVER: SEE SHEET C-503
    2 FT DIAMETER CATCH BASIN
    T/CAST 679.05
    8" INV SW 675.00

15. FRAME AND COVER: SEE SHEET C-503
    4 FT DIAMETER CATCH BASIN
    T/CAST 680.24
    8" INV NE 674.49
    8" INV S 674.39

#22276
EXISTING FRAME AND COVER
EXISTING CATCH BASIN
T/CAST 675.14
8" INV N 673.93 (PROPOSED)
12" INV W 673.83 (EXISTING)
12" INV SE 673.93 (EXISTING)

16. FRAME AND COVER: SEE SHEET C-503
    HYDRODINAMIC SEPARATOR
    T/CAST 679.92
    12" INV SW 674.29

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ISSUE	DESIGN DEVELOPMENT
REVISIONS	

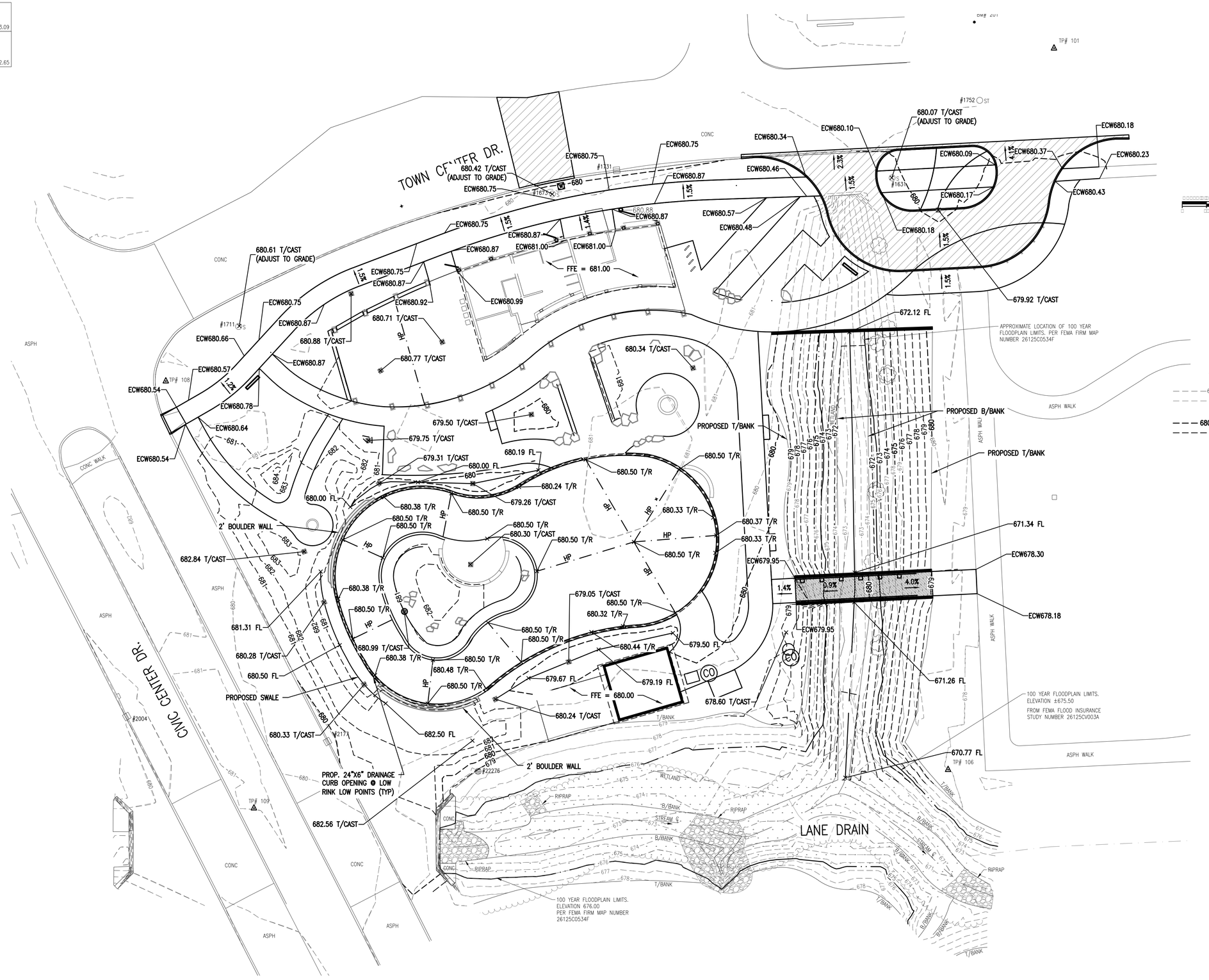
DATE	10/10/2022
PROJ NUMBER	0126-21-0020
ENG/ARCH	Value
PROJ MGR	CO
CADD	Value
COUNTY	OAKLAND
MUNICIPALITY	CITY OF TROY

CITY OF TROY
TROY PAVILION
STORMWATER PLAN
####

SHEET C-150

DRAWING PATH: P:\0126_016501282010020_Troy_Pavilion\Drawings\Civil\Plans_Const\21002STM.dwg Oct 07, 2022 - 4:25pm

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR ELEV 682.65
TRAVERSE POINT #101 N 391460.64 E 13450420.17 ELEV 680.28
TRAVERSE POINT #106 N 391163.37 E 13450376.51 ELEV 678.72
TRAVERSE POINT #108 N 391323.48 E 13450054.04 ELEV 681.13
TRAVERSE POINT #109 N 391147.49 E 13450090.36 ELEV 681.20



LEGEND

749.25 FG	PROPOSED SPOT GRADE
680 / 679	EXISTING CONTOUR
680 / 679	PROPOSED CONTOUR
FG	FINISH GRADE
T/CAST	TOP OF STRUCTURE CASTING
T/R	TOP OF ICE RINK
ECW	EDGE OF WALK
FFE	FINAL FLOOR ELEVATION

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ISSUE	DESIGN DEVELOPMENT
REVISIONS	- - -

DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0126-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION
GRADING PLAN

SHEET C-160

DRAWING PATH: P:\0126_0165\0126210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020GRD.dwg Oct 07, 2022 - 4:26pm

AUTHORITIES/PERMITTING

1. THE CONTRACT DOCUMENTS, WHICH INCLUDE BUT ARE NOT LIMITED TO THE PLAN NOTES, SPECIFICATIONS, CONTRACT TERMS AND CONDITIONS, AND SUPPLEMENTAL CONDITIONS, LIST VARIOUS FIRMS AND AGENCIES HAVING VARYING LEVELS OF AUTHORITY OVER THE WORK. THE FOLLOWING ASSOCIATIONS OF AUTHORITY SHALL BE CONSIDERED PART OF THE CONTRACT AND SHALL BE HONORED BY THE CONTRACTOR UNLESS ALTERED IN WRITING BY THE OWNER.
   A. CONTRACTOR = TO BE DETERMINED (REQUIREMENTS OF CONTRACTOR SHALL EQUALLY APPLY TO ANY VENDOR, SUBCONTRACTOR, OR SERVICE PROVIDER RETAINED BY THE CONTRACTOR)
   B. SURVEYOR = SHALL BE RETAINED BY THE CONTRACTOR FOR STAKING, MEASUREMENT, AND AS-BUILT RECORD AT NO ADDITIONAL EXPENSE TO THE OWNER.
   C. OWNER = CITY OF TROY – (248) 885-1982
   D. OWNER'S REPRESENTATIVE = ANY DELEGATE FROM ENGINEER, OWNER, OR TESTING AGENCY. OWNER MAY DESIGNATE OR CHANGE SPECIFIC REPRESENTATIVES FOR EACH PROJECT REQUIREMENT AT ANY TIME.
   E. ENGINEER = OHM ADVISORS (CONTACT: ALFONSO GUTIERREZ, PE – (734) 466-4486
   F. TESTING AGENCY = DESIGNATED AND RETAINED BY THE OWNER
   G. UTILITY AUTHORITIES = SEE UTILITIES THIS SHEET
   H. RIGHT-OF-WAY = NOT APPLICABLE – CONTRACTOR SHALL PERFORM ALL WORK AND STAGING WITHIN PROPERTY LIMITS OF THE CITY OF TROY
   CONSTRUCTION/BUILDING PERMITTING = MICHIGAN BUREAU OF CONSTRUCTION CODES, PLAN REVIEW DIVISION
   I. TRAFFIC CONTROL REGULATION = MICHIGAN MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD)
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN THE NECESSARY FEDERAL, STATE, AND LOCAL PERMITS FOR THE PROPOSED WORK AT NO ADDITIONAL COST TO THE OWNER.

GENERAL CONSTRUCTION NOTES AND TRAFFIC CONTROL

1. CONTRACTOR SHALL PROVIDE ALL MATERIALS, PERSONNEL, AND EQUIPMENT NECESSARY TO COMPLY WITH ALL NOTES AND REQUIREMENTS CONTAINED WITHIN THE CONTRACT DOCUMENTS, INCLUDING THE PLAN DRAWING AND DETAILS, AT NO ADDITIONAL COST TO THE OWNER. COMPLIANCE WITH THE PROJECT REQUIREMENTS CONTAINED HEREIN SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND THE RESPECTIVE LUMP SUM OR UNIT PRICE COST(S).
2. CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF BURIED UTILITIES AND TOPOGRAPHIC FEATURES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES ON THE PLANS ON THE SAME DAY THEY ARE DISCOVERED.
3. DO NOT SCALE DRAWINGS. ANY DIMENSIONAL INFORMATION REQUIRED WHICH IS NOT INDICATED ON DRAWING DIMENSION STRINGS SHALL BE OBTAINED FROM THE ENGINEER.
4. MATERIALS, METHODOLOGIES, PROCEDURES THAT REFER TO "MDOT" SHALL CONFORM TO MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND APPLICABLE SPECIAL PROVISIONS. REFERENCES TO PAYMENT WITHIN THE REFERENCED MDOT DOCUMENTS SHALL NOT APPLY TO THIS CONTRACT; ALL PAYMENT SHALL BE IN ACCORDANCE WITH THE METHOD OF PAYMENT AS DESCRIBED IN THE CONTRACT DOCUMENTS AND/OR OWNER'S PURCHASE ORDER LANGUAGE.
5. CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE A MINIMUM OF 48 HOURS PRIOR TO PERFORMING ACTIVITIES THAT WILL OR MAY REQUIRE ACCEPTANCE, INSPECTION, OR ANY TESTING DESCRIBED HEREIN.
6. THE CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITIES TO THE SITE BOUNDARIES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE OR DISTURBANCE TO THE ADJACENT PROPERTIES OR RIGHT-OF-WAY OCCURRING DURING THIS CONTRACT, AT NO COST TO THE OWNER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL DEVICES SUCH AS CONES, BARRICADES, SIGNS, FLAGGERS, FENCES, AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY CONFORMING TO LOCAL TRAFFIC CONTROL STANDARDS. TRAFFIC AND PEDESTRIAN CONTROLS SHALL PROHIBIT TRAFFIC OVER NEW PAVEMENT, LANDSCAPING, RESTORATION, PAINT, OR ANY OTHER NEWLY INSTALLED FEATURE UNTIL THE OWNER'S REPRESENTATIVE AUTHORIZES OPENING TO TRAFFIC.
8. THE CONTRACTOR SHALL PREPARE AND SUBMIT A TRAFFIC CONTROL PLAN FOR ANY WORK ADJACENT TO OR WITHIN THE PUBLIC RIGHT-OF-WAY.
9. CONTRACTOR SHALL MAINTAIN AN ACCESSIBLE ROUTE FOR PEDESTRIANS AND EMERGENCY VEHICLES AND PERSONNEL TO ADJACENT BUILDINGS AT ALL TIMES.
10. SAFETY NOTICE: CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK; THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ON-SITE REVIEW OF THE CONTRACTOR'S PERFORMANCE DOES NOT ALLEVIATE THE CONTRACTOR'S SAFETY REQUIREMENTS. SITE SECURITY IS THE CONTRACTOR'S RESPONSIBILITY.
11. EQUIPMENT, SOIL STOCKPILES, JOB TRAILERS, VEHICLES, AND OTHER MATERIALS SHALL ONLY BE STORED IN AN OWNER-APPROVED AREA THAT PREVENTS ENVIRONMENTAL DAMAGE, IS DEVOID OF MATURE TREES, AND IS ISOLATED FROM DRAINAGE FACILITIES, WETLANDS, STREAMS, AND TRAFFIC PATTERNS.
12. CONTRACTOR SHALL UNLOAD MATERIAL IN A SAFE AND CAREFUL MANNER WHICH PREVENTS DAMAGE TO THE MATERIAL AND EXISTING SITE FEATURES. DROPPING PIPE, STRUCTURES, FITTINGS, CASTINGS, OR OTHER BRITTLE OR FRAGILE MATERIAL OFF OF TRUCKS IS PROHIBITED.
13. TREE PROTECTION: UNLESS OTHERWISE DIRECTED, ALL TREES SHALL BE PROTECTED. THE FOLLOWING MEASURES SHALL BE IMPLEMENTED FOR TREE PROTECTION
   A. THE TREES SHALL BE PROTECTED FROM WOUNDS TO THE BARK AND FOLIAGE.
   B. THE CRITICAL ROOT ZONE (1.5 FEET RADIUS FOR EACH INCH OF DIAMETER AT BREAST HEIGHT) SHALL BE PROTECTED FROM COMPACTION AND GRADING.
   C. CHANGES IN TEMPORARY SITE DRAINAGE AND PONDING THAT AFFECT THE PROTECTED TREES IS PROHIBITED.
   D. THE CRITICAL ROOT ZONE SHALL BE SURROUNDED BY A HIGH-VISIBILITY FENCE (4 FT IN HEIGHT).
   E. ANY EXISTING TREE THAT IS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR. TREE WILL BE CONSIDERED DAMAGED IF THE CRITICAL ROOT ZONE IN COHESIVE SOILS IS COMPACTED OR IF THERE ARE SIGNIFICANT WOUNDS THAT COULD CONTRIBUTE TO ROT OR DISTRESS.
14. ALL DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL BE RESTRICTED TO NORMAL DAYLIGHT WORKING HOURS MONDAY THROUGH SATURDAY UNLESS OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE.

DEMOLITION AND CLEARING

1. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO BEGINNING DEMOLITION WORK.
2. TOPSOIL STRIPPING
   A. STRIP THE FULL DEPTH OF TOPSOIL ONLY FROM THOSE AREAS THAT WILL BE DISTURBED BY EXCAVATION, FILLING, CONSTRUCTION, OR COMPACTION BY EQUIPMENT.
   B. STOCKPILE TOPSOIL WITHOUT INTERMIXING WITH ANY OTHER MATERIAL – BORROW TOPSOIL TO REPLACE MATERIAL CONTAMINATED BY THE CONTRACTOR SHALL BE AT THE CONTRACTOR'S EXPENSE.
   C. TEMPORARY STABILIZATION OF THE STOCKPILE(S) SHALL BE COMPLETED WITHIN SEVEN (7) DAYS OF THE FORMATION OF THE STOCKPILE, IF IT IS TO REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN THIRTY (30) DAYS.
3. TEMPORARY STOCKPILES: PROTECTIVE MEASURES SHALL BE INCORPORATED BY THE CONTRACTOR TO ENSURE SAFETY AND CONTROL EROSION ASSOCIATED WITH THE TEMPORARY STOCKPILES.
4. EXCAVATED MATERIALS NOT NEEDED OR NOT SUITABLE FOR FILL SHALL BE DISPOSED OFFSITE.
5. DISPOSAL: ALL DEMOLITION AND REMOVED MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OFF-SITE IN ACCORDANCE TO ALL FEDERAL, STATE, AND LOCAL HAULING AND DISPOSAL REGULATIONS UNLESS DIRECTED OTHERWISE BY THE OWNER. DISPOSAL IN WETLANDS AND FLOODPLAINS IS PROHIBITED. BURNING ON-SITE IS PROHIBITED.

EARTHWORK

1. WHEN EXCAVATED MATERIALS ARE INSUFFICIENT OR UNSUITABLE FOR USE AS FILL OR BACKFILL, BORROW MATERIAL SHALL BE IMPORTED BY THE CONTRACTOR. CONTRACTOR SHALL CALCULATE CUT AND FILL QUANTITIES AND SHALL IMPORT AND EXPORT MATERIALS AS NEEDED TO COMPLY WITH THE PROJECT PLANS, DETAILS, AND SPECIFICATIONS AT NO ADDITIONAL COST TO THE OWNER.
2. THE SUBGRADE OR FILL SHALL BE PROOF-ROLLED PRIOR TO PLACING AGGREGATE BASE COURSE OR SUBBASE ATOP SUCH MATERIALS. AGGREGATE BASE COURSE LEFT IN PLACE SHALL BE PROOF ROLLED PRIOR TO PLACING PAVEMENT. ANY SOIL STRATA IS SUBJECT TO PROOF ROLL AT THE DISCRETION AND DIRECTION OF THE OWNER'S REPRESENTATIVE.
3. BORROW SOIL: PRODUCT DATA, GRADATION, AND CERTIFICATION SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT.
4. PRIOR TO PLACING ANY SOIL MATERIAL OR PAVEMENTS, THE UNDERLYING COURSE OR SUBGRADE SHALL BE CLEANED OF ALL FOREIGN SUBSTANCES, ALL FROZEN MATERIALS REMOVED, AND THE SURFACE SHALL MEET COMPACTION AND SURFACE TOLERANCES.
5. RUTS OR SOFT YIELDING SPOTS IN THE UNDERLYING COURSES, AREAS HAVING INADEQUATE COMPACTION, AND DEVIATIONS OF THE SURFACE FROM THE REQUIREMENTS SHALL BE CORRECTED BY "SUBGRADE UNDERCUT"
6. DRIED OR CRUSTED COHESIVE SOILS SHALL BE PLOWED, DISKED OR OTHERWISE BROKEN UP BEFORE COMPACTION. IF WATER IS ADDED TO FILLS, THE LAYER SHALL BE SPREAD IN EVEN LIFTS, MOISTENED AS NECESSARY, THOROUGHLY MIXED, AND COMPACTED.
7. SUBGRADE UNDERCUT:
   A. UNDERCUT AND REMOVE UNSATISFACTORY SOILS TO DEPTH AND HORIZONTAL EXTENTS AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
   B. REPLACE THE REMOVED MATERIAL WITH FILL, GRADE AND COMPACT TO THE PLAN-INDICATED SUBGRADE ELEVATIONS IN ACCORDANCE WITH THE BACKFILL REQUIREMENTS OF THE PLAN
   C. CONTRACTOR SHALL UNDERLAY FILL MATERIAL WITH A STABILIZATION GEOGRID AS DIRECTED BY THE PLANS OR OWNER'S REPRESENTATIVE
   D. ALL SUBGRADE UNDERCUTS ARE SUBJECT TO ACCEPTANCE BY THE OWNER'S REPRESENTATIVE.
8. PROOF ROLLING:
   A. PROOF ROLL THE AREAS INDICATED, IN ADDITION TO THE COMPACTION SPECIFIED AND SHALL CONSIST OF THE APPLICATION OF COVERAGES WITH A HEAVY PNEUMATIC-TIRED ROLLER HAVING FOUR OR MORE TIRES, EACH LOADED TO A MINIMUM OF 30,000 POUNDS AND INFLATED TO A MINIMUM OF 125 PSI.
   B. MAINTAIN WATER CONTENT OF THE UNDERLYING MATERIAL AND BASE COURSE AT OPTIMUM OR AT THE PERCENTAGE DIRECTED FROM START OF COMPACTION TO COMPLETION OF PROOF ROLLING OF THAT LAYER.
   C. ANY BASE COURSE MATERIALS OR ANY UNDERLYING MATERIALS THAT PRODUCE UNSATISFACTORY RESULTS BY PROOF ROLLING SHALL BE REMOVED AND REPLACED WITH SATISFACTORY MATERIALS, RECOMPACTED AND PROOF ROLLED TO THE ACCEPTANCE OF THE OWNER'S REPRESENTATIVE.
9. PLACEMENT OF SUBSEQUENT LAYERS OF SOIL MATERIAL SHALL NOT BE PERFORMED UNTIL THE UNDERLYING MATERIAL HAS BEEN VERIFIED AND ACCEPTED BY THE TESTING AGENCY TO HAVE MET THE CONDITION, GRADATION, WATER CONTENT, AND COMPACTION AS REQUIRED BY THE DESIGN.
10. PROOF ROLLING, DEWATERING, AND SAFETY MEASURES SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.

COMPACTION/SOIL TESTING

1. FILL AND BACKFILL MATERIALS SHALL BE PLACED UNIFORMLY ON AN ACCEPTABLE SOIL SURFACE AND COMPACTED IN 8-INCH LIFTS UNLESS THE CONTRACTOR CAN DEMONSTRATE TO THE OWNER'S REPRESENTATIVE THAT ACCEPTABLE COMPACTION CAN BE ACHIEVED IN THICKER LIFTS.
2. COMPACTION EQUIPMENT:
   A. SHEEPSFOOT ROLLER FOR COHESIVE MATERIALS
   B. VIBRATORY FOR GRANULAR MATERIALS (SAND, STONE, AND GRAVEL)
3. WATER CONTENT: ±2% OF THE OPTIMUM (ASTM D 1557).
4. ROLLER: WORK FROM OUTSIDE TO THE CENTER, OVERLAPPING ON SUCCESSIVE TRIPS AT LEAST ONE-HALF THE WIDTH OF THE ROLLER. ALTERNATE TRIPS OF THE ROLLER SHALL BE SLIGHTLY DIFFERENT LENGTHS.
5. SPEED SHALL BE SUCH THAT DISPLACEMENT OF THE AGGREGATE DOES NOT OCCUR. IN ALL PLACES NOT ACCESSIBLE TO THE ROLLERS, THE MIXTURE SHALL BE COMPACTED WITH HAND-OPERATED POWER TAMPERS OR EXCAVATOR MOUNTED VIBRATORY COMPACTOR (I.E. HOE-PACK).
6. COMPACTION SHALL BE MEASURED RELATIVE TO THE MAXIMUM DRY DENSITY PER ASTM D 1557 (MODIFIED PROCTOR METHOD).
7. MINIMUM COMPACTION:
   A. TOPSOIL 85%
   B. GREENSPACE FILL 90%
   C. UNDER PAVEMENT 95%
   D. UTILITY TRENCH BACKFILL 95%
   E. BERMS/POND SLOPES 95%
8. FILL AND BACKFILL WITHIN A 1:1 ENVELOPE OF THE EDGE OF PAVEMENT OR BACK OF CURB SHALL BE TREATED AS "UNDER PAVEMENT"
9. TESTING:
   A. TESTING AGENCY: SEE "AUTHORITIES" – HAS AUTHORITY TO STOP OR REJECT WORK FOR QUALITY ON BEHALF OF THE OWNER
   B. MOISTURE-DENSITY RELATIONSHIP (ASTM D 1557 – MODIFIED PROCTOR): ONE TEST FOR EACH MATERIAL VARIATION AND BORROW SOURCE.
   C. SIEVE ANALYSIS, (ASTM C 136): 1 PER MATERIAL FOR EACH BORROW SOURCE, EACH RECLAIMED ON-SITE MATERIAL, AND FOR EACH VARIATION IN MATERIAL.
   D. IN-PLACE DENSITIES (ASTM D1556 – SAND CONE OR ASTM D6938 – NUCLEAR GAUGE):
      i. GENERAL: 1 PER LOCATION
      ii. UNDER SIDEWALKS: 1 PER 100 SQUARE FEET
      iii. UNDER OTHER PAVEMENT: 1 PER 500 SQUARE FEET
      iv. UTILITY TRENCHES: 1 PER 100 FEET OF PIPE

EXCAVATION, TRENCHING, AND BACKFILL

1. ONE-CALL UTILITY LOCATING: MISSDIG – 811 OR 800-482-7171. CONTRACTOR SHALL CALL AND OPEN AN EXCAVATION TICKET A MINIMUM OF 3 WORKING DAYS PRIOR TO ANY EXCAVATION. WHEN MARKINGS AND FLAGS ARE DISRUPTED OR DESTROYED – CALL FOR REMARKING.
2. SURVEYOR SHALL PROVIDE STAKING FOR GRADING, FILL THICKNESS, CUT AND FILL LIMITS, AND ANY OTHER FIELD CONTROL NEEDED TO COMPLETE THE WORK IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. EXCAVATED MATERIALS SHALL BE PLACED ON THE UPHILL SIDES OF TRENCHES, WHERE POSSIBLE, AND SHALL BE SET BACK 10 FEET FROM THE TRENCH.
4. CONTAMINATED SOILS ARE NOT ANTICIPATED TO BE ENCOUNTERED. IF CONTAMINATED SOILS ARE EXCAVATED, THEY SHALL BE ISOLATED FROM OTHER MATERIALS, PROTECTED FROM SPREADING CONTAMINANTS INTO STORM SEWERS AND WATERWAYS, AND SHALL BE DISPOSED OF ACCORDING TO LOCAL AND STATE REGULATIONS.
5. SALVAGE EXCAVATED MATERIALS AS NEEDED FOR USE AS FILL OR BACKFILL. SEGREGATE SALVAGED MATERIALS AND PREVENT CONTAMINATION. BORROW SOILS NEEDED TO REPLACE REJECTED MATERIALS SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A SAFE EXCAVATION AT ALL TIMES. USE SHORING, TRENCH BOXES, SLOPING, BENCHING, DEWATERING AS NEEDED TO ENSURE THE SAFETY OF WORKERS, INSPECTORS, TESTERS, AND OBSERVERS. UNATTENDED EXCAVATIONS SHALL BE BARRICADED AND/OR FENCED TO PREVENT ACCIDENTS – CONTRACTOR IS RESPONSIBLE FOR PUBLIC SAFETY ANY EXCAVATIONS THEY CREATE.
7. TRENCH BACKFILL:
   A. EXCAVATED BACKFILL: DRY, STABLE, EXCAVATED MATERIAL SHALL ONLY PERMITTED AS BACKFILL UNDER NON-PAVED AREAS, UNLESS THE OWNER'S REPRESENTATIVE DETERMINES IT MEETS THE REQUIREMENTS "GRANULAR BACKFILL."
   B. GRANULAR BACKFILL: SAND OR GRAVEL MEETING THE GRADATION SPECIFIED IN THE PLANS OR AS DETERMINED BY THE ENGINEER.
   C. STONE BEDDING AND INITIAL BEDDING: STONE OR GRANULAR MATERIAL MEETING THE GRADATION SPECIFIED IN THE PLANS
8. PLACE TRENCH BACKFILL AT OPTIMAL DENSITY TO ALLOW FOR MINIMUM COMPACTION. WET OR SLOPPY BACKFILL SHALL NOT BE PERMITTED.
9. TRENCH OR EXCAVATE TO ALLOW FOR PROPER PIPE LINE AND GRADE, UTILITY STRUCTURE INSTALLATION, BRACING AND SHORING (IF NEEDED), AND TO ALLOW FOR THE PROPOSED PAVEMENT OR RESTORATION CROSS-SECTION PER THE PLANS. EXCESS EXCAVATION, NOT DIRECTED BY THE OWNER'S REPRESENTATIVE AND NOT NEEDED TO INSTALL UTILITIES OR SITE IMPROVEMENTS SHALL BE BACKFILLED WITH COMPACTED GRANULAR MATERIALS AT THE CONTRACTOR'S EXPENSE,
10. SOFT OR WET SUBGRADE SHALL BE CORRECTED BY "SUBGRADE UNDERCUT"
11. PLACE AND COMPACT FILL MATERIALS IN ACCORDANCE WITH "COMPACTION / SOIL TESTING"

GRADING AND RESTORATION

1. SUBMIT RESTORATION PROCEDURE, SEEDS, FERTILIZERS, AND/OR PLANTS TO THE ENGINEER FOR APPROVAL PRIOR TO EXECUTING THE WORK.
2. ALL DISTURBED UNPAVED LAWN AREAS ARE TO RECEIVE FOUR INCHES OF TOPSOIL, THE CONTRACTOR MAY USE SOD, SEED AND MULCH, OR HYDROSEED, UNLESS OTHERWISE NOTED. THESE AREAS SHALL BE WATERED BY THE CONTRACTOR UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
3. TOPSOIL PLACEMENT:
   A. BEFORE SPREADING THE TOPSOIL, ASSURE THAT ALL NECESSARY EROSION AND SEDIMENT CONTROL PRACTICES ARE IN PLACE AND FUNCTIONING PROPERLY. THESE PRACTICES MUST BE MAINTAINED UNTIL THE SITE IS PERMANENTLY STABILIZED.
   B. GRADING – MAINTAIN GRADES ON THE AREAS TO BE TOPSOILED ACCORDING TO THE APPROVED PLAN AND DO NOT ALTER THEM BY ADDING TOPSOIL.
   C. IMMEDIATELY PRIOR TO SPREADING THE TOPSOIL, LOOSEN OR SCARIFY THE SUBGRADE TO A DEPTH OF AT LEAST 6 INCHES.
   D. TOPSOIL SHALL NOT BE SPREAD WHILE IT IS FROZEN OR MUDDY OR WHEN THE SUBSOIL IS FROZEN OR MUDDY.
   E. COMPACT THE TOPSOIL ENOUGH TO ENSURE GOOD CONTACT WITH THE UNDERLYING SOIL, BUT AVOID EXCESSIVE COMPACTION, AS IT INCREASES RUNOFF AND INHIBITS SEED GERMINATION AND SEEDLING GROWTH.
4. ALL DISTURBED RETENTION AREAS ARE TO BE SEEDED AND MULCHED USING AN APPROVED SEED MIX.
5. ALL PROPOSED SLOPES ARE TO BE GRADED TO 4H:1V OR FLATTER, UNLESS OTHERWISE INDICATED ON SHEETS.
6. SPOT ELEVATIONS SHOWN INDICATE FINISHED PAVEMENT ELEVATIONS UNLESS OTHERWISE NOTED. ELEVATIONS SHOWN AT STRUCTURES ARE TO FINISH GRADE UNLESS OTHERWISE INDICATED.
7. FINISHED GRADING SHALL BE COMPLETED ACCORDING TO THE GRADING PLAN CONTOURS AND SPOT GRADES. THE CONTRACTOR SHALL UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING, INCLUDING ADJACENT TRANSITION AREAS. PROVIDE A SMOOTH FINISHED SURFACE WITHIN SPECIFIED TOLERANCES, WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS, WHERE ELEVATIONS ARE SHOWN, OR BETWEEN SUCH POINTS, AND EXISTING GRADES. AREAS THAT HAVE BEEN FINISH GRADED SHALL BE PROTECTED FROM SUBSEQUENT CONSTRUCTION OPERATIONS.
8. AFTER THE SITE GRADING IS COMPLETED, IF EXCESS SOIL MATERIAL OR DEMOLITION DEBRIS EXISTS, THE CONTRACTOR SHALL DISPOSE OF ALL EXCESS SOIL AND DEBRIS MATERIAL IN A MANNER ACCEPTABLE TO THE OWNER AND THE REGULATING AGENCIES INVOLVED.
9. DISTURBED AREAS SHALL BE SLOPED AND GRADED TO RESTORE ORIGINAL DRAINAGE PATTERNS, OR PROVIDE POSITIVE DRAINAGE WHERE NEEDED.
10. RESTORATION OF NON-PAVED AREAS SHALL BE WITH SALVAGED OR IMPORTED TOPSOIL AND PLANTED IN ACCORDANCE WITH THE LANDSCAPE PLANS OR SEEDED AND MULCHED. SEEDED SLOPES GREATER THAN 1V:6H SHALL BE STABILIZED WITH SEED AND STAKED MULCH BLANKETS.

DISPOSAL OF SURPLUS AND WASTE MATERIALS

1. DISPOSAL: REMOVE SURPLUS SATISFACTORY SOIL AND WASTE MATERIAL, INCLUDING UNSATISFACTORY SOIL, TRASH, AND DEBRIS, AND LEGALLY DISPOSE OF IT OFF THE OWNER'S PROPERTY.

RIPRAP

1. RIPRAP MATERIAL SHALL BE IN ACCORDANCE WITH THE D_{50} MEASUREMENT AS DEFINED IN THE PLAN DETAILS, MEETING THE REQUIREMENTS OF MDOT SECTION 916.01.C RIPRAP
2. MATERIAL SHALL BE WASHED ANGULAR STONE. SHALE AND STONE WITH SHALE SEAMS ARE NOT ACCEPTABLE. THE LEAST DIMENSION OF THE MATERIAL SHALL NOT BE LESS THAN 1/3 OF THE GREATEST DIMENSION. THE MINIMUM WEIGHT OF THE MATERIAL SHALL BE 155 POUNDS PER CUBIC FOOT. PRIOR TO DELIVERING STONE, SAMPLES SHALL BE PROVIDED TO THE ENGINEER TO CONFIRM ACCEPTABILITY. UPON ACCEPTANCE, ADDITIONAL STONE MAY BE BROUGHT TO THE SITE.
3. GEOTEXTILE MATERIAL SHALL BE IN ACCORDANCE WITH THE PLAN DETAILS. GEOTEXTILE SHALL BE NON-WOVEN FABRIC AND SHALL HAVE PHYSICAL PROPERTIES EQUIVALENT TO GEOTEXTILE SEPARATOR NON WOVEN DESCRIBED IN TABLE 910-1 OF THE 2020 STATE OF MICHIGAN STANDARD SPECIFICATIONS FOR CONSTRUCTION.

SLOPE STABILIZATION

1. SLOPES GREATER THAN 1V:6H SHALL BE RESTORED USING DOUBLED NETTED STRAW MULCH BLANKET.
2. DOUBLED NETTED STRAW MULCH BLANKET SHALL MEET THE REQUIREMENTS MDOT SECTION 917.14.B.b "HIGH VELOCITY STRAW MULCH BLANKETS" OF THE 2020 STATE OF MICHIGAN STANDARD SPECIFICATION FOR CONSTRUCTION.
3. INSTALL ALL SLOPE EROSION CONTROL AND STABILIZATION ITEMS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDED PROCEDURES.
4. ALL MATS, GEOSYNTHETICS, AND BLANKETS SHALL BE ANCHORED IN BACKFILLED TRENCHES AND/OR STAPLED AS NECESSARY TO PREVENT DAMAGE AND TO PREVENT EROSION BENEATH AND AROUND INSTALLED MATERIALS.
5. ALL MATERIALS SHALL OVERLAP AT LEAST 12 INCHES OR AS RECOMMENDED BY THE MANUFACTURER, WHICHEVER IS GREATER.

UTILITIES

1. UTILITY CONTACTS – PRIVATE:
   A. ELECTRIC – DTE ENERGY (313) 407-5364
   B. GAS – CONSUMERS ENERGY GAS (800) 477-5050
   C. CABLE – COMCAST (855) 962-8525
   D. PHONE – AT&T (231) 409-7939
2. UTILITY AUTHORITIES – PUBLIC:
   A. WATER/SEWER – CITY OF TROY DEPARTMENT OF PUBLIC WORKS (248) 885-1982
   B. STORM SEWER – CITY OF TROY PLANNING DEPARTMENT (248) 885-1982
3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATIONS AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND LIMITED MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION SHALL NOT BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY THE OWNER'S REPRESENTATIVE OF DISCREPANCIES IN THE PLANS.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE. THE ENGINEER, ARCHITECT, AND OWNER ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE LOCATION OR DEPTH OF ANY EXISTING UTILITY SHOWN OR NOT SHOWN ON THE PROJECT DRAWINGS.
5. ALL UTILITY INSTALLATIONS AND MATERIALS SHALL BE IN ACCORDANCE WITH THE JURISDICTION'S STANDARD DETAILS, SPECIFICATIONS, AND REQUIREMENTS, WHERE APPLICABLE.
6. CONTRACTOR SHALL NOT OPERATE, INTERFERE WITH, CONNECT ANY PIPE OR HOSE TO, OR TAP ANY WATER MAIN UNLESS DULY AUTHORIZED TO DO SO, IN WRITING, BY THE AUTHORITY HAVING JURISDICTION AND THE OWNER. ANY ADVERSE CONSEQUENCES OF SCHEDULED OR UNSCHEDULED DISRUPTIONS OF SERVICE TO THE PUBLIC ARE TO BE THE LIABILITY OF THE CONTRACTOR.
7. NOTICE SHALL BE GIVEN BY THE CONTRACTOR, UNLESS WAIVED BY THE AUTHORITY HAVING JURISDICTION, TO ALL USERS TO AFFECTED BY A PROPOSED UTILITY OUTAGE, AT LEAST 48 HOURS IN ADVANCE OF THE PROPOSED OUTAGE.
8. ANY CONSTRUCTION THAT INVOLVES ELECTRICAL WIRING, CONDUIT RELOCATION OR INSTALLATION, OR REMOVAL OF ELECTRIFIED UTILITIES MUST BE DONE IN COORDINATION WITH THE CITY OF TROY BUILDING DEPARTMENT
9. A MINIMUM VERTICAL SEPARATION OF 18 INCHES IS REQUIRED AT ALL WATER MAIN CROSSINGS WITH SANITARY SEWER OR STORM SEWER.
10. WHERE A VERTICAL SEPARATION BETWEEN PROPOSED UTILITIES AND EXISTING FRANCHISE UTILITIES IS NOT FEASIBLE, CONTRACTOR SHALL PROVIDE A CONCRETE CRADLE (MDOT S3 OR EQUIVALENT; 6" MIN. THICKNESS) TO PROTECT BOTH UTILITIES.
11. AFTER CONSTRUCTION IS COMPLETED, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH AN AS-BUILT RECORD OF UTILITY CONSTRUCTION. THE AS-BUILT SHALL INCLUDE LOCATION AND LENGTH DEVIATIONS OR CHANGES TO THE PLAN. CONTRACTOR SHALL VERIFY AND RECORD ELEVATIONS UNLESS DIRECTED OTHERWISE BY THE OWNER'S REPRESENTATIVE.

OHM
ARCHITECTS ENGINEERS PLANNERS
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Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

ISSUE	DESIGN DEVELOPMENT
REVISIONS	

DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0126-21-4020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION

CIVIL NOTES AND SPECIFICATION

SHEET C-501

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CONCRETE

1. CONCRETE WORK SHALL MEET THE REQUIREMENTS OF MDOT, ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE", AND AS AUGMENTED BELOW.
2. REMOVAL OF EXISTING CONCRETE CURB AND GUTTER, CONCRETE SLAB AND CONCRETE SIDEWALK SHALL BE TO THE NEXT CLOSEST JOINT OUTSIDE OF THE PLANNED REMOVAL AREA.
3. CONCRETE CURB AND GUTTER REPLACED DURING CONSTRUCTION SHALL MATCH THE CROSS SECTION OF THE REMAINING CONCRETE CURB AND GUTTER.
4. REPLACEMENT PAVEMENT SECTIONS TO MATCH OR EXCEED EXISTING CROSS SECTION.
5. PAVEMENT REMOVAL:
   A. SAWCUT AND REMOVE EXISTING PAVEMENT AND AGGREGATE BASE FROM PARKING LOT TO A DEPTH NECESSARY TO CONSTRUCT THE PROPOSED CROSS SECTION AT THE PLAN FINISH GRADES.
   B. GRADE SUBGRADE TO CORRESPOND TO PROPOSED FINISH GRADE OF PAVEMENTS – MAINTAIN MINIMUM THICKNESS.
   C. UNDER OWNER'S REPRESENTATIVE OBSERVANCE, PROOF-ROLL SUBGRADE. SOFT POCKETS AND RUTTING AREAS SHALL BE REPAIRED BY FOLLOWING "SUBGRADE UNDERCUT."
   D. PLACE AND COMPACT BASE COURSE(S) PER THE PLAN DETAIL. FACILITATE DENSITY TESTING DURING BASE COURSE PLACEMENT.
6. FINAL PAVEMENT ELEVATIONS SHALL COINCIDE WITH PRE-EXISTING ADJOINING SURFACE ELEVATIONS AND PRE-EXISTING SURFACE DRAINAGE SLOPES SHALL BE MAINTAINED UNLESS ALTERATIONS ARE CALLED OUT ON THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE.
7. WEATHER RESTRICTIONS ON CONCRETE PLACEMENT:
   A. COLD WEATHER LIMITATIONS – DO NOT PLACE CONCRETE WHEN THE AIR TEMPERATURE REACHES 40°F AND IS FALLING, OR IS ALREADY BELOW THAT POINT. PLACEMENT MAY BEGIN WHEN THE AIR TEMPERATURE REACHES 35°F AND IS RISING, OR IS ALREADY ABOVE 40°F. MAKE PROVISIONS TO PROTECT THE CONCRETE FROM FREEZING DURING THE SPECIFIED CURING PERIOD. IF NECESSARY TO PLACE CONCRETE WHEN THE TEMPERATURE OF THE AIR, AGGREGATES, OR WATER IS BELOW 35°F, PLACEMENT AND PROTECTION SHALL BE APPROVED IN WRITING.
   B. HOT WEATHER LIMITATIONS – THE TEMPERATURE OF THE CONCRETE AS PLACED SHALL NOT EXCEED 90°F. THE MIXING WATER AND/OR AGGREGATES SHALL BE COOLED, IF NECESSARY, TO MAINTAIN A SATISFACTORY PLACING TEMPERATURE. FOLLOW PROCEDURES RECOMMENDED IN ACI 305R "HOT WEATHER CONCRETING."
   C. CONCRETE SHALL NOT BE PLACED DURING RAIN EVENTS THAT WOULD SATURATE THE CONCRETE UNLESS ADEQUATE MEASURES ARE TAKEN BY THE CONTRACTOR, AND APPROVED BY THE OWNER'S REPRESENTATIVE, TO ENSURE THE QUALITY OF THE PRODUCT.
8. PRODUCT INFORMATION:
   A. SUBMIT EACH PRODUCT FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT.
   B. CONCRETE:
      i. STRENGTH – MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 4000 PSI OR AS NOTED ON THE PLANS.
      ii. AIR CONTENT – THE CONCRETE SHALL BE AIR ENTRAINED WITH AIR CONTENT BY VOLUME OF CONCRETE BETWEEN 5.5 TO 8.5 PERCENT, BASED ON MEASUREMENTS MADE IMMEDIATELY AFTER DISCHARGED FROM THE MIXER.
      iii. SLUMP – THE CONCRETE SLUMP SHALL BE 4 INCHES PLUS OR MINUS 1 INCH PER ASTM C 143/C 143M UNLESS A WATER REDUCING ADMIXTURE IS USED.
      iv. WATER TO CEMENT RATIO: 0.45
      v. CEMENTITIOUS MATERIAL – SUBMIT A PRODUCT COMPLIANT WITH MDOT THAT WILL PREVENT ALKALI-SILICA REACTION (ASR) BY INCLUDING SLAG OR A LOW ALKALI CEMENT
      vi. CEMENT CONTENT SHALL BE SIX BAGS PLUS OR MINUS ½ BAG PER CUBIC YARD.
      vii. CONC. WALKS AND PAVEMENT SHALL INCLUDE POLYPROPYLENE FIBRILLATED FIBERS WITH A VOLUME OF 1.5 LBS/CY.
   C. REINFORCEMENT STEEL – REINFORCEMENT BARS AND STEEL SHALL CONFORM TO MDOT SECTIONS 905 AND 914.
   D. CURING COMPOUNDS:
      i. CLEAR – ASTM C 309, TYPE 2
      ii. TRANSPARENT – ASTM C 309, TYPE 1-D, CLASS B WITH FUGITIVE DYE
9. CURING AND PROTECTION – FOLLOW ACI 308R 'GUIDE TO CURING CONCRETE.' PROTECT CONCRETE AGAINST LOSS OF MOISTURE AND RAPID TEMPERATURE CHANGES FOR AT LEAST 7 DAYS FROM THE BEGINNING OF THE CURING OPERATION. PROTECT UNHARDENED CONCRETE FROM RAIN AND FLOWING WATER. ALL EQUIPMENT NEEDED FOR ADEQUATE CURING AND PROTECTION OF THE CONCRETE SHALL BE ON HAND AND READY FOR USE BEFORE ACTUAL CONCRETE PLACEMENT BEGINS. PROTECTION SHALL BE PROVIDED AS NECESSARY TO PREVENT CRACKING OF THE PAVEMENT DUE TO TEMPERATURE CHANGES AND MOISTURE DURING THE CURING PERIOD. INADEQUATE CURING SHALL BE GROUND FOR REJECTION OF THE WORK AND REMOVAL AND REPLACEMENT BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
10. TESTING AND ACCEPTANCE:
   A. TESTING AGENCY: SEE 'AUTHORITIES' – MAY STOP OR REJECT WORK OR PRODUCTS NOT MEETING PROJECT REQUIREMENTS. TESTING AGENCY SHALL PERFORM ALL TESTS, EXCEPT AS NOTED.
   B. STRENGTH CYLINDERS – 1 SET OF 4 CYLINDERS EVERY 50 CY, AT LEAST TWICE PER DAY PER ASTM C 172 AND ASTM C 31. CONTRACTOR SHALL CREATE ADDITIONAL TEST CYLINDERS FOR VERIFICATION OF THE TESTING AGENCY'S RESULTS.
   C. STRENGTH TEST – EACH STRENGTH TEST RESULT SHALL BE THE AVERAGE OF 2 TEST CYLINDERS FROM THE SAME CONCRETE SAMPLE TESTED AT THE DESIGN STRENGTH PERIOD (28-DAYS UNLESS MODIFIED), UNLESS OTHERWISE SPECIFIED OR APPROVED. CONCRETE SPECIFIED ON THE BASIS OF COMPRESSIVE STRENGTH WILL BE CONSIDERED SATISFACTORY IF THE AVERAGES OF ALL SETS OF THREE CONSECUTIVE STRENGTH TEST RESULTS EQUAL OR EXCEED THE SPECIFIED STRENGTH, AND NO INDIVIDUAL STRENGTH TEST RESULT FALLS BELOW THE SPECIFIED STRENGTH BY MORE THAN 500 PSI.
   D. AIR CONTENT – ASTM C173/C173M. TWO TESTS PER CLASS OF CONCRETE DURING EACH SHIFT. ADDITIONAL TESTS SHALL BE MADE WHEN EXCESSIVE VARIATION IN CONCRETE WORKABILITY IS NOTICED. IF RESULTS ARE OUT OF TOLERANCE, THE CONTRACTOR SHALL TAKE APPROPRIATE ACTION TO HAVE THE AIR CONTENT CORRECTED AT THE PLANT. ADDITIONAL TESTS FOR AIR CONTENT WILL BE PERFORMED ON EACH TRUCKLOAD OF MATERIAL UNTIL SUCH TIME AS THE AIR CONTENT IS WITHIN THE TOLERANCE SPECIFIED.
   E. SLUMP TEST – TWO (2) SLUMP TESTS SHALL BE MADE OF EACH CLASS OF CONCRETE FOR EVERY 250 CUBIC YARDS, OR FRACTION THEREOF, OF CONCRETE PLACED DURING EACH SHIFT. ADDITIONAL TESTS SHALL BE PERFORMED WHEN EXCESSIVE VARIATION IN THE WORKABILITY OF THE CONCRETE IS NOTED OR WHEN EXCESSIVE CRUMBLING OR SLUMPING IS NOTED ALONG THE EDGES OF SLIP-FORMED CONCRETE.
   F. THICKNESS EVALUATION – THE ANTICIPATED THICKNESS OF THE CONCRETE SHALL BE DETERMINED PRIOR TO PLACEMENT BY PASSING A TEMPLATE THROUGH THE FORMED SECTION OR BY MEASURING THE DEPTH OF OPENING OF THE EXTRUSION TEMPLATE OF THE CURB FORMING MACHINE. IF A SLIP FORM PAVER IS USED FOR PLACEMENT, THE SUBGRADE SHALL BE TRUE TO GRADE PRIOR TO CONCRETE PLACEMENT AND THE THICKNESS WILL BE DETERMINED BY MEASURING EACH EDGE OF THE COMPLETED SLAB.
   G. CONCRETE REJECTED PRIOR TO PLACEMENT SHALL BE REMOVED FROM THE SITE. CONCRETE REJECTED AFTER PLACEMENT SHALL BE SAWCUT (FULL DEPTH) AND REMOVED FROM THE SITE AND REPLACED IN KIND WITH ACCEPTABLE MATERIALS WHICH MEET THE CONTRACT REQUIREMENTS, UNLESS A PRICE ADJUSTMENT IS ACCEPTED BY THE OWNER.
11. GRANULAR MATERIAL SHALL BE A MINIMUM OF MDOT CLASS II COMPACTED TO 98% ASTM 1557 VALUE. GRANULAR MATERIAL WITHIN THE ROW SHALL MEET OAKLAND COUNTY REQUIREMENTS. COMPACTED GRANULAR MATERIAL SHALL EXTEND HORIZONTALLY FOR MINIMUM DISTANCE OF 6" BEYOND THE EDGES OF NEW CONCRETE.
12. ALL PREPARED GRANULAR FILL BASE SHALL MEET COMPACTION REQUIREMENTS PRIOR TO THE SCHEDULING OF CONCRETE/PAVING MATERIAL DELIVERY. CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF REQUIRED MATERIAL TESTING.
13. PLACE CONCRETE ON A MOIST COMPACT BASE.

CONCRETE JOINTS AND SEALANT

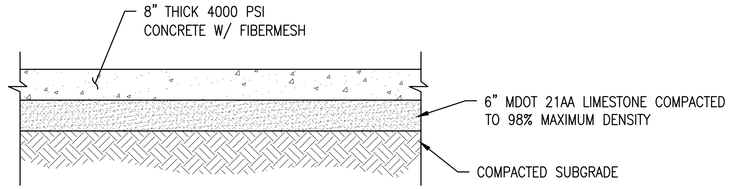
1. ALL JOINTS SHALL BE SAWCUT NO LATER THAN 12 HOURS AFTER POURING.
2. JOINT SPACING AND PATTERN SHALL BE COMPLIANT WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
3. CONCRETE JOINT FILLER SEALANT SHALL BE ASTM D 6690 TYPE II COMPLIANT WITH MDOT SECTION 914.04.
4. JOINTS SHALL BE CONSTRUCTED, SAWED, AND SEALED IN ACCORDANCE WITH MDOT SECTION 602, INCIDENTAL TO THE CONCRETE WORK.
5. CURING PERIOD – FOLLOWING APPLICATION OF THE MATERIAL MAINTAIN PROTECTIVE MEASURES TO PROVIDE SUFFICIENT TIME TO ALLOW THE SEALANT TO BE TACK FREE.
6. TRAFFIC CONTROLS – KEEP TRAFFIC OFF SURFACES FRESHLY TREATED WITH SEALANT. PROVIDE SUFFICIENT WARNING SIGNS AND BARRICADES SO THAT TRAFFIC WILL NOT TRAVEL OVER FRESHLY TREATED SURFACES.
7. PROVIDE 1/2" THICK SEALED EXPANSION JOINTS AT ALL POINTS OF CONTACT WITH FIXED OBJECTS SUCH AS BUILDING, CURBS, PAVING, POLES, SIGNS AND HYDRANTS. EXPANSION JOINTS SHALL BE INCIDENTAL TO CONCRETE INSTALLATION.
8. PROVIDE HAND TOOLED CONTROL JOINTS IN CONCRETE WALKS TO FORM PANELS OF SIZES INDICATED OR MATCH EXISTING PATTERN. HAND TOOL ½" WIDE CONTROL JOINTS TO A MINIMUM DEPTH OF ONE (1) INCH. TOTAL DEPTH OF CONTROL JOINT SHALL BE ¼ OF SLAB THICKNESS. FOR SLAB THICKNESS GREATER THAN 8", SAWCUTTING, IN ADDITION TO AND AFTER HAND TOOLING JOINTS, IS REQUIRED TO MEET A FINAL DEPTH OF ¼ THICKNESS OF THE SLAB. SAWCUTTING SHALL OCCUR AS SOON AS POSSIBLE AND WITHIN 24 HOURS OF CONCRETE INSTALLATION. INITIAL SURFACE SAWCUT CONTROL JOINTS (SAWCUT ONLY) ARE PROHIBITED UNLESS APPROVED BY OWNER.
9. SAWCUT & GRINDING TOOLS MUST BE ATTACHED TO A WATER SOURCE OR A VACUUM DEVICE TO MINIMIZE DUST EXPOSURE.
10. SAWCUTTING FOR REMOVALS SHALL BE INCIDENTAL TO REMOVAL.
    H.
    I.DENSITY– 97% OF MAXIMUM – TESTING WITH NUCLEAR GAUGE PER ASTM D2950, AT A MINIMUM FREQUENCY OF 1 PER EVERY 5,000 SQUARE FEET OF HOT MIX PLACEMENT WITH AT LEAST 4 TESTS PER DAY.
    J. TEMPERATURE – EACH LOAD SHALL BE TESTED.
11. CORRECTING DEFICIENT AREAS – ALL ASPHALTIC COURSES OR COATS THAT ARE DEFECTIVE, CONTAMINATED, DAMAGED, OR OTHERWISE UNACCEPTABLE, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER. SKIN PATCHING OR FINISHED OVERLAY WILL NOT BE PERMITTED.
12. BASE AND LEVELLING COURSES SHALL BE PLACED AND COMPACTED WITHIN 1/2 INCH OF THE DESIGN COURSE THICKNESS.
13. WEARING COURSES SHALL BE PLACED AND COMPACTED WITHIN 1/4 INCH OF THE DESIGN COURSE THICKNESS.
14. PAVEMENT SURFACE SMOOTHNESS: COMPACT EACH COURSE TO PRODUCE A SURFACE SMOOTHNESS WITHIN THE FOLLOWING TOLERANCES AS DETERMINED BY USING A 10-FOOT STRAIGHTEDGE APPLIED TRANSVERSELY OR LONGITUDINALLY TO PAVED AREAS:
    A. BASE COURSE AND LEVELLING COURSE: 1/4 INCH.
    B. WEARING COURSE: 1/8 INCH.
    C. CROWNED SURFACES: TEST WITH CROWNED TEMPLATE CENTERED AND AT RIGHT ANGLE TO CROWN. MAXIMUM ALLOWABLE VARIANCE FROM TEMPLATE IS 1/4 INCH.

BITIMOUS TACK AND PRIME COATS

1. BITUMINOUS TACK AND PRIME COATS TO MEET REQUIREMENTS OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION DIVISION 9.
2. SUBMITTAL – COPIES OF ALL TEST RESULTS FOR EMULSIFIED ASPHALT, BITUMINOUS MATERIALS, AND CERTIFIED COPIES OF THE MANUFACTURER'S TEST REPORTS INDICATING TEMPERATURE VISCOSITY RELATIONSHIP FOR CUTBACK ASPHALT AND COMPLIANCE WITH APPLICABLE SPECIFIED REQUIREMENTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.
3. ENVIRONMENTAL FACTORS FOR MATERIAL PLACEMENT – APPLY BITUMINOUS COAT ONLY WHEN THE SURFACE TO RECEIVE THE BITUMINOUS COAT IS DRY. APPLY BITUMINOUS COAT ONLY WHEN THE ATMOSPHERIC TEMPERATURE IN THE SHADE IS 5°F OR ABOVE WHEN THE TEMPERATURE HAS NOT BEEN BELOW 35°F FOR THE 12 HOURS PRIOR TO APPLICATION, UNLESS OTHERWISE DIRECTED.
4. TACK COAT SHALL BE APPLIED AT A UNIFORM RATE OF 0.05 TO 0.15 GALLONS PER SQUARE YARD OF PAVEMENT SURFACE.
5. PRIME COAT INFORMATION – PRIME COAT SHALL BE APPLIED IN A UNIFORM, CONTINUOUS SPREAD AT THE RATE OF NOT LESS THAN 0.2 GALLONS, AND NOT MORE THAN 0.3 GALLONS, PER SQUARE YARD APPLIED IN TWO APPLICATIONS.
6. PREPARATION OF SURFACE – IMMEDIATELY BEFORE APPLYING THE BITUMINOUS COAT, REMOVE ALL LOOSE MATERIAL, DIRT, CLAY, OR OTHER OBJECTIONABLE MATERIAL FROM THE SURFACE TO BE TREATED BY MEANS OF A POWER BROOM OR BLOWER SUPPLEMENTED WITH HAND BROOMS. THE SURFACE SHALL BE DRY AND CLEAN AT THE TIME OF TREATMENT.
7. CURING PERIOD – FOLLOWING APPLICATION OF THE BITUMINOUS MATERIAL AND PRIOR TO APPLICATION OF THE SUCCEEDING LAYER OF PAVEMENT, ALLOW THE BITUMINOUS COAT TO CURE AND TO OBTAIN EVAPORATION OF ANY VOLATILES OR MOISTURE. MAINTAIN THE COATED SURFACE UNTIL THE SUCCEEDING LAYER OF PAVEMENT IS PLACED, BY PROTECTING THE SURFACE AGAINST DAMAGE AND BY REPAIRING AND RECOATING DEFICIENT AREAS.
8. TRAFFIC CONTROLS – KEEP TRAFFIC OFF SURFACES FRESHLY TREATED WITH BITUMINOUS MATERIAL. PROVIDE SUFFICIENT WARNING SIGNS AND BARRICADES SO THAT TRAFFIC WILL NOT TRAVEL OVER FRESHLY TREATED SURFACES.

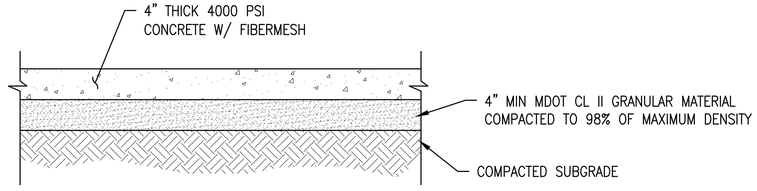
AGGREGATE BASE COURSE

1. AGGREGATE BASE COURSE SHALL BE:
   A. SALVAGED AGGREGATE ONLY AS APPROVED BY THE OWNER'S REPRESENTATIVE,
   B. MDOT 22A, AND/OR
   C. MDOT 21AA.
2. UNDERLYING SUBGRADE SHALL BE GRADED TO CORRESPOND TO PROPOSED FINISH GRADE OF THE PAVEMENTS, CONFORM TO THE LINES, GRADES, AND CROSS SECTION SHOWN, AND DRAIN TOWARDS STORM WATER COLLECTION SYSTEM (CATCH BASINS, INLETS, CURB CUTS, SPILLWAYS, ETC.) WHILE MEETING THE MINIMUM THICKNESS PER THE PAVEMENT DETAIL.
3. AVERAGE JOB THICKNESS OF COMPACTED MATERIAL SHALL BE WITHIN 1/4 INCH OF THE DESIGN THICKNESS. CORRECT DEFICIENCIES BY SCARIFYING, ADDING MATERIAL, REBLADING, AND RECOMPACTING AS DIRECTED. THE TOTAL THICKNESS OF THE BASE COURSE SHALL BE MEASURED AT THE DIRECTION OF THE OWNER'S REPRESENTATIVE.
4. SHOULD THE SURFACE BECOME ROUGH, CORRUGATED, UNEVEN IN TEXTURE, OR TRAFFIC MARKED PRIOR TO COMPLETION, THE UNSATISFACTORY PORTION SHALL BE SCARIFIED, REWORKED AND RECOMPACTED OR IT SHALL BE REPLACED AS DIRECTED.



CONCRETE PAVEMENT

NOT TO SCALE



CONCRETE SIDEWALK SECTION/DECORATIVE CONCRETE SECTION

NOT TO SCALE

LONGITUDINAL JOINTS

JOINT A Curb bulkhead joint, 1/4" x 2 1/4" saw cut filled with hot-poured rubber asphalt joint sealer, epoxy coated lane ties spaced at 40" centers.

JOINT F Pavement bulkhead joint, epoxy coated lane ties at 40" centers 1/4" x2 1/4" saw cut filled with hot-poured rubber asphalt joint sealer.

JOINT D Saw cut, 1/4"x 2 3/4" filled with hot-poured rubber asphalt joint sealer. 5/8" x 30" tie bars spaced at 60" centers (24' pavement width required)

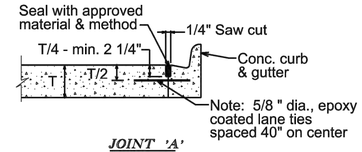
Longitudinal joints shall be sawed. no premolded joint fillers will be allowed or approved.

TRANSVERSE JOINTS

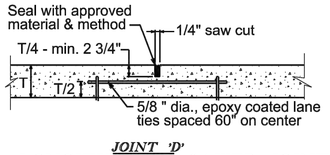
JOINT B Plane of weakness joints shall be cut at +/- 15' intervals; joints shall be sawed 2 1/4" x 5 /16" and filled with hot-poured rubber asphalt joint sealer.

JOINT H Sawcut 1/4" x 2 3/4" filled with hot-poured rubber asphalt joint sealer. (plane of weakness joint - end of pour) 5/8" dia. x 30" long deformed epoxy coated tie bar at 24" c. to c.

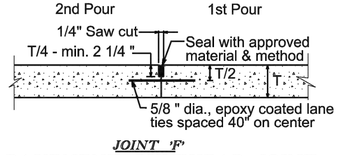
A premolded transverse joint shall be installed every 60' with transverse sawed joint placed every 15'.



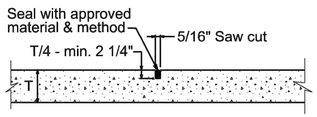
JOINT 'A'
CURB BULKHEAD JOINT



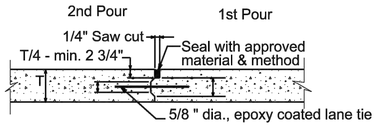
JOINT 'D'
LONGITUDINAL SAWED JOINT



JOINT 'F'
PAVEMENT BULKHEAD JOINT



JOINT 'B'
SAWED CONTRACTION JOINT



JOINT 'H'
CONSTRUCTION JOINT

PAVEMENT JOINT DETAILS

NOT TO SCALE

Lane ties must be:
- epoxy coated
- 30" in length
- 5/8" in diameter
- anchored in place when tying into existing pavm't.

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
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ISSUE	DESIGN DEVELOPMENT
REVISIONS	- - - - - -

DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0126-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

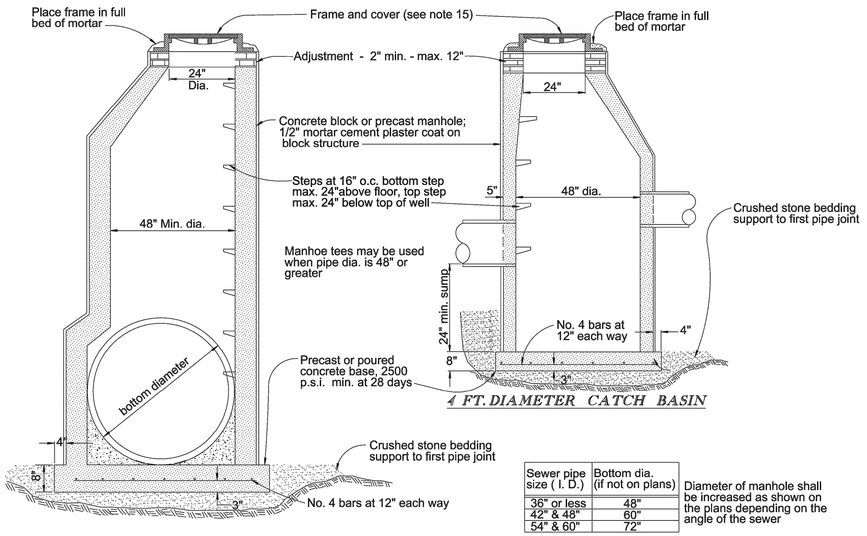
CITY OF TROY
TROY PAVILION

CIVIL NOTES AND SPECIFICATION

SHEET C-502

DRAWING PATH: P:\0126_0165\0126210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020DET.dwg Oct 07, 2022 - 4:27pm

NOTIFY CITY OF TROY ENGINEERING DEPT. AT 248-524-3409 PRIOR TO STARTING ANY WORK

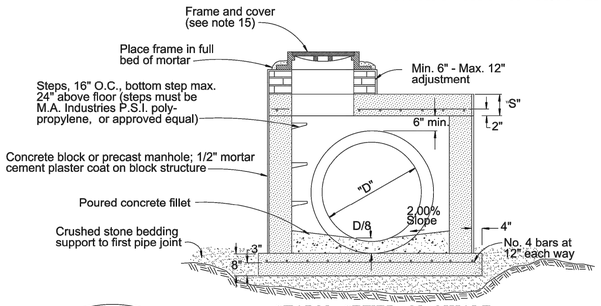


4 FT. DIAMETER CATCH BASIN

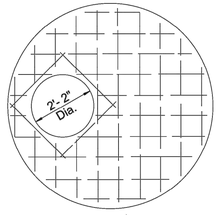
STORM SEWER MANHOLE

Sewer pipe size (I. D.)	Bottom dia. (if not on plans)
36" or less	48"
42" & 48"	60"
54" & 60"	72"

Diameter of manhole shall be increased as shown on the plans depending on the angle of the sewer



STORM SEWER MANHOLE WITH FLAT SLAB



TOP SLAB X-SECTION

Outlet "d"	M.h. I.d.*	Top slab "S"	Reinforcing steel requirements
36" or less	4	9"	3/4" @ 9" ea. way
42"	5	10"	3/4" @ 9" ea. way
48"- 54"	6	11"	7/8" @ 9" ea. way
	7	12"	1" @ 9" ea. way
	8	12"	1" @ 9" ea. way

GENERAL NOTES

1. All construction shall conform to the current standards and specifications of the City of Troy. Prior to construction, the contractor shall attend a reconstruction meeting at a time and place arranged by the City Engineer, in which various utility companies and governmental agency representatives will be present. The design engineer shall submit approved plans to all utility companies and governmental agencies 10 (ten) days prior to the preconstruction meeting. Construction shall start within 3 (three) weeks of meeting. The contractor shall notify the City Engineer 72 hours prior to starting any work.

2. The entire project area of publicly funded projects, and all areas not under the ownership of any private developer for privately funded projects, shall be digitally recorded in color prior to the start of construction. The DVD shall be utilized by the City to determine construction related damage and to assure adequate restoration

3. Before start of construction, the contractor must request and have in their possession a copy of a valid permit to construct a connection to, or an extension of, the Storm Water Drainage System.

4. Prior to any excavation, the contractor shall call Miss Dig (1-800-482-7171) for the location of underground facilities and shall also notify representatives of other utilities located in the vicinity of the work. The contractor shall assume responsibility for the protection of all existing utilities, services and mains during construction. All costs for locating, removing and replacing or relocating these utilities, services and mains shall be included in the cost of constructing the sanitary sewer. All utilities, services and mains damaged during construction shall be repaired with like material. The contractor shall verify the depth and horizontal location of all existing utilities, services and mains before any work is started. The exact location of existing utilities, services and mains shall be determined by hand digging.

5. A City of Troy, Water Resources Commissioner's, Road Commission for Oakland County, and/or Michigan Department of Transportation permit is required for all construction within their Right-of-Ways. WRC must witness the new connection, contact the WRC office at 248-885-1105 - 48 hours prior to starting work. It is the contractor's responsibility to secure all permits and bonds prior to construction, or to insure that all required permits and bonds have been obtained prior to starting construction.

6. The contractor shall abide by all the requirements of the Right-of-Way owner regarding construction of storm sewer mains, maintaining traffic, barricading, boring, backfill and restoration. There will be no additional compensation due the contractor for complying with these requirements.

7. The contractor shall implement all soil erosion control measures indicated in the permit and/or shown on the plans prior to making any earth changes.

8. Prior to the start of construction, the contractor shall furnish material certificates to the City verifying that all the materials used on the project are in accordance with the specifications.

9. All construction changes must have written approval of the Project Engineer.

10. Sewer Pipe Material:

a. Reinforced concrete circular sewer pipe conforming to the current ASTM specification C-76 (Wall C) with size and class as indicated on the plans; minimum class III. All reinforced concrete sewer pipe shall be cast with reinforcing steel extending into the spigots. All joints and gaskets shall be modified tongue and groove, conforming to the requirements of ASTM (C-443). All sewer pipe 30" and larger shall have pointed joints.

b. Plastic circular sewer pipe conforming to the current ASTM specifications for PVC Corrugated with smooth interior wall (A-2000) or high-performance polypropylene (N-12 HP), when approved for use by the City Engineer. All joints and gaskets shall conform to the respective ASTM specifications.

c. The following storm sewer pipe materials may be used only with approval of the City Engineer. If soils PH & Resistivity tests demonstrate a PH of 5.0 to 9.0 and an Electrical Resistance of 2000 OHM/CM/CU or higher, then helically corrugated, full welded seam, AASHTO M-218 steel pipe, gauge as shown, manufactured according to AASHTO M-36 with 2 2/3" x ½", aluminized at 1.00 oz per sq. ft. per AASHTO M-274 may be used. Corrugated steel pipe shall have two circumstantial corrugations rolled on each end of each section. Steel coupling bands of the same material as the pipe, fitting the pipe configuration with two "O" Ring rubber gaskets shall produce a watertight joint ("Hugger Bands").

d. Underdrains, rear yard and ditches, slotted perforations of 1.90 - 2.00 square inches per foot of pipe length. A-2000, N-12 or approved equal.

e. All sump and building service connections shall be 3" Polyvinyl Chloride (PVC) sewer pipe, schedule 40 with chemically fused joints and connect to a catch basin or manhole. No blind taps. The joint between two dissimilar sizes or types of building lead pipe shall be made with a proper fitting acceptable to the City Engineer

11. All new manholes shall have approved flexible, water-tight seals where pipes pass through walls. Manholes shall be precast reinforced concrete in accordance with ASTM C478 current specifications. Precast manhole joints and gaskets shall be modified tongue and groove in accordance with ASTM C443 current specifications. Precast manhole cone sections shall be City of Troy modified eccentric cone type.

12. All precast manholes, slab bases, concrete pipe and concrete channelization shall be manufactured with Type II, IP or IIA cement.

13. Manhole steps shall normally be provided on a back wall of the manhole furthest from traffic, manhole steps shall be factory installed at 16 inches center to center spacing. Steps shall be M.A. Industries P.S.I. Polypropylene MSU #360 ALU Poly (or approved equal).

14. Existing manholes shall be tapped by coring for sewers 6" thru 15" in diameter. Manhole taps for 18" diameter sewers and larger shall have holes drilled at 4 inches center to center around the periphery of the opening to create a plane of weakness before breaking out the section. Non-shrink grout shall be used to seal the opening and a concrete collar shall be poured 12 inches around the pipe and extend 12 inches beyond the opening. If the wall of the structure being tapped is damaged, the City shall decide if it can be repaired and approve the method. If the structure cannot be repaired it will be replaced.

15. A mainline trace wire must be installed, with all service lateral trace wires properly connected to the mainline trace wire, to ensure full tracing/locating capabilities from a single connection point. Lay mainline trace wire continuously, by-passing around the outside of manholes/structures on the North or East side. Trace wire on all storm service laterals must terminate at an approved trace wire access box color coded green and located directly above the service lateral at the edge of road right of way.

16. Unless otherwise noted on the plans, structure frame and covers shall be as follows:

a. Manhole - EJ 1000 with type "C" perforated cover with CITY OF TROY STORM on cover.
b. Catch Basin in pavement - EJ 5080 with sinusoidal m2 grate, or equal, in residential areas.
c. Catch Basin in pavement - EJ 5105 with sinusoidal m2 grate, or equal, in non-residential areas.
d. Catch Basin not in pavement - EJ 1000 with type M, N, or 01 heavy duty grate, or equal.
e. Catch Basin in Landscape area or Roadside Ditch may require the use of the following:

1) EJ 1040 type "N" oval grate ~~or type 02 beehive grate~~
2) EJ 1130 type "N" oval grate ~~or type 01 beehive grate~~
3) EJ 2800 type "N" oval grate ~~or type 02 beehive grate~~
4) ~~EJ 0500~~ or EJ 6517

2" LETTERS

CITY OF TROY STORM

(2) 1" HOLES

17. The contractor shall provide a 3 year maintenance and guarantee bond to the City, dated from the time of final acceptance by the City. The bond amount shall be 35% of constructions costs.

18. Before final acceptance, As-Built drawings must be submitted to the City of Troy Engineering Department. One electronic copy (PDF) and one digital copy (DWG or DGN) is required. .

GENERAL PIPE BEDDING & TRENCH NOTES

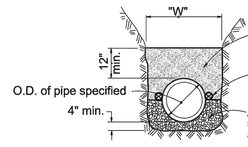
1. The contractor shall install the pipe in accordance with the bedding detail required for the pipe depth (measured from the top of the pipe), and trench width (measured across the trench at the top of the pipe) constructed. Alternate material and methods must be approved in writing by the City Engineer
2. Crushed stone bedding shall be utilized for dewatered ground trench's, trenches greater than 30" in width or 20' in depth.
3. Bedding material shall be as follows:

   Standard bedding - MDOT 6A, 17A or 34R
   Crushed stone bedding - MDOT 25A or 34G
   MDOT Class II or IIA granular material
4. Backfill material shall be as follows:

   Excavated material - T.D. - A
   MDOT Class II granular material - T.D. - B

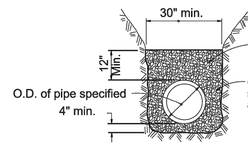
Bedding shall be defined as that material placed from four (4) inches below the pipe to a point twelve (12) inches above the pipe.

NOTE: Crushed concrete will not be allowed as bedding or backfill with underdrains or rear yard storm sewer

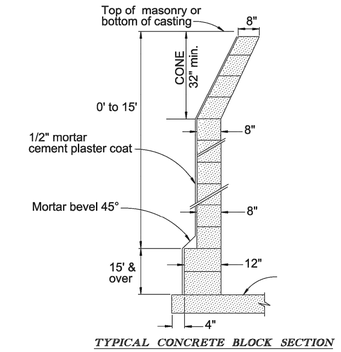


STANDARD BEDDING

Maximum trench width = "W"
O.D. + 12" for 8" - 36" I.D.
O.D. + 24" for 42" I.D. & larger

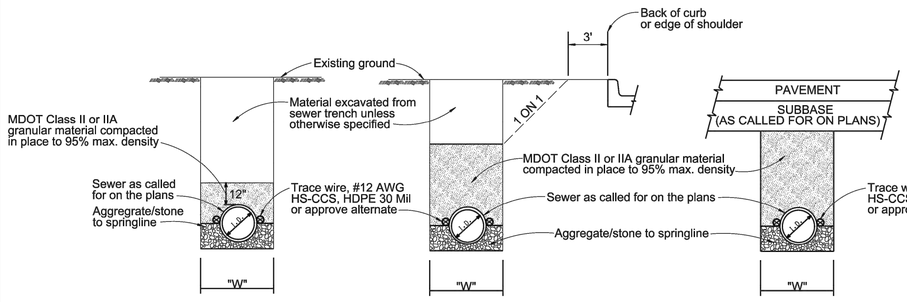


CRUSHED STONE BEDDING



TYPICAL CONCRETE BLOCK SECTION

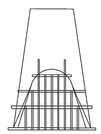
NOTE: Unless otherwise authorized by the City Engineer, each structure shall be constructed totally of either precast segments or built - up with mortar and block



SEWER NOT UNDER ROAD BED
TRENCH DETAIL 'A'

SEWER UNDER ROAD BED OR WITHIN THE INFLUENCE OF ROAD BED
TRENCH DETAIL 'B'

REAR YARD STORM SEWER
TRENCH DETAIL



Steel Grates for End Sections
See current MDOT detail
Required for 12" dia. and greater

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34000 Plymouth Road
Livonia, MI 48150
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TROY MICHIGAN

STANDARD STORM SEWER DETAILS
ENGINEERING DEPARTMENT
APPROVED BY : WILLIAM J. HUOTARI, CITY ENGINEER DATE : JUNE 2019

REVISIONS	DATE	REMARKS
	APRIL 2019	GENERAL UPDATES

STATE OF MICHIGAN ★ WILLIAM J. HUOTARI ★ ENGINEER NO. 43231 ★ REGISTERED PROFESSIONAL ENGINEER

WILLIAM J. HUOTARI, P.E. #43231

Contractor Note:
The locations of existing underground utilities are shown in an approximate way only. The contractor shall determine the exact location of all utilities before commencing work. They agree to be fully responsible for any and all damages which occur as a result of their failure to exactly locate and preserve any and all underground utilities.

3 FULL WORKING DAYS BEFORE YOU DIG CALL 811
Know what's below
Call before you dig
MISS DIG System, Inc.
1-800-482-7171 www.missdig.net

CONTRACT NO. XX-XX
PROJECT NO. XXXXXX.X

ISSUE	DESIGN DEVELOPMENT
REVISIONS	

DATE	PROJ NUMBER	ENGR/CH	PROJ MGR	CAD'D	COUNTY
10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND

MUNICIPALITY: CITY OF TROY

CITY OF TROY
TROY PAVILION
CIVIL DETAIL

SHEET C-503

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020DET.dwg Oct 07, 2022 - 4:27pm

GENERAL NOTES

1. All construction shall conform to the current standards and specifications of the City of Troy. Prior to construction, the contractor shall attend a preconstruction meeting at a time and place arranged by the City Engineer, in which various utility companies and governmental agency representatives will be present. The design engineer shall submit approved plans to all utility companies and governmental agencies 10 (ten) days prior to the preconstruction meeting. Construction shall start within 3 (three) weeks of the meeting. The contractor shall notify the City Engineer 72 hours prior to starting any work.

2. The entire project area of publicly funded projects, and all areas not under the ownership of any private developer for privately funded projects, shall be digitally recorded in color prior to the start of construction. The DVD shall be utilized by the City to determine construction related damage and to assure adequate restoration.

3. Before start of construction, the contractor must request and have in his possession a sewer inspection permit issued by the Water Resource Commissioner's (WRC) office and contact the WRC office at 248-885-1105 24 hours prior to starting work. WRC must witness the new connection and all testing.

4. Prior to any excavation, the contractor shall telephone Miss Dig (1-800-482-7171) for the location of underground facilities and shall also notify representatives of other utilities located in the vicinity of the work. The contractor shall assume responsibility for the protection of all existing utilities, services and mains during construction. All costs for locating, removing and replacing or relocating these utilities, services and mains shall be included in the cost of constructing the sanitary sewer. All utilities, services and mains damaged during construction shall be repaired with like material. The contractor shall verify the depth and horizontal location of all existing utilities, services and mains before any work is started. The exact location of existing utilities, services and mains shall be determined by hand digging.

5. A City of Troy, Road Commission for Oakland County, and/or Michigan Department of Transportation permit is required for all construction within their road Right-of-Ways. It is the contractor's responsibility to secure all permits and bonds prior to construction, or to insure that all required permits and bonds have been obtained prior to starting construction.

6. The contractor shall abide by all the requirements of the road Right-of-Way owner regarding construction of sanitary sewer mains, maintaining traffic, barricading, boring, backfill and restoration. There will be no additional compensation due the contractor for complying with these requirements.

7. Prior to the start of construction, the contractor shall furnish material certificates to the City Engineer verifying that all the materials used on the project are in accordance with the specifications.

8. All construction changes must have written approval of the City Engineer.

9. Sewer Pipe Material:

a. 8" through 15" pipe shall be PVC (Poly Vinyl Chloride) composite sewer pipe conforming to the current ASTM D2680 specifications with elastomeric rubber gasketed joints for PVC.

b. 18" and larger pipe shall be reinforced concrete circular sewer pipe conforming to the current ASTM specification C-76 (Wall C) with size and class as indicated on the plans. All reinforced concrete sewer pipe shall be cast with reinforcing steel extending into the spigots. All joints and gaskets shall be modified tongue and groove, conforming to the requirements of ASTM (C-443).

c. Extra strength vitrified clay pipe conforming to the current ASTM specification (C-700). For use in industrial areas only.

10. All new manholes shall have approved flexible, water-tight seals where pipes pass through walls. Manholes shall be precast reinforced concrete in accordance with ASTM C478 current specifications. Precast manhole joints and gaskets shall be modified tongue and groove in accordance with ASTM C443 current specifications. Precast manhole cone sections shall be City of Troy modified eccentric cone type. All manholes shall be provided with bolt down frames and bolted, water-tight covers reading "City of Troy" in raised letters.

11. All precast manholes, slab bases, concrete pipe and concrete channelization shall be manufactured with Type II, IP or IIA cement.

12. Manhole steps shall normally be provided on a back wall of the manhole furthest from traffic, manhole steps shall be factory installed at 16 inches center to center spacing. Steps shall be M.A. Industries P.S.I. Polypropylene MSU #360 ALU Poly or approved alternate.

13. At the connections to manholes, sewers or extensions thereto, drop connections will be required when the difference in invert elevations exceeds 18 inches. All drop connections are to be interior, minimum manhole diameter is 5 feet.

14. Existing manholes shall be tapped with the "Kor-N-Seal" method, with a water-tight rubber boot for sewers 6" thru 15" in diameter. Manhole taps for 18" diameter sewers and larger shall have holes drilled at 4 inches on center around the periphery of the opening to create a plane of weakness before breaking out the section. Non-shrink grout shall be used to seal the opening and a concrete collar shall be poured 12 inches around the pipe and extend 12 inches beyond the opening.

15. Individual sanitary service leads shall be required for each separate unit within a proposed commercial, industrial and/or multiple family residential buildings.

16. Building lead connections shall be made with 6" wyes for PVC and 6" tees for concrete pipe. Wyes for PVC and pipe shall be factory fabricated (not extruded) and shall be checked for irregularities which could affect the deflection test prior to installation. Building lead pipe, wyes and caps shall be solid wall plastic pipe, 6" dia., SCH 40 or SDR 23.5 with chemically welded joints. The joint between two dissimilar sizes or types of building lead pipe shall be made with a proper fitting acceptable to the City Engineer.

17. All sanitary sewer leads shall be marked with a 2"x2"x8' location stake buried to 6" below finish grade.

18. No ground water, storm water, construction water, downspout drainage or weep tile drainage shall be allowed to enter any sanitary sewer installation.

19. In industrial areas, or any other areas where deemed necessary by the City Engineer, private service connections made to the service lead must have an accessible sampling and monitoring manhole. The manhole shall be located on private property at a location approved by the City Engineer.

20. Grease, oil and sand interceptors shall be installed by the user when the City Engineer determines they are necessary for the proper handling of liquid wastes, to remove grease in excessive amounts, to remove any flammable wastes, sand and other harmful ingredients. All interceptors shall be of a type and capacity approved by the City, shall be located so as to be rapidly and easily accessible for cleaning and inspection, and shall be continuously maintained by the user in an operating condition to accomplish the required result. All restaurants or establishments involved in the preparation of food shall install a grease interceptor. All grease interceptors shall be constructed in accordance with the detail and shall have a minimum capacity of 1000 gallons. The detail shown below is not designed to withstand traffic loads.

21. A mainline trace wire must be installed, with all service lateral trace wires properly connected to the mainline trace wire, to ensure full tracing/locating capabilities from a single connection point. Lay mainline trace wire continuously, by-passing around the outside of manholes/structures on the North or East side. Trace wire on all sanitary service laterals must terminate at an approved trace wire access box color coded green and located directly above the service lateral at the edge of road right of way.

22. All sewer installations shall pass low pressure air test, deflection test and television inspection as specified in the city standards. All testing shall be carried out under the direct supervision of the inspector and the contractor. Any testing performed in the absence of a representative of the City will not be approved.

Air Test Table
Minimum holding time in seconds required for pressure to drop from 4 to 3 psi

Length Of Line In Feet	Pipe Diameter													
X	4"	6"	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"
25	4	10	18	28	70	62	89	121	158	200	248	299	356
50	9	20	35	55	79	124	178	243	317	401	495	599	713
75	10	30	53	83	119	186	267	364	475	601	743	898	1020
100	18	40	70	110	158	248	356	485	634	765	851	935	
125	22	50	88	138	198	309	446	595	680				
150	26	59	406	165	238	371	510						
175	31	69	123	193	277	425							
200	35	79	141	220	317								
225	40	89	158	248	340								
250	44	99	176	275									
275	48	109	194	283									
300	53	119	211										
350	62	139	227										
400	70	158											
450	79	170											
500	88												
550	97												
600	106												
650	113	170	227	283	340	425	510	595	680	765	851	935	1020

NOTE: TO BE USED WHEN TESTING ONE DIAMETER ONLY

23. All television inspections shall be recorded on digital video disk (DVD) and turned over to the City for reference at a later date. The digital video recording shall display continuously the date, time and engineering stations and shall periodically display the name of the project, name of the area covered and direction of travel.

24. PVC composite pipe and any approved plastic pipe shall be subject to deflection test 30 days after construction with a nine sided mandrel. The contractor must supply the mandrel and perform the test. The City will witness the test. Deflection shall not exceed 5%. The City reserves the right to test the sewer for deflection not to exceed 7% during the period of the maintenance bond. Any sewer found exceeding these limits shall be replaced by and at the contractor's expense.

25. Infiltration testing when required cannot exceeding 100 gallons per inch of diameter per mile of pipe per 24 hour period. Test sections shall generally be limited to a maximum length of one half mile. The city reserves the right to test shorter pipe length segments if deemed necessary to assure that no segment exceeds the infiltration limits.

26. The contractor shall provide a 3 year maintenance and guarantee bond to the City, dated from the time of final acceptance by the City. The bond shall be for 35% of the construction costs.

27. Before final acceptance, As-Built drawings must be submitteto the City of Troy Engineering Department. One electronic copy (PDF) and one digital copy (DWG or DGN) is required.

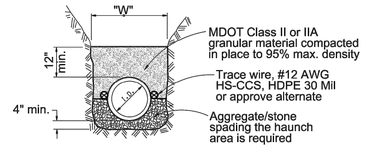
GENERAL PIPE BEDDING & TRENCH NOTES

1. The contractor shall install the pipe in accordance with the bedding detail required for the pipe depth (measured from the top of the pipe), and trench width (measured across the trench at the top of the pipe) constructed. Alternate material and methods must be approved in writing by the City Engineer
2. Crushed stone bedding shall be utilized for dewatered ground trench's, trenches greater than 30" in width or 20' in depth.
3. Bedding material shall be as follows:

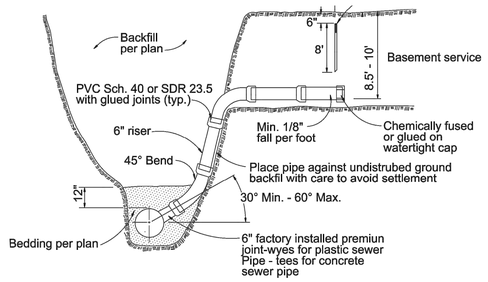
   Standard bedding - MDOT 6A, 17A or 34R
   Crushed stone bedding - MDOT 25A or 34G
   MDOT Class II or IIA granular material
4. Backfill material shall be as follows:

   Excavated material - T.D. - A
   MDOT Class II granular material - T.D. - B

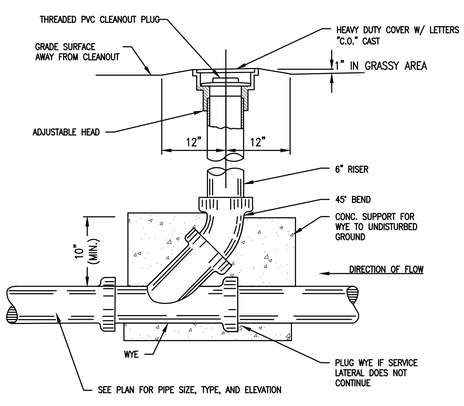
Bedding shall be defined as that material placed from four (4) inches below the pipe to a point twelve (12) inches above the pipe.



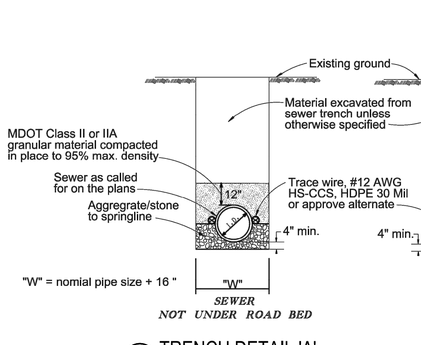
1 CRUSHED STONE BEDDING
NOT TO SCALE



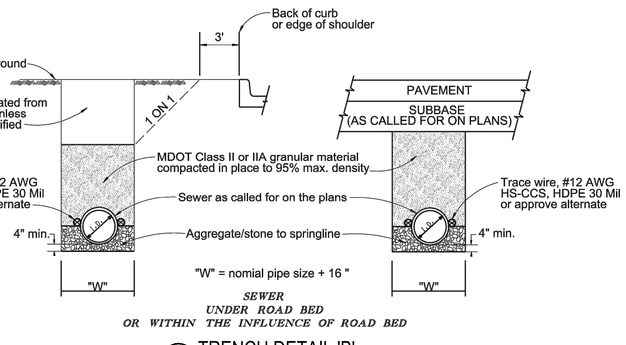
4 BUILDING LEAD DETAIL (0' - 15' COVER)
NOT TO SCALE



5 SANITARY CLEAN-OUT
NOT TO SCALE



2 TRENCH DETAIL 'A'
NOT TO SCALE



3 TRENCH DETAIL 'B'
NOT TO SCALE

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ISSUE	DESIGN DEVELOPMENT
REVISIONS	

DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION

CIVIL DETAILS - SANITARY

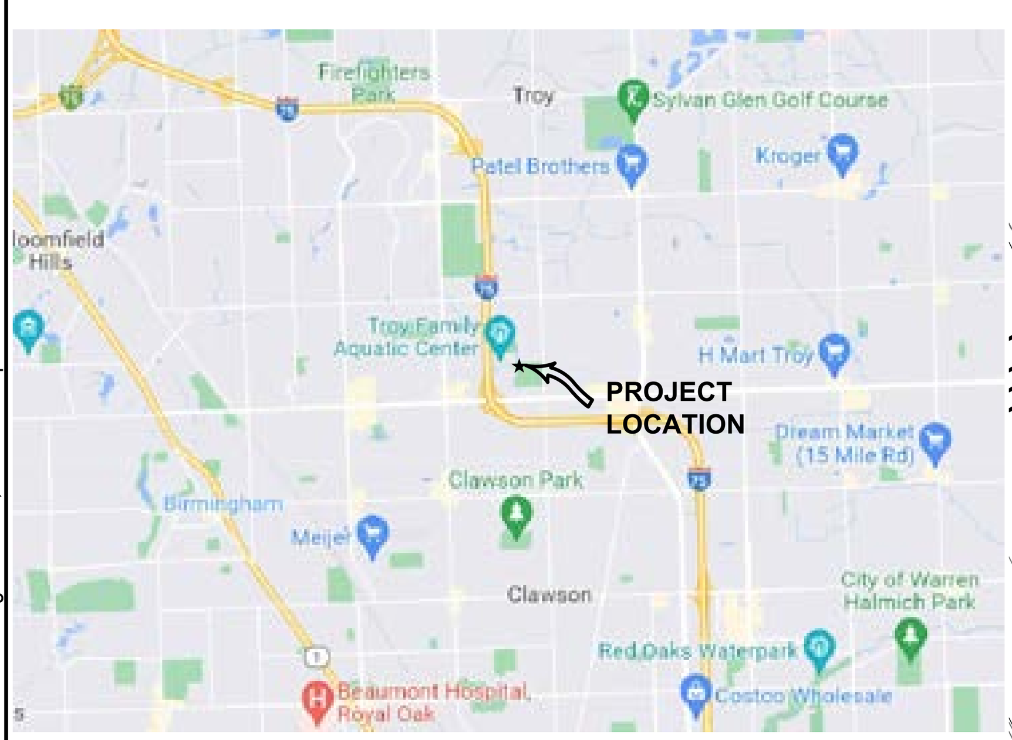
SHEET C-504

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020DET.dwg Oct 07, 2022 - 4:27pm

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR ELEV 682.65
TRAVERSE POINT #101 N 391460.64 E 13450420.17 ELEV 680.28
TRAVERSE POINT #106 N 391163.37 E 13450376.51 ELEV 678.72
TRAVERSE POINT #108 N 391323.48 E 13450054.04 ELEV 681.13
TRAVERSE POINT #109 N 391147.49 E 13450090.36 ELEV 681.20

LEGEND

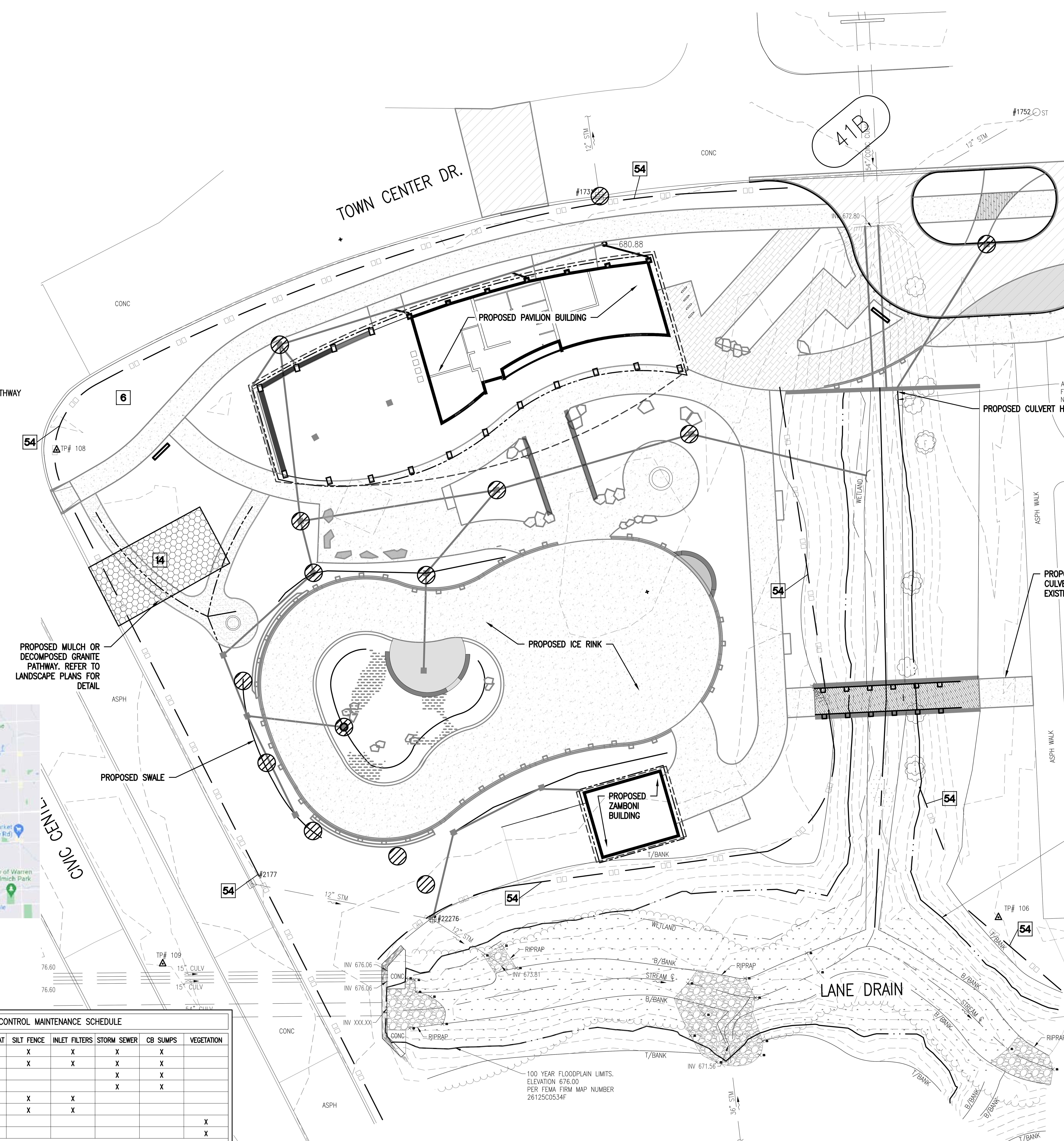
⬡	CONSTRUCTION ENTRANCE
▨	HEAVY DUTY CONCRETE PAVEMENT
░	CONCRETE SIDEWALK
◩	DECORATIVE CONCRETE
░	MULCH OR DECOMPOSED GRANITE PATHWAY
— — —665— — — / — — —664- — —	EXISTING CONTOUR
— —680— — — / — — —679— —	PROPOSED CONTOUR
	PROPOSED GRADING LIMITS
⤳	FLOW DIRECTION
41B	USGS SOIL ABBREVATION
— SF —— SF —	SILT FENCE
▨	INLET FILTER BAG



Firefighters Park
Troy
Sylvan Glen Golf Course
Patel Brothers
Kroger
loomfield Hills
Troy Family Aquatic Center
H Mart Troy
PROJECT LOCATION
Dream Market (15 Mile Rd)
Clawson Park
Birmingham
Meijer
Clawson
City of Warren Halmich Park
Red Oaks Waterpark
Beaumont Hospital, Royal Oak
Costco Wholesale

N

LOCATION MAP
NO SCALE



TOWN CENTER DR.
CIVIC CENTER
PROPOSED PAVILION BUILDING
PROPOSED ICE RINK
PROPOSED ZAMBONI BUILDING
PROPOSED MULCH OR DECOMPOSED GRANITE PATHWAY. REFER TO LANDSCAPE PLANS FOR DETAIL
PROPOSED SWALE
PROPOSED CULVERT HEADWALL
PROPOSED CULVERT OVER EXISTING STREAM
APPROXIMATE LOCATION OF 100 YEAR FLOODPLAIN LIMITS. PER FEMA FIRM MAP NUMBER 26125C0534F
100 YEAR FLOODPLAIN LIMITS. ELEVATION 676.00 PER FEMA FIRM MAP NUMBER 26125C0534F
100 YEAR FLOODPLAIN LIMITS. ELEVATION ±675.50
FROM FEMA FLOOD INSURANCE STUDY NUMBER 26125CV003A
LANE DRAIN
WETLAND
RIPRAP
STREAM ℄
B/BANK
T/BANK
INV 676.06
INV 673.81
INV 671.56
INV XXX.XX
INV 672.80
680.88
CONC
ASPH
ASPH WALK
12" STM
36" STM
54" CONC CULV
15" CULV
TP# 101
TP# 106
TP# 108
TP# 109
#1731
#1752
#2177
#22276
41B
6
14
54

PARCEL DATA:

PARCEL NUMBER: X -XX-XX-XXX-XXX
ZONING DISTRICT: XXXX
TOTAL LOT AREA: XXXX
LEGAL DESCRIPTION: XXXX

USGS SOIL ABBREVIATION	SOIL DESCRIPTION
41B	AQUENTS, SANDY, LOAMY, UNDULATING

RESTORATION NOTE: XXXX

AREA OF DISTURBANCE: ±XXX ACRES

LANDOWNER INFORMATION

NAME:	CITY OF TROY
ADDRESS:	XXXX
PHONE NUMBER:	XXXX

PROXIMITY OF NEAREST WATER OF THE STATE IS 0 FT, WATER IS IN PARCEL

6	Seeding with Mulch and/or Matting	Facilitates establishments of vegetative cover Effective for drainageways with low velocity. Easily placed in small quantities by inexperinced personnel. Shall include prepared topsoil be and straw mulch. Shall use a Mulch Blanket when slopes are 6H:1V or steeper (Detail E-9) PERMANENT MEASURE
14	Aggregate Cover	Tracking Mat - replenish stone as required due to rutting. 1"-3" crushed concrete 8" thick on geo-fabric. 25' wide by 50' long. Temporary measure, remove after completion of construction. TEMPORARY MEASURE
24	Grassed Waterway	Much more stable form of drainageway than bare channel. Grass tends to slow runoff and filter out sediment. Used where bare channel would be eroded. PERMANENT MEASURE
54	Silt Fence	Filters and detains runoff. Refer to Sheet C-702 for typical detail. Shown on plan as —— ▯▯ —— TEMPORARY MEASURE

NOTE: SOIL EROSION WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT

SOIL EROSION AND SEDIMENTATION CONTROL MAINTENANCE SCHEDULE

TASK	FREQUENCY	TRACKING MAT	SILT FENCE	INLET FILTERS	STORM SEWER	CB SUMPS	VEGETATION
INSPECT FOR SEDIMENT ACCUMULATION	WEEKLY	X	X	X	X	X	
REMOVE ACCUMULATED SEDIMENT	AS NEEDED		X	X	X	X	
INSPECT FOR FLOATABLES AND DEBRIS	WEEKLY				X	X	
REMOVE FLOATABLES AND DEBRIS	AS NEEDED				X	X	
INSPECT FOR PERMIT CONFORMANCE	AFTER RAIN	X	X	X			
RESTORE TO PERMIT CONFORMANCE	AS NEEDED	X	X	X			
INSPECT FOR SOIL EROSION	AFTER RAIN						X
RESTORE TO PREVENT EROSION	AS NEEDED						X
SCRAPE STREET/DRIVES	DAILY						
SWEEP STREET/DRIVES	WEEKLY						

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020SEC.dwg Oct 07, 2022 - 4:29pm

811 Know what's **below.** **Call** before you dig.

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Livonia, MI 48150
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OHM-ADVISORS.COM

ISSUE: DESIGN DEVELOPMENT
REVISIONS:

DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION
SOIL EROSION AND SEDIMENT CONTROL PLAN

SHEET C-701

Project Information

a. Type of soil being disrupted:

Derived from: Soil Survey Soil Borings Other

b. Present the chronological sequence and expected time of year for each major phase of earth disruption.

DATE

Site Clearing

Soil Erosion Control

Mass Balancing

Underground Utilities

Paving

Restoration / Stabilization

c. Indicate the measures proposed to prevent sediment from leaving the site:

Hydrologic Characteristics of Site

a. Type of "Offsite" drainage outlet(s) available for this site:

County Drain — Name of Drain:
Lake/Pond — Name of Lake/Pond:
River/Stream — Name of River/Stream:
Enclosed Drain — Name of Enclosed Drain:
Detention Basin (with outlet)
Wetland — Retention Basin (no oulet)
Overland Flow — Open Ditch

b. Distance to nearest lake, stream, pond, open drain, or wetland:

c. Does the project include any work or disruption with a flood plain (Yes or No)?

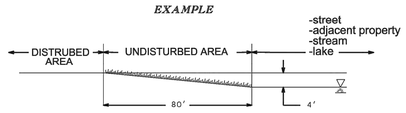
d. Does the project include work within the cross-section of a lake/stream (Yes or No)?

e. Is a MDEQ Permit required (Yes or No)? If Yes, what is the MDEQ Permit Number (if known):

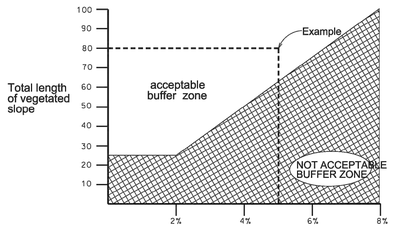
f. If MDEQ Permit is required and application has not been submitted, what is the expected date of submittal?

The graph listed below is used to determine the adequacy of an existing vegetative buffer zone for use as a sediment filter. This graph is only applicable if the vegetation is a dense well-grown stand of ground cover, at least 4" in height. An area covered with bushes and trees without a good ground cover is not acceptable.

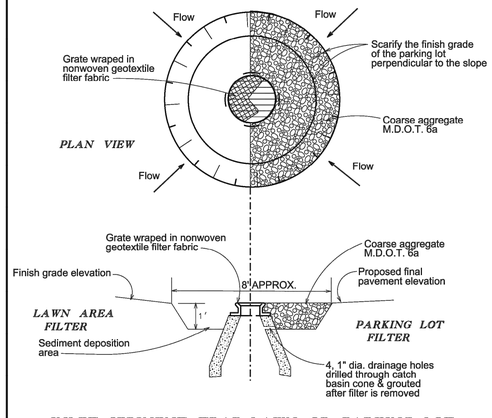
EXAMPLE



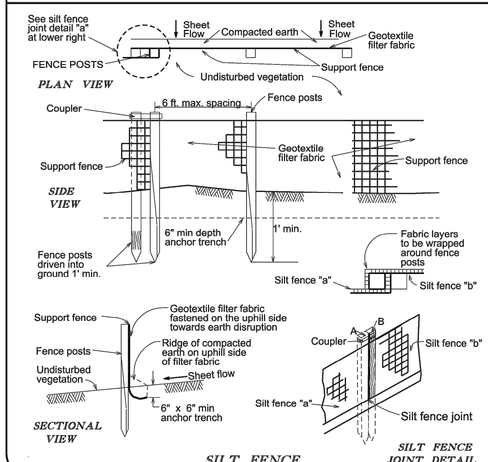
Length of Buffer Zone 80'
Drop of Buffer Zone 4'
% of Slope of Buffer Zone 4' / 80' x 100%



VEGETATIVE BUFFER ZONE

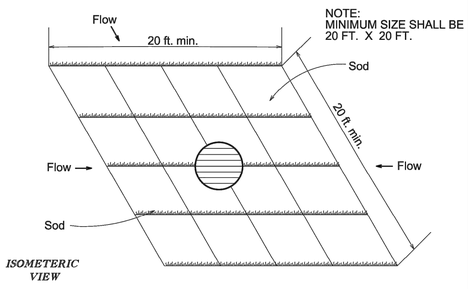


INLET SEDIMENT TRAP LAWN OR PARKING LOT



SILT FENCE *SILT FENCE JOINT DETAIL*

Definition	Sod inlet filter are pads of sod placed around a storm drain inlet or catch basin.
Purpose	Sod inlet filters are installed to slow the flow of water into an inlet or catch basin and to filter out appreciable amounts of sediment in the process.
Where applicable	Sod inlet filters should only be used to handle light concentrations of sediment. They are best used after final grading is completed and during the establishment of a vegetative cover.



ISOMETERIC VIEW

SOD INLET FILTER

Builders and developers working in Troy are responsible for complying with the regulations for temporary Storm Drain inserts, also known as "siltsacks". The inserts are used on many construction projects to catch sediment not captured upstream by other construction-related erosion control devices and can be an important temporary environmental safeguard.

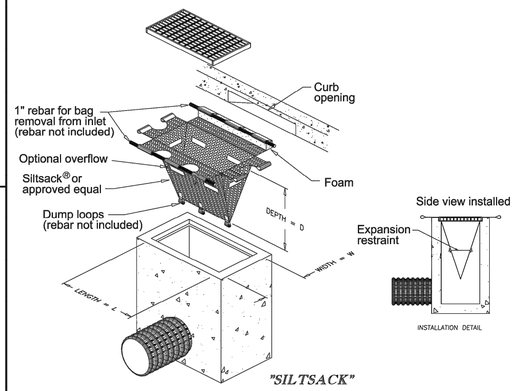
Builders must clean and/or replace the inserts when half of the trap is filled with sediment.

Builders must inspect and maintain the inserts whenever 1/2 inch of rain falls within a 24-hour period.

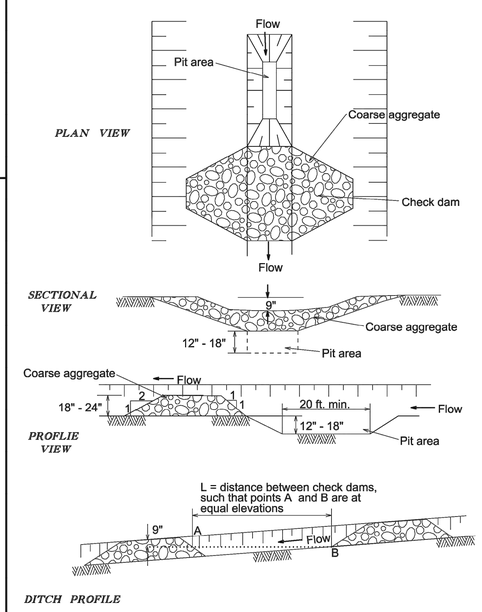
The inserts are to be removed by the builders within 30 days of site stabilization or after the temporary erosion measures are no longer needed.

If inserts are removed during times of flooding, the builder is responsible for re-installing them per regulations.

Silt sock inserts are required for all developments with curb inlets or pavement inlets. Rear yard catch basins may utilize a non-woven Geotextile fabric.



"SILTSACK"



SEDIMENT TRAP WITH CHECK DAM

SOIL EROSION & SEDIMENTATION CONTROL NOTES

1. The following items are intended to be a guide to the contractor in evaluating Soil Erosion control requirements for the project. Specific Soil Erosion control devices and locations may be detailed on the plans. The contractor should also note that Soil Erosion and Sedimentation controls are included in the project unless specified otherwise on the plans or in the specifications.

2. All erosion and Sediment control work shall conform to the permit requirements and the standards and specifications of the City of Troy.

3. Daily inspections shall be made by the contractor for effectiveness of Soil Erosion and Sedimentation control measures and any necessary repairs shall be performed without delay.

4. Erosion and any sedimentation from work on this site shall be contained on the site and not allowed to collect on any off-site areas or in waterways.

5. Waterways include natural or man-made open ditches, streams, storm drains, lakes and ponds.

6. Contractor shall apply temporary soil erosion and sedimentation control measures when required or as directed. Contractor shall remove temporary measures as soon as permanent stabilization of slopes, ditches, and other earth changes has been accomplished.

7. Staging the work will be done by the contractor as indicated on the Soil Erosion plans and as required to ensure progressive stabilization of disturbed earth.

8. The contractor will establish soil erosion control measures in the early stages of construction. Sediment control measures will be applied as a perimeter defense against any transporting of silt off the site.

9. Engineer and owner certification must be included on the plans.

10. Separate sheets showing soil erosion and sedimentation control plans must be provided.

11. The following guidelines are to be implemented:

a. Check Dams:

i. Stone size must be increased with increased slope and velocity.
ii. Side slope of the dam should be 2:1 or flatter.
iii. Straw bales are not to be used for check dams.
iv. Add stones as needed to maintain design height and cross section.
v. Any accumulation of sediment shall be removed and stockpiled in a stabilized area to prevent the material from eroding back into the drainage course.

b. Vegetative Buffer Zones:

i. Vegetation must be maintained in a vigorous condition.
ii. Reshape and reseed areas where concentrated flow occurs or vegetation fails.
iii. To be used for sheet flows only.
iv. Not to be used as a roadway.

c. Silt Fence:

i. Must be installed along the contour line.
ii. Is not to be used in areas of concentrated flow.
iii. Must be trenched in at least 6 inches and backfilled.
iv. Multiple rows are to be used up a slope.
v. Accumulated sediment must be periodically removed.
vi. Where necessary, a support fence shall be used to support the geotextile filter fabric.
vii. To be removed after site is permanently stabilized.

d. Inlet Sediment Trap:

i. The sediment deposition area and nonwoven geotextile filter fabric should be cleaned of all accumulated sediment after each storm.
ii. After all contributing areas are stabilized, the filter fabric will be removed, sediment deposition area filled, and a sod inlet filter placed over the disrupted lawn area.
iii. The filter material used to backfill parking lot drainage holes will be peastone. The side excavation for the placement of this material will not be deeper than the invert of the drainage holes.

e. Inlet Filters After Paving or Grading:

i. Inlet filters will remain in place until all denuded areas contributing to them are stabilized with vegetation.
ii. Periodic inspection and maintenance will be provided to insure that filters are functioning properly.

f. Sod Inlet Filter:

i. Sod inlet filters will only be used to handle light concentrations of sediment.
ii. Recommended for use after final grading is complete and during the establishment of a vegetative cover.
iii. Catch basin inlet covers may be wrapped in a non-woven geotextile filter fabric for additional filtration
iv. Periodic inspection and maintenance must be provided to insure efficient operation.

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CITY OF TROY MICHIGAN

STANDARD SOIL EROSION CONTROL DETAILS
ENGINEERING DEPARTMENT
APPROVED BY: WILLIAM J. HUOTARI, CITY ENGINEER DATE: JUNE 2019

REVISIONS	DATE	REMARKS

DATE	REMARKS
APRIL 2019	GENERAL UPDATES

STATE OF MICHIGAN — WILLIAM J. HUOTARI — ENGINEER — NO. 43231 — REGISTERED PROFESSIONAL ENGINEER
WILLIAM J. HUOTARI, P.E. #43231

3 FULL WORKING DAYS BEFORE YOU DIG CALL 811 — Know what's below. Call before you dig.
Contractor Note: The locations of existing underground utilities are shown in an approximate way only. The contractor shall determine the exact location of all utilities before commencing work. They agree to be fully responsible for any and all damages which occur as a result of their failure to exactly locate and preserve any and all underground utilities.
MISS DIG System, Inc. 1-800-482-7171 www.missdig.net

CONTRACT NO. XX-XX
PROJECT NO. XX.XXX.X

DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0126-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION

SEC DETAILS

ISSUE	DESIGN/DEVELOPMENT
REVISIONS	---

SHEET C-702

Know what's below. Call before you dig.

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\Civil\Plans_Const\210020SEC.dwg Oct 07, 2022 - 4:29pm

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR	ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR	ELEV 682.65
TRAVERSE POINT #101 N 391460.64 E 13450420.17	ELEV 680.28
TRAVERSE POINT #106 N 391163.37 E 13450376.51	ELEV 678.72
TRAVERSE POINT #108 N 391323.48 E 13450054.04	ELEV 681.13
TRAVERSE POINT #109 N 391147.49 E 13450090.36	ELEV 681.20

GENERAL NOTES

[illegible]

PLANTING NOTES

[illegible]

STANDARDS SET FORTH IN ANSI Z-60.1 “AMERICAN STANDARDS FOR NURSERY STOCK”.

[illegible]

LAYOUT NOTES

[illegible]

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REVISIONS:

DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION

LANDSCAPE NOTES
###

SHEET L-100

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\PLN_UD\Sheets\210020LND_NOTE.dwg Oct 10, 2022 - 8:47am

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
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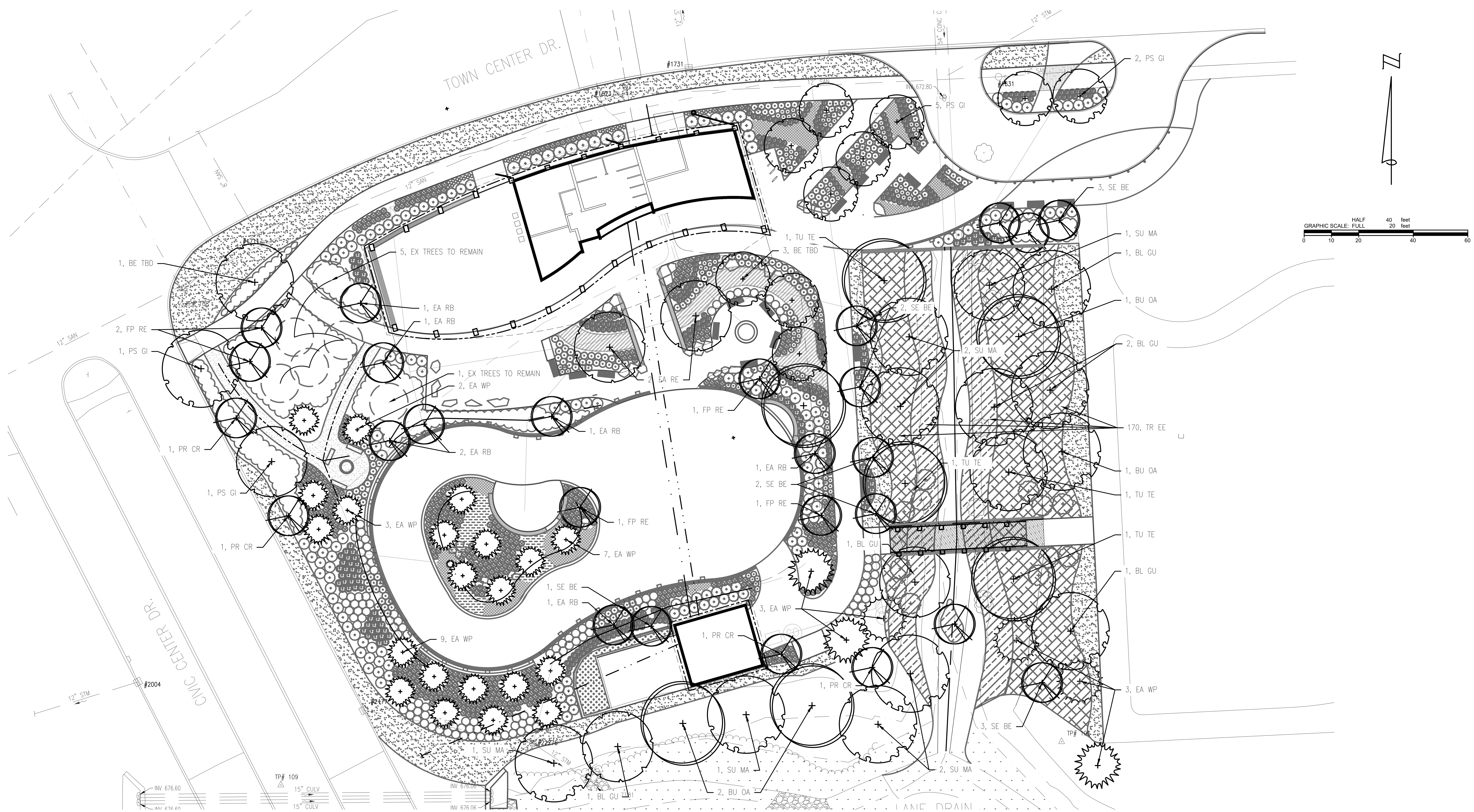

PLANT LIST - TREES

CODE	COMMON NAME	LATIN NAME	CONTAINER	SIZE	SPACING	QUANTITY	NOTES
SU MA	Sugar Maple	*Acer saccharum*	B&B	3" Cal	As Per Plan	TBD	Single Stem, Spring Dig
SE BE	Serviceberry	*Amelanchier sp.*	B&B	8' Ht.	As Per Plan	TBD	Multi-stem Clump
BE TBD	Betula Sp.	*Betula sp.*	B&B	8' Ht.	As Per Plan	TBD	Multi-stem Clump, Spring Dig
EA RE	Eastern Redbud	*Cercis canadensis*	B&B	8' Ht.	As Per Plan	TBD	Multi-Stem Clump, Spring Dig
FP RE	Forest Pansy Redbud	*Cercis canadensis 'Forest Pansy'*	B&B	8' Ht.	As Per Plan	TBD	Multi-Stem Clump, Spring Dig
PS GI	Princeton Sentry Ginkgo	*Ginkgo biloba 'Princeton Sentry'*	B&B	3" Cal	As Per Plan	TBD	Single Stem, Male Form
TU TE	Tuliptree	*Liriodendron tulipifera*	B&B	3" Cal	As Per Plan	TBD	Single Stem, Spring Dig
PR CR	Prairiefire Crabapple	*Malus x 'Prairiefire*	B&B	2" Cal	As Per Plan	TBD	Single Stem
BL GU	Blackgum	*Nyssa sylvatica*	B&B	2" Cal	As Per Plan	TBD	Single Stem, Spring Dig
EA WP	Eastern White Pine	*Pinus strobus*	B&B	10' Ht.	As Per Plan	TBD	Single Stem, No Late Fall Planting
BU OA	Bur Oak	*Quercus Macrocarpa*	B&B	3" Cal	As Per Plan	TBD	Single Stem, Spring Dig
TR EE	Tree Whips, Species TBD	Tree Whips, Species TBD	Bare Root	Whip	8' O.C.	170	Bare root planting

NOTES:
FOR PLANTING PLAN, REFER TO SHEET L-201
FOR ALL LANDSCAPE NOTES, REFER TO SHEET L-100
FOR LANDSCAPE MATERIALS PLAN, REFER TO SHEET L-300
FOR LANDSCAPE DETAILS, REFER TO SHEET L-400
THROUGH SHEET L-402.

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10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION

TREE PLAN
###

SHEET L-200

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\PLN_UD\Sheets\210020LND_PLNT.dwg Oct 10, 2022 - 9:12am

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
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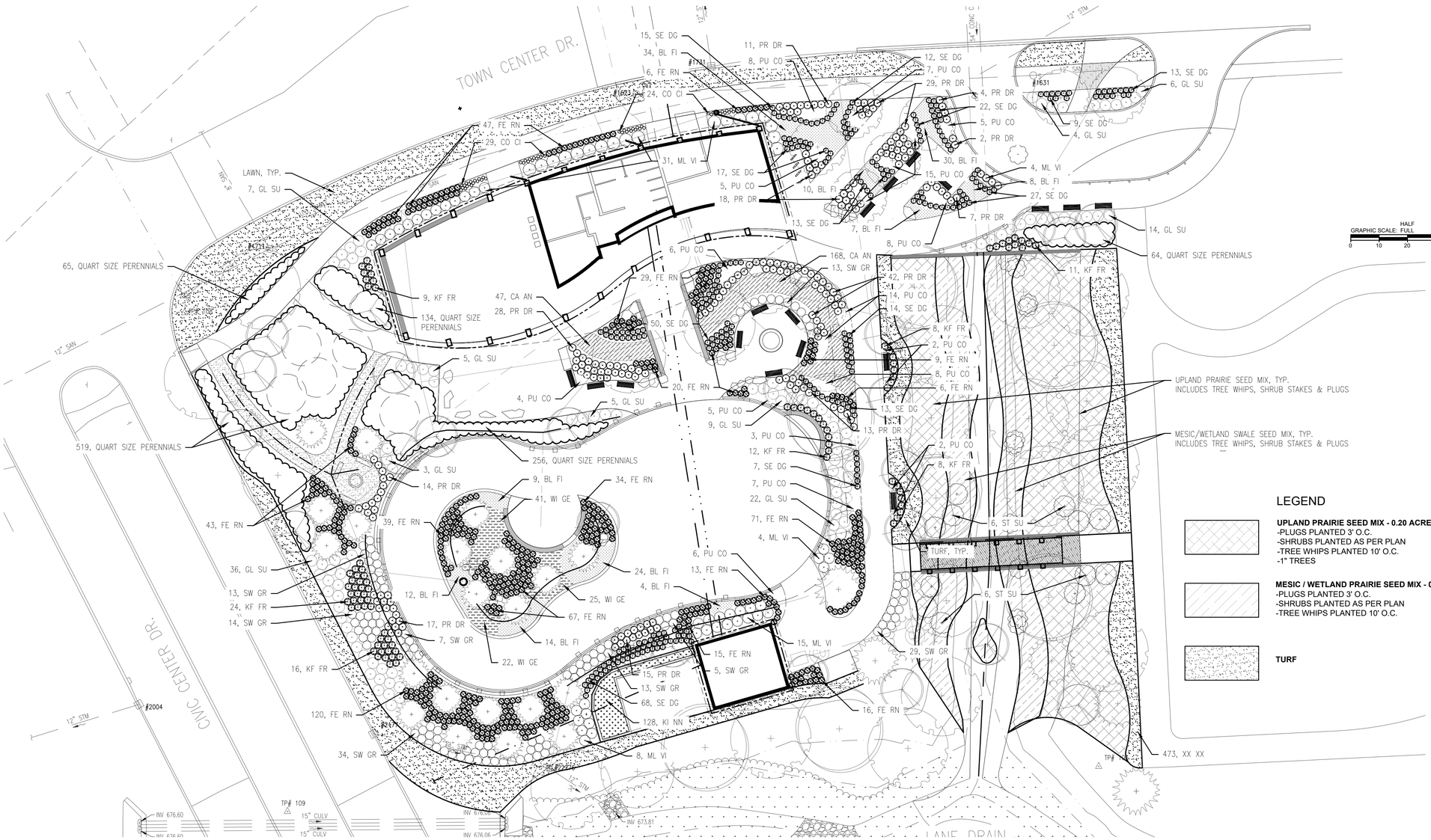

LEGEND

UPLAND PRAIRIE SEED MIX - 0.20 ACRES
-PLUGS PLANTED 3' O.C.
-SHRUBS PLANTED AS PER PLAN
-TREE WHIPS PLANTED 10' O.C.
-1" TREES

MESIC / WETLAND PRAIRIE SEED MIX - 0.10 ACRES
-PLUGS PLANTED 3' O.C.
-SHRUBS PLANTED AS PER PLAN
-TREE WHIPS PLANTED 10' O.C.

TURF

PLANT LIST - SHRUBS & VINES

CODE	COMMON NAME	LATIN NAME	CONTAINER	SIZE	SPACING	QUANTITY	NOTES
KI NN	Kinnikinnick	*Arctostaphylos uva-ursi*	Container	Plug	12" O.C.	190	N/A
SA CL	Sweet Autumn Clematis	*Clematis terniflora*	Container	#1 Gal.	36" O.C.	10	N/A
OA HY	Gatsby Gal Oakleaf Hydrangea	*Hydrangea quercifolia 'Gatsby Gal'*	Container	#3 Gal.	54" O.C.	190	N/A
VI CR	Virginia Creeper	*Parthenocissus quinquefolia*	Container	#1 Gal.	36" O.C.	10	N/A
GL SU	Gro-Low Sumac	*Rhus aromatica*	Container	#2 Gal.	48" O.C.	104	N/A
ST SU	Staghorn Sumac	*Rhus typhina*	Container	#1 Gal.	15' O.C.	12	N/A
ML VI	Maple Leaf Viburnum	*Viburnum acerifolium*	Container	#3 Gal.	54" O.C.	58	N/A
TBD	Restoration Zone Shrubs	*Restoration Zone Shrubs*	Container	#1 Gal.	TBD	50	N/A

PLANT LIST - PERENNIALS, VINES & BULBS

CODE	COMMON NAME	LATIN NAME	CONTAINER	SIZE	SPACING	QUANTITY	NOTES
CA AN	Canadian anemone	*Anemone canadensis*	Container	Plug	24" O.C.	190	N/A
CA GI	Canada ginger	*Asarum canadense*	Container	Plug	24" O.C.	190	N/A
PU CO	Purple Coneflower	*Echinaceae purpurea*	Container	#1 Gal.	24" O.C.	105	N/A
WI ST	Wild Strawberry	*Fragaria virginiana*	Container	Plug	12" O.C.	0	N/A
WI GE	Wild Geranium	*Geranium maculatum*	Container	#1 Gal.	24" O.C.	278	N/A
BL FI	Blue Flag Iris	*Iris verginica*	Container	Quart	30" O.C.	118	N/A
FE RN	Christmas Fern	*Polystichum acrostichoides*	Container	Quart	24" O.C.	525	N/A
CO CI	Common Cinquefoil	*Potentilla simplex*	Container	#1 Gal.	12" O.C.	53	N/A
DA FF	Daffodils	*Narcissus spp.*	Bag	Bulb	30" O.C.	274	N/A
TBD	Restoration Zone Perennials	*Restoration Zone Perennials*	Container	Plug	24" O.C.	1366	N/A

PLANT LIST - ORNAMENTAL GRASSES & SEDGES

CODE	COMMON NAME	LATIN NAME	CONTAINER	SIZE	SPACING	QUANTITY	NOTES
KF FR	Karl Foerster Feather Reed Grass	*Calamagrostis x acutiflora 'Karl Foerster'*	Container	#1 Gal.	30" O.C.	88	N/A
SW GR	Switchgrass	*Panicum virgatum*	Container	#1 Gal.	36" O.C.	115	N/A
LI BL	Little Bluestem	*Schizachyrium scoparium*	Container	#1 Gal.	24" O.C.	0	N/A
PR DR	Prairie Dropseed	*Sporobolus heterolepis*	Container	#1 Gal.	30" O.C.	204	N/A
SE DG	Sedge	*Carex pensylvanica*	Container	#1 Gal.	24" O.C.	212	N/A
CL PB	Clouded Planting Bed	*N/A*	Container	Quart Pot	24" O.C.	3303	N/A
TBD	Restoration Zone Graminoids	*Restoration Zone Graminoids*	Container	Plug	24" O.C.	1366	N/A

PLANT LIST - PRAIRIE SEED MIXES & TURFGRASS

CODE	COMMON NAME	QUANTITY	NOTES
UPLAND	Upland Praire Seed Mix	.20 Acres	Fall Seeding
WETLAND	Wetland Seed Mix	0.1 Acres	Fall Seeding
TURF	Seeded Turfgrass Lawn	0.15 Acres	Fall Seeding

NOTE:
FOR THE TREE PLANTING PLAN, REFER TO SHEET L-200
FOR ALL LANDSCAPE NOTES, REFER TO SHEET L-100
FOR LANDSCAPE MATERIALS PLAN, REFER TO SHEET L-300
FOR LANDSCAPE DETAILS, REFER TO SHEET L-401 THROUGH SHEET L-403

REMINDER - ADD PLANT ITEMS AND QUANTITIES FOR TREE WHIPS, STAKES, PLUGS.

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REVISIONS

DATE 10/10/2022 | PROJ NUMBER 0126.21-0020 | ENG/ARCH Volue | PROJ MGR CD | CADD Volue | COUNTY OAKLAND | MUNICIPALITY CITY OF TROY

CITY OF TROY
TROY PAVILION
PLANTING PLAN
###

SHEET L-201

DRAWING PATH: P:\0126_0165\0126210020_Troy_Pavilion\Drawings\PLN_UD\Sheets\210020ND_PLNT.dwg Oct 10, 2022 - 8:52am

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TRAVERSE POINT #109 N 391147.49 E 13450090.36	ELEV 681.20

MATERIAL LIST

CODE	ITEM NAME	DESCRIPTION	QUANTITY	UNIT	SHEET
BE NC	Cordia Bench	Forms and Surfaces, 6 Ft, Backed Bench, Jatoba Hardwood Slats, Surface Mount, Slate Texture Powdercoat	17	EA	L-XX
LI RE	Cordia Litter Receptacle	Forms and Surfaces, 36-Gal., Rain Cover, Standard Lift Latch, Surface Mount, Jatoba Hardwood Slats, Slate Texture Powdercoat	2	EA	L-XX
RE RE	Cordia Recycle Receptacle	Forms and Surfaces, 36-Gal., Rain Cover, Standard Lift Latch, Surface Mount, Jatoba Hardwood Slats, Wood Inset Recycling Graphic, Green, Slate Texture Powdercoat	2	EA	L-XX
BI RA	Cordia Bike Rack	Forms and Surfaces, Surface Mount, Slate Texture Powdercoat	4	EA	L-XX
BO LL	Bollard	Bollard to Match Troy Farmer's Market Site to East of Pavilion Site	15	EA	L-XX
RU BE	Rustic Bench	Wood Harvested from Troy. Fabricated by local wood worker. 18" height, 18" width, square profile, 6' length. Fabricator to provide shop drawings.	3	EA	L-XX
SE WA	Seat Wall	18" height to top of stone cap. Fon-du-lac veneer on CMU.		LF	L-XX
MC BO	Mica Boulders	3 to 4' Wide by 3' to 4' Tall Mica Boulders, Black.	11	EA	L-XX
MO BO	Montana Boulders	18" height, 2-4' wide, Montana stone.		EA	L-XX
LE WA	Ledgestone Retaining Wall	12" height x 3-4' long Montana Stone ledgestone stacked 24" high	100	LF	L-XX
FP-1	Fire Pit 1	20" Height, 2-burner system. Inner burner 18-24" flame, outer burner 10-12" flame. Gas Fire Place. Include Emergency Shut-Off Button. 8' outer dia. 6' inner dia. Stone surface above burner.	1	LSUM	L-XX
FP-2	Fire Pit 2	20" Height, 2-burner system. Inner burner 18-24" flame, outer burner 10-12" flame. Gas Fire Place. Include Emergency Shut-Off Button. 5' outer dia. 4' inner dia. Stone surface above burner.	1	LSUM	L-XX
ST CO	Standard Concrete	6" Standard Concrete		SYD	L-XX
DE CO-1	Decorative Concrete	6" Integral Colored Colored Concrete, Integral Color TBD		SYD	L-XX
DE CO-2	Decorative Concrete 2	4" Stamped Concrete, Wood Plank with Grain Pattern, Integral Color TBD		SYD	L-XX
WC PA	Wood Chip Pathway	4" Depth Wood Chip Path with 4" Washed Aggregate AA Base		SYD	L-XX
BR PA	Brick Pavers	Brick Pavers with Soldier Course. Sand Setting Bed, Concrete Base.		SYD	L-XX
CU RA	Culvert Railing	Slate Textured Powdercoat, Design TBD		LF	L-XX
IR RA	Ice Rink Railing	Stainless Steel, 2-handle railing with integral lighting component. Fabricator to provide shop drawings.		LF	L-XX
EN SI	Entrance Signage	4' Ht x 6'-7' Width. Design TBD. Clean Lines. Fabricator to provide shop drawings once design has been established.		EA	L-XX
TR SC	Trellis Screen	10 Ht. Aluminum Trellis. Powdercoat to match Slate Texture Powdercoat on Site Furnishings. Posts 6' O.C. Thick steel gage wire, diamond pattern, 6" O.C.		LF	L-XX

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\PLN_UD\Sheets\210020LND_MAT.dwg Oct 10, 2022 – 8:56am

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ISSUE: DESIGN DEVELOPMENT
REVISIONS:

DATE	PROJ NUMBER	ENG/ARCH	PROJ MGR	CADD	COUNTY	MUNICIPALITY
10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION

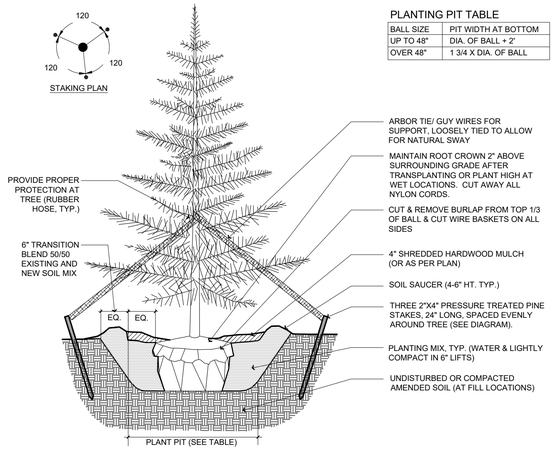
MATERIAL PLAN
###

SHEET L-300

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR ELEV 682.65
TRAVERSE POINT #101 N 391460.64 E 13450420.17 ELEV 680.28
TRAVERSE POINT #106 N 391163.37 E 13450376.51 ELEV 678.72
TRAVERSE POINT #108 N 391323.48 E 13450054.04 ELEV 681.13
TRAVERSE POINT #109 N 391147.49 E 13450090.36 ELEV 681.20

NOTES:

1. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.
2. FINAL TREE STAKING PLACEMENT TO BE APPROVED BY ENGINEER.
3. STAKE ALL EVERGREEN TREES UNDER 12' TALL. GUY WIRES TO BE USED ON ALL EVERGREEN TREES 12' TALL AND OVER.
4. PRUNE ONLY DEAD AND BROKEN BRANCHES. NEVER CUT THE CENTRAL LEADER.
5. MARK THE NORTH SIDE OF THE TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHENEVER POSSIBLE.
6. IF PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, CUT THE WIRE BASKET IN FOUR PLACES AND FOLD DOWN (8" MIN.) INTO PLANTING HOLE.
7. REMOVE ALL TWINE, SISAL, ROPE, WIRE, AND BURLAP FROM TOP HALF OF ROOTBALL.
8. SET TREE PLUMB IN PLANTING PIT.
9. EACH TREE MUST BE PLANTED SUCH THAT THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL. TREES WHERE THE TRUNK FLARE IS NOT VISIBLE SHALL BE REJECTED. DO NOT COVER THE TOP OF THE ROOT BALL WITH SOIL.



PLANTING PIT TABLE

BALL SIZE	PIT WIDTH AT BOTTOM
UP TO 48"	DIA. OF BALL + 2'
OVER 48"	1 3/4 X DIA. OF BALL

PLNT-TREE-DECD-LARG
SCALE: NTS

NOTES:

1. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.
2. FINAL TREE STAKING PLACEMENT TO BE APPROVED BY OWNER.
3. DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED, HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.
4. MARK THE NORTH SIDE OF THE TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHEN EVER POSSIBLE.
5. IF PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, CUT THE WIRE BASKET IN FOUR PLACES AND FOLD DOWN (8 IN.) INTO PLANTING HOLE.
6. REMOVE ALL TWINE, ROPE, WIRE AND BURLAP FROM TOP HALF OF ROOTBALL.
7. SET TREE PLUMB IN PLANTING PIT.
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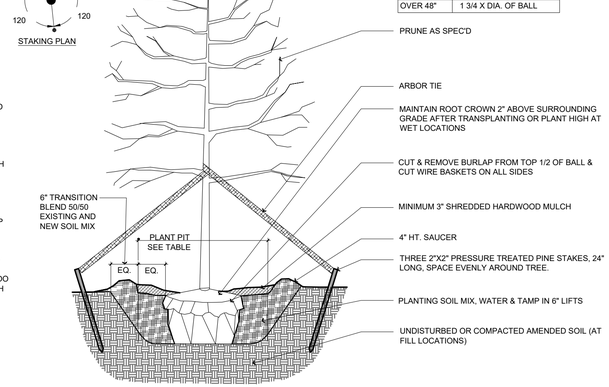
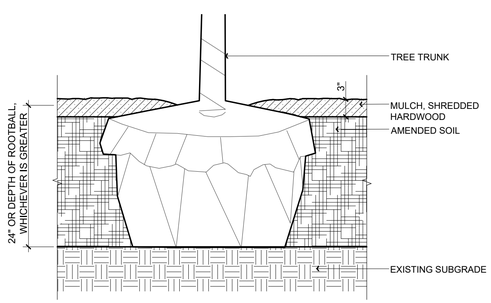


BALL SIZE	PIT WIDTH AT BOTTOM
UP TO 48"	DIA. OF BALL + 2'
OVER 48"	1 3/4 X DIA. OF BALL

PLNT-TREE-EVRG-LARG
SCALE: NTS



PLNT-TREE-PLANT BED
SCALE: NTS

NOTES:

1. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.
2. FINAL TREE STAKING PLACEMENT TO BE APPROVED BY OWNER.
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4. MARK THE NORTH SIDE OF THE TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHENEVER POSSIBLE.
5. IF PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, CUT THE WIRE BASKET IN FOUR PLACES AND FOLD DOWN (8" MIN.) INTO PLANTING HOLE.
6. REMOVE ALL TWINE, ROPE, WIRE, AND BURLAP FROM TOP HALF OF ROOTBALL.
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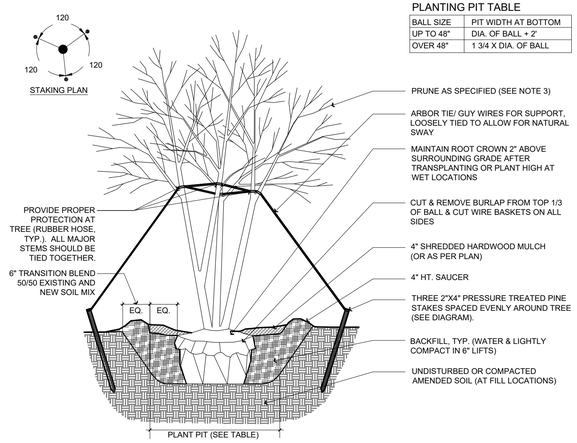
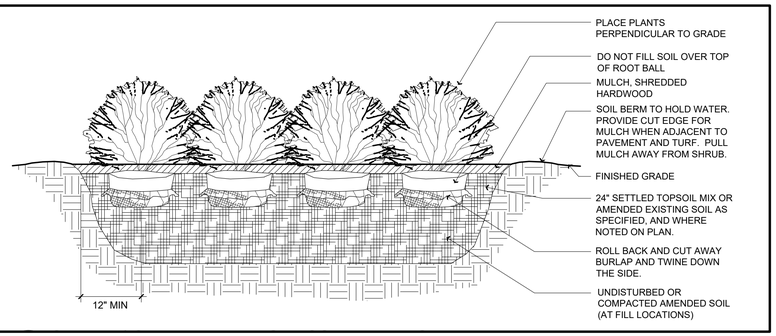


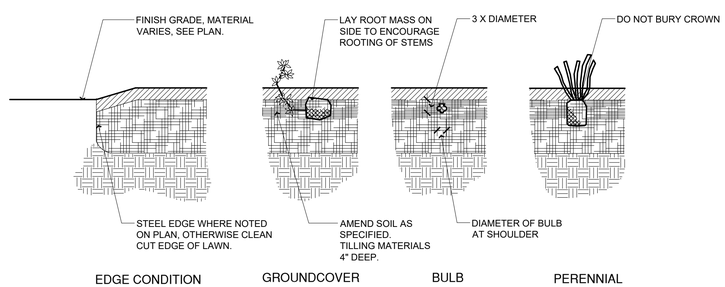
PLANTING PIT TABLE

BALL SIZE	PIT WIDTH AT BOTTOM
UP TO 48"	DIA. OF BALL + 2'
OVER 48"	1 3/4 X DIA. OF BALL

PLNT-TREE-MULT
SCALE: NTS



PLNT-GROUNDCOVER AND BULB DETAIL
SCALE: NTS



PLNT-GROUNDCOVER AND BULB DETAIL
SCALE: NTS

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ISSUE: DESIGN DEVELOPMENT
REVISIONS:
- ---
- ---
- ---
- ---
- ---

DATE 10/10/2022 | PROJ. NUMBER 0126-21-6020 | ENG/ARCH Value | PROJ. MGR CD | CAD Value | COUNTY OAKLAND | MUNICIPALITY CITY OF TROY

CITY OF TROY
TROY PAVILION
LANDSCAPE DETAILS
###

SHEET L-400

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
JOB BENCHMARK #208 ARROW ON HYDRANT AT THE SW CORNER OF TOWN CENTER DR AND CIVIC CENTER DR ELEV 682.65
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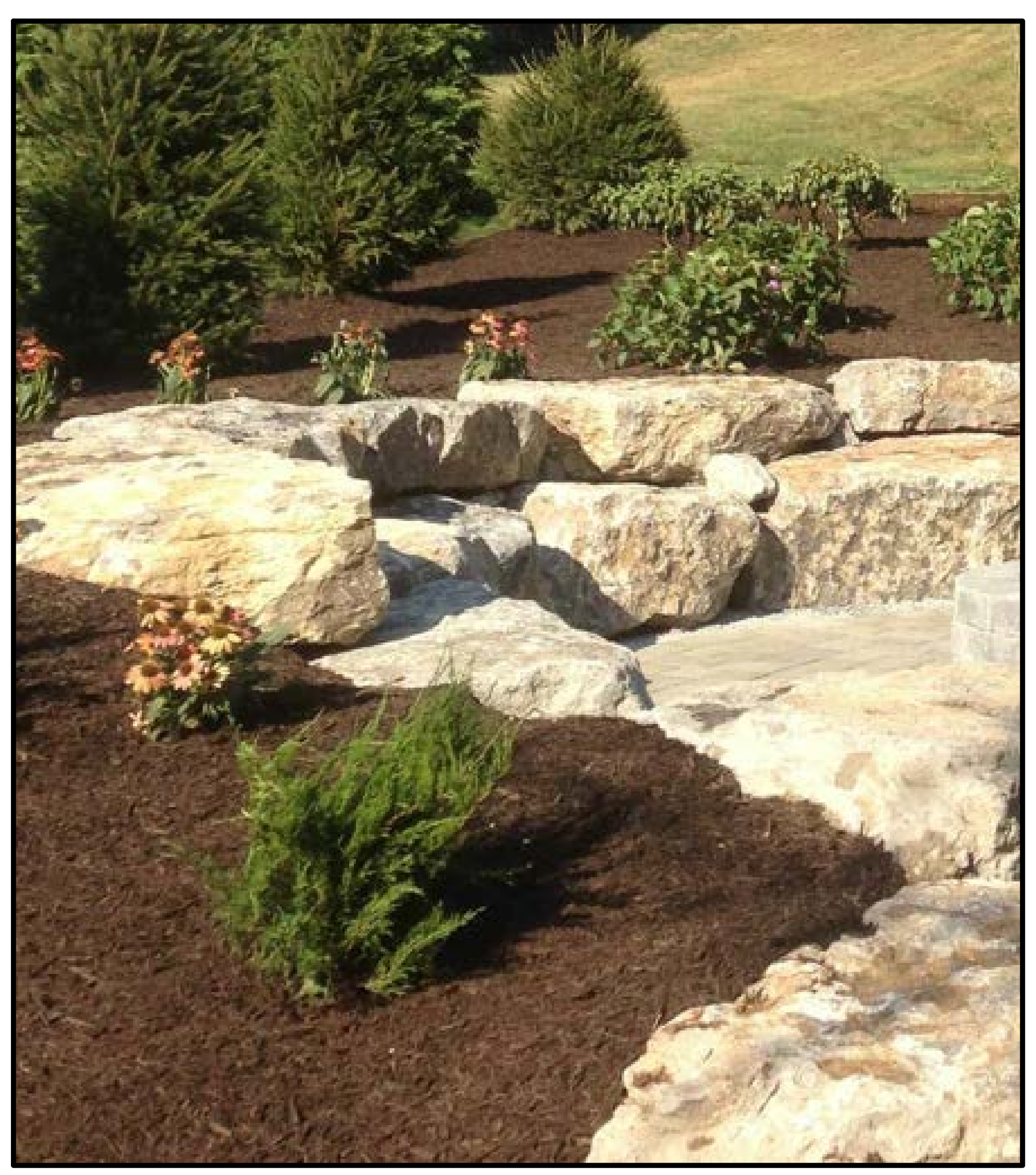
TRAVERSE POINT #109 N 391147.49 E 13450090.36 ELEV 681.20

---- RUSTIC BENCH
SCALE: NTS

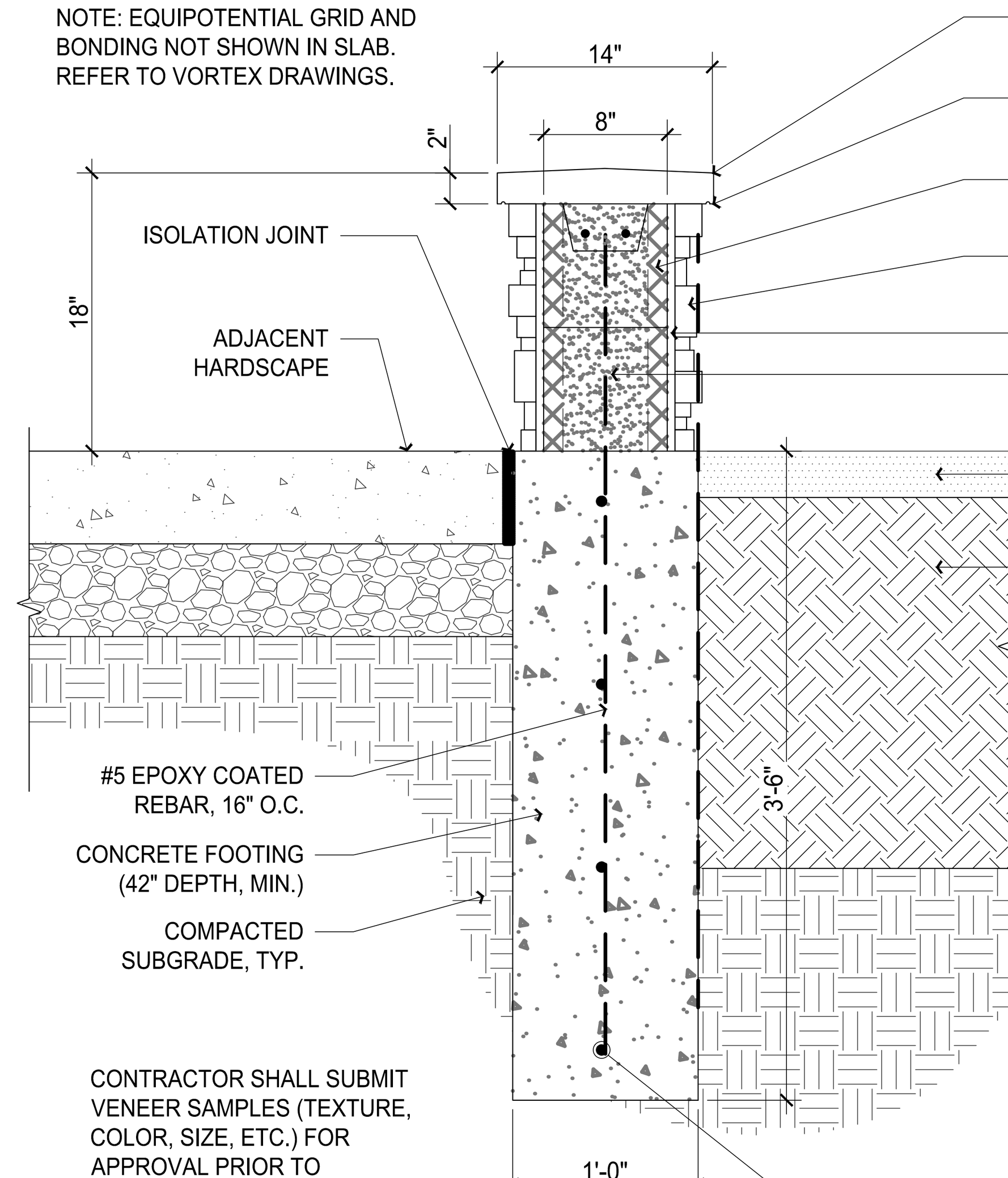
---- CULVERT DECORATIVE RAILING
SCALE: NTS

---- MONTANA BOULDERS
SCALE: NTS



---- LEDGESTONE RETAINING WALL
SCALE: NTS

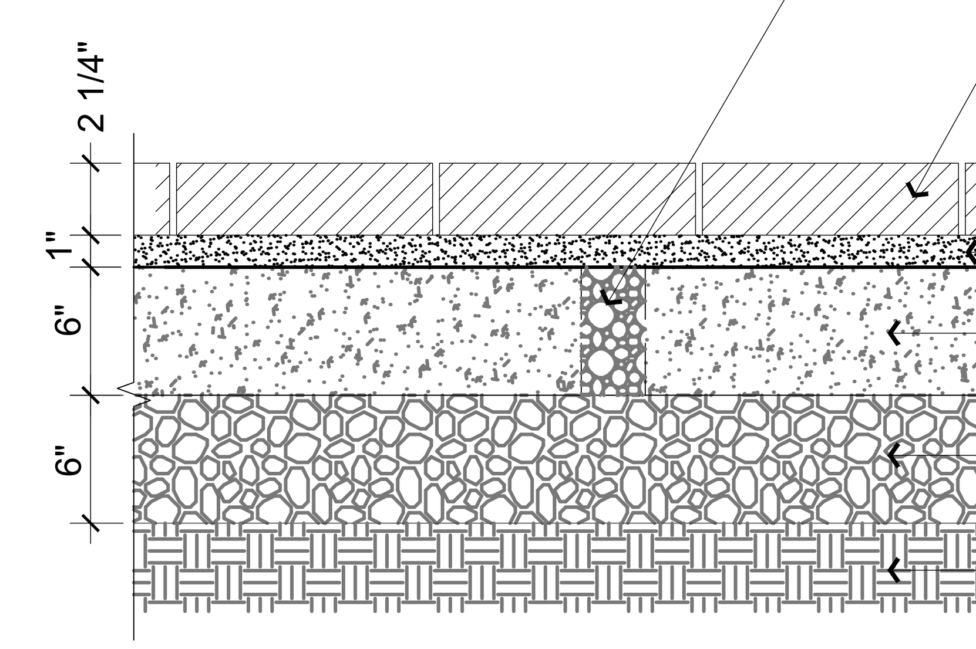
NOTE: EQUIPOTENTIAL GRID AND BONDING NOT SHOWN IN SLAB. REFER TO VORTEX DRAWINGS.


14"
8"
2"
18"
3'-6"
1'-0"
ISOLATION JOINT
ADJACENT HARDSCAPE
#5 EPOXY COATED REBAR, 16" O.C.
CONCRETE FOOTING (42" DEPTH, MIN.)
COMPACTED SUBGRADE, TYP.
NATURAL LIMESTONE CAP TO MATCH BUILDING SILL, BEVELED TO ALLOW FOR DRAINAGE (ROCK FACE TEXTURED EDGES)
¾" OVERHANG WITH SCORED DRIP EDGE, TYP.
8" BOND BEAM WITH (2) #4 CONT.
STONE VENEER, FON-DU-LAC
½" MORTAR SETTING BED
GROUT FILLED C.M.U. CORE WITH REBAR AT 16" O.C. PROVIDE MASONRY CONTROL JOINTS AT 20' MAX SPACING. SEE DETAIL 5/S-101. COORDINATE WITH JOINTS IN CULTURED STONE VENEER
SHREDDED BARK MULCH, TYP. REFER TO LANDSCAPE DETAILS
PLANTING BED, TYP. (SEE PLAN)
(4)#5 EPOXY COATED REBAR CONT. WITH 4'-0" MIN LAP SPLICES

CONTRACTOR SHALL SUBMIT VENEER SAMPLES (TEXTURE, COLOR, SIZE, ETC.) FOR APPROVAL PRIOR TO INSTALLATION.

CHARACTER REFERENCE IMAGE

---- SEAT WALL
SCALE: NTS


2 1/4"
1"
6"
6"
2" WEEP HOLE, ONE EVERY 25 SF AND AS NEEDED IN LOW SPOTS. FILL WITH PEA STONE AND COVER WITH 12"X12" FILTER FABRIC.
BRICK PAVERS, SEE MATERIALS PLANS FOR LOCATIONS
SAND SETTING BED
CONCRETE BASE
COMPACTED AA WASHED AGGREGATE BASE
COMPACTED SUBGRADE

---- BRICK PAVERS SECTION
SCALE: NTS

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10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION
LANDSCAPE DETAILS
###

SHEET L-401

DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\PLN_UD\Sheets\210020LND_DET.dwg Oct 10, 2022 - 9:09am

JOB BENCHMARK #201 ARROW ON HYDRANT IN FRONT OF 288 TOWN CENTER DR ELEV 683.09
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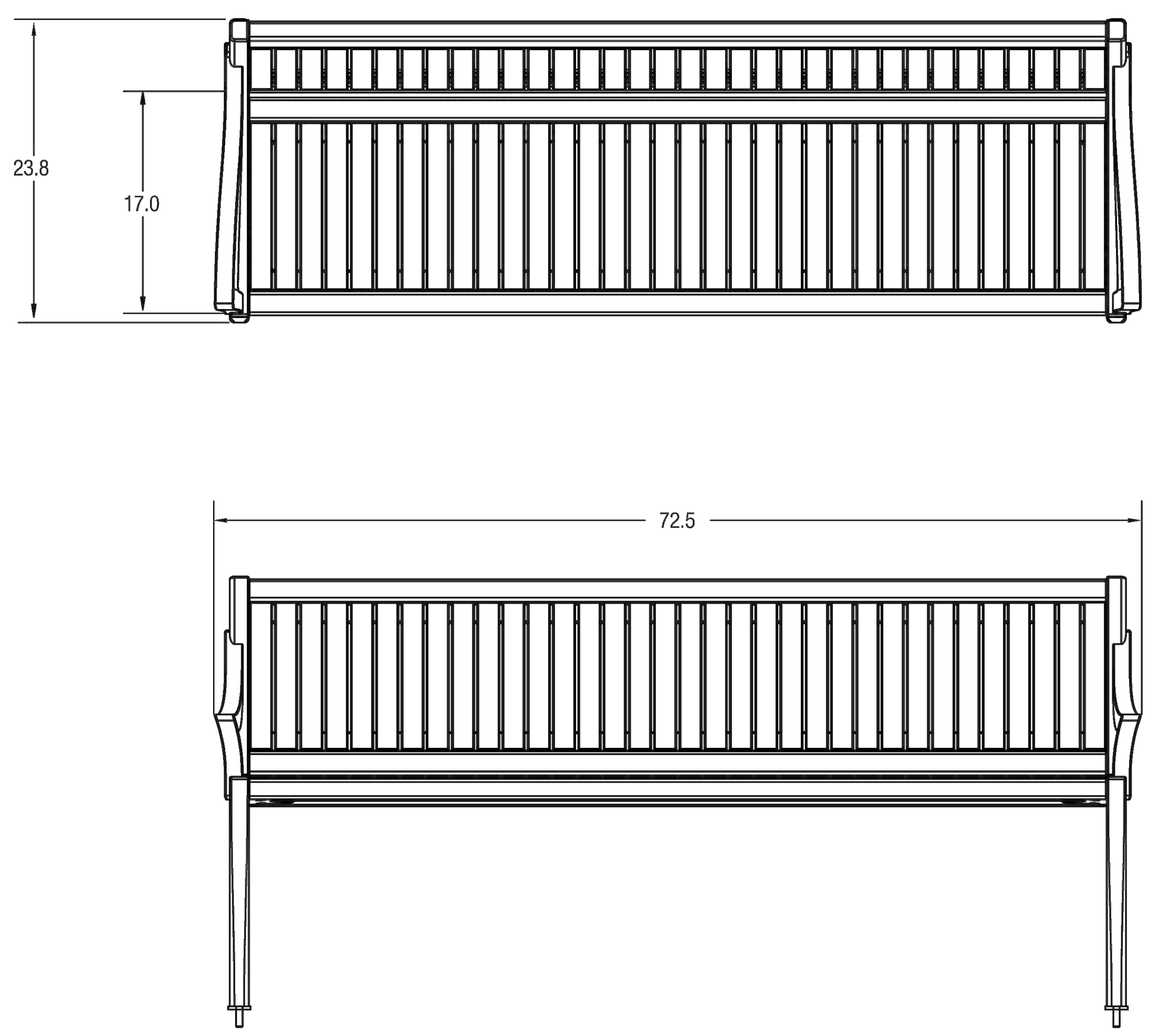
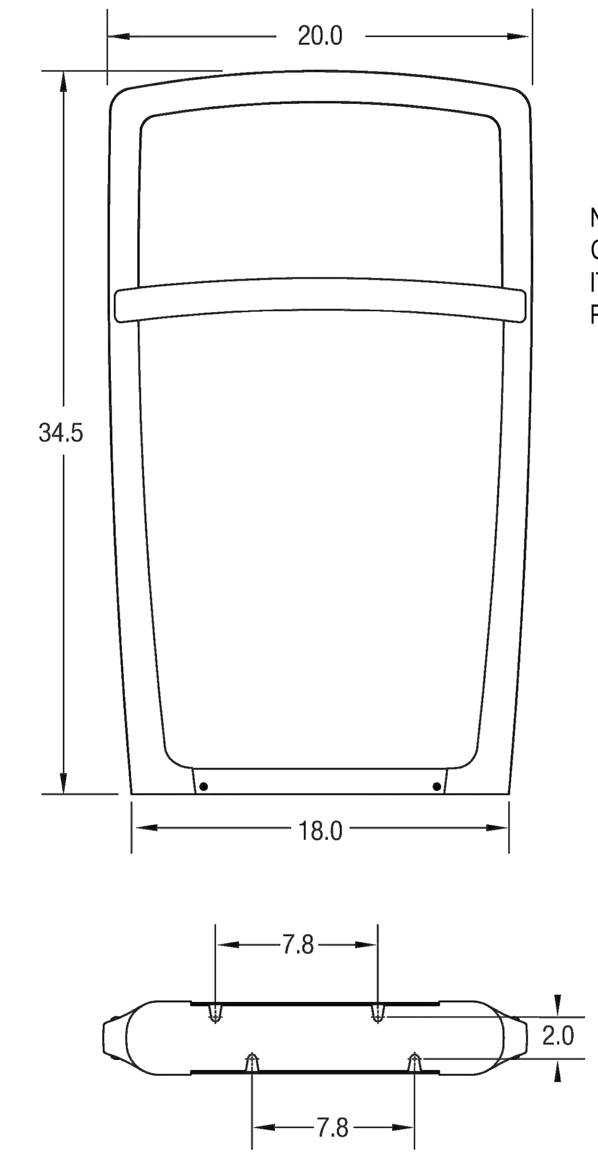


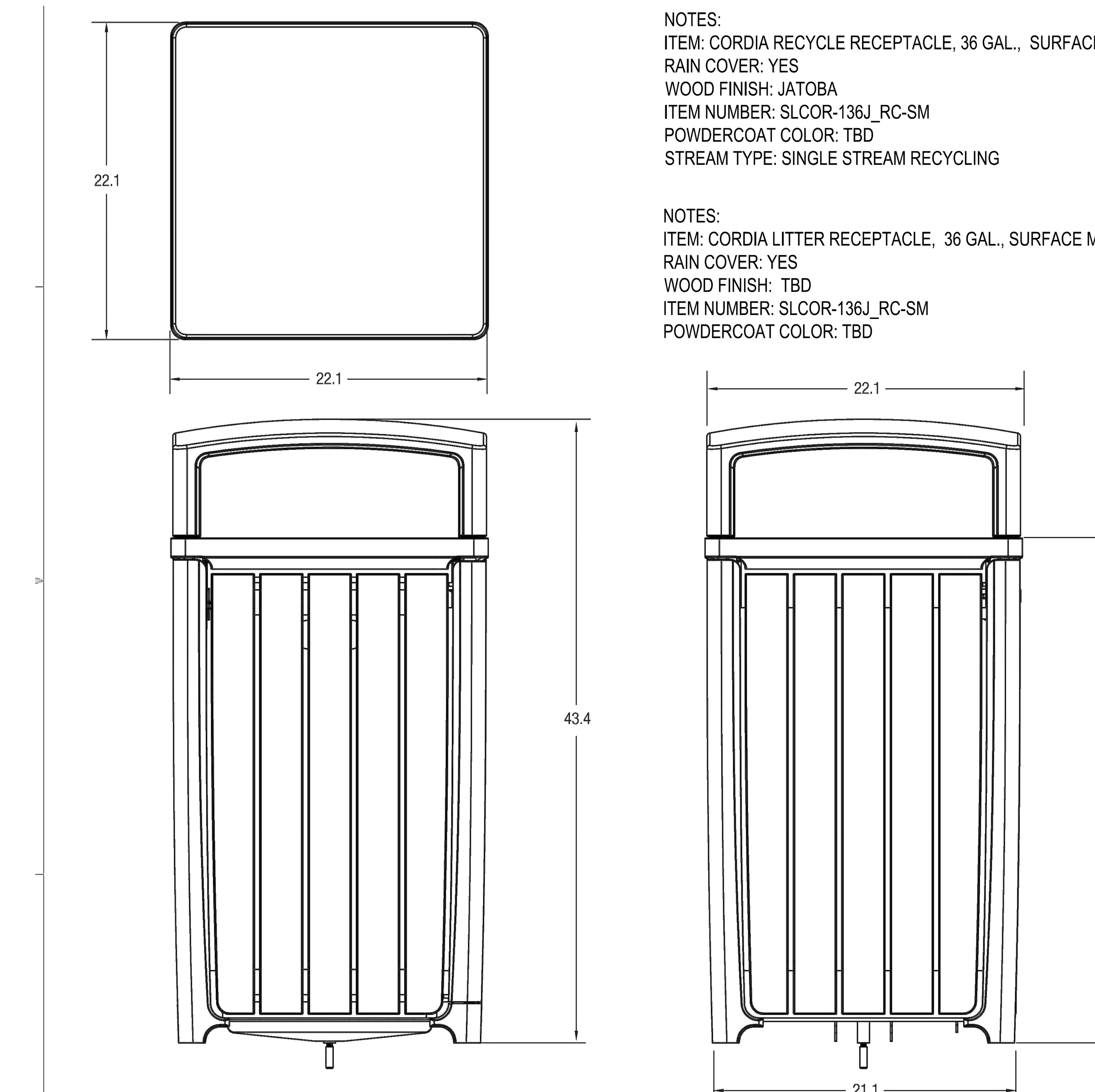
NOTES:
CORDIA BENCH, BACKED JATOBA, SURFACE MOUNT
ITEM NUMBER SBCOR-72BW
POWDERCOAT COLOR: TBD
WOOD FINISH: TBD

CORDIA BENCH, 6' WIDTH, FORMS AND SURFACES
SCALE: NTS



NOTES:
CORDIA BIKE RACK, SURFACE MOUNT
ITEM NUMBER: SKCOR
POWDERCOAT COLOR: TBD

CORDIA BIKE RACK, FORMS AND SURFACES
SCALE: NTS



FRONT ELEVATION

SIDE ELEVATION

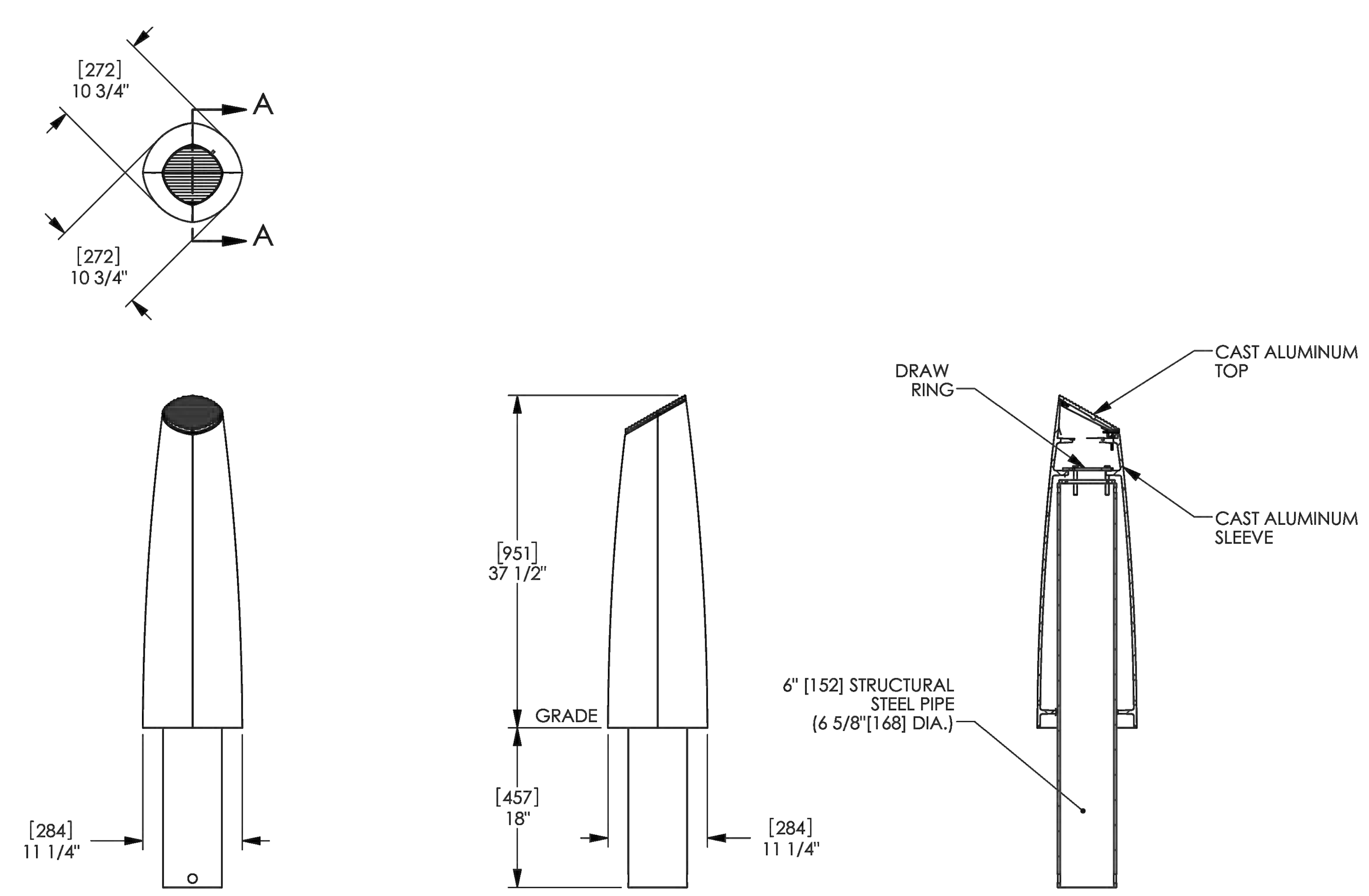
NOTES:
ITEM: CORDIA RECYCLE RECEPTACLE, 36 GAL., SURFACE MOUNT
RAIN COVER: YES
WOOD FINISH: JATOBA
ITEM NUMBER: SLCOR-136J_RC-SM
POWDERCOAT COLOR: TBD
STREAM TYPE: SINGLE STREAM RECYCLING

NOTES:
ITEM: CORDIA LITTER RECEPTACLE, 36 GAL., SURFACE MOUNT
RAIN COVER: YES
WOOD FINISH: TBD
ITEM NUMBER: SLCOR-136J_RC-SM
POWDERCOAT COLOR: TBD

CORDIA LITTER & RECYCLE RECEPTACLE, FORMS AND SURFACES
SCALE: NTS

Sentinel™ Bollard, Mitre Top, Embedded
Product Drawing

Date: 10/3/2018
www.landscapeforms.com Ph: 800.521.2546



SECTION A-A

landscapeforms Drawing: SE645-03
Dimensions are in inches [mm]

BOLLARD
SCALE: NTS

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DRAWING PATH: P:\0126_0165\0128210020_Troy_Pavilion\Drawings\PLN_UD\Sheets\210020LND_DET.dwg Oct 10, 2022 - 9:09am

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10/10/2022	0128-21-0020	Value	CO	Value	OAKLAND	CITY OF TROY

CITY OF TROY
TROY PAVILION

LANDSCAPE DETAILS
###

SHEET L-402

STRUC. ABBR.

A	
&	AND
@	AT
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL (ARCHITECT)
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B	
BF	BOTH FACES
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRG	BEARING
BRKT	BRACKET
BTWN	BETWEEN
C	
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
D	
DEG	DEGREE
DEMO	DEMOLITION
DET	DETAIL
DIA	DIAMETER
DIST	DISTANCE
DL	DEAD LOAD
E	
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ENG	ENGINEER
ENTR	ENTRANCE
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
EX	EXISTING
EXP	EXPANSION (EXPOSED)
F	
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FIN	FINISH / FINISHED
FT	FOOT / FEET
FTG	FOOTING
G	
GA	GAGE
GALV	GALVANIZED
GB	GYPSUM BOARD
GYP	GYPSUM
H	
HDR	HEADER
HORIZ	HORIZONTAL
HR	HOUR
HT	HEIGHT
I	
IN	INCH / INCHES
INSUL	INSULATION
J	
JST	JOIST
JT	JOINT
L	
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LP	LOW POINT
LT	LEFT
M	
MAX	MAXIMUM
MBC	MICHIGAN BUILDING CODE
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
N	
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT

STRUC. ABBR.

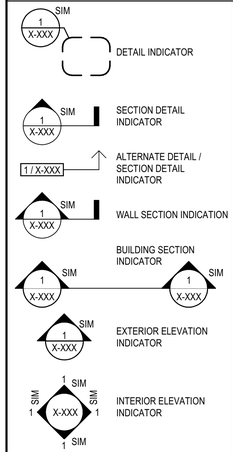
No.	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
O	
OBC	OHIO BUILDING CODE
OC	ON CENTER
OH	OVERHEAD
P	
PCF	POUNDS PER CUBIC FOOT
PL	PLATE
PLMB	PLUMBING
PLYWD	PLYWOOD
PREFAB	PREFABRICATED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PVC	POLYVINYL CHLORIDE
Q	
QTY	QUANTITY
R	
REINF	REINFORCE
REQD	REQUIRED
REV	REVISE / REVISION
RO	ROUGH OPENING
RS	ROUGH SAWN
RT	RIGHT
S	
SIM	SIMILAR
SOG	SLAB ON GRADE
SQ FT	SQUARE FOOT / FEET
SQ IN	SQUARE INCH / INCHES
STL	STEEL
T	
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
TEMP	TEMPERATURE / TEMPERED
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
U	
UNO	UNLESS NOTED OTHERWISE
V	
VERT	VERTICAL
VIF	VERIFY IN FIELD
W	
W/	WITH
W/O	WITHOUT
WD	WOOD
WF	WIDE FLANGE
WT	WEIGHT
WWF	WELDED WIRE FABRIC
Y	
Y	
YD	YARD

GENERAL NOTES - STRUCTURAL

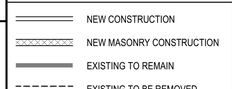
1. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS OCCUR BETWEEN DOCUMENTS, THE STRICTEST PROVISION SHALL GOVERN.
2. THE CONTRACTOR SHALL LIMIT THE AMOUNT OF LOAD IMPOSED UPON THE STRUCTURAL FRAMING SYSTEM DURING CONSTRUCTION. LOADS, INCLUDING CONSTRUCTION LOADS, MUST NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED. THE CONTRACTOR SHALL INFORM THE ENGINEER OF POTENTIAL CONSTRUCTION LOADS DEEMED EXCESSIVE BY THE CONTRACTOR.
3. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED SELF SUPPORTING, STABLE STRUCTURE UNLESS OTHERWISE INDICATED. THEY DO NOT INDICATE THE MEANS OR METHOD OF CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE, CONSTRUCTION SEQUENCE AND PROVIDE ALL MEASURES OR TEMPORARY BRACING NECESSARY TO ENSURE THE STABILITY AND SAFETY OF THE STRUCTURE AND ITS COMPONENTS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR THE BUILDING, SHORING FOR EARTH BANKS, FORMS, SCAFFOLDING, PLANKING, SAFETY NETS, SUPPORT AND BRACING FOR CRANES AND GIN POLES, ETC.
4. ALL MATERIALS AND WORKMANSHIP SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE GOVERNING BUILDING CODE: MICHIGAN BUILDING CODE, CURRENT EDITION.
5. ALL SHOP DRAWINGS PREPARED BY SUPPLIERS, SUBCONTRACTORS, ETC. SHALL BE REVIEWED BY THE ARCHITECT/ENGINEER FOR CONFORMANCE WITH DESIGN INTENT ONLY. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION. ENGINEERS APPROVAL OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR FIT, QUANTITY AND CONSTRUCTION QUALITY CONTROL.
6. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL RELEVANT DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATIONS AGAINST APPROVED MANUFACTURERS CERTIFIED EQUIPMENT DRAWINGS AND COORDINATING ANY REQUIREMENTS WITH SHOP DRAWINGS AND WORK.
7. MECHANICAL FRAMING LOADS, OPENINGS AND SUPPORT STRUCTURE ARE SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL COORDINATE WITH MECHANICAL AND OTHER TRADES TO VERIFY EQUIPMENT SIZE AND LOCATIONS. ANY CHANGES IN EQUIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD.
8. THE CONTRACTOR SHALL INFORM THE ENGINEER/ARCHITECT OF ANY DEVIATIONS FROM THE DRAWINGS. DO NOT CUT OR MODIFY STRUCTURAL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER.
9. DRAWINGS ARE INTENDED TO BE PRINTED PER THE SCALE PROVIDED. THE CONTRACTOR SHALL CONTACT THE ENGINEER IF ADDITIONAL DIMENSIONS ARE REQUIRED.
10. CONTRACTOR SHALL NOT MIX GALVANIZED AND STAINLESS STEEL AT ANY TIME. ANY METAL PARTS IN CONTACT WITH OTHER METAL PARTS SHALL BE OF A SIMILAR METAL.
11. CONTRACTOR SHALL RECOGNIZE EFFECTS OF THERMAL MOVEMENTS AND MOISTURE CONTENT CHANGES OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD AND CONSIDER THESE EFFECTS DURING CONSTRUCTION AND/OR ERECTION SEQUENCES.
12. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING COMPLETE AND FUNCTIONING SYSTEMS, INCLUDING BUT NOT LIMITED TO, PROVIDING (AT NO ADDITIONAL COST) ITEMS NOT SPECIFICALLY SHOWN IN THESE DRAWINGS WHICH ARE NORMALLY CONSIDERED NECESSARY.

STRUCTURAL SYMBOLS LEGEND

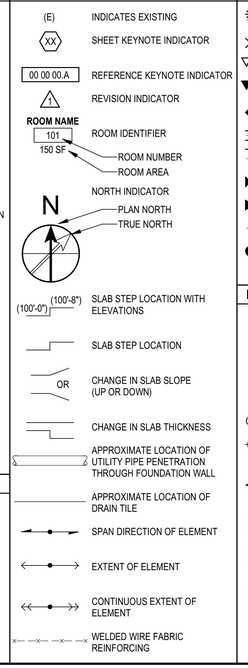
VIEW REFERENCES



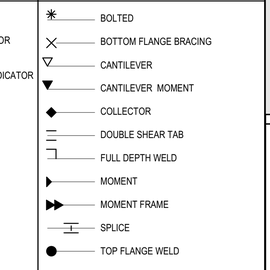
BUILDING ELEMENTS



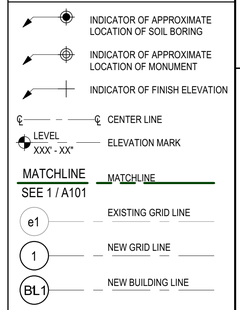
NOTES & ANNOTATIONS



CONNECTION TYPES



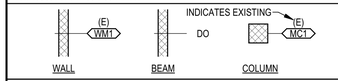
INDICATOR LINES & POINTS



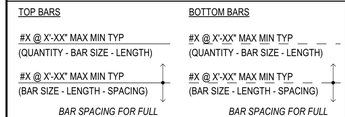
SYSTEM SPECIFIC SYMBOLS

(REFER TO SCHEDULES)

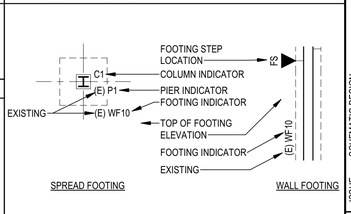
MASONRY SYSTEM



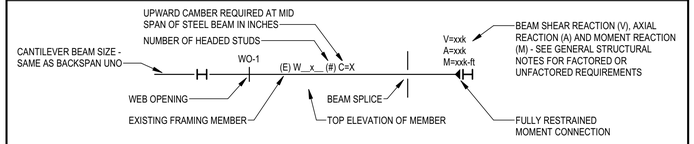
REBAR FRAMING SYSTEM



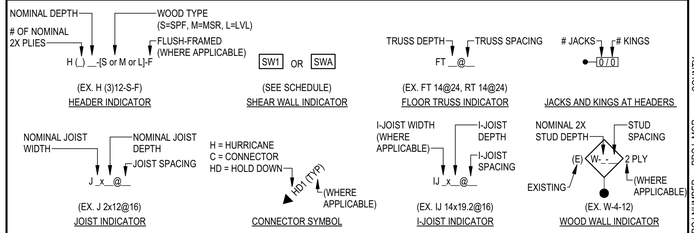
FOUNDATION SYSTEM



STEEL FRAMING SYSTEM



WOOD FRAMING SYSTEM



OHM
ARCHITECTS ENGINEERS PLANNERS
OHM-ADVISORS.COM

PRELIMINARY - NOT FOR CONSTRUCTION

ISSUE	DATE
SCHEMATIC DESIGN	2022/08/02
REVISIONS:	

PROJ NUMBER	0128-21-0020
PROJ MGR	CO
COUNTY	Oakland

CITY OF TROY
TROY PAVILION
Town Center Dr
Troy, MI 48084

STRUCTURAL GENERAL INFORMATION

SHEET S-001

CONCRETE PIER SCHEDULE

MARK	PIER SIZE	REINFORCING	NOTES
P1	14 x 24	(8) #8 VERTICAL BARS W/#3 TIES @ 12" O.C.	
P2	14 x 12	(6) #8 VERTICAL BARS W/#3 TIES @ 12" O.C.	
P3	22 x 32	(8) #8 VERTICAL BARS W/#3 TIES @ 12" O.C.	
P4	22 x 20	(6) #8 VERTICAL BARS W/#3 TIES @ 12" O.C.	

FOOTING SCHEDULE

SCHEDULE NOTES:

1. PROVIDE HORIZ HOOKS ON ALL VERTICAL BARS, TURNED OUT AWAY FROM CENTERLINE. (#5 = 12", #8 = 24")

2. PROVIDE "L" 30"x30" FOR #5 HORIZONTAL LAP BARS AT ALL CORNERS.

3. PROVIDE #5 BARS @ 36" OC PERPENDICULAR TO BOTTOM FOOTING BARS FOR WALL FOOTINGS.

4. REFER TO PLANS FOR STRIP FOOTING LENGTHS.

MARK	FOOTING SIZE			REINFORCING	NOTES
	L	W	D		
	358 1/4"	598"	12"		
F1	48"	48"	18"	(6) #5 BARS EW	
F2		24"	12"	#5 @ 12" O.C. EW	

COLUMN SCHEDULE

MARK	COLUMN SIZE	REINFORCING	NOTES
CM1	10x16	(2) #5 BARS, CENTERED IN CORES	AT LONGER EXTERIOR MASONRY LINTELS
CM2	10x8	(1) #5 BAR, CENTERED IN CORE	AT SHORTER EXTERIOR MASONRY LINTELS
CM3	8x8	(1) #5 BAR, CENTERED IN CORE	FOR INTERIOR MASONRY LINTELS
CM4	8x12	(1) #5 BAR, CENTERED IN CORE	FOR MASONRY LINTELS AT STORAGE BUILDING
CW1	24-12 x 14		TAPERED GLULAM COLUMN - 24/12x14", STAINED
CW2	14x12		GLULAM COLUMNS AT LOW END IN WALL
CW3	5.25x7 PSL		COLUMNS IN WOOD WALL

WALL SCHEDULE

MARK	WIDTH	REINFORCING/CONSTRUCTION	NOTES
WC1	1'-0"	CONC: #5's @12" o.c. HORIZ, #5's @18" o.c. VERT, EACH FACE	TYPICAL FDN WALL
WC2	8"	CONC: #5's @ 12" o.c. HORIZ, #5's @18" o.c. VERT, 1-LAYER CENTERED	FND WALL AT STOOPS
WC3	1'-2"	CONC: #5's @12" o.c. HORIZ, #5's @18" o.c. VERT, EACH FACE	TYPICAL FDN WALL
WM1	10"	MASONRY: #5's @32" o.c.W/ W1.7 WIRE LADDER TIES AT 16" o.c.	TYP WALL: EL 100'-0" TO 110'-0"
WM2	1'-0"	MASONRY: #5's @32" o.c.W/ W1.7 WIRE LADDER TIES AT 16" o.c.	ZAMBONI BLDG
WW1	5 1/2"	WOOD: 2x6 @16" o.c. EXT SIDE:15/32 PLYWOOD w/ 8d NAILS 4"/6" SPACING. INT SIDE: 5/8" GYP 8d NAILS 4"/7" SPACING	TYP WALL: EL 110'-0" TO ROOF DECK

STRUCTURAL STEEL NOTES

1. COMPLY WITH CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES - THE LATEST APPLICABLE EDITION
2. STRUCTURAL STEEL PLATES, ANGLES, CHANNELS AND S-SHAPE MEMBERS: ASTM A36, Fy=36KSI.
3. ANCHOR RODS: ASTM F1554, GRADE 36.
4. STRUCTURAL STEEL WIDE FLANGE SECTIONS: ASTM A992, GRADE 50, Fy=50KSI.
5. HOLLOW STRUCTURAL SECTIONS: ASTM A500, GRADE B, Fy=46KSI.
6. STEEL PIPE: ASTM A53, GRADE B, Fy=35KSI.
7. USE ASTM A325N, 3/4" DIA FOR ALL BOLTS IN STANDARD ROUND HOLES UNLESS NOTED OTHERWISE ON THE PLANS.
8. SUBMIT SHOP DRAWINGS FROM STRUCTURAL STEEL FABRICATOR FOR APPROVAL OF THE ENGINEER, PRIOR TO FABRICATION. FOLLOW STANDARD PRACTICES SET FORTH IN THE AISC MANUAL "DETAILING FOR STEEL CONSTRUCTION" FOR DETAIL DRAWINGS OF THE MEMBERS AND THEIR CONNECTIONS. INDICATE WELDS, USING STANDARD AWS WELDING SYMBOLS. SHOW SIZE LENGTH AND TYPE OF EACH WELD.
9. BEAM AND LINTEL BEARINGS ON MASONRY WALLS SHALL BE 6 INCHES MINIMUM, UNLESS OTHERWISE NOTED. CENTER BEARING ON WALLS, UNLESS OTHERWISE NOTED.
10. STEEL FABRICATOR SHALL DESIGN AND FABRICATE STEEL AND STEEL CONNECTIONS IN ACCORDANCE WITH AISC UNLESS CONNECTIONS ARE INDICATED ON THE DRAWINGS.
11. ALL BOLTED CONNECTIONS SHALL BE BEARING TYPE N UNLESS OTHERWISE NOTED.
12. ALL STRUCTURAL STEEL MEMBERS AND ACCESSORIES UNLESS NOTED OTHERWISE, SHALL RECEIVE ONE SHOP PRIME COAT OF PROTECTIVE PAINT PRIOR TO DELIVERY TO JOBSITE. FINISH PAINT ALL STRUCTURAL STEEL AND CONNECTIONS, AFTER ERECTION AS SPECIFIED BY ARCHITECT.
13. WHERE MEMBERS ARE NOTED TO BE GALVANIZED, PROVIDE HOT DIPPED GALVANIZING IN ACCORDANCE WITH ASTM A123. PROVIDE FIELD TOUCH-UP OF ABRADED OR DAMAGED GALVANIZED COATINGS WITH HIGH-ZINC-DUST-CONTENT PAINT WITH DRY FILM CONTAINING NOT LESS THAN 94% ZINC DUST BY WEIGHT COMPLYING WITH SSPC-PAINT 20. ALL EXTERIOR STAIRS AND STAIR FRAMING SHALL BE GALVANIZED.
14. DESIGN, CONSTRUCTION AND REMOVAL OF ALL TEMPORARY SUPPORTS AND BRACING (SEE AISC CODE OF STANDARD PRACTICE) IS THE RESPONSIBILITY OF THE STEEL ERECTORS.
15. WELDING SHALL BE IN ACCORDANCE WITH THE STRUCTURAL WELDING CODE - STEEL (AWS D1.1-CURRENT) PUBLISHED BY THE AMERICAN WELDING SOCIETY. PERFORM WELDING BY CERTIFIED WELDERS. USE E70XX ELECTRODE.
16. DO NOT USE STEEL FRAMING CONNECTIONS WHICH REQUIRE EITHER MEMBER TO BE COMPLETELY DISCONNECTED (NUTS REMOVED FROM BOLTS) FOR INSTALLATION OF THE SUCCEEDING MEMBER.

CONCRETE NOTES

1. PROVIDE MINIMUM 28-DAY CONCRETE COMPRESSIVE STRENGTH OF 4,000 PSI (f'c = 4,000 PSI). PROVIDE NORMAL WEIGHT CONCRETE, WITH 6% ± 1.5% ENTRAINED AIR FOR EXTERIOR APPLICATIONS , MAXIMUM W/C RATIO < 0.45, AND MAXIMUM 4" SLUMP, UNLESS SUPER-PLASTICIZERS ARE USED. USE OF SUPER-PLASTICIZERS IS SUBJECT TO PRIOR APPROVAL BY THE ENGINEER. DO NOT PROVIDE AIR CONTENT > 3% FOR TROWEL FINISHED SLABS. DO NOT PROVIDE AIRE CONTENT >3% FOR TROWEL FINISHED SLABS.
2. PROVIDE READY-MIX CONCRETE CONFORMING TO ASTM C-94.
3. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ACI 117 301, 305R, 306.1, AND 308.1, LATEST APPLICABLE EDITION.
4. PLACE ANCHOR RODS SET IN CONCRETE TO RECEIVE STRUCTURAL STEEL WITHIN TOLERANCES SPECIFIED IN THE LATEST APPLICABLE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" IN LIEU OF TOLERANCES SPECIFIED IN ACI "STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS".
5. REINFORCING STEEL CONFORMING TO ASTM A-615, GRADE 60 IS REQUIRED. PLACE REINFORCING STEEL IN CONFORMANCE WITH CRSI MANUAL OF STANDARD PRACTICE.
6. CONFORM TO ASTM A706/A706M, GRADE 60 FOR REINFORCING STEEL TO BE WELDED. PLACE REINFORCING STEEL IN CONFORMANCE WITH CRSI MANUAL OF STANDARD PRACTICE. WELD REINFORCED STEEL IN ACCORDANCE WITH AWS D1.4 PERFORM WELDING BY CERTIFIED WELDERS. USE E70XX ELECTRODES. DO NOT WELD REINFORCEMENT UNLESS DETAILED AS SUCH. DO NOT WELD REINFORCEMENT UNLESS DETAILED AS SUCH.
7. POST INSTALLED ANCHORS OR REBAR SHALL BE ANCHORED INTO CONCRETE WITH POWERS PE1000+ EPOXY INJECTION ADHESIVE, OR AN APPROVED EQUAL. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION INSTRUCTIONS. SEE DETAILS FOR MINIMUM EMBEDMENT.

REINFORCEMENT LAP SPLICE LENGTH+

BAR SIZE	f'c = 3,000 psi		f'c = 4,000 psi		f'c = 5,000 psi	
	TOP BARS*	ALL OTHER BARS	TOP BARS*	ALL OTHER BARS	TOP BARS*	ALL OTHER BARS
#3	28"	22"	24"	19"	22"	17"
#4	37"	29"	33"	25"	29"	23"
#5	47"	36"	40"	31"	36"	28"
#6	56"	43"	49"	38"	44"	34"
#7	81"	63"	70"	54"	63"	49"
#8	93"	72"	81"	62"	72"	56"

* TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE BELOW BAR.

\+ LAP SPLICE LENGTHS SHOWN ARE CLASS B SPLICE LENGTHS FOR UNCOATED OR GALVANIZED BARS WITH CLEAR COVER OF db OR MORE AND WITH CLEAR SPACING OF 2db OR MORE. INCREASE LAP LENGTHS BY 50% FOR EPOXY COATED OR DUAL ZINC-EPOXY COATED BARS WITH CLEAR COVER LESS THAN 3db OR WITH CLEAR SPACING LESS THAN 6db. INCREASE LAP LENGTHS BY 20% FOR EPOXY COATED OR DUAL ZINC-EPOXY COATED BARS WITH CLEAR COVER OF 3db OR MORE AND WITH CLEAR SPACING OF 6db OR MORE. SPLICE LENGTHS SHOWN ARE FOR NORMAL WEIGHT CONCRETE AND REINFORCEMENT WITH A YIELD STRENGTH OF 60,000 PSI (60 KSI).

8. REINFORCING STEEL SHALL HAVE A MINIMUM CONCRETE COVER AS LISTED BELOW UNLESS OTHERWISE NOTED.
   - A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED EARTH: 3"
   - B. CONCRETE CAST AGAINST FORMS BUT EXPOSED TO EARTH OR WEATHER
     1. NO. 5 OR SMALLER 1 1/2"
     2. GREATER THAN NO. 5 2"
   - C. SLAB ON GRADE: 2" FROM T/SLAB

SOILS AND EARTHWORK

1. SOIL INVESTIGATIONS HAVE BEEN PERFORMED FOR THIS PROJECT BY OHM ADVISORS, BORINGS DRILLED XX/XX/XX.
2. SOIL INVESTIGATIONS HAVE NOT BEEN PERFORMED FOR THIS PROJECT. PRESUMPTIVE LOAD-BEARING VALUES TO BE IN ACCORDANCE WITH MICHIGAN BUILDING CODE TABLE 1806.3, UNLESS NOTED OTHERWISE.
3. OHM UTILIZED DATA CONTAINED IN BORING LOGS TO DETERMINE DESIGN LOAD BEARING CAPACITY AND OTHER DESIGN PARAMETERS.
4. CONTRACTOR SHALL VERIFY SOIL BEARING CAPACITY PRIOR TO CONSTRUCTION.
5. SPECIAL DESIGN AND CONSTRUCTION PROVISIONS FOR THIS PROJECT'S FOUNDATIONS:
   - A. NONE
6. INCLUDE IN THE WORK PROVIDING ALL EQUIPMENT, MATERIAL, AND QUALIFIED LABOR NECESSARY FOR EXCAVATION, SHORING, DEWATERING SYSTEMS, BACKFILL, AND COMPACTION OF SOILS, AS REQUIRED TO CONSTRUCT STRUCTURES TO THE LINE AND GRADE AS SHOWN ON THE PLANS.
7. FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL TELEPHONE (800) 482-7171 NOT LATER THAN THREE BUSINESS DAYS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.
8. EXCAVATE TO ELEVATIONS AND DIMENSIONS SHOWN ON THE PLANS WITHIN A TOLERANCE OF +/- 0.10 FEET. EXCAVATE BY HAND TO FINAL GRADE FOR FOOTINGS.
9. NOTIFY THE ENGINEER FOR AN INSPECTION WHEN THE EXCAVATION HAS REACHED SUB-GRADE ELEVATION. IF UNSUITABLE BEARING MATERIALS ARE ENCOUNTERED AT SUB-GRADE ELEVATION, EXCAVATE AND REPLACE SUCH MATERIALS AS DIRECTED BY ENGINEER.
10. SATISFACTORY SOIL MATERIALS ARE DEFINED AS GRANULAR MATERIALS CLASSIFIED AS GW, GP, GM, SW, SP, SW-SM, SP-SM OR SM BY THE UNIFIED SOILS CLASSIFICATION SYSTEM, ASTM D2487. LIMIT AMOUNT OF FINE MATERIAL PASSING NO. 200 SIEVE TO LESS THAN 5% MAXIMUM.
11. UNSATISFACTORY SOIL MATERIALS ARE DEFINED AS SOILS CLASSIFIED AS GC, SW-SC, SP-SC, SC, ML, MH, CL, CH, OL, OH, AND PT BY THE UNIFIED SOIL CLASSIFICATION SYSTEM, OR ANY ORGANIC MATERIAL. "MARL" IS AN UNSATISFACTORY SOIL MATERIAL.
12. BACKFILL ALL STRUCTURAL WORK WITH SATISFACTORY SOIL MATERIALS AND ENGINEERED FILL AS SHOWN ON PLANS. DO NOT BACKFILL WITH FROZEN MATERIALS. DO NOT PLACE ROCKS LARGER THAN 3" DIAMETER IN BACKFILL.
13. COMPACT SOILS BELOW FOOTINGS T0 A MINIMUM OF 95% OF THE MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR, ASTM D1557.
14. COMPACT BACKFILL IN LAYERS TO MINIMUM 95% MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR, OR MICHIGAN CONE TEST.

MASONRY NOTES

1. CONSTRUCT MASONRY IN ACCORDANCE WITH ACI 530.1/ASCE 6-CURRENT EDITION.
2. PROVIDE NORMAL WEIGHT CONCRETE UNIT MASONRY UNITS MANUFACTURED IN ACCORDANCE WITH ASTM C90, F'm = 1,900 PSI.
3. GROUT VOIDS AS INDICATED ON THE DRAWINGS, WITH GROUT CONFORMING TO ASTM C476. GROUT BLOCK CORES UNDER BEAM BEARINGS AND AT LEAST 8" EACH SIDE OF BEARING. PROVIDE SLUMP BETWEEN 8 AND 11 INCHES.
4. LAY UNIT MASONRY IN A RUNNING BOND PATTERN UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE PLANS. TOOLS ALL JOINTS, ALL SURFACES.
5. MORTAR SHALL BE TYPE S COMPLYING WITH ASTM C270 IS REQUIRED.
6. PROTECT MASONRY BY COVERING TOP OF WALLS WITH WATERPROOF SHEETING AT THE END OF EACH DAY. DO NOT LAY WET OR FROZEN BRICK, STONE, OR BLOCK. PROVIDE TEMPORARY HEAT WHEN AMBIENT TEMPERATURE IS BELOW 40 DEGREES FAHRENHEIT. MAINTAIN MINIMUM 50 DEGREE TEMPERATURE FOR 48 HOURS AFTER PLACING MASONRY.
7. GROUT ALL CORES CONTAINING REBAR AND VOIDS WHERE INDICATED.
8. ALL CORES BELOW GRADE SHALL BE GROUTED SOLID UP TO FINISHED FLOOR ELEVATION.
9. CORES CONTAINING EXPANSION OR ADHESIVE ANCHORS SHALL BE GROUTED SOLID.
10. ALL VERTICAL REINFORCEMENT SHALL BE CONTINUOUS THROUGH BOND BEAMS. ALL HORIZONTAL REINFORCEMENT IN BOND BEAMS SHALL BE CONTINUOUS AROUND CORNERS OR HAVE BENT BARS OF THE SAME SIZE AND NUMBER WITH A LAP OF 48 BAR DIAMETERS (12" MINIMUM).
11. COORDINATE WALL OPENINGS AND OTHER WALL CONFIGURATIONS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, CIVIL, AND OTHER DISCIPLINES.
12. POST INSTALLED ANCHORS OR REBAR SHALL BE ANCHORED INTO MASONRY WITH POWERS PE1000 + EPOXY INJECTION ADHESIVE, OR AN APPROVED EQUAL. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLED INSTRUCTIONS. SEE DETAILS FOR MINIMUM EMBEDMENT.
13. PROVIDE HORIZONTAL JOINT REINFORCEMENT IN ALTERNATE COURSES (16" OC) USING 9 GAUGE DURATRUSS OR EQUAL.

BAR SIZE	MINIMUM LAP SPLICE f'm = 1,500 psi	MINIMUM LAP SPLICE f'm = 1,900 psi	COMMENTS
#3	18"	18"	
#4	26"	24"	
#5	40"	35"	MIN 8" CMU
#6	74"	66"	MIN 8" CMU
#7	101"	89"	MIN 12" CMU
#8	151"	135"	MIN 12" CMU

* LAP SPLICE LENGTHS SHOWN ARE FOR UNCOATED BARS WITH 2" MINIMUM CLEAR COVER AND 2" MINIMUM CLEAR SPACING. INCREASE LAP LENGTH BY 50% IF USING EPOXY COATED BARS. LAP LENGTHS SHOWN ARE FOR REINFORCEMENT WITH A YIELD STRENGTH OF 60,000 PSI (60 KSI).

LOOSE LINTEL & FRAMING NOTES

FOR ALL FRAMING & OPENINGS IN WALLS, INCLUDING THOSE FOR DOORWAYS, DUCTS & EQUIPMENT, PROVIDE (1) ANGLE FOR EACH 4" OF WALL THICKNESS AS FOLLOWS:

1. SPANS TO 4'-0": L3 1/2x3 1/2x5/16
2. SPANS 4'-1" TO 7'-0": L5x3 1/2x5/16
3. SPANS LARGER THAN 7'-0": REFER TO LINTEL SCHEDULE

LINTEL BEARING (MIN)

1. SPANS TO 4'-0": 6" EACH END
2. SPANS 4'-1" TO 7'-0": 8" EACH END
3. SPANS LARGER THAN 7'-0": PROVIDE BEAMS WITH PLATES AS SHOWN ON PLANS

NOTES:

1. ALL OPENINGS ARE NOT SHOWN IN THE FRAMING PLANS. REFER TO ARCHITECTURAL, MECHANICAL & ELECTRICAL DRAWINGS AND DETAILS FOR OPENINGS AND RECESSES.
2. WHERE ARE NOT DETAILED OR NOTED, PROVIDE LINTELS FOR ALL OPENINGS PER ABOVE LOOSE LINTEL SCHEDULE.
3. EQUIPMENT SUSPENDED FROM STEEL JOISTS: USE ANGLE LINTEL, SPAN (3) JOIST MIN, TOP CHORD, WELD OR CLAMP TO JOIST.
4. FOR OPENINGS ON FLOOR AND ROOF DECKS, PROVIDE DAL1 ANGLES EACH SIDE, FASTEN TO JOISTS AND DECK WITH CLIPS AND SCREWS.
5. ALL EXTERIOR, EXPOSED STL LINTELS SHALL BE HOT DIPPED GALVANIZED.

WOOD FRAMING NOTES

1. ALL FRAMING SHALL BE SPRUCE-PINE-FIR (S.P.F.) NO. 2 OR BETTER; Fb=875 PSI; E=1.4X10^6 PSI; Fv= 135 PSI; Fcperp =425 PSI. ALL WOOD LABELED "PT" SHALL BE S.P.F. NO.2 OR BETTER AND BE PRESSURE TREATED FOR GROUND CONTACT. PRESSURE-TREATED (PT) WOOD SHALL BE PREPARED IN ACCORDANCE WITH ASTM D1760 USING WATERBORNE PRESERVATIVES AND OBTAIN 0.25 PCF PENETRATION FOR ABOVE GRADE AND 0.40 PENETRATION FOR GROUND CONTACT.
2. ROOF JOISTS SHALL BE TRUSS-JOIST MCMILLIAN TJI SERIES OR EQUAL. INSTALL PER MANUFACTURERS SPECIFICATIONS AND STANDARD DETAILS.
3. HANGERS/CONNECTORS SHALL BE 18 GA GALVANIZED, SIMPSON STRONG-TIE OR EQUAL. USE HANGERS FOR THE USE AS RECOMMENDED BY THE MANUFACTURER.
4. SHEATHING/FLOORING SHALL BE APA GRADED AS FOLLOWS:
   - A. ROOF SHEATHING: 5/8' MIN, 40/20 EXPOSURE 1
   - B. WALL SHEATHING: 1/2" MIN, 32/16 EXPOSURE 1
5. MINIMUM REQUIREMENTS FOR ENGINEERED WOOD PRODUCTS ARE INDICATED AS FOLLOWS. PROVIDE BRACING AND DETAIL INSTALLATION PER MANUFACTURER'S REQUIREMENTS FOR ALL PRODUCTS.
   - A. 2.0E LAMINATED VENEER LUMBER; Fb=2,600 PSI; E=2.0X10^6 PSI; Fv=285 PSI; Fcperp =750 PSI, AS MANUFACTURED BY WEYERHAEUSER, OR APPROVED EQUIVALENT.
   - B. CROSS LAMINATED TIMBER (CLT); SPRUCE-PINE-FIR, MANUFACTURER SHALL DESIGN PANELS PER LOADS PROVIDED IN THE CONTRACT DOCUMENTS AND SEI/ASCE 7-10. PANELS SHALL BE IN ACCORDANCE WITH ANSI/APA PRG 320. BOTTOM SIDE OF ROOF PANELS SHALL HAVE VISUAL GRADE FINISH.
   - C. 24F-V4 DOUGLAS FIR GLUE LAMINATED TIMBER MANUFACTURED IN ACCORDANCE WITH ANSI/AITC A190.1-1992, APPEARANCE GRADE.
   - D. TJI/PRO: WOOD "I" JOISTS AS MANUFACTURED BY WEYERHAEUSER, OR APPROVED EQUIVALENT. L/360 MAXIMUM LIVE LOAD PERFORMANCE FOUND GOOD TO EXCELLENT BY AT LEAST 95% OF POPULATION. PROVIDE SHOP DRAWINGS AND REVIEW OF JOIST SELECTION, CERTIFYING PERFORMANCE VALUE. PROVIDE BRIDGING, BLOCKING, AND WEB STIFFENERS AS REQUIRED BY MANUFACTURER/SUPPLIER.
6. INSTALL SOLID 2X S4S BLOCKING AT ALL RAFTER BEARINGS. ADJUST BLOCK DEPTH AS REQUIRED FOR AIR SPACE.
7. SOLID OR BUILT-UP WOOD COLUMNS: GLUE AND NAIL STUDS TOGETHER TO FORM BUILT-UP WOOD COLUMNS. USE NUMBER OF STUDS FOR EACH COLUMN SUCH THAT THE COLUMN WIDTH EQUALS OR EXCEEDS THE WIDTH OF THE SUPPORTED MEMBER, BUT IN NO CASE LESS THAN THREE STUDS. SOLID BLOCK ALL FLOORS DIRECTLY UNDER WOOD COL, THEN CONTINUE WOOD COL TO SUPPORT (BEAM, FOOTING OR FOUNDATION WALL).
8. WHERE HEADERS ARE NOT SPECIFIED OVER DOORS, WINDOWS OR OTHER OPENINGS WITHIN BEARING OR EXTERIOR WALLS PROVIDE A MINIMUM (3) 2X12 HEADER. U.N.O. ALL WINDOW PENETRATIONS SHALL HAVE MINIMUM (2) SILL PLATES.
9. STEEL PLATES OR FASTENERS IN CONTACT WITH PRESSURE TREATED LUMBER AND PROTECTED WITHIN THE BUILDING ENVELOPE (ADEQUATELY SHIELDED FROM DIRECT CONTACT WITH MOISTURE) SHALL BE STAINLESS STEEL OR GALVANIZED TO G60 PER ASTM A924 REQUIREMENTS. STEEL PLATES OR FASTENERS IN CONTACT WITH PRESSURE TREATED LUMBER LOCATED OUTSIDE OF THE BUILDING ENVELOPE OR EXPOSED TO MOISTURE SHALL BE STAINLESS STEEL OR GALVANIZED TO G90 PER ASTM 924.
10. FASTEN MEMBERS IN ACCORDANCE WITH MICHIGAN BUILDING CODE TABLE 2304.9.1, UNLESS OTHERWISE NOTED.
11. WHERE NOTED, NAIL SIZES ARE BASED ON THE FOLLOWING MINIMUM SIZES

SIZE	DESIGNATION	MIN SIZE
6d	BOX	2" x 0.099" DIA
6d	COMMON	2" x 0.113" DIA
8d	BOX	2 1/2" x 0.113" DIA
8d	COMMON	2 1/2" x 0.131" DIA
10d	BOX	3" x 0.128" DIA
10d	COMMON	3" x 0.148" DIA
12d	BOX	3 1/4" x 0.128" DIA
12d	COMMON	3 1/4" x 0.148" DIA
16d	BOX	3 1/2" x 0.135" DIA
16d	COMMON	3 1/2" x 0.162" DIA

PAVILION BUILDING LOADS

BUILDING CLASSIFICATION II

LIVE LOADS	
1. UNIFORM FLOOR LIVE LOAD	125 psf
2. ROOF LOAD - SEE SNOW LOAD	20 psf
3. INTERIOR WALL LATERAL LIVE LOAD	15 psf
DEAD LOADS	
1. MATERIAL DEAD LOAD	0 psf
2. MECHANICAL DEAD LOAD	0 psf
SNOW LOADS	
BALANCED SNOW	17 psf
1. GROUND SNOW LOAD, P_G	25 psf
2. FLAT-ROOF SNOW LOAD, P_F	21 psf
3. SNOW EXPOSURE FACTOR, C_E	1.0
4. RISK CATEGORY	I
5. SNOW LOAD IMPORTANCE FACTOR, I_S	1.0
6. ROOF THERMAL FACTOR, C_T	1.2
7. SLOPED ROOF FACTOR, C_{SU}	1.0
8. SLOPED ROOF SNOW LOAD, P_S	21 psf
WIND LOADS $V_{ASD}=V_{ULT}(0.6)^{1/2}$ $Q_{ASD}=Q_{ULT}(0.6)$	
LOAD OR VARIABLE	
1. ULTIMATE DESIGN WIND SPEED (3-SECOND GUST)	115 mph
2. RISK CATEGORY	II
3. WIND EXPOSURE CATEGORY	C
4. INTERNAL PRESSURE COEFFICIENT (PARTIALLY ENCLOSED BUILDING)	± 0.55
5. MAIN WIND FORCE RESISTING SYSTEM (MAX ROOF UPLIFT AT OVERHANG)	33 psf
6. MAIN WIND FORCE RESISTING SYSTEM (MAX WALL)	32 psf
7. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 1)	+21, -41 psf
8. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 2)	+21, -46 psf
9. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 3)	+21, -58 psf
10. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 4)	+36, -38 psf
11. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 5)	+36, -45 psf
EARTHQUAKE DESIGN DATA	
LOAD VARIABLE	
1. RISK CATEGORY	II
2. SEISMIC IMPORTANCE FACTOR, I_E	1.0
3. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, S_S	0.089 g
4. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, S1	0.045 g
5. SITE CLASS	D
6. SEISMIC DESIGN CATEGORY	B
7. BASIC SEISMIC FORCE RESISTING SYSTEM: STEEL ORDINARY CONCENTRICALLY BRACED FRAME	
8. SEISMIC RESPONSE COEFFICIENT(S), C_S (SECTION 12.8.1.1)	0.0633
9. RESPONSE MODIFICATION COEFFICIENT(S), R(SECTION 12.2-1)	1.5
10. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE, SECTION 12.8	
ASSUMED SOIL BEARING STRENGTH	4000 psf
CONTRACTOR SHALL VERIFY SOIL BEARING CAPACITY PRIOR TO CONSTRUCTION	

NOTES

1. APPLICABLE CODE IS 2015 MICHIGAN BUILDING CODE.
2. APPLICABLE TECHNICAL CODE IS ASCE/ SEI 7-10.
3. WIND LOAD BASED ON ASCE 7-10
   - A. MWFS: CHAPTER 27, PART 1, METHOD 1
   - B. C&C: CHAPTER 30, PART 1, METHOD 1
4. LOADS ARE BASED ON SECTION 16 OF MBC 2015 UNLESS OTHERWISE NOTED.

STORAGE BUILDING LOADS

BUILDING CLASSIFICATION II

LIVE LOADS	
1. UNIFORM FLOOR LIVE LOAD	125 psf
2. ROOF LOAD - SEE SNOW LOAD	20 psf
3. INTERIOR WALL LATERAL LIVE LOAD	15 psf
DEAD LOADS	
1. MATERIAL DEAD LOAD	0 psf
2. MECHANICAL DEAD LOAD	0 psf
SNOW LOADS	
BALANCED SNOW	17 psf
1. GROUND SNOW LOAD, P_G	25 psf
2. FLAT-ROOF SNOW LOAD, P_F	21 psf
3. SNOW EXPOSURE FACTOR, C_E	1.0
4. RISK CATEGORY	II
5. SNOW LOAD IMPORTANCE FACTOR, I_S	1.0
6. ROOF THERMAL FACTOR, C_T	1.2
7. SLOPED ROOF FACTOR, C_{SU}	1.0
8. SLOPED ROOF SNOW LOAD, P_S	21 psf
WIND LOADS $V_{ASD}=V_{ULT}(0.6)^{1/2}$ $Q_{ASD}=Q_{ULT}(0.6)$	
LOAD OR VARIABLE	
1. ULTIMATE DESIGN WIND SPEED (3-SECOND GUST)	115 mph
2. RISK CATEGORY	2
3. WIND EXPOSURE CATEGORY	C
4. INTERNAL PRESSURE COEFFICIENT (ENCLOSED BUILDING)	± 0.18
5. MAIN WIND FORCE RESISTING SYSTEM (MAX ROOF UPLIFT AT OVERHANG)	31 psf
6. MAIN WIND FORCE RESISTING SYSTEM (MAX WALL)	22 psf
7. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 1)	+15, -37 psf
8. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 2)	+15, -44 psf
9. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 3)	+15, -76 psf
10. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 4)	+29, -32 psf
11. COMPONENTS & CLADDING DESIGN PRESSURE (ZONE 5)	+29, -39 psf
EARTHQUAKE DESIGN DATA	
LOAD VARIABLE	
1. RISK CATEGORY	II
2. SEISMIC IMPORTANCE FACTOR, I_E	1.0
3. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, S_S	0.089 g
4. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER, S1	0.045 g
5. SITE CLASS	D
6. SEISMIC DESIGN CATEGORY	B
7. BASIC SEISMIC FORCE RESISTING SYSTEM: ORDINARY PLAIN MASONRY SHEAR WALLS	
8. SEISMIC RESPONSE COEFFICIENT(S), C_S (SECTION 12.8.1.1)	0.0633
9. RESPONSE MODIFICATION COEFFICIENT(S), R(SECTION 12.2-1)	1.5
10. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE, SECTION 12.8	
ASSUMED SOIL BEARING STRENGTH	4000 psf
CONTRACTOR SHALL VERIFY SOIL BEARING CAPACITY PRIOR TO CONSTRUCTION	

NOTES

1. APPLICABLE CODE IS 2015 MICHIGAN BUILDING CODE.
2. APPLICABLE TECHNICAL CODE IS ASCE/ SEI 7-10.
3. WIND LOAD BASED ON ASCE 7-10
   - A. MWFS: CHAPTER 28, PART 2, METHOD 2
   - B. C&C: CHAPTER 30, PART 1, METHOD 1
4. LOADS ARE BASED ON SECTION 16 OF MBC 2015 UNLESS OTHERWISE NOTED.

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STRUCTURAL NOTES

SHEET S-002

STATEMENT OF SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE 2015 MICHIGAN BUILDING CODE (MBC) CHAPTER 17 AND AS MODIFIED HEREIN.
2. DESIGNATIONS:
   - SI — SPECIAL INSPECTOR QUALIFIED WITH DEMONSTRATED COMPETENCE DOCUMENTED BY CERTIFICATIONS FROM RECOGNIZED AGENCIES SUCH AS AWS, ACI, INTERNATIONAL CODE COUNCIL (IBC), MASONRY INSTITUTE OF MAY BE A FIRM WITH MULTIPLE SPECIALISTS AND A PROJECT MANAGER PROVIDING REPORTS.
   - TA — TESTING AGENCY QUALIFIED TO TEST AND INSPECT MATERIALS AND ASSEMBLIES TESTING.
   - GE — GEOTECHNICAL ENGINEER WHO PROVIDED THE ORIGINAL PROJECT GEOTECHNICAL SOILS INVESTIGATION REPORT.
   - SE — SPECIALTY ENGINEER RESPONSIBLE FOR DESIGNING ASSEMBLIES SUCH AS PRECAST CONCRETE, STEEL JOISTS, COLD FORMED FRAMING ASSEMBLIES, ETC. SPECIALTY ENGINEER SHALL PROVIDE OBSERVATION OF FABRICATED AND INSTALLED ITEMS OF THEIR DESIGN IN ADDITION TO THE SPECIAL INSPECTION.
3. TA, GE AND SE SHALL SUBMIT RECORDS OF THE INSPECTION RESULTS TO THE SI. THE SI SHALL COMPILE AND SUBMIT INSPECTION RECORDS TO THE ARCHITECT/ENGINEER AND BUILDING OFFICIAL RECORDS SHALL INCLUDE STATEMENTS OF TESTS, WHETHER INSTALLED/FABRICATED ITEM COMPLIES WITH CONTRACT DOCUMENTS, REMEDIAL WORK PERFORMED, RETESTS.
4. SI SHALL PROVIDE A DAILY REPORT OF ANY DISCREPANCIES FROM THE CONTRACT DOCUMENTS FOUND ON THE SAME DAY OF THE INSPECTION TO THE ENGINEER OF RECORD. FORMAL REPORTS OF COMPLIANCE CAN FOLLOW BY A MAXIMUM OF 2 WEEKS. SI SHALL PROVIDE AND SIGN FINAL REPORT WITH A SUMMARY OF ALL TESTS PERFORMED AND RESULTS TO THE ENGINEER OF RECORD AND BUILDING OFFICIAL, IN ACCORDANCE WITH SECTION 1704.2.4.
5. SI, TA & GE SHALL BE ENGAGED BY THE OWNER IN COMPLIANCE WITH THE MICHIGAN BUILDING CODE.
6. WHERE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP. SPECIAL INSPECTIONS OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION. SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE FABRICATOR MAINTAINS APPROVED DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR CONTROL OF THE WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND THE GOVERNING BUILDING CODE. APPROVAL SHALL BE BASED UPON REVIEW OF FABRICATION AND QUALITY CONTROL PROCEDURES AND PERIODIC INSPECTION OF FABRICATION PRACTICES BY THE BUILDING...
7. REFER TO SPECIAL INSPECTION SCHEDULES AND GENERAL STRUCTURAL NOTES FOR ADDITIONAL QUALITY CONTROL TESTING AND INSPECTIONS.

SPECIAL INSPECTION REQUIREMENTS - SOIL AND FOUNDATIONS

INSPECTION TASK	INSPECTION TYPE		REFERENCED STANDARD	MBC REFERENCE	RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC			
1. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.		X	GEOTECHNICAL REPORT	1705.6	SI/GE/TA
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		X	GEOTECHNICAL REPORT	1705.6	SI/GE
3. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		X	GEOTECHNICAL REPORT	1705.6	SI/GE
4. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	X		GEOTECHNICAL REPORT	1705.6	SI/GE/TA
5. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.		X	GEOTECHNICAL REPORT	1705.6	SI/GE/TA

SPECIAL INSPECTION REQUIREMENTS - CONCRETE CONSTRUCTION

INSPECTION TASK	INSPECTION TYPE		REFERENCED STANDARD	MBC REFERENCE	RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC			
1. INSPECT REINFORCEMENT AND VERIFY PLACEMENT.		X	ACI 318: CH 20, 25.2, 25.3, 26.6.1-26.6.3		SI
2. REINFORCING BAR WELDING:			AWS D1.4 ACI 318: 26.6.4		
A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706.		X			
B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16".		X			
C. INSPECT ALL OTHER WELDS .	X				
3. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.		X	ACI 318: 26.11.1.2(b)		SI/SE/TA
4. INSPECT FORMWORK FOR PROPER PREPARATION AND CLEANLINESS PRIOR TO CONCRETE PLACEMENT.		X	ACI 318: 26.5.2		SI/TA
5. INSPECT ANCHORS AND EMBEDMENTS CAST IN CONCRETE.		X	ACI 318: 17.8.2		SI/TA
6. VERIFY USE OF REQUIRED DESIGN MIX.		X	ACI 318: CH 19, 26.4.3, 26.4.4		SI/TA
7. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X		ASTM C172 ASTM C31 ACI 318: 26.4, 26.12		SI/TA
8. INSPECT CONCRETE PLACEMENT FOR PROPER PLACEMENT TECHNIQUES.	X		ACI 318: 26.5		SI
9. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.		X	ACI 318: 26.5.3-26.5.5		SI
10. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.		X	ACI 318: CH 26.11.2		SI/SE/TA
11. INSPECT ANCHORS POST-INSTALLED IN HARDENED MEMBERS.					SI/TA
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X		ACI 318: 17.8.2.4		
B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 11. A.		X	ACI 318: 17.8.2		

SPECIAL INSPECTION REQUIREMENTS - WOOD CONSTRUCTION

INSPECTION TASK	INSPECTION TYPE		REFERENCED STANDARD	IBC REFERENCE	RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC			
1. VERIFY FRAMING MEMBER SIZE, SPACING AND GRADE COMPLY WITH PROJECT REQUIREMENTS.		X			SI
2. VERIFY PREFABRICATED TRUSSES HAVE BEEN INSTALLED AT SPACINGS INDICATED AND THAT TRUSSES HAVE NOT BEEN DAMAGED DURING INSTALLATION.		X			SI
3. VERIFY THAT PERMANENT BRACING FOR TRUSSES HAS BEEN INSTALLED IN ACCORDANCE WITH PROJECT REQUIREMENTS.		X			SI
4. VERIFY THAT TRUSS ANCHORAGE COMPLIES WITH PROJECT REQUIREMENTS.		X			SI
5. VERIFY THAT DIAPHRAGM AND SHEAR WALL SHEATHING THICKNESS, GRADE AND FASTENING COMPLY WITH PROJECT REQUIREMENTS.		X			SI

SPECIAL INSPECTION REQUIREMENTS - MASONRY: LEVEL B QUALITY ASSURANCE

MINIMUM PRECONSTRUCTION VERIFICATION

VERIFICATION OF f'm IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.4 B PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE.

MINIMUM SPECIAL INSPECTION

INSPECTION TASK	INSPECTION TYPE		REFERENCE CRITERIA		RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC	TMS 402 ACI 530 ASCE 5	TMS 602 ACI 530.1 ASCE 6	
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS.		X		ART 1.5	SI
2. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:					SI
A. PROPORTIONS OF SITE-PREPARED MORTAR.		X		ART 2.1, 2.6A	
B. CONSTRUCTION OF MORTAR JOINTS.		X		ART 3.2B, 3.3B	
C. LOCATION AND CONDITION OF REINFORCEMENT, CONNECTORS, REINFORCEMENT POSITIONERS AND CONTROL JOINTS.		X		ART 3.2A, 3.4	
3. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:					SI/TA
A. GROUT SPACE.		X		ART 3.2D, 3.2F	
B. GRADE, TYPE, SIZE AND CONDITION OF REINFORCEMENT AND ANCHOR RODS.		X	SEC 6.1	ART 2.4, 3.2A, 3.2E, 3.4	
C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND REINFORCEMENT POSITIONERS.		X	SEC 6.1, 6.2.1, 6.2.2, 6.2.7	ART 3.2E, 3.4	
D. PROPORTIONS OF SITE-PREPARED GROUT.		X		ART 2.6B	
E. CONSTRUCTION OF MORTAR JOINTS.		X		ART 3.3B	
4. VERIFY DURING CONSTRUCTION:					SI/TA
A. SIZE, LOCATION AND ENDING PATTERN OF STRUCTURAL ELEMENTS AND CONTROL JOINT LAYOUT.		X		ART 3.3F	
B. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION.		X	SEC 1.2.1(e), 6.1.4.3, 6.2.1	ART 3.4	
C. WELDING OF REINFORCEMENT.	X		SEC 8.1.6.7.2, 9.3.3.4(c), 11:3.3.4(b)		
D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F).		X		ART 1.8C, 1.8D	
E. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE.	X			ART 3.5	

MBC REFERENCE SECTION 1705.4 AND TABLE 3.1.2 TMS 402/ACI530/ASCE 5.

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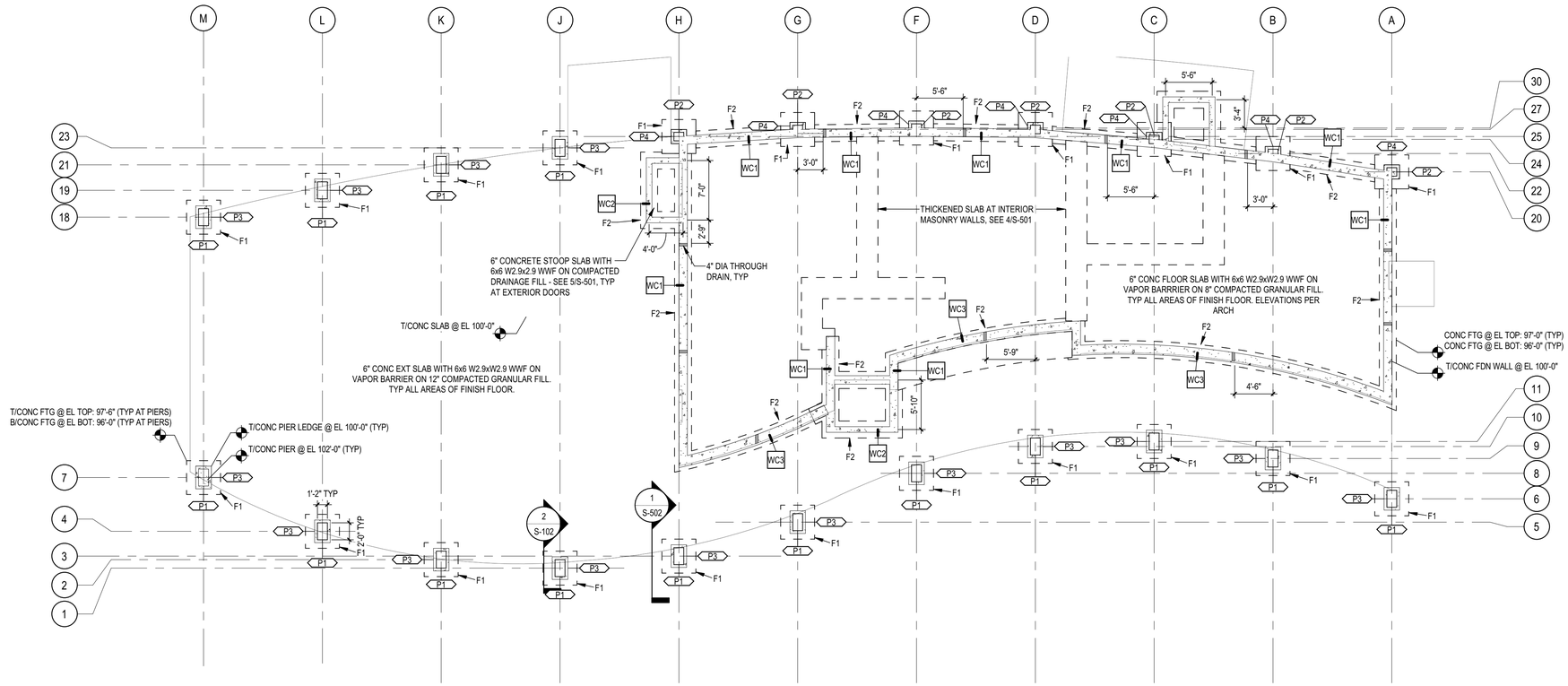
SPECIAL INSPECTIONS

SHEET S-003



NOTE: SEE CIVIL FOR DRAIN TILE LOCATIONS AND INFORMATION

1 PAVILION FOUNDATION
1/8" = 1'-0"

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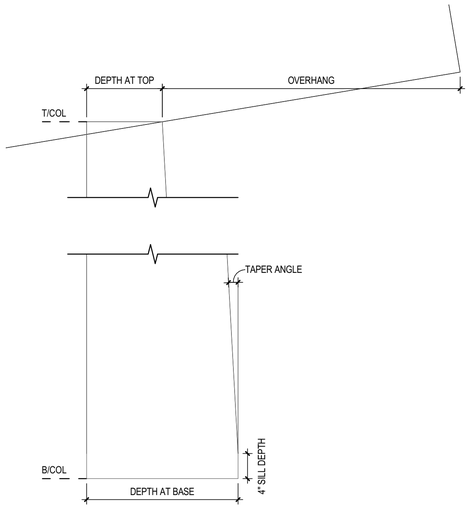
PAVILION FOUNDATION PLAN

SHEET S-101

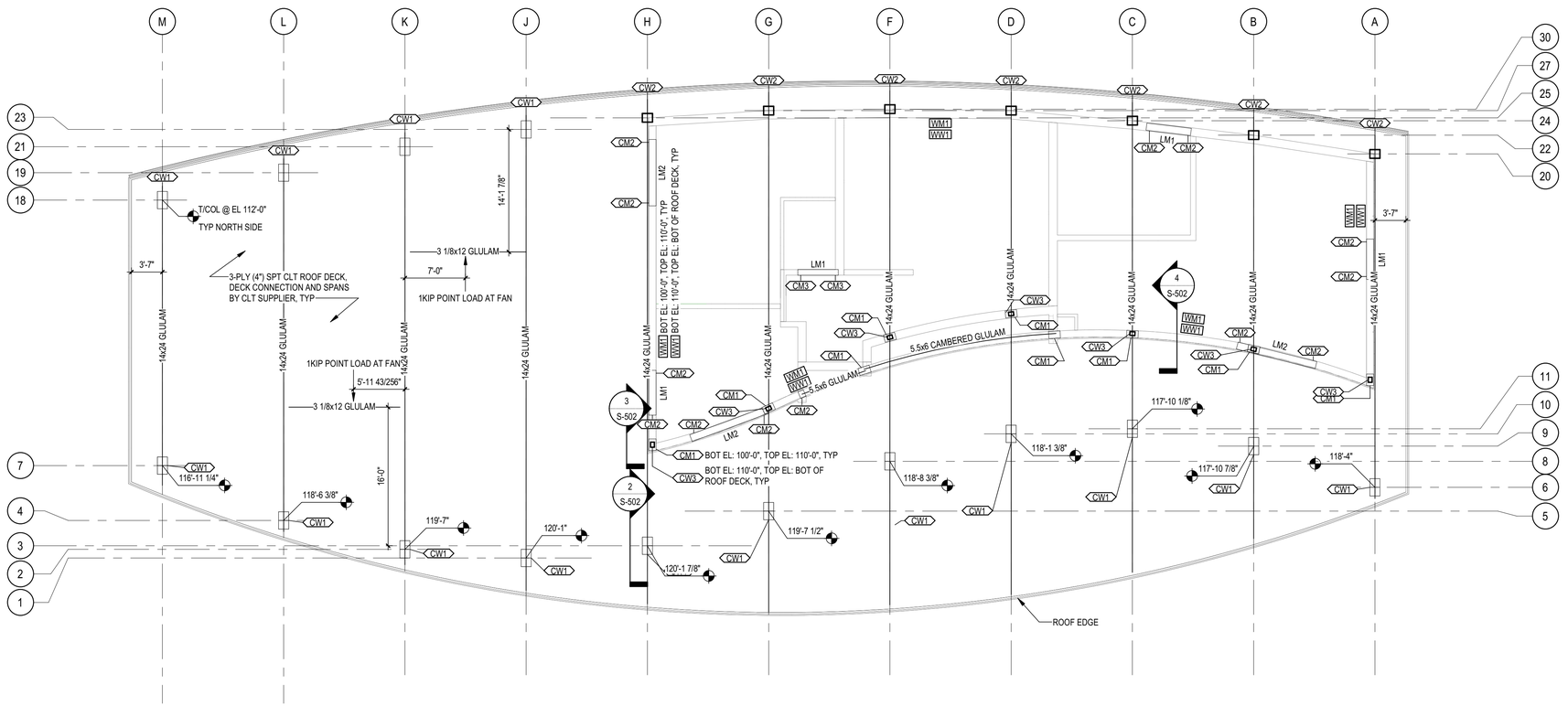


2 TYP COLUMN ELEVATION

1" = 1'-0"

Wood Column Schedule

LOCATION	DEPTH BASE	DEPTH TOP	WIDTH	TAPER ANGLE (DEGREES)	B/COL	T/COL	OVERHANG	COMMENTS
CW1								
A-6	2'-0"	1'-0"	1'-2"	3.5	102'-0"	118'-4"	1'-5 1/2"	
B-9	2'-0"	1'-0"	1'-2"	3.6	102'-0"	117'-10 7/8"	10'-10"	
C-11	2'-0"	1'-0"	1'-2"	3.6	102'-0"	117'-10 1/8"	16'-9"	
D-10	2'-0"	1'-0"	1'-2"	3.6	102'-0"	118'-1 3/8"	16'-9"	
F-8	2'-0"	1'-0"	1'-2"	3.4	102'-0"	118'-8 3/8"	16'-9"	
G-5	2'-0"	1'-0"	1'-2"	3.2	102'-0"	119'-7 1/2"	11'-10"	
H-3	2'-0"	1'-0"	1'-2"	3.2	102'-0"	120'-1 7/8"	6'-10 1/2"	
J-1	2'-0"	1'-0"	1'-2"	3.2	102'-0"	120'-1"	3'-11"	
J-23	2'-0"	1'-0"	1'-2"	5.7	102'-0"	112'-0"	1'-5 1/2"	
K-2	2'-0"	1'-0"	1'-2"	3.3	102'-0"	119'-7"	1'-11 1/2"	
K-21	2'-0"	1'-0"	1'-2"	5.7	102'-0"	112'-0"	1'-5 1/2"	
L-4	2'-0"	1'-0"	1'-2"	3.5	102'-0"	118'-6 3/8"	1'-5 1/2"	
L-19	2'-0"	1'-0"	1'-2"	5.7	102'-0"	112'-0"	1'-5 1/2"	
M-7	2'-0"	1'-0"	1'-2"	3.8	102'-0"	116'-11 1/4"	2'-5 1/2"	
M-18	2'-0"	1'-0"	1'-2"	5.7	102'-0"	112'-0"	1'-5 1/2"	
CW2								
A-20	1'-0"	1'-0"	1'-2"	0	102'-0"	112'-0"	1'-5 1/2"	
B-22	1'-0"	1'-0"	1'-2"	0	102'-0"	112'-0"	1'-5 1/2"	
C-24	1'-0"	1'-0"	1'-2"	0	102'-0"	112'-0"	1'-5 1/2"	
D-27	1'-0"	1'-0"	1'-2"	0	102'-0"	112'-0"	1'-5 1/2"	
F-30	1'-0"	1'-0"	1'-2"	0	102'-0"	112'-0"	1'-5 1/2"	
G-27	1'-0"	1'-0"	1'-2"	0	102'-0"	112'-0"	1'-5 1/2"	
H-25	1'-0"	1'-0"	1'-2"	0	102'-0"	112'-0"	1'-5 1/2"	



1 PAVILION FRAMING

1/8" = 1'-0"

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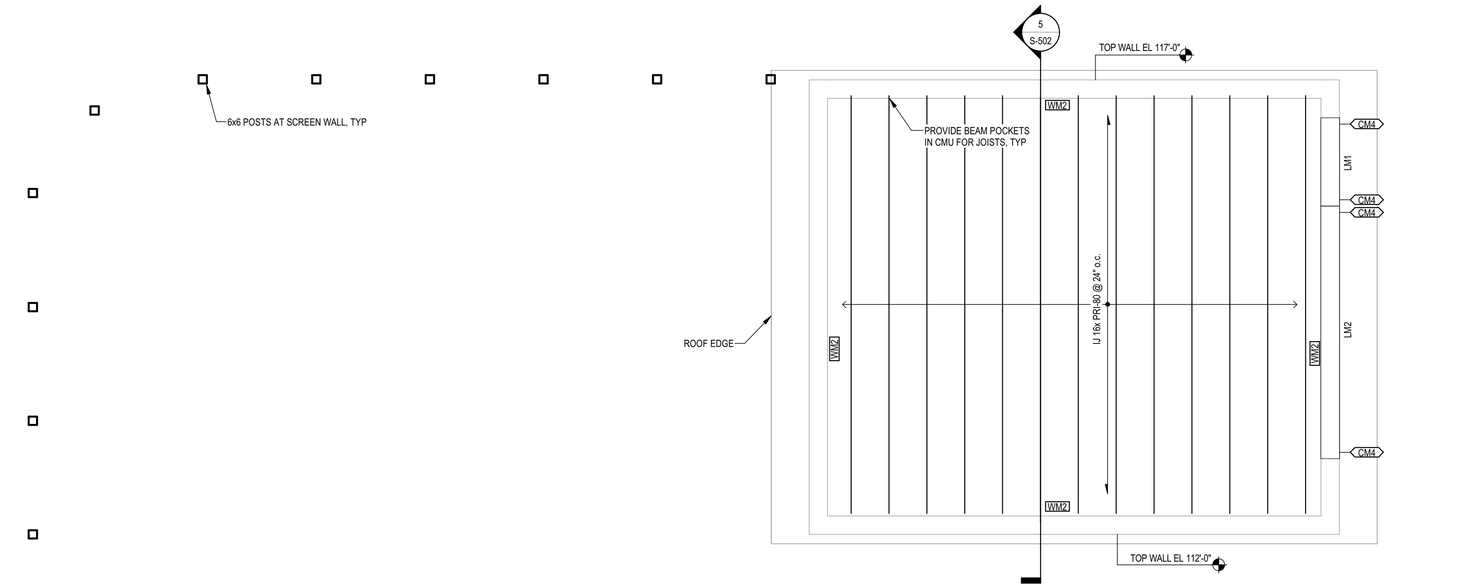
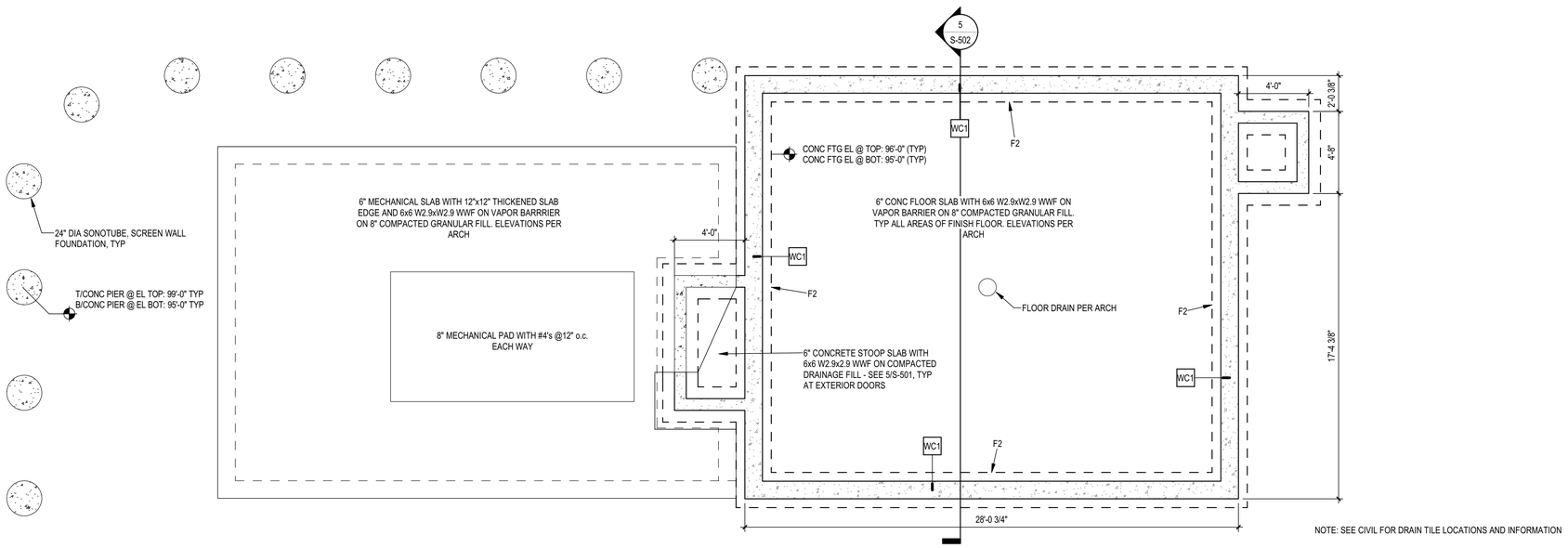
PAVILION FRAMING PLAN

SHEET S-102



2 MAINTENANCE SHED FRAMING PLAN AND SCREEN WALL

1/4" = 1'-0"



NOTE: SEE CIVIL FOR DRAIN TILE LOCATIONS AND INFORMATION

1 MAINTENANCE SHED AND SCREEN WALL FOUNDATION PLAN

1/4" = 1'-0"

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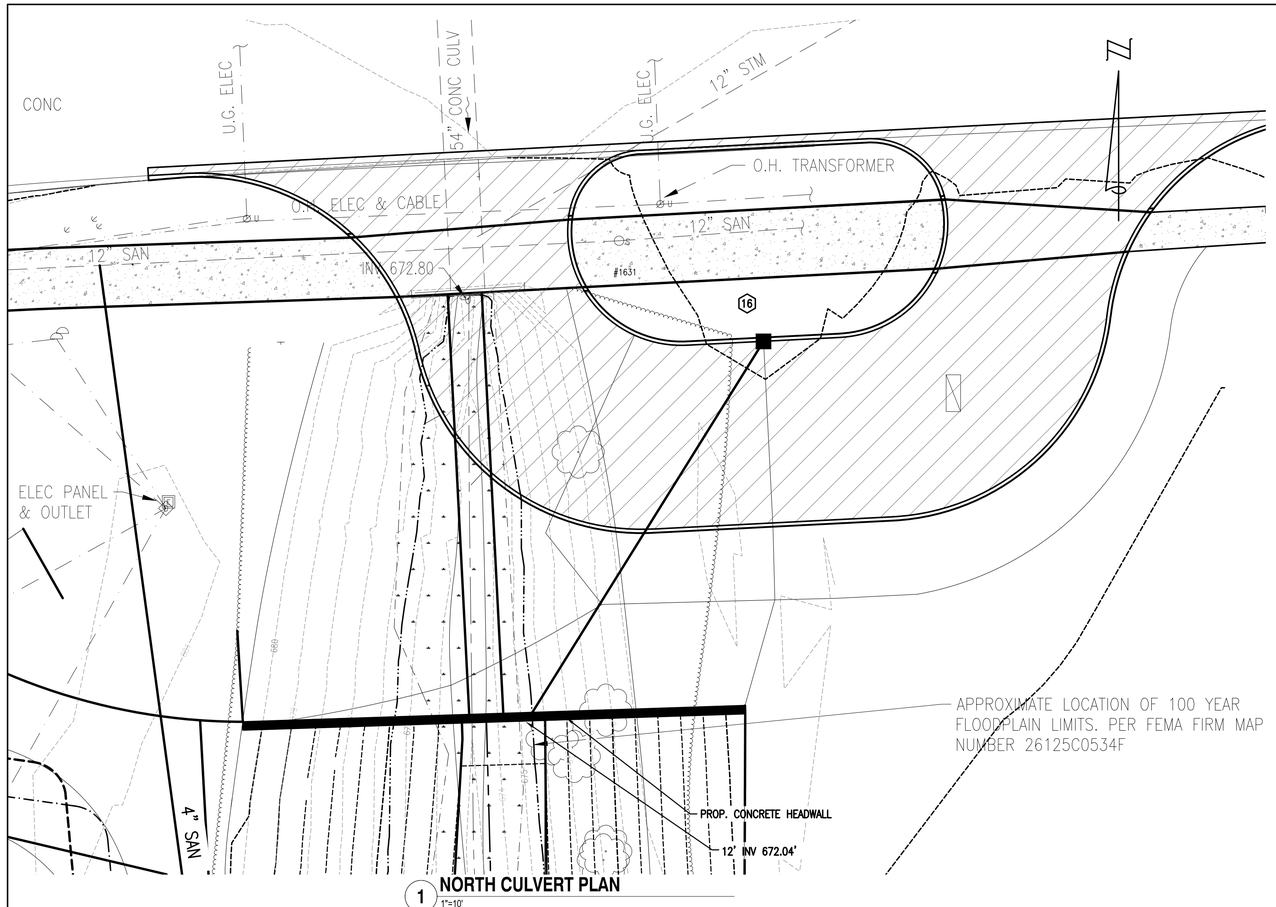
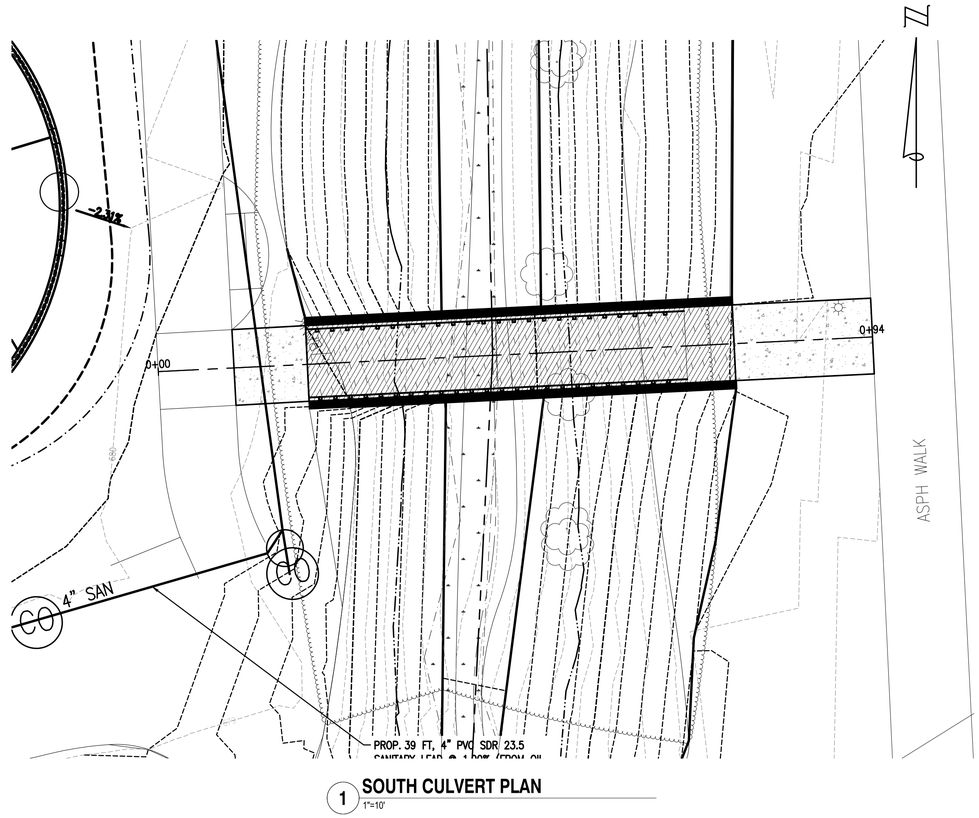
MAINTENANCE SHED AND SCREEN WALL FOUNDATION AND FRAMING PLANS

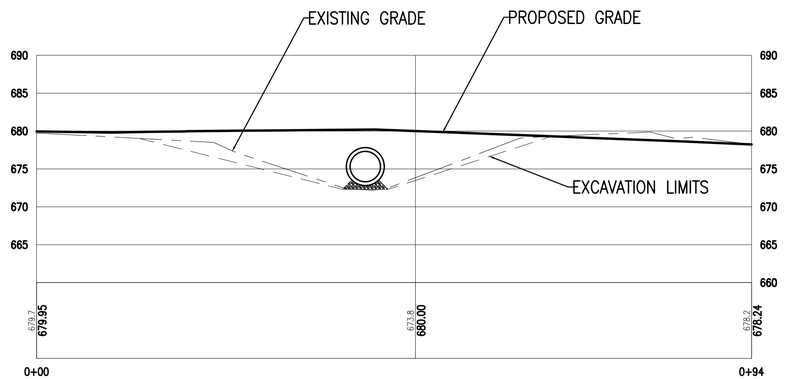
SHEET S-103



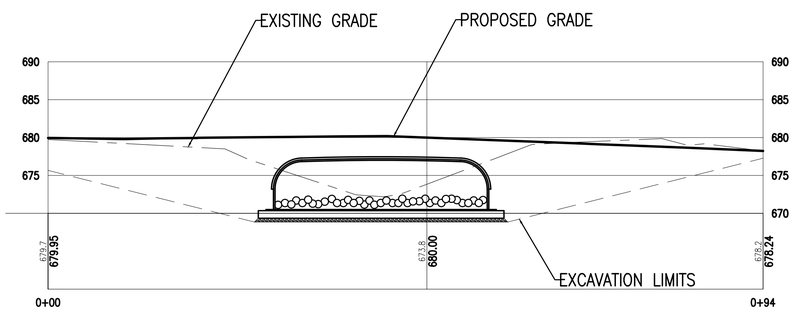
1 NORTH CULVERT PLAN
1"=10'



1 SOUTH CULVERT PLAN
1"=10'



1 NORTH CULVERT ELEVATION
1"=10'



1 SOUTH CULVERT ELEVATION
1"=10'

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2022/08/02

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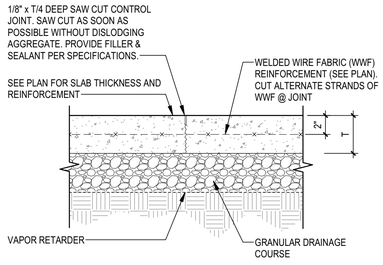
Town Center Dr
Troy, MI 48084

NORTH AND SOUTH CULVERTS - PROPOSED

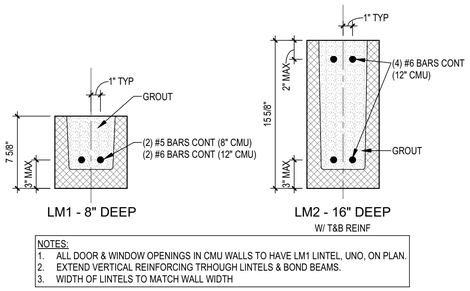
SHEET S-131

DRAWING PATH: P:\0128_0165\0128210020_Troy_Pavilion\Drawings\Civil\Struct\210020STRUCT.dwg Oct 07, 2022 - 2:38pm



12 TYP SLAB-ON-GRADE SAW-CUT JOINT

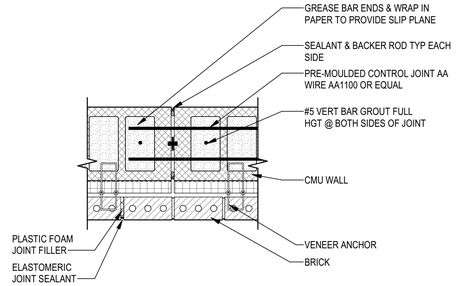
1 1/2" = 1'-0"



NOTES:
1. ALL DOOR & WINDOW OPENINGS IN CMU WALLS TO HAVE LM1 LINTEL, UNO, ON PLAN.
2. EXTEND VERTICAL REINFORCING TRHOUGH LINTELS & BOND BEAMS.
3. WIDTH OF LINTELS TO MATCH WALL WIDTH

11 TYP CMU MASONRY LINTELS

1 1/2" = 1'-0"

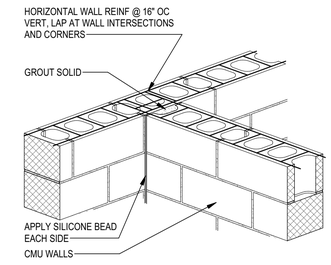


DO NOT EXTEND HORIZ JOINT REINF THRU CONTROL JOINT

PROVIDE JOINTS @ 25'-0" MAX OR AS SHOWN IN DRAWINGS

10 TYPICAL CMU CONTROL JOINT

1" = 1'-0"



9 TYP CMU HORIZONTAL REINFORCING

3/4" = 1'-0"

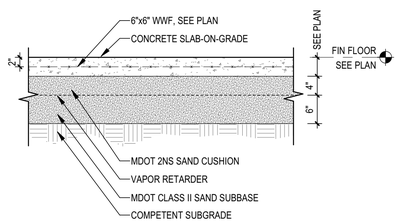
NOTE: PROVIDE VERTICAL BAR IN ALL CORNERS, 16" MIN

8 TYP MASONRY OPENING REINFORCING IN ELEVATION

1/4" = 1'-0"

7 TYP WALL CORNER REINFORCING

3/4" = 1'-0"

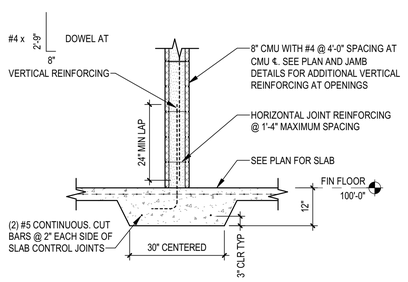


6 TYP SLAB-ON-GRADE

3/4" = 1'-0"

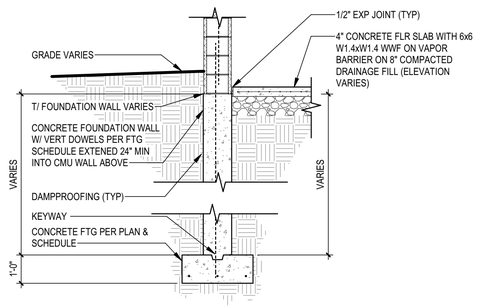
5 TYP SLAB AT EXTERIOR DOOR

1 1/2" = 1'-0"



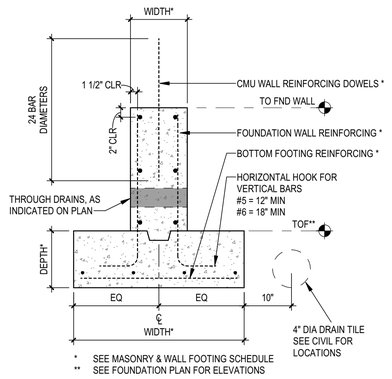
4 TYPICAL THICKENED SLAB AT INTERIOR NON-BEARING WALL

1/2" = 1'-0"



3 FOUNDATION WALL SECTION

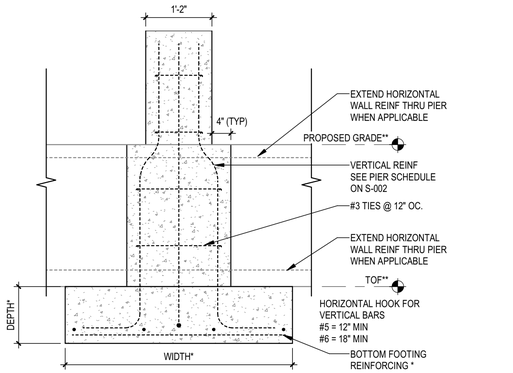
3/8" = 1'-0"



* SEE MASONRY & WALL FOOTING SCHEDULE
** SEE FOUNDATION PLAN FOR ELEVATIONS

2 TYP WALL FOOTING REINFORCING

3/4" = 1'-0"



* SEE FOOTING SCHEDULE ON S-002
** SEE FOUNDATION PLAN FOR ELEVATIONS

1 TYP PIER FOOTING DETAIL

3/4" = 1'-0"

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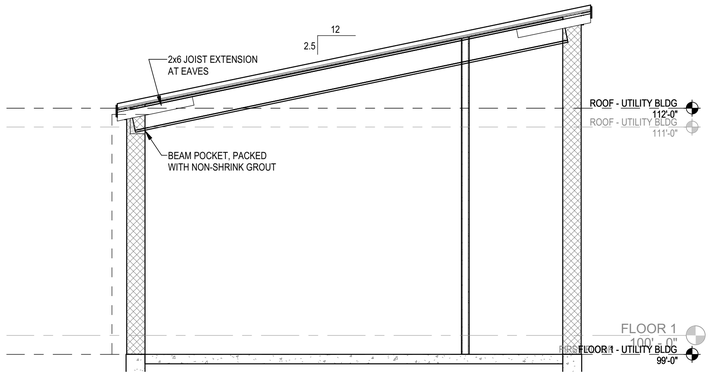
Town Center Dr
Troy, MI 48084

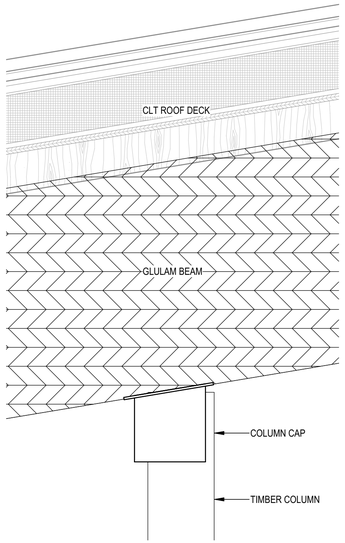
STRUCTURAL DETAILS

SHEET S-501



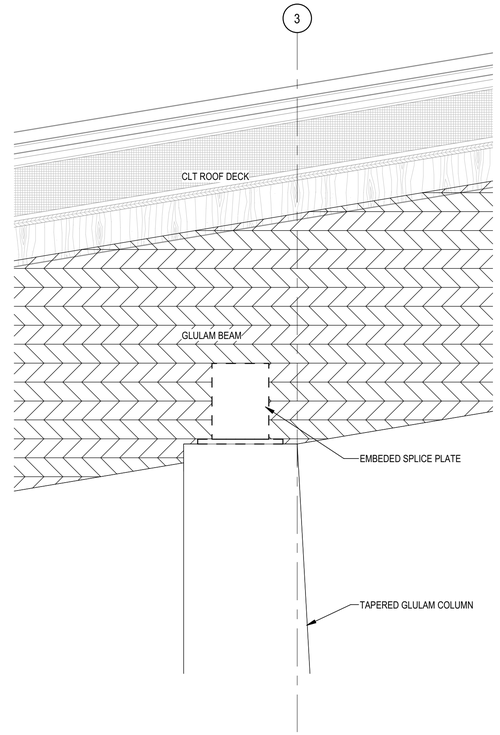
5 ZAMBONI BUILDING SECTION

1/4" = 1'-0"



3 WOOD COLUMN TO BEAM CONNECTION

1 1/2" = 1'-0"

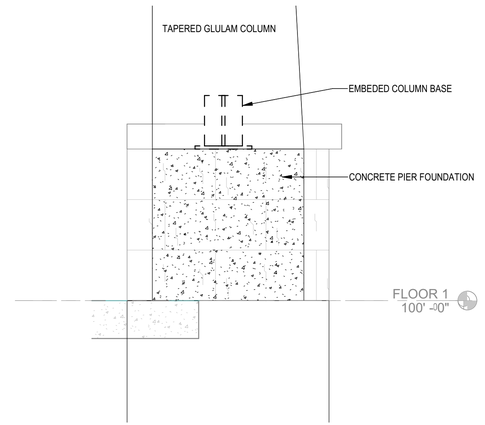


2 GLULAM COLUMN TO BEAM CONNECTION

1 1/2" = 1'-0"

4 PAVILION WALL SECTION

1" = 1'-0"



1 GLULAM COLUMN TO PIER CONNECTION

1" = 1'-0"

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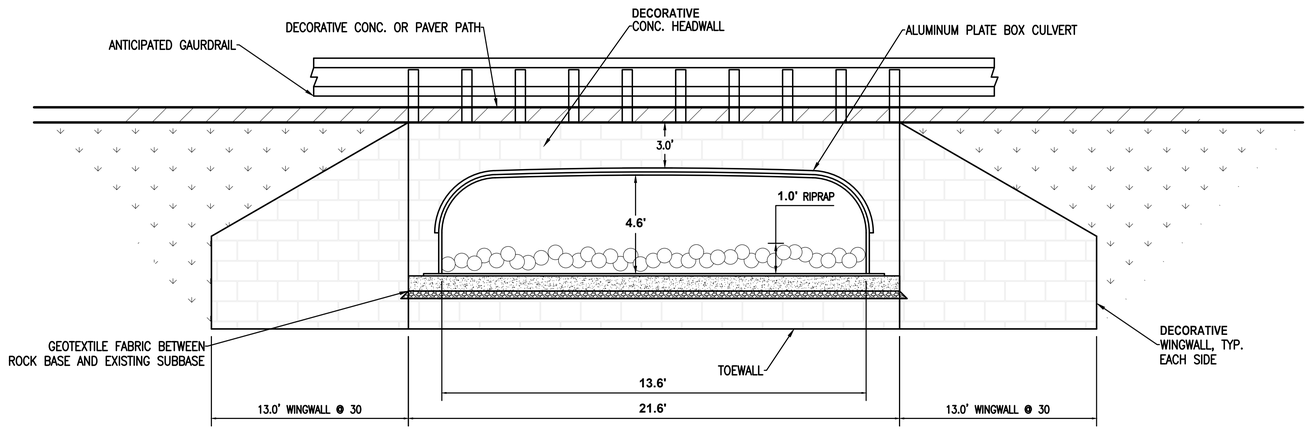
Troy, MI 48084

STRUCTURAL DETAILS

SHEET S-502



4 SOUTH CULVERT ELEVATION
NTS

NOTES:

1. SEE PLANS FOR INVERTS, EXACT CULVERT DIMENSIONS AND RIPRAP EXTENTS.
2. THE SOUTH CULVERT HAS PROPOSED 12" STAMPED WINGWALLS AND HEADWALLS ON BOTH THE INLET AND THE OUTLET.

CULVERT CONSTRUCTION NOTES:

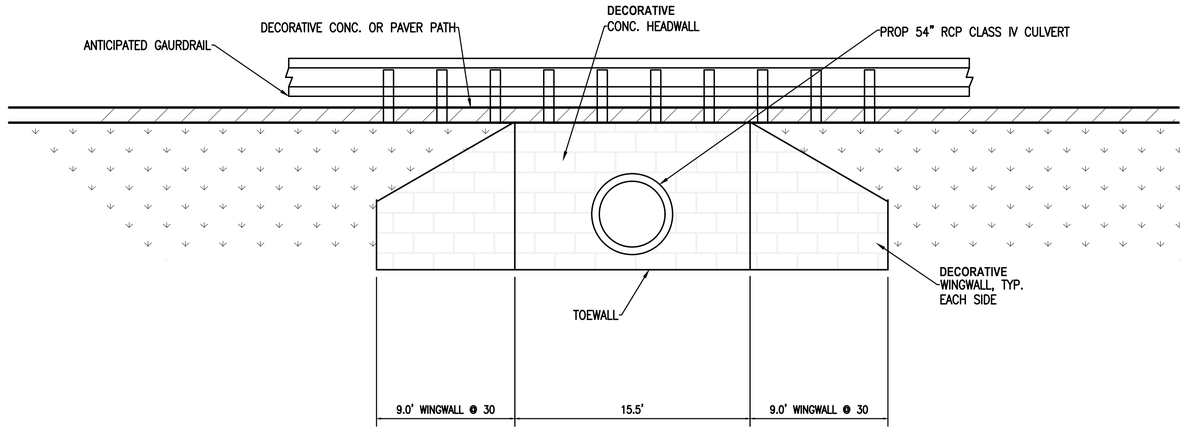
1. THE DESIGN OF THIS STRUCTURE IS BASED ON HS-20 LOADING.
2. PLACE GEOTEXTILE BELOW THE 6A STONE LIMIT.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE ALUMINUM BOX CULVERT SUPPLIER FOR CONSTRUCTION AND BACKFILL TO ENSURE THE CULVERT OPERATES AS DESIGNED.

HYDRAULIC NOTES:

1. THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS X.X SQUARE MILES.
2. THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE HYDRAULIC TABLE BELOW ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN.

SUMMARY OF HYDRAULIC ANALYSIS							
EXISTING				PROPOSED			
FLOOD DATA	DISCHARGE (cfs)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (ft)	VELOCITY IN D/S CHANNEL (ft/s)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (ft)	VELOCITY IN D/S CHANNEL (ft/s)	WATERWAY AREA (sq. ft) AT D/S FACE	CHANGE IN WS EL X ft U/S OF PROPOSED STRUCTURE (ft)
50-YEAR	XXX	XXX.XX	XX.XX	XXX.XX	XX.XX	XXX.XX	X.XX
100-YEAR	XXX	XXX.XX	XX.XX	XXX.XX	XX.XX	XXX.XX	X.XX
MAXIMUM BRIDGE AREA BELOW LOW CHORD IS XX.X SQUARE FEET							

3 TROY PAVILION SOUTH CULVERT
NTS



2 NORTH CULVERT ELEVATION
NTS

NOTES:

1. SEE PLANS FOR INVERTS, EXACT CULVERT DIMENSIONS AND RIPRAP EXTENTS.
2. THE NORTH CULVERT IS PROPOSED TO HAVE 12" STAMPED WINGWALLS AND HEADWALLS AT THE OUTLET ONLY.

HYDRAULIC NOTES:

1. THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS X.X SQUARE MILES.
2. THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE HYDRAULIC TABLE BELOW ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN.

SUMMARY OF HYDRAULIC ANALYSIS							
EXISTING				PROPOSED			
FLOOD DATA	DISCHARGE (cfs)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (ft)	VELOCITY IN D/S CHANNEL (ft/s)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (ft)	VELOCITY IN D/S CHANNEL (ft/s)	WATERWAY AREA (sq. ft) AT D/S FACE	CHANGE IN WS EL X ft U/S OF PROPOSED STRUCTURE (ft)
50-YEAR	XXX	XXX.XX	XX.XX	XXX.XX	XX.XX	XXX.XX	X.XX
100-YEAR	XXX	XXX.XX	XX.XX	XXX.XX	XX.XX	XXX.XX	X.XX
MAXIMUM BRIDGE AREA BELOW LOW CHORD IS XX.XX SQUARE FEET							

1 TROY PAVILION NORTH CULVERT
NTS

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Town Center Dr
Troy, MI 48084

SITE DETAILS AND HYDRAULICS

SHEET S-503

DRAWING PATH: P:\0126_0165\0128210920_Troy_Pavilion\Drawings\Civil\Struct\210920STRUCT.dwg Oct 07, 2022 - 2:47pm

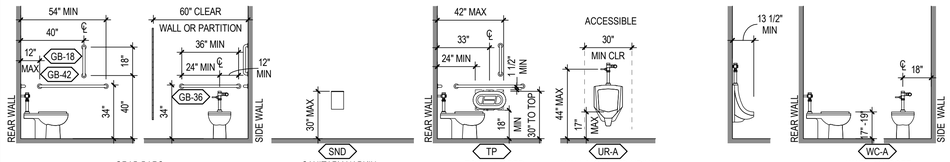
10/10/2022 8:53:28 AM

MOUNTING LOCATIONS LEGEND

GENERAL NOTES:

1. COMPLY WITH THE STATE BUILDING CODE, ICC A117.1, AND THE AMERICANS WITH DISABILITIES ACT.
2. PROVIDE BLOCKING BEHIND TOILET ACCESSORIES FOR SECURE MOUNTING TO WITHSTAND 250# VERTICAL AND HORIZONTAL FORCE.
3. EXPOSED WATER SUPPLY AND DRAINAGE PIPES BELOW LAVATORIES OR SINKS MUST BE INSULATED OR OTHERWISE POSITIONED TO PROTECT AGAINST CONTACT. THERE MUST BE NO SHARP OR ABRASIVE SURFACES BELOW LAVATORY.

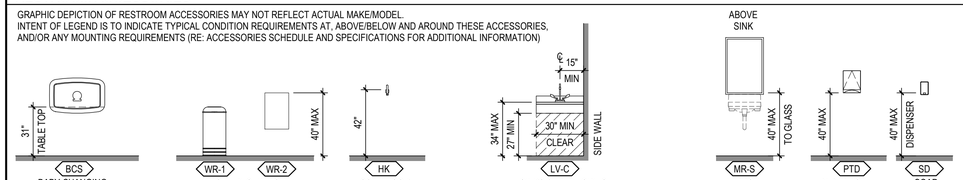
TOILET COMPARTMENT ACCESSORIES



GRAB BARS | SND SANITARY NAPKIN DISPOSAL | TP TOILET PAPER DISPENSER | UR-A WALL MOUNTED URINAL (RE: PLUMBING DRAWINGS) | WC-A WATER CLOSET (RE: PLUMBING DRAWINGS)

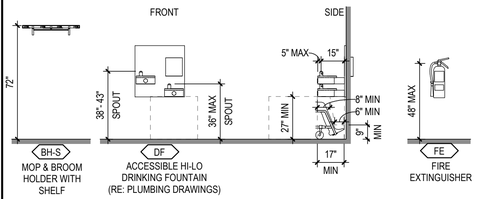
RESTROOM ACCESSORIES

GRAPHIC DEPICTION OF RESTROOM ACCESSORIES MAY NOT REFLECT ACTUAL MAKE/MODEL.
INTENT OF LEGEND IS TO INDICATE TYPICAL CONDITION REQUIREMENTS AT, ABOVE/BELOW AND AROUND THESE ACCESSORIES, AND/OR ANY MOUNTING REQUIREMENTS (RE: ACCESSORIES SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION)



BCS BABY CHANGING STATION | WR-1 WR-2 WASTE RECEPTACLE | HK COAT HOOK | LV-C SINKS & LAVATORIES (RE: PLUMBING DRAWINGS) | MR-S MIRROR | PTD PAPER TOWEL DISPENSER | SD SOAP DISPENSER

OTHER ACCESSORIES

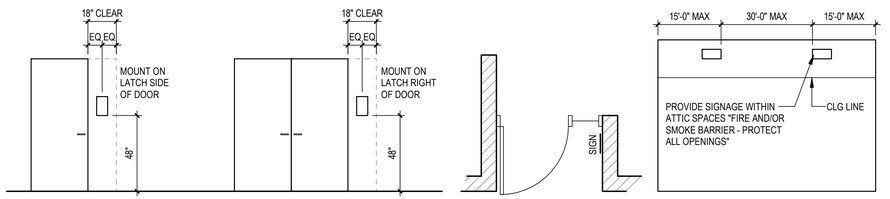


BH-S MOP & BROOM HOLDER WITH SHELF | DF ACCESSIBLE HI-LO DRINKING FOUNTAIN (RE: PLUMBING DRAWINGS) | FE FIRE EXTINGUISHER

RESTROOM ACCESSORY SCHEDULE

TYPE CODE	DESCRIPTION	MANUFACTURER	MODEL	FURNISH BY	INSTALLED BY	NOTES
BCS	BABY CHANGING STATION	KOALA KARE	KB310-SSWM	CONTRACTOR	CONTRACTOR	
BH-S	MOP & BROOM HOLDER WITH SHELF	BOBRICK	B-239	CONTRACTOR	CONTRACTOR	
GB-18	STRAIGHT GRAB BAR - 18"	BOBRICK	B-6806X18	CONTRACTOR	CONTRACTOR	
GB-36	STRAIGHT GRAB BAR - 36"	BOBRICK	B-6806X36	CONTRACTOR	CONTRACTOR	
GB-42	STRAIGHT GRAB BAR - 42"	BOBRICK	B-6806X42	CONTRACTOR	CONTRACTOR	
HK	COAT HOOK	BOBRICK	B-6827	CONTRACTOR	CONTRACTOR	
MR-S	MIRROR	BOBRICK	B-290 2436	CONTRACTOR	CONTRACTOR	
PTD	PAPER TOWEL DISPENSER	GEORGIA-PACIFIC	59488A	CONTRACTOR	CONTRACTOR	ENMOTION IMPULSE 10 AUTOMATED
SD	SOAP DISPENSER	GOJO	LTX-12	CONTRACTOR	CONTRACTOR	CHROME FINISH
SND	SANITARY NAPKIN DISPOSAL	BOBRICK	B-254	CONTRACTOR	CONTRACTOR	
TP	TOILET TISSUE DISPENSER	GEORGIA-PACIFIC	59209	CONTRACTOR	CONTRACTOR	
WR-1	WASTE RECEPTACLE	BOBRICK	B-2300	CONTRACTOR	CONTRACTOR	
WR-2	WASTE RECEPTACLE	BOBRICK	B-277	CONTRACTOR	CONTRACTOR	

SIGNAGE MOUNTING LEGEND

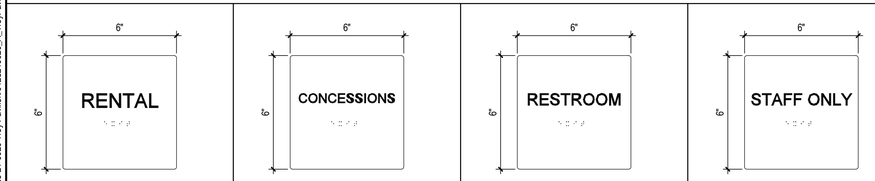


COMPLY WITH ICC A117.1 SECTION 703.2.8

FIRE AND SMOKE WALLS, BARRIERS, AND/OR PARTITIONS ARE TO COMPLY WITH ICC A117.1 SECTION 703.7

SIGNAGE LEGEND

SIGNS TO COMPLY WITH ICC A117.1-2009, SECTION 703, SIGNAGE



S-1 | S-2 | S-3 | S-4

ABBREVIATIONS

SEE LEGENDS ON A-002 FOR ACCESSORY ABBREVIATIONS

A	
&	AND
@	AT
ACT	ACOUSTICAL CEILING TILE
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B	
BOT	BOTTOM
BRK	BRICK
BSMT	BASEMENT
C	
CJ	CONTROL JOINT
CL	CENTER LINE
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
D	
DN	DOWN
DS	DOWNSPOUT
E	
EA	EACH
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
EQ	EQUAL
EXST	EXISTING
F	
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISHED FLOOR
FHC	FIRE HOSE CABINET
FO	FACE OF
FRTW	FIRE RETARDANT TREATED WOOD
FSP	FIRE STANDPIPE
FT	FOOT / FEET
FTG	FOOTING
G	
GB	GYPSUM BOARD
GYP	GYPSUM
H	
HD	HEAD
HDW	HARDWARE
HVAC	HEATING-VENTILATING-AIR CONDITIONING
HW	HOT WATER

ABBREVIATIONS

SEE LEGENDS ON A-002 FOR ACCESSORY ABBREVIATIONS

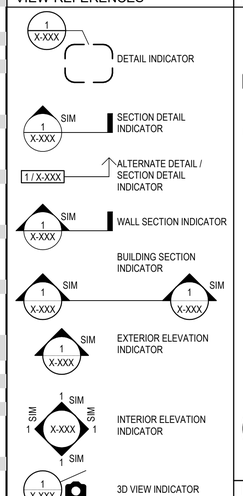
I	
IN	INCH / INCHES
L	
LB	POUND
LDG	LANDING LEVEL
M	
MAX	MAXIMUM
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
N	
NA	NOT APPLICABLE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
No.	NUMBER
NTS	NOT TO SCALE
O	
OC	ON CENTER
OPP	OPPOSITE
OPP HND	OPPOSITE HAND
P	
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
Q	
QTY	QUANTITY
R	
R	RISER
RD	ROOF DRAIN
RO	ROUGH OPENING
S	
SAB	SOUND ATTENUATION BLANKET INSULATION
SD	SMOKE DETECTOR
SF	SQUARE FOOT
SIM	SIMILAR
SQ IN	SQUARE INCH
T	
T	TREAD
T&B	TOP & BOTTOM
TYP	TYPICAL
U	
UNO	UNLESS NOTED OTHERWISE
V	
VIF	VERIFY IN FIELD
W	
W/	WITH
W/O	WITHOUT
WWF	WELDED WIRE FABRIC

GENERAL NOTES - ARCHITECTURAL

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS CANNOT BE DETERMINED OR DOCUMENTS ARE IN CONFLICT, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ARCHITECT PRIOR TO CONTINUATION OF WORK
2. ALL WALL DIMENSIONS ARE TO FACE OF STUD OR MASONRY, UNO.
3. FIELD VERIFY ALL PROJECT CONDITIONS PRIOR TO THE START OF WORK, AND AS NEEDED THROUGHOUT THE DURATION OF CONSTRUCTION. BRING ANY DISCREPANCIES WHICH MAY SIGNIFICANTLY AFFECT NEW CONSTRUCTION WORK TO THE ATTENTION OF THE ARCHITECT FOR REVIEW
4. WHERE WALL CONSTRUCTION ABUTS WINDOW MULLION(S) ON PLANS, CENTER WALL ON CENTER LINE OF MULLION, UNO
5. ALL WOOD BLOCKING AND BACKING SHALL BE FIRE-RETARDANT TREATED, UNO
6. INFORMATION SHOWN IN ONE LOCATION ON THE DRAWINGS IS THE SAME AS IF SHOWN ON MULTIPLE LOCATIONS
7. TYPICAL CONDITIONS ARE NOTED ONLY ONCE
8. COORDINATE OPENINGS AND PENETRATIONS BETWEEN TRADES
9. FLOOR LEVELS BETWEEN ADJACENT MATERIALS MUST NOT EXCEED 1/4". PROVIDE APPROPRIATE TRANSITION STRIPS OR LEVEL FLOORS AS REQUIRED
10. FLOORS MUST BE MADE LEVEL TO NO LESS THAN 1/8" IN 10', USING A 10' STRAIGHTEDGE
11. PROVIDE REQUIRED FILLERS, SEALANT, OR TRIM AS NECESSARY TO CLOSE GAPS BETWEEN ADJACENT MATERIALS
12. WALLS SCHEDULED TO RECEIVE PAINT ARE TO BE PAINTED TO 6" ABOVE CEILING HEIGHT
13. REFER TO PROJECT MANUAL FOR ROOM FINISH INFORMATION

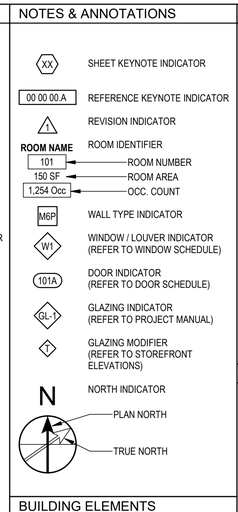
ARCHITECTURAL SYMBOLS LEGEND

VIEW REFERENCES

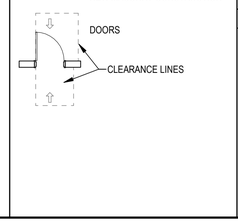


ACCESSIBILITY

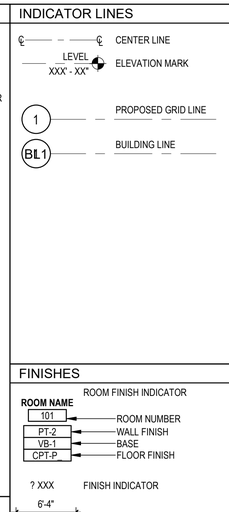
NOTES & ANNOTATIONS



BUILDING ELEMENTS

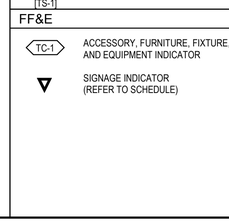


INDICATOR LINES

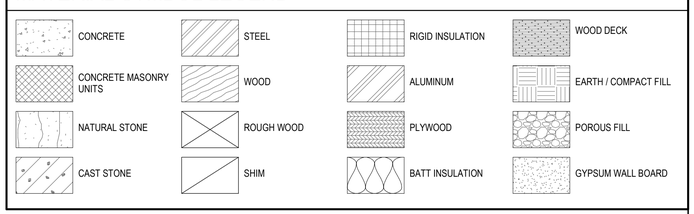


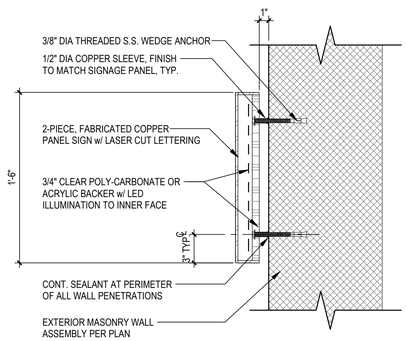
FINISHES

FF&E

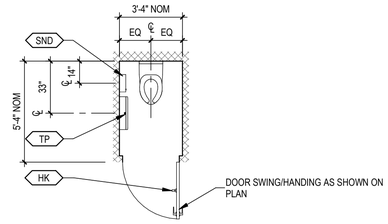


MATERIAL SYMBOL LEGEND





1 SIGNAGE MOUNTING DETAIL
1 1/2" = 1'-0"



TR-1 - STANDARD
1/4" = 1'-0"

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DESIGN DEVELOPMENT	10/10/2022

DATE 10/10/2022
PROJ NUMBER 0128-21-0020
PROJ MGR CO

CITY OF TROY
TROY PAVILION
Town Center Dr
Troy, MI 48084

ARCHITECTURAL NOTES & SYMBOLS

SHEET A-001

BIM 360:\0128-21-0020 Troy Pavilion\0128210020_A_TroyPavilion_2021_CEN.rvt

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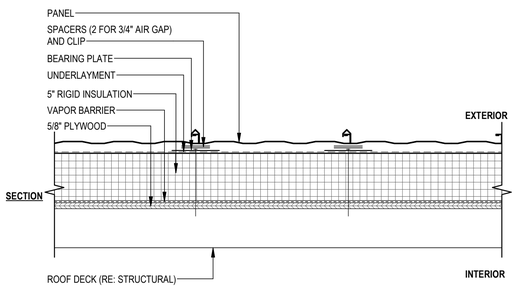
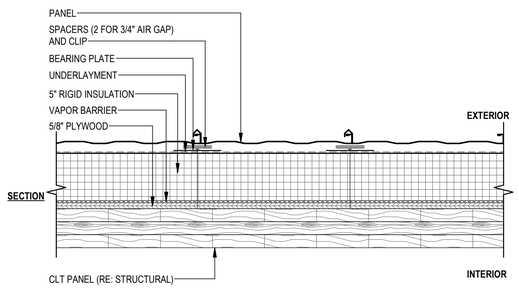
BUILDING ASSEMBLIES

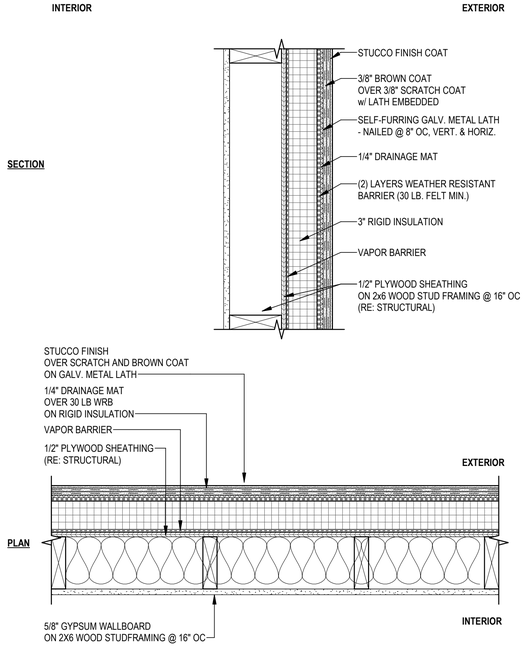
SHEET A-010



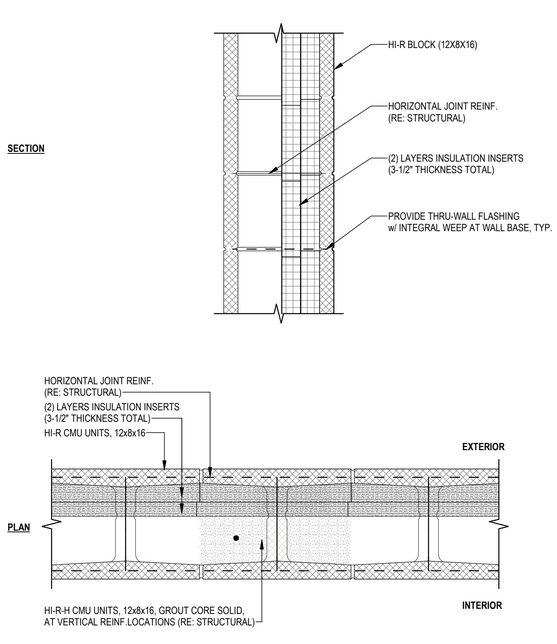
ROOF 2 ASSEMBLY



ROOF 1 ASSEMBLY



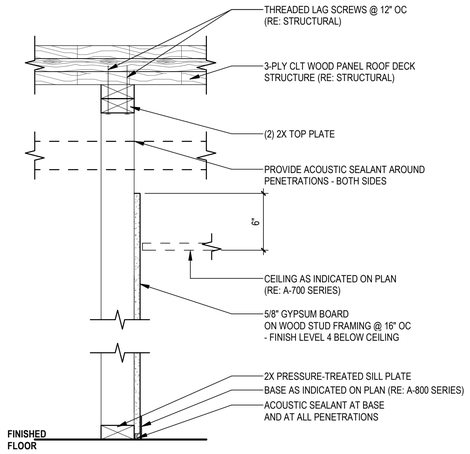
STUCCO WALL



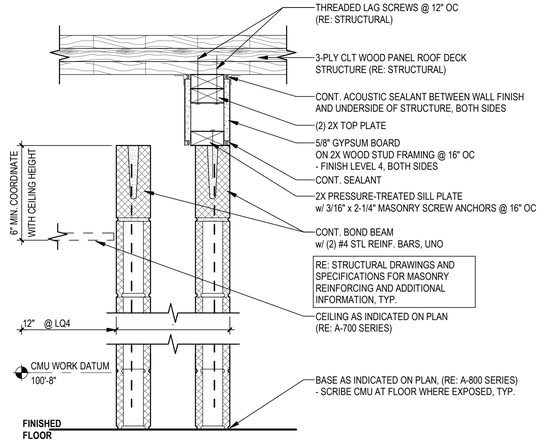
PRE-INSULATED MASONRY WALL

GENERAL NOTES - PARTITIONS

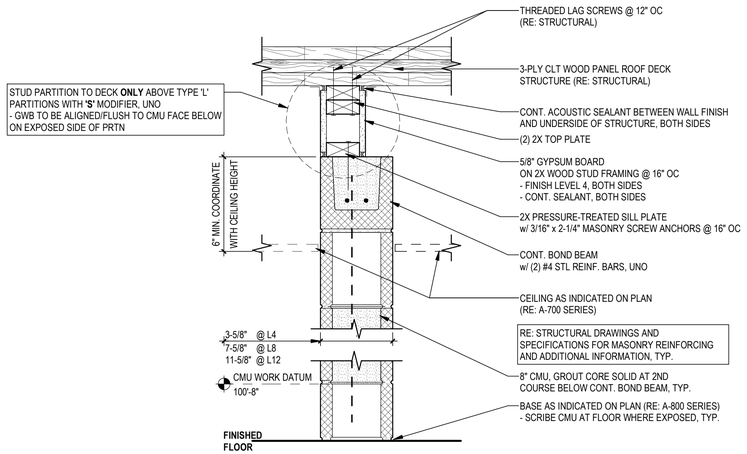
1. FOR CLARITY, PARTITION TYPES DO NOT INDICATE BASE AND FLOOR FINISHES. REFER TO ROOM FINISH SCHEDULE.
2. PROVIDE THROUGH PENETRATION FIRE STOP SYSTEM AT FIRE RATED PARTITIONS, SHAFTWALLS, AND FLOOR OPENINGS. REFER TO THIS SHEET A-011
3. FOR FIRE RESISTANT JOINT SYSTEM HEAD-OF-WALL DETAILS, REFER TO THIS SHEET A-011
4. EXTEND FIRE RATED PARTITIONS TO EXTERIOR FACE OF BUILDING WALL
5. CONSTRUCT FIRE RATED MASONRY PARTITIONS WITH CMU-Z, TYPICAL
6. PARTITIONS WITH TYPE INDICATORS ON BOTH SIDES OF PARTITION SHALL BE CONSTRUCTED TO SATISFY BOTH CONDITIONS INDICATED
7. APPLY A CONTINUOUS BEAD OF ACOUSTICAL SEALANT AROUND ALL ELECTRICAL WALL BOXES
8. FOR NON-FIRE-RATED PARTITIONS, APPLY ACOUSTICAL SEALANT AROUND PENETRATIONS ABOVE THE CEILING IN FULL-HEIGHT PARTITIONS, UNO
9. PROVIDE CONTROL JOINTS AT 30' MAX IN PARTITIONS. LOCATE SYMMETRICALLY OR EVENLY SPACED ON WALLS IF NOT SHOWN OTHERWISE. REVIEW PROPOSED LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION



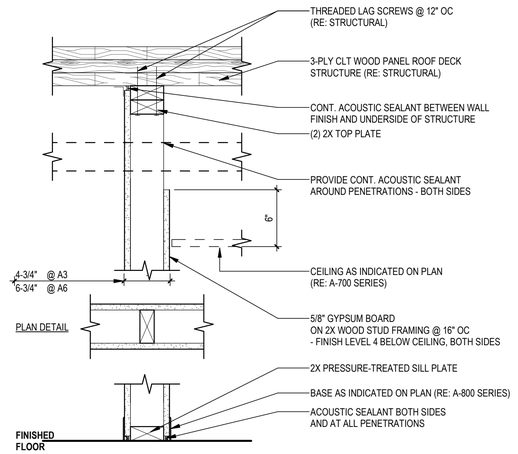
TYPE 'R'
PARTITION WALL



TYPE 'Q'
MASONRY CHASE WALL

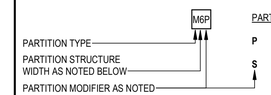


TYPE 'L'
MASONRY WALL



TYPE 'A'
STUD WALL TO DECK

PARTITION TYPES KEY



PARTITION MODIFIER KEY

P	INSTALL SOUND ATTENUATION BATT (SAB)
S	GWB/ STUD PARTITION TO DECK (ABOVE)

NUMERIC CHARACTER	WOOD STUD SIZE	MASONRY BLOCK SIZE
0	-	-
1	3/4"	-
2	1-1/2"	-
3	-	-
4	3-1/2"	3-5/8"
6	5-1/2"	5-5/8"
8	7-3/4"	7-5/8"
10	9-3/8" (VERT.)	9-5/8"
12	-	11-5/8"

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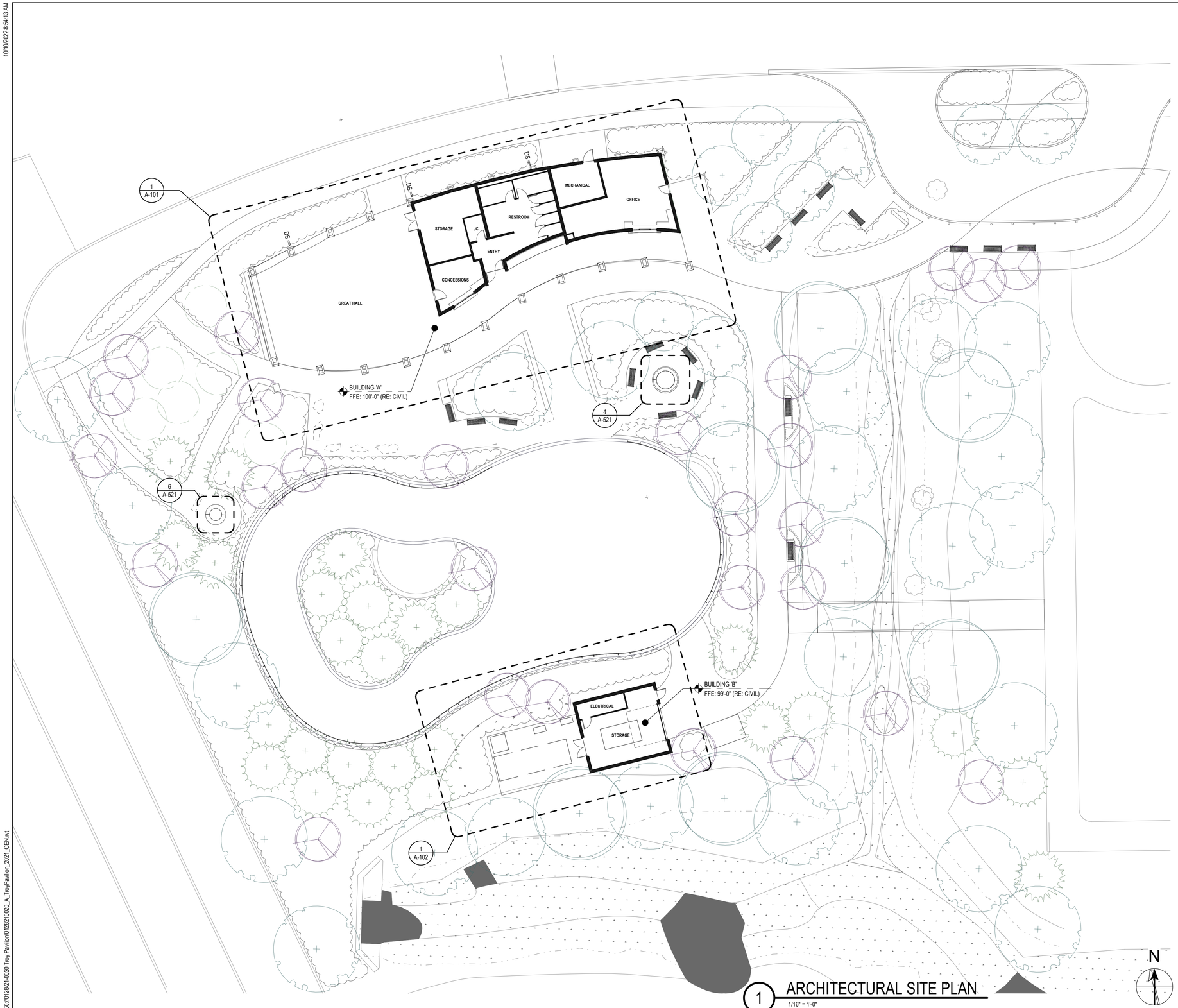
ASSEMBLY TYPES & DETAILS

SHEET A-011

10/10/2022 8:54:13 AM



1 ARCHITECTURAL SITE PLAN
1/16" = 1'-0"

GENERAL NOTES - SITE PLAN

1. SITE LAYOUT, COMPONENTS AND CONDITIONS SHOWN FOR GRAPHIC REFERENCE ONLY. REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR ALL SITE RELATED INFORMATION AND DETAILS
2. PLACEHOLDER
3. PLACEHOLDER

SHEET KEYNOTES - SITE PLAN

01	PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1
02	PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2
03	PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3
04	PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4

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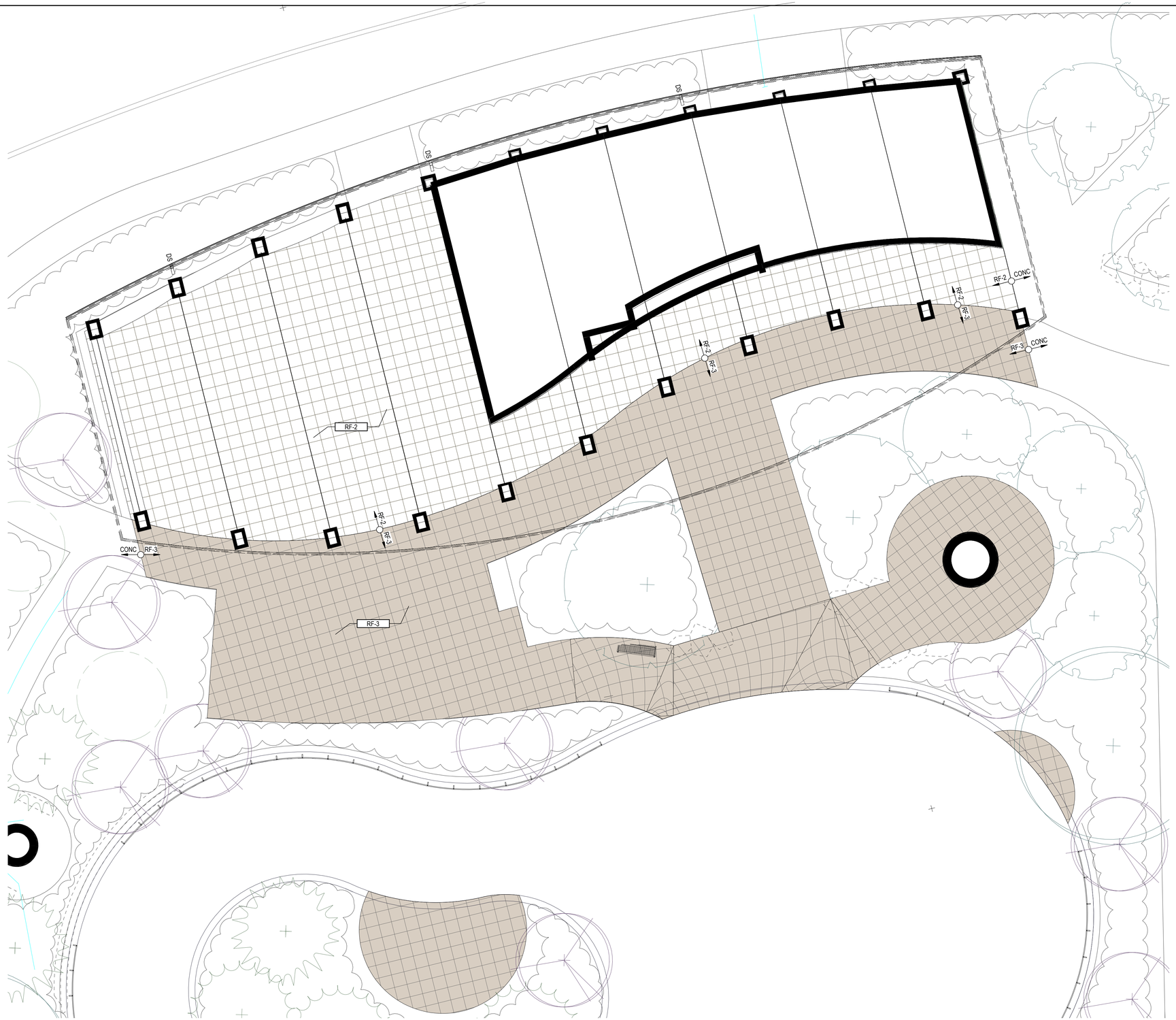
ARCHITECTURAL SITE PLAN

SHEET AS101

BIM 360://0128-21-0020 Troy Pavilion/0128210020_A_TroyPavilion_2021_CEN.rvt



1 ARCHITECTURAL SITE FINISH PLAN
1/8" = 1'-0"

N

GENERAL NOTES - SITE PLAN

1. SITE LAYOUT, COMPONENTS AND CONDITIONS SHOWN FOR GRAPHIC REFERENCE ONLY. REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR ALL SITE RELATED INFORMATION AND DETAILS
2. PLACEHOLDER
3. PLACEHOLDER

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SHEET KEYNOTES - SITE PLAN

01	PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1
02	PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2
03	PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3
04	PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4

ARCHITECTURAL SITE FINISH LEGEND

SURFACE FINISH INDICATOR

XX-X — SURFACE FINISH TYPE

RF-2
2X2 EXTERIOR RUBBER TILE

RF-3
2X2 EXTERIOR RUBBER TILE

RF-2 RF-3 — SURFACE FINISH EXTENTS / TRANSITION

NOTE:
FINISH LEGEND IS GENERAL. REFER TO SPECIFICATIONS FOR SPECIFIC FINISH INFORMATION.
MULTIPLE FINISH TYPES ARE DENOTED BY NUMBER FOLLOWING ABBREVIATION.

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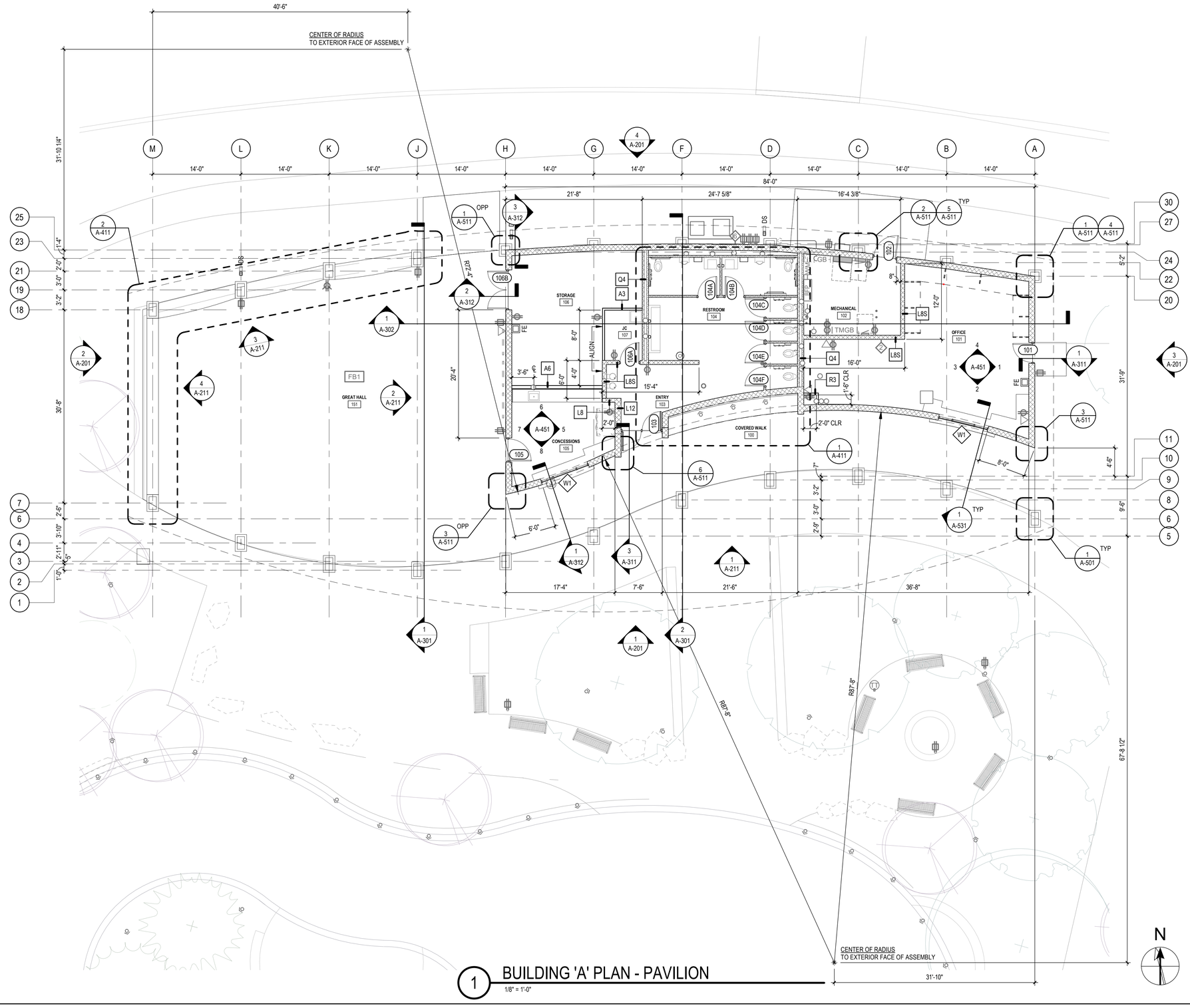
ARCHITECTURAL SITE FINISH PLAN

SHEET AS102



1 BUILDING 'A' PLAN - PAVILION
1/8" = 1'-0"

GENERAL NOTES - PLANS

1. BUILDING 'A' (PAVILION) FIRST FLOOR REFERENCE ELEVATION: 100'-0" = 681.00' (REFER TO CIVIL.)
   BUILDING 'B' (UTILITY) FIRST FLOOR REFERENCE ELEVATION: 99'-0" = 680.00' (REFER TO CIVIL.)
2. DO NOT SCALE DRAWINGS. IF DIMENSIONS CANNOT BE DETERMINED OR DOCUMENTS ARE IN CONFLICT, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ARCHITECT PRIOR TO CONTINUATION OF WORK
3. REFER TO A-001 FOR TYPICAL MATERIAL / REFERENCE SYMBOLS, ABBREVIATIONS, AND ACCESSORY MOUNTING DIAGRAMS
4. REFER TO LIFE SAFETY DRAWINGS (G-SERIES) FOR LOCATIONS AND EXTENTS OF RATED ASSEMBLIES, AS WELL AS FIRE EXTINGUISHER LOCATIONS. IF PARTITION DESIGNATION DISCREPANCY OCCURS BETWEEN THE CODE DRAWINGS AND FLOOR PLANS, PROVIDE THE PARTITION TYPE INDICATED WITH THE MOST STRINGENT REQUIREMENTS
5. REFER TO A-011 FOR ALL ASSEMBLY TYPES
6. REFER TO A-600 SERIES FOR DOOR, AND WINDOW INFORMATION AND DETAILS
7. ALL MASONRY DIMENSIONS ARE NOMINAL, UNO
8. ALL DIMENSIONS ARE TO FACE OF STUD OR MASONRY, UNO
9. ALL DOORS TO BE BE 4" FROM FINISH FACE OF WALL TO HINGE, UNO

SHEET KEYNOTES - PLAN

03 21'-0"L WOOD SEATWALL w/ FINISHED BACK ON 2X P.T. FRAMING AND CMU BASE
04 28'-0"L CAST STONE SEATWALL ON DECORATIVE CMU BASE w/ BUILT-IN STORAGE
05 12'-6"L CAST STONE SEATWALL ON DECORATIVE CMU BASE w/ BUILT-IN STORAGE

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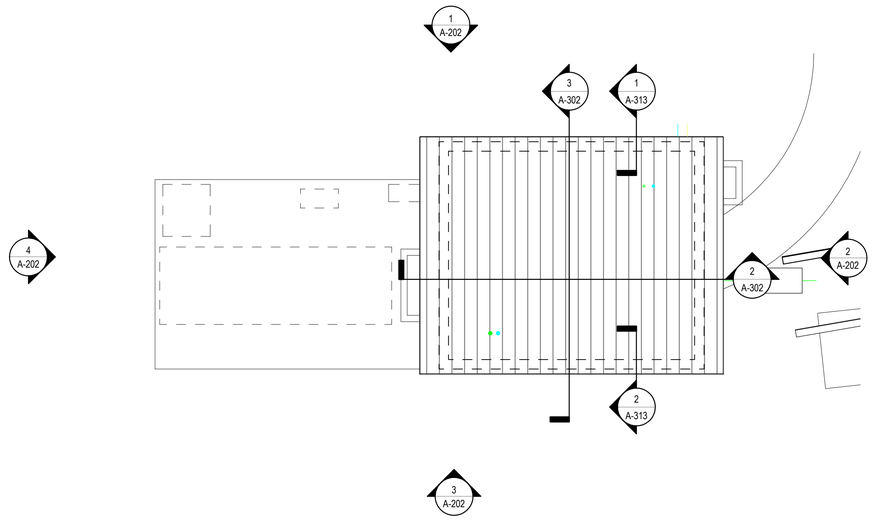
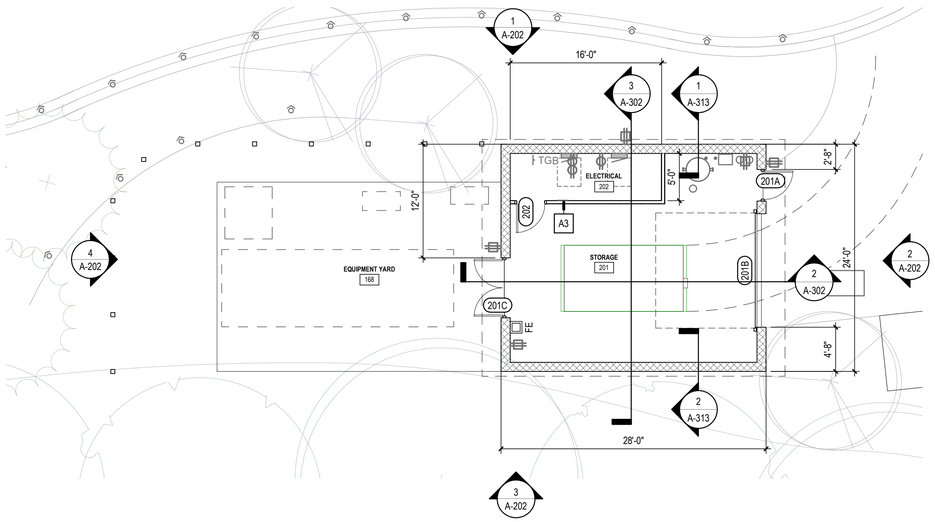
BUILDING 'A' - FLOOR PLAN

SHEET A-101



2 BUILDING 'B' ROOF PLAN

1/8" = 1'-0"



1 BUILDING 'B' PLAN - UTILITY

1/8" = 1'-0"

N

GENERAL NOTES - ROOF PLAN

1. COORDINATE PENETRATIONS AND ROOF MOUNTED EQUIPMENT WITH MECHANICAL, PLUMBING, ELECTRICAL AND STRUCTURAL DRAWINGS
2. ALL ROOF PENETRATIONS SHALL BE SEALED WITH APPROPRIATE MATERIAL
3. ALL EXPOSED METAL ELEMENTS TO BE PRE-FINISHED. COLOR AS SELECTED BY ARCHITECT
4. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION ON FINISHES & INSTALLATION REQUIREMENTS
5. ALL ROOFS ARE TO HAVE POSITIVE SLOPE TO ROOF DRAINS. REFER TO CIVIL DRAWING FOR ROOF DRAINAGE CONDITIONS AT GRADE.

GENERAL NOTES - PLANS

1. BUILDING 'A' (PAVILION) FIRST FLOOR REFERENCE ELEVATION: 100'-0" = 681.00' (REFER TO CIVIL.)
   BUILDING 'B' (UTILITY) FIRST FLOOR REFERENCE ELEVATION: 99'-0" = 680.00' (REFER TO CIVIL.)
2. DO NOT SCALE DRAWINGS. IF DIMENSIONS CANNOT BE DETERMINED OR DOCUMENTS ARE IN CONFLICT, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ARCHITECT PRIOR TO CONTINUATION OF WORK
3. REFER TO A-001 FOR TYPICAL MATERIAL / REFERENCE SYMBOLS, ABBREVIATIONS, AND ACCESSORY MOUNTING DIAGRAMS
4. REFER TO LIFE SAFETY DRAWINGS (G-SERIES) FOR LOCATIONS AND EXTENTS OF RATED ASSEMBLIES, AS WELL AS FIRE EXTINGUISHER LOCATIONS. IF PARTITION DESIGNATION DISCREPANCY OCCURS BETWEEN THE CODE DRAWINGS AND FLOOR PLANS, PROVIDE THE PARTITION TYPE INDICATED WITH THE MOST STRINGENT REQUIREMENTS
5. REFER TO A-011 FOR ALL ASSEMBLY TYPES
6. REFER TO A-600 SERIES FOR DOOR, AND WINDOW INFORMATION AND DETAILS
7. ALL MASONRY DIMENSIONS ARE NOMINAL, UNO
8. ALL DIMENSIONS ARE TO FACE OF STUD OR MASONRY, UNO
9. ALL DOORS TO BE BE 4" FROM FINISH FACE OF WALL TO HINGE, UNO

SHEET KEYNOTES - PLAN

03	21'-0"L WOOD SEATWALL w/ FINISHED BACK ON 2X P.T. FRAMING AND CMU BASE
04	28'-0"L CAST STONE SEATWALL ON DECORATIVE CMU BASE w/ BUILT-IN STORAGE
05	12'-6"L CAST STONE SEATWALL ON DECORATIVE CMU BASE w/ BUILT-IN STORAGE

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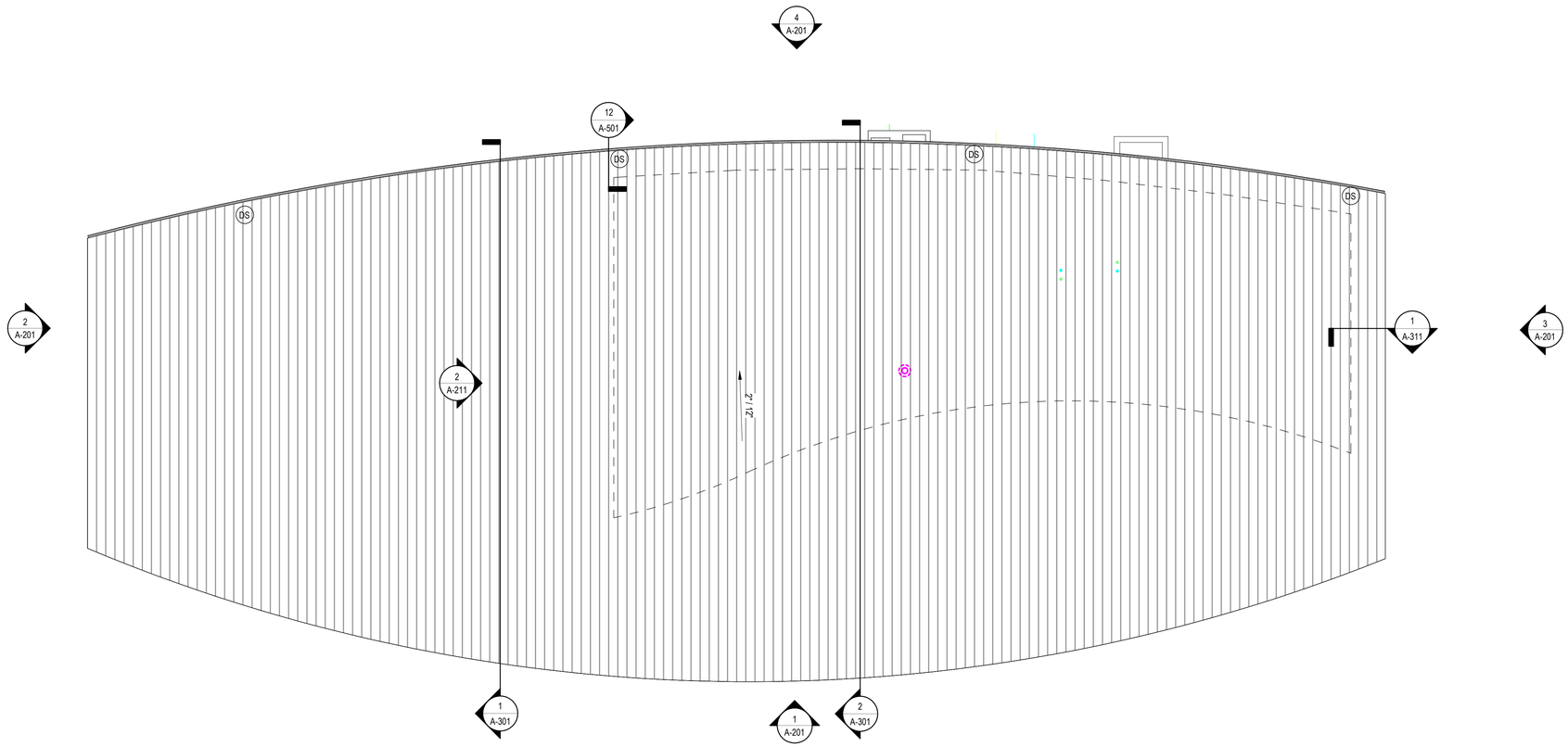
BUILDING 'B' - FLOOR & ROOF PLAN

SHEET A-102



1 ROOF PLAN - BUILDING 'A' (PAVILION)
1/8" = 1'-0"

N

GENERAL NOTES - ROOF PLAN

1. COORDINATE PENETRATIONS AND ROOF MOUNTED EQUIPMENT WITH MECHANICAL, PLUMBING, ELECTRICAL AND STRUCTURAL DRAWINGS
2. ALL ROOF PENETRATIONS SHALL BE SEALED WITH APPROPRIATE MATERIAL
3. ALL EXPOSED METAL ELEMENTS TO BE PRE-FINISHED. COLOR AS SELECTED BY ARCHITECT
4. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION ON FINISHES & INSTALLATION REQUIREMENTS
5. ALL ROOFS ARE TO HAVE POSITIVE SLOPE TO ROOF DRAINS. REFER TO CIVIL DRAWING FOR ROOF DRAINAGE CONDITIONS AT GRADE.

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00 00 00 A REFERENCE KEYNOTES

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XX SHEET KEYNOTES - ROOF PLAN

01	PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1
02	PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2
03	PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3
04	PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4

ROOF LEGEND

- METAL - STANDING SEAM
- ICE GUARD FLASHING
- INDICATES AREA OF TAPERED INSULATION
- (UNSHADED) INDICATES AREA OF 60 MIL EPDM ROOF SYSTEM
- (DS) DOWN SPOUT
- (RD) ROOF DRAIN
- (SRD) SECONDARY ROOF DRAIN
- (ERD) EXISTING ROOF DRAIN
- X :12 ROOF SLOPE
- EXPANSION JOINT

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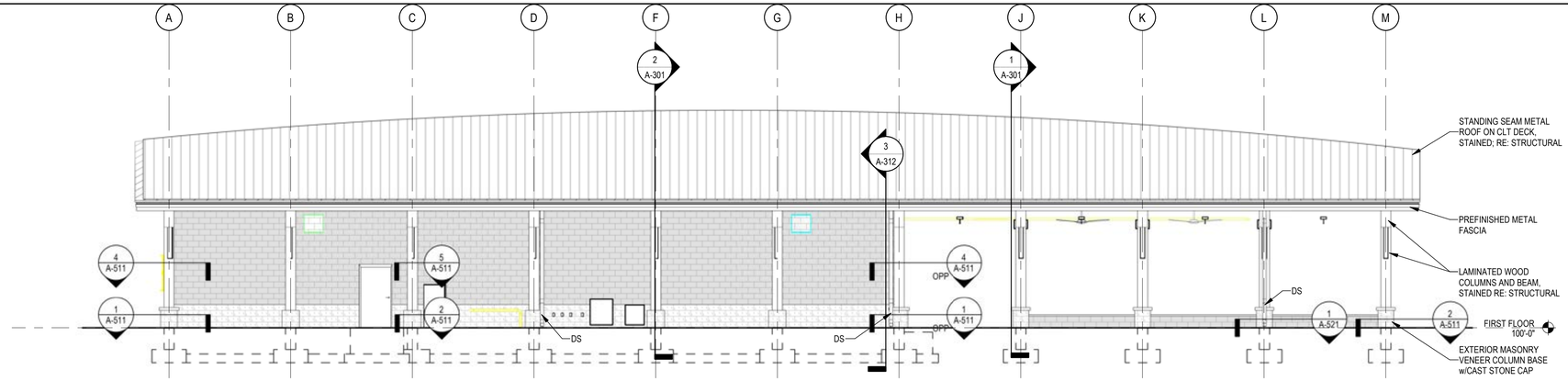
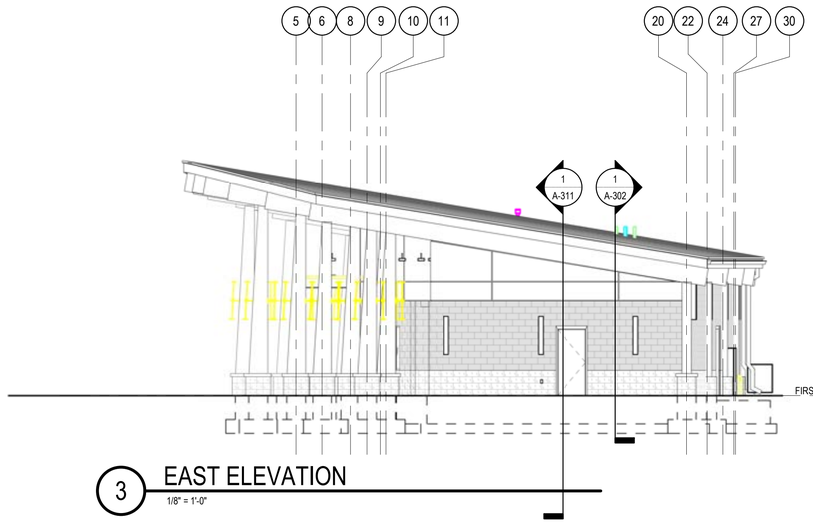
BUILDING 'A' - ROOF PLAN

SHEET A-111



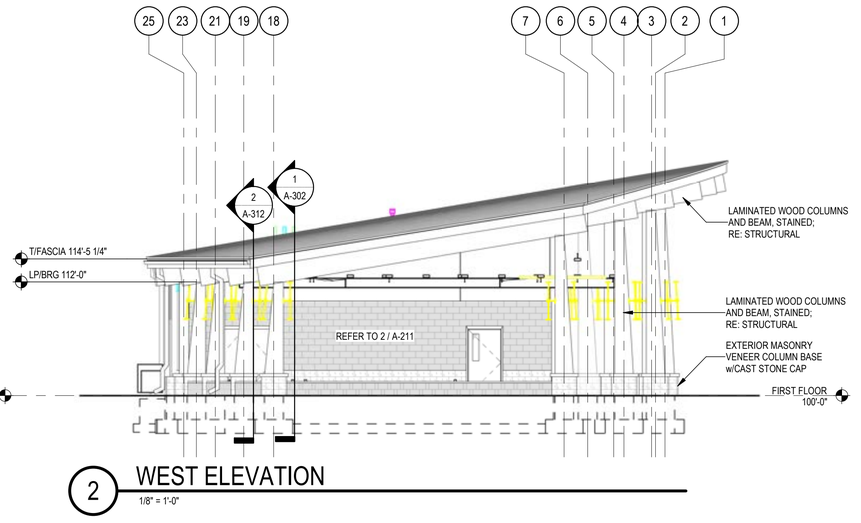
4 NORTH ELEVATION

1/8" = 1'-0"



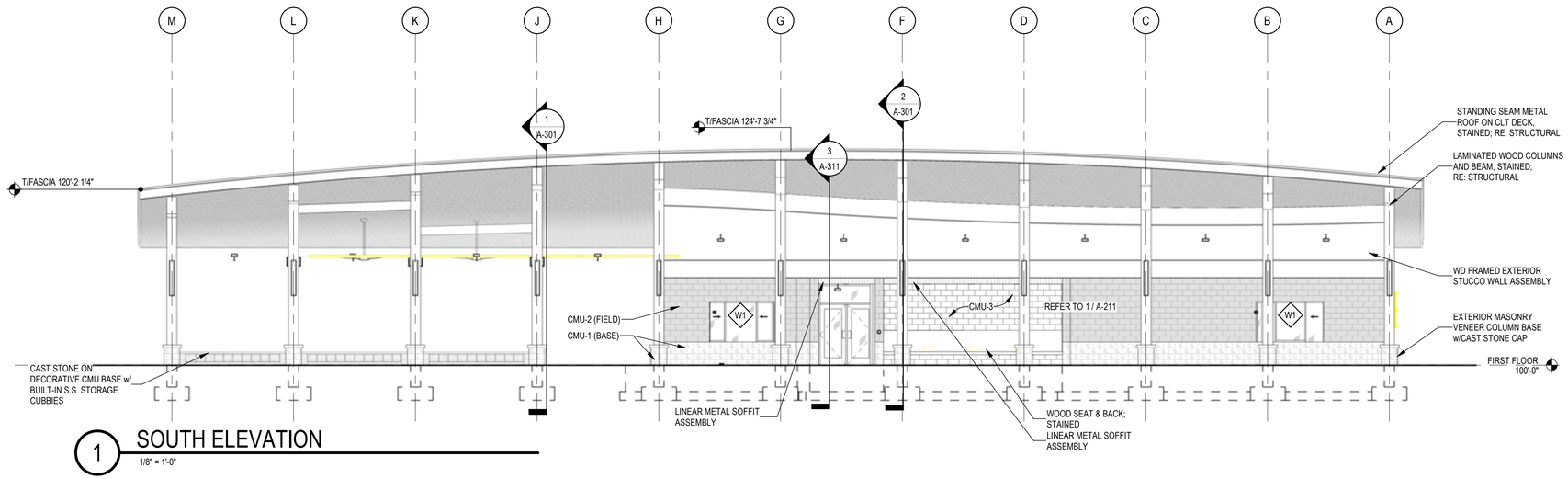
3 EAST ELEVATION

1/8" = 1'-0"



2 WEST ELEVATION

1/8" = 1'-0"



1 SOUTH ELEVATION

1/8" = 1'-0"

GENERAL NOTES - ELEVATIONS

1. ALL PENETRATIONS SHALL BE SEALED WITH APPROPRIATE MATERIAL
2. ALL EXPOSED METAL ELEMENTS TO BE PRE-FINISHED; COLOR AS SELECTED BY ARCHITECT
3. REFER TO PROJECT MANUAL FOR ADDITIONAL INFORMATION ON FINISHES & INSTALLATION REQUIREMENTS

EXTERIOR FINISH LEGEND

FINISH INDICATOR

WALLS

CMU-1 (BASE):	SPLIT FACE CMU	FENDT COLOR 2351
CMU-2 (FIELD):	SMOOTH FACE CMU	FENDT COLOR 2351
CMU-3 (ACCENT):	SPLIT FACE CMU	FENDT COLOR 1293

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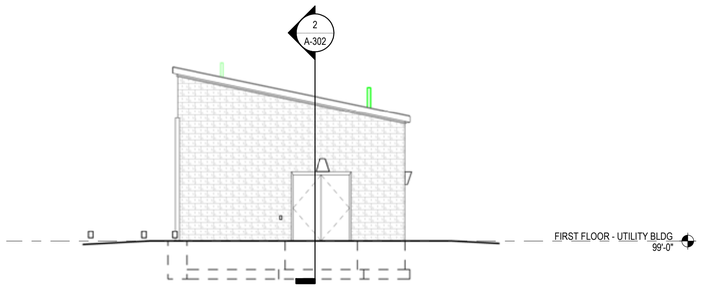
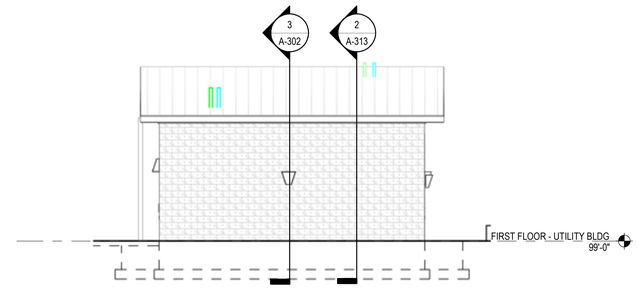
BUILDING 'A' EXTERIOR ELEVATIONS

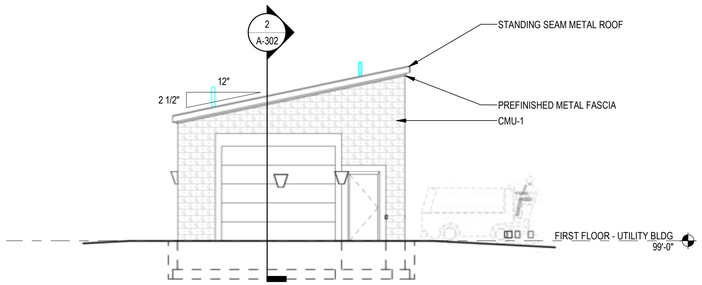
SHEET A-201



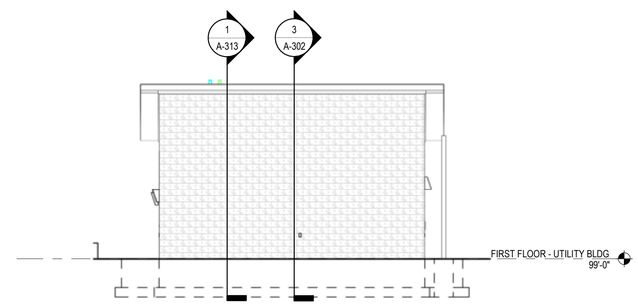
4 BLDG 'B' - WEST ELEVATION
1/8" = 1'-0"



3 BLDG 'B' - SOUTH ELEVATION
1/8" = 1'-0"



2 BLDG 'B' - EAST ELEVATION
1/8" = 1'-0"



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

GENERAL NOTES - ELEVATIONS

1. ALL PENETRATIONS SHALL BE SEALED WITH APPROPRIATE MATERIAL
2. ALL EXPOSED METAL ELEMENTS TO BE PRE-FINISHED; COLOR AS SELECTED BY ARCHITECT
3. REFER TO PROJECT MANUAL FOR ADDITIONAL INFORMATION ON FINISHES & INSTALLATION REQUIREMENTS

EXTERIOR FINISH LEGEND

FINISH INDICATOR

WALLS

CMU-1 (BASE):	SPLIT FACE CMU	FENDT COLOR 2351
CMU-2 (FIELD):	SMOOTH FACE CMU	FENDT COLOR 2351
CMU-3 (ACCENT):	SPLIT FACE CMU	FENDT COLOR 1293

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BUILDING 'B' EXTERIOR ELEVATIONS

SHEET A-202

GENERAL NOTES - ELEVATIONS

1. ALL PENETRATIONS SHALL BE SEALED WITH APPROPRIATE MATERIAL
2. ALL EXPOSED METAL ELEMENTS TO BE PRE-FINISHED; COLOR AS SELECTED BY ARCHITECT
3. REFER TO PROJECT MANUAL FOR ADDITIONAL INFORMATION ON FINISHES & INSTALLATION REQUIREMENTS

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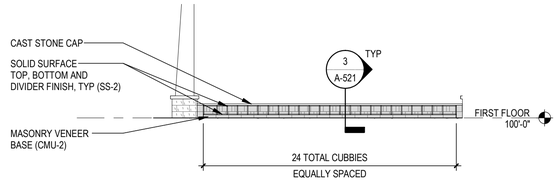
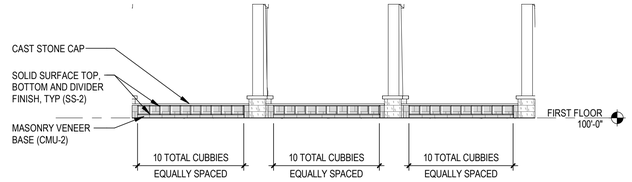
SHEET KEYNOTES - EXT. ELEVATION

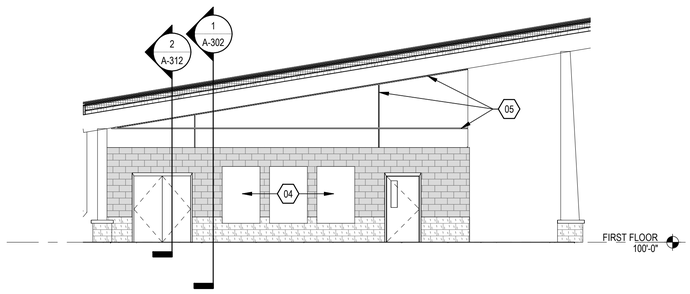
01	ROUTED COPPER SIGN FACE, BACKLIT, ON S.S. STANDOFFS AND SPACERS; FINISH: COPPER
02	GLASS MOUNTED, NON-ILLUMINATED, CHANNEL LETTERS; FINISH: COPPER
03	FABRICATED COPPER SIGN TYPE; RE: A-001
04	COMPOSITE PANELS (BY OTHERS) ON STAND-OFFS; FINISH: COPPER
05	PROVIDE REVEAL TRIM AT STUCCO ASSEMBLY, TYP.



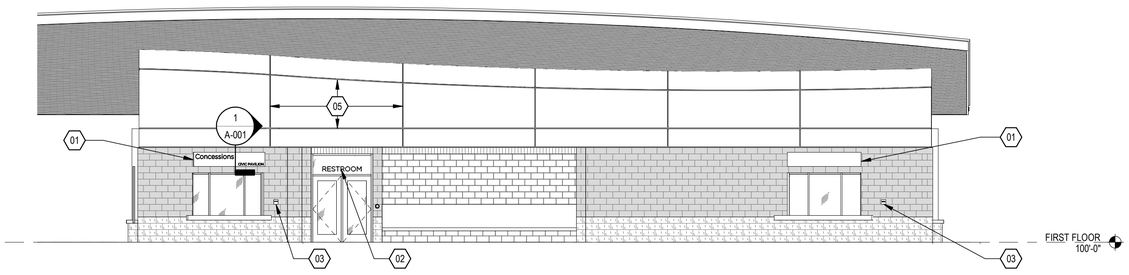
4 GREAT HALL 108
1/8" = 1'-0"



3 GREAT HALL 108
1/8" = 1'-0"



2 GREAT HALL 108 EAST
1/8" = 1'-0"



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

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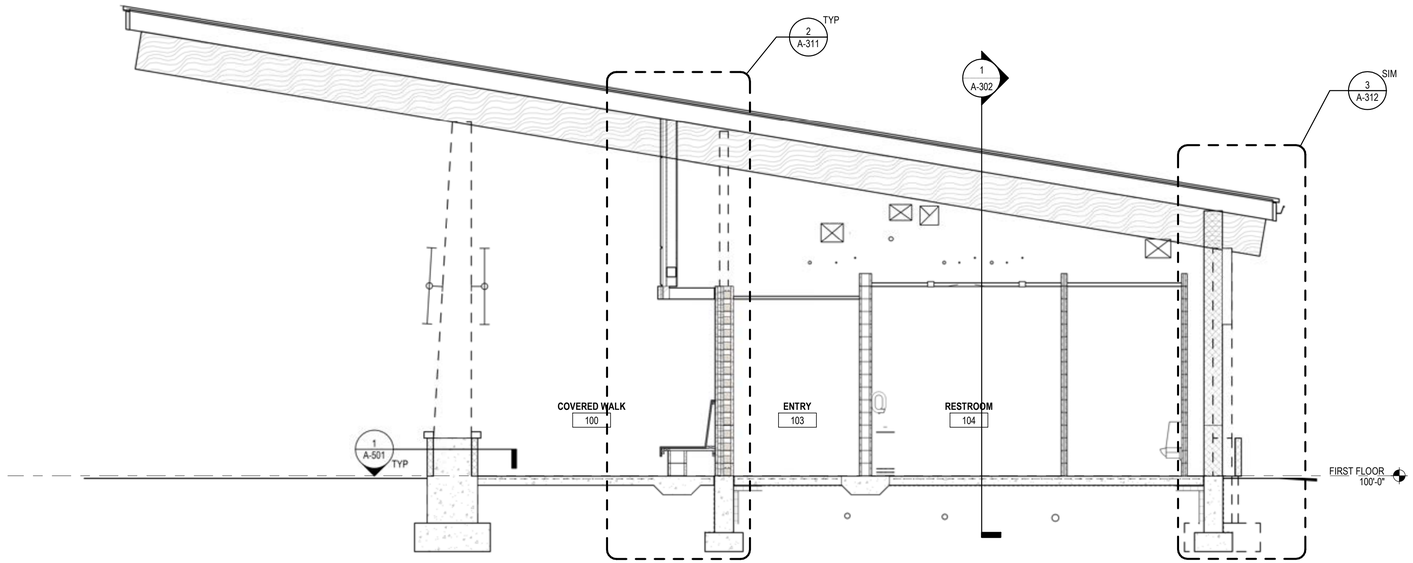
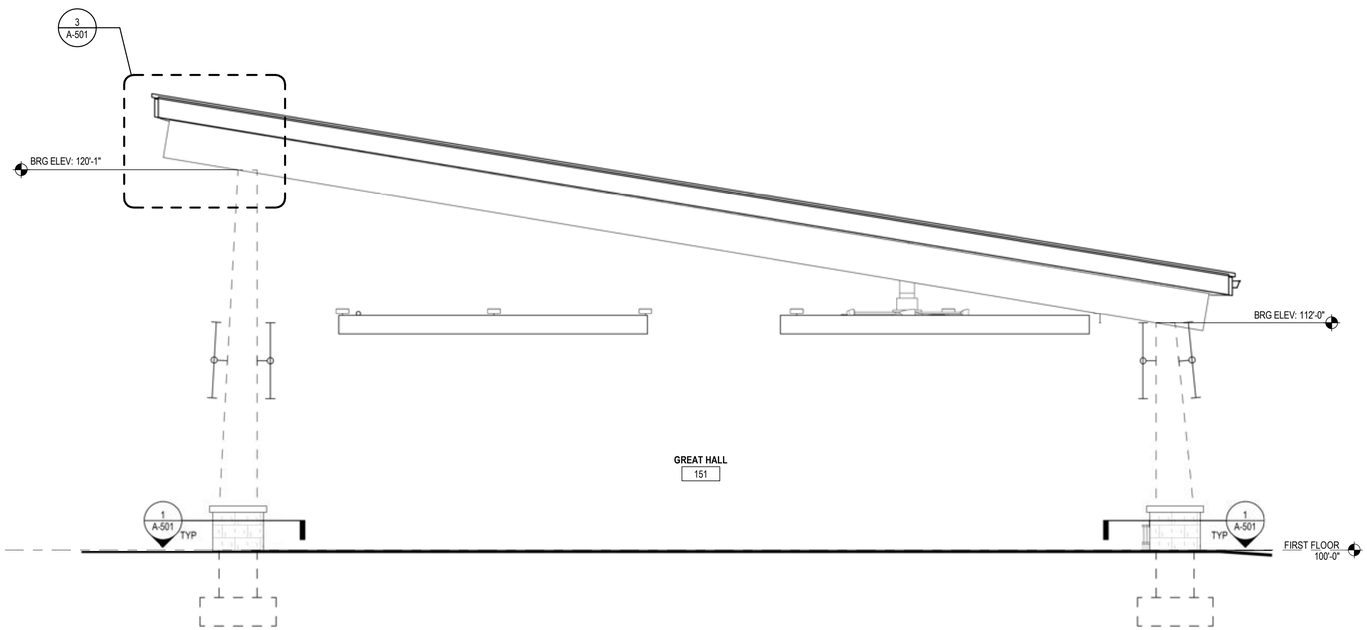
BUILDING 'A' COVERED ELEVATIONS

SHEET A-211



2 BUILDING 'A' - BLDG SECTION
1/4" = 1'-0"



1 BUILDING 'A' - BLDG SECTION
1/4" = 1'-0"

GENERAL NOTES - SECTIONS

1. REFER TO STRUCTURAL DRAWINGS FOR ALL FOUNDATION, SLAB AND WALL REINFORCEMENT REQUIREMENTS, TYP.
2. PLACEHOLDER
3. PLACEHOLDER

00 00 00.A REFERENCE KEYNOTES

XX SHEET KEYNOTES - BUILDING SECTION

01	PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1
02	PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2
03	PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3
04	PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4

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BUILDING SECTIONS

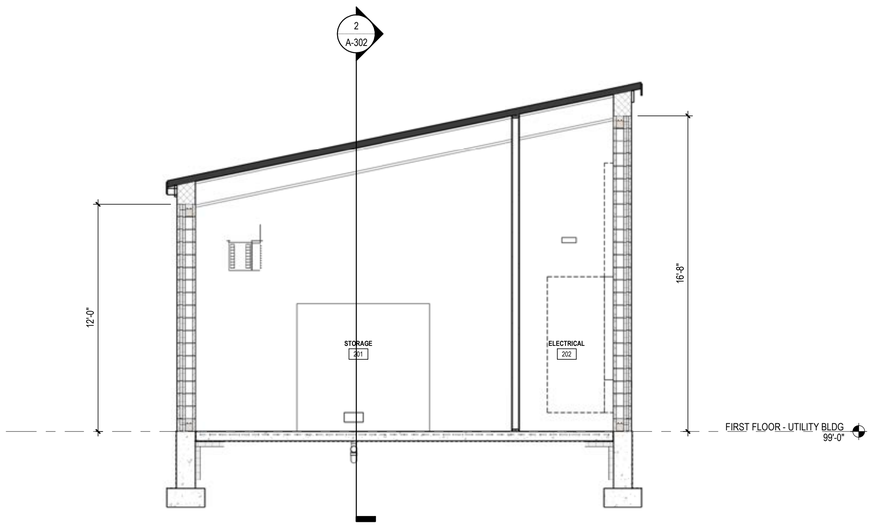
SHEET A-301

GENERAL NOTES - SECTIONS

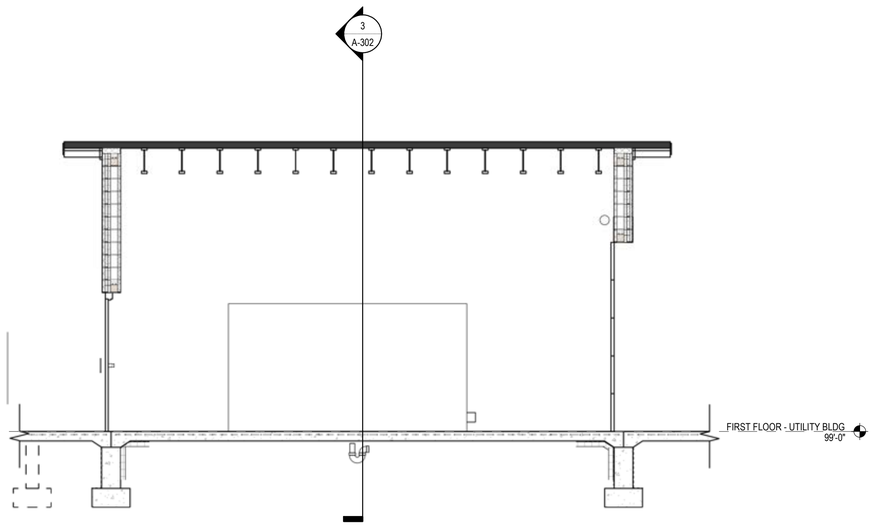
1. REFER TO STRUCTURAL DRAWINGS FOR ALL FOUNDATION, SLAB AND WALL REINFORCEMENT REQUIREMENTS, TYP.
2. PLACEHOLDER
3. PLACEHOLDER

SHEET KEYNOTES - BUILDING SECTION

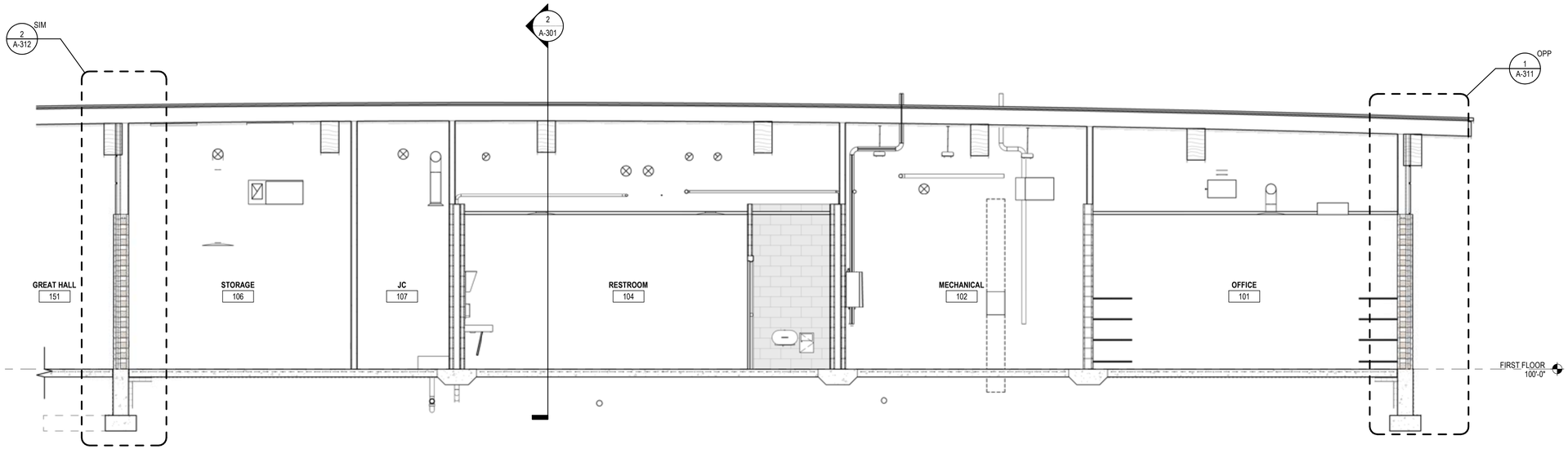
01	PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1
02	PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2
03	PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3
04	PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4



3 BUILDING 'B' - BLDG SECTION
1/4" = 1'-0"



2 BUILDING 'B' - BLDG SECTION
1/4" = 1'-0"



1 BUILDING 'A' - BLDG SECTION
1/4" = 1'-0"

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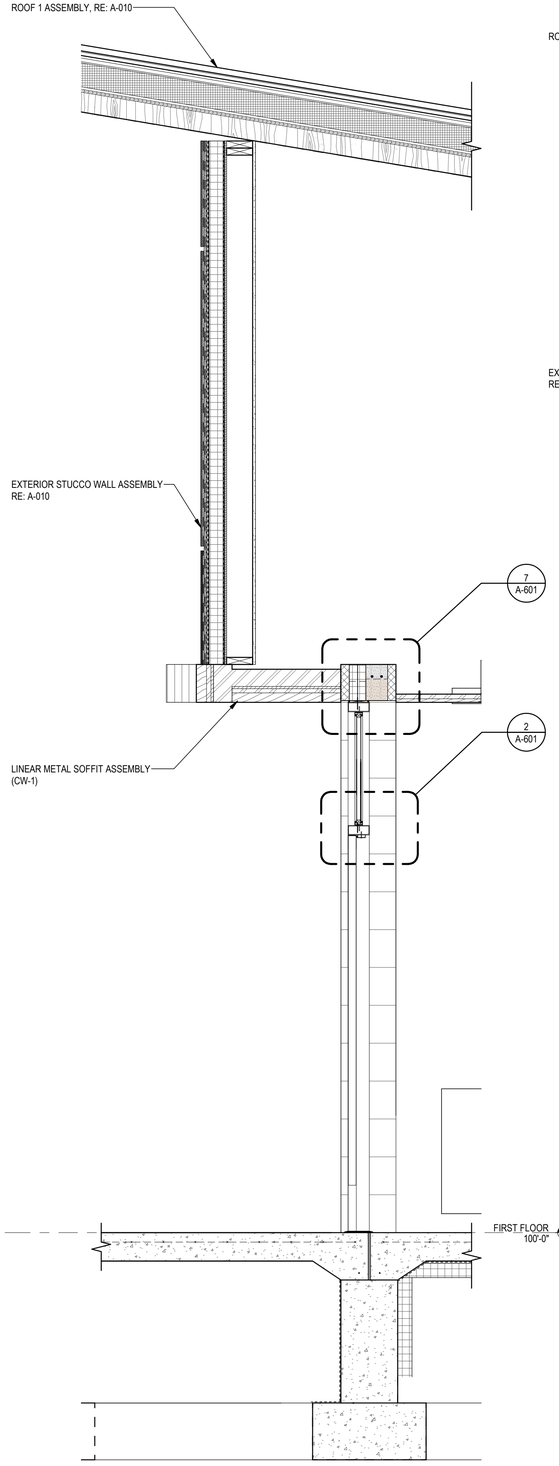
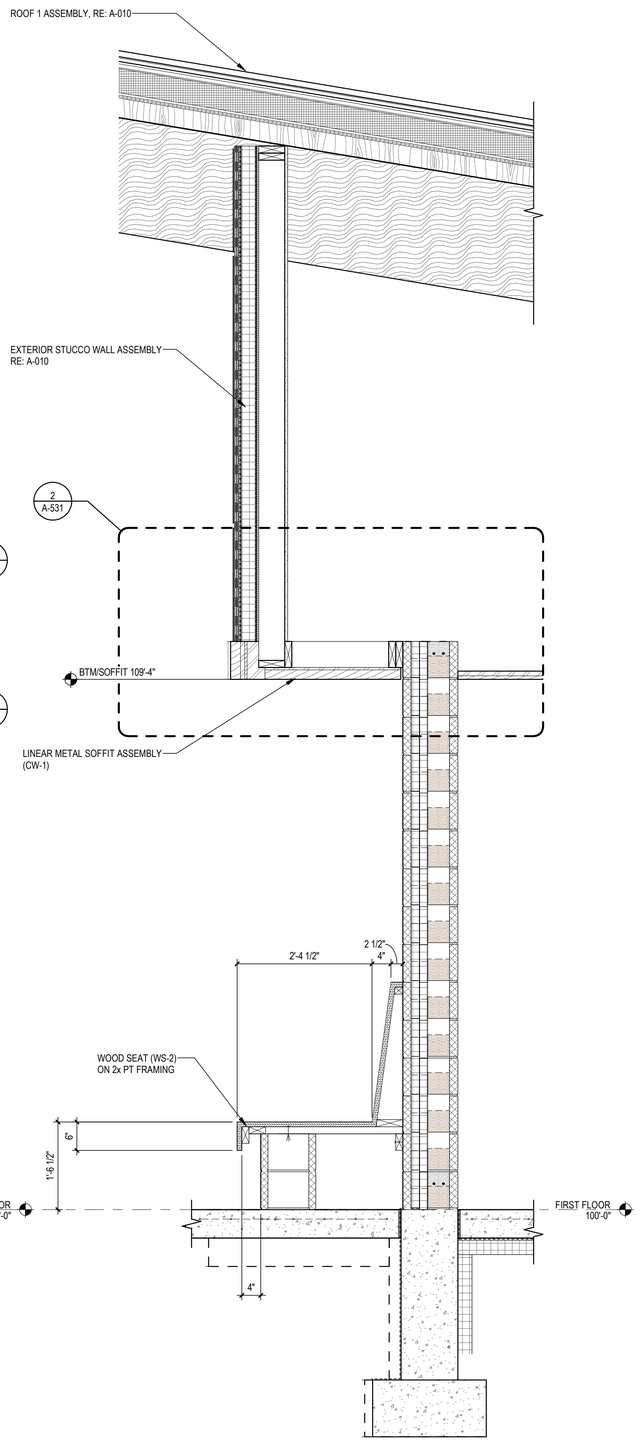
BUILDING SECTIONS

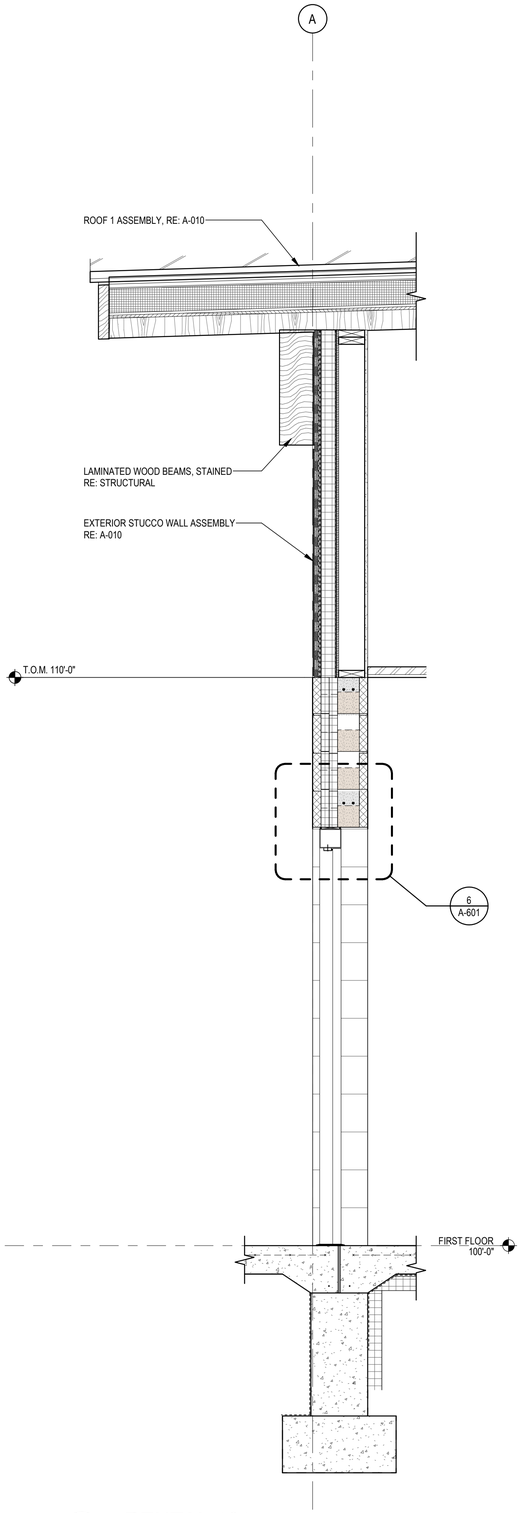
SHEET A-302



3 SUPPORT ENTRY 103
3/4" = 1'-0"



2 COVERED WALK 100 BENCH
3/4" = 1'-0"



1 RENTAL 101
3/4" = 1'-0"

GENERAL NOTES - SECTIONS

1. REFER TO STRUCTURAL DRAWINGS FOR ALL FOUNDATION, SLAB AND WALL REINFORCEMENT REQUIREMENTS, TYP.
2. PLACEHOLDER
3. PLACEHOLDER

SHEET KEYNOTES - WALL SECTION

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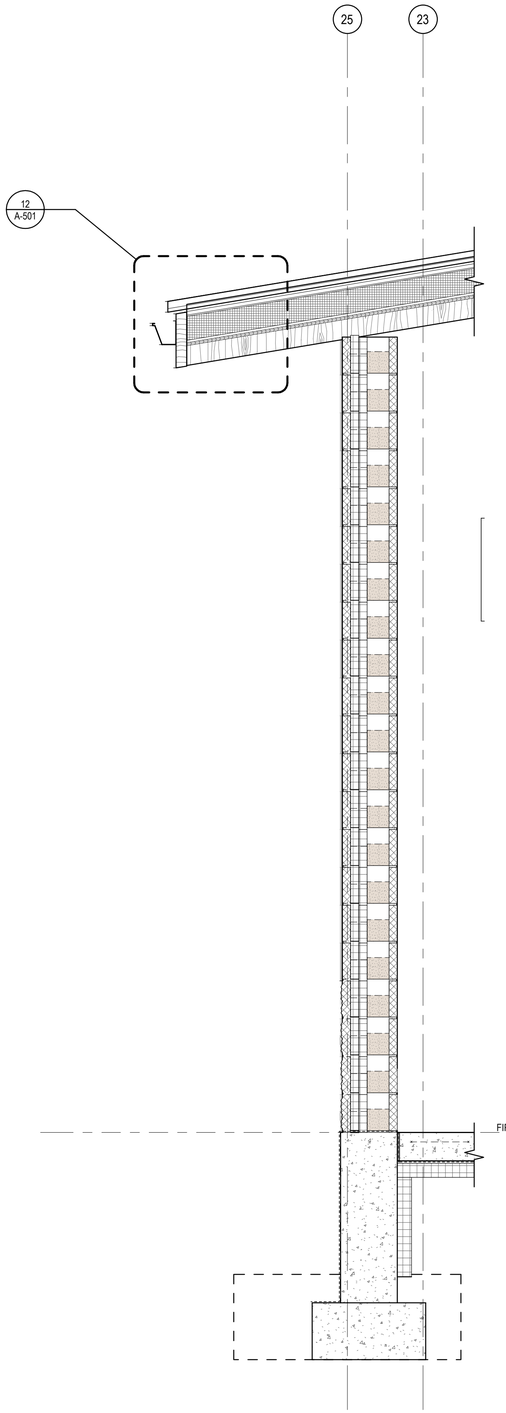
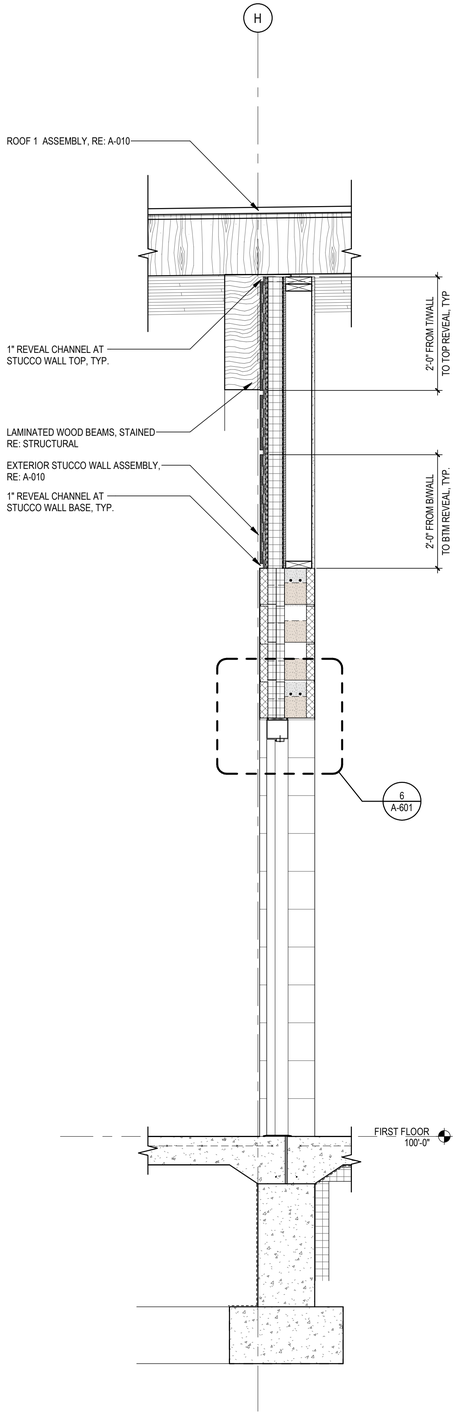
WALL SECTIONS

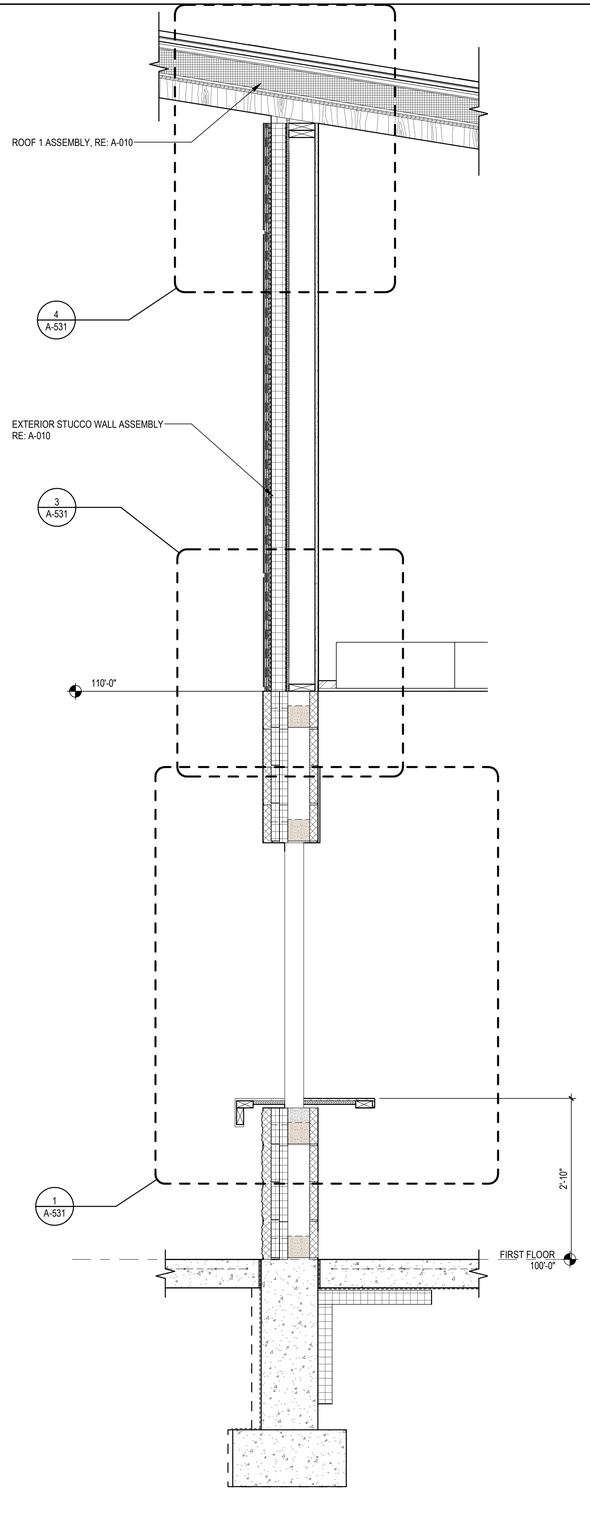
SHEET A-311



3 STORAGE 106
3/4" = 1'-0"



2 GREAT HALL 151
3/4" = 1'-0"



1 CONCESSIONS 105
3/4" = 1'-0"

GENERAL NOTES - SECTIONS

1. REFER TO STRUCTURAL DRAWINGS FOR ALL FOUNDATION, SLAB AND WALL REINFORCEMENT REQUIREMENTS, TYP.
2. PLACEHOLDER
3. PLACEHOLDER

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SHEET KEYNOTES - WALL SECTION

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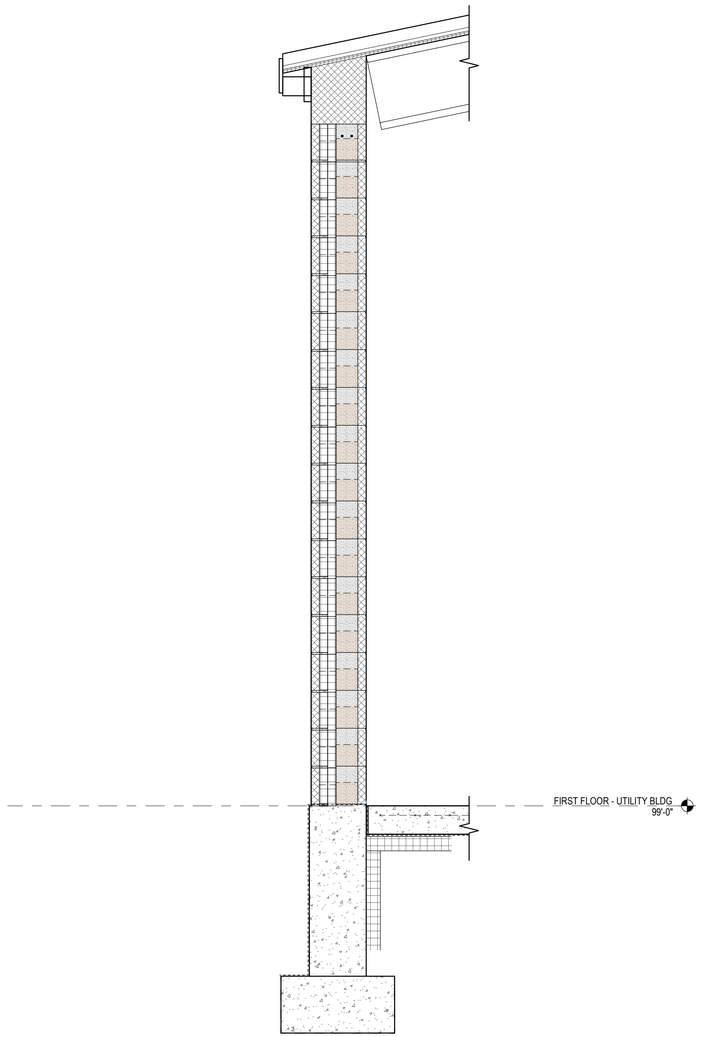
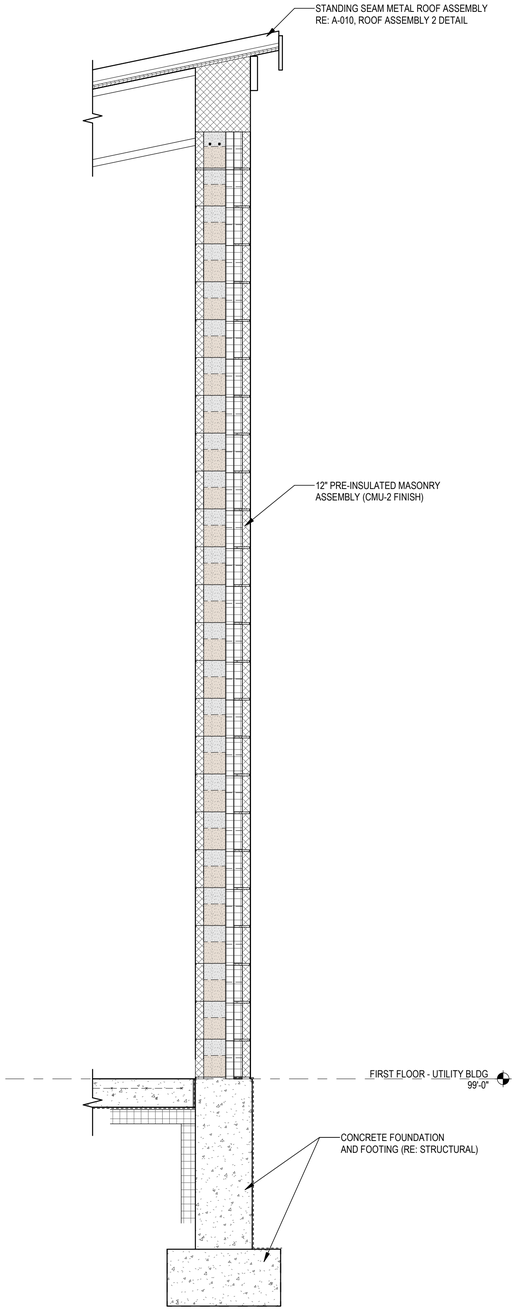
WALL SECTIONS

SHEET A-312



2 STORAGE 201_SOUTH
3/4" = 1'-0"



1 STORAGE 201_NORTH
3/4" = 1'-0"

GENERAL NOTES - SECTIONS

1. REFER TO STRUCTURAL DRAWINGS FOR ALL FOUNDATION, SLAB AND WALL REINFORCEMENT REQUIREMENTS, TYP.
2. PLACEHOLDER
3. PLACEHOLDER

SHEET KEYNOTES - WALL SECTION

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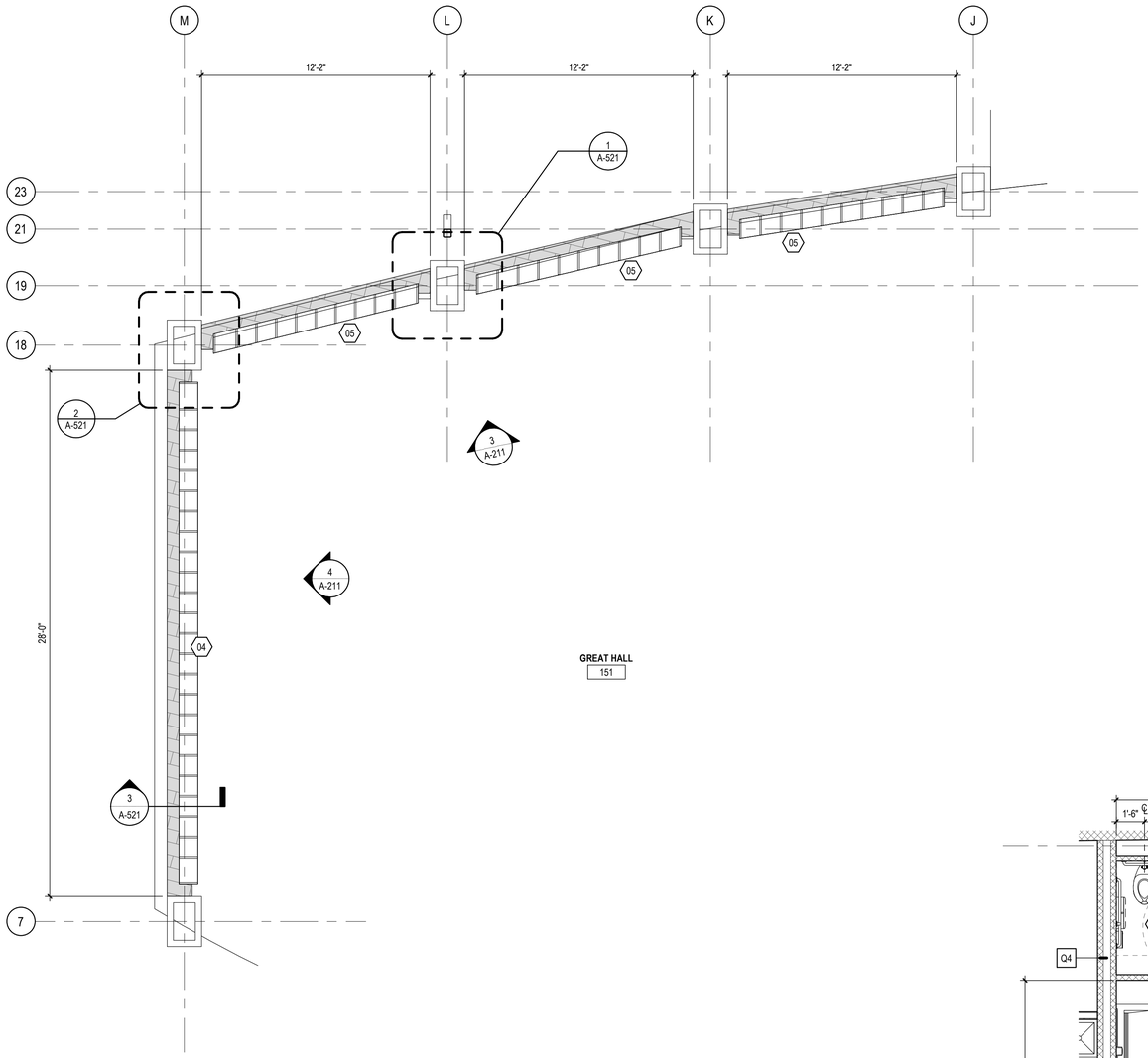
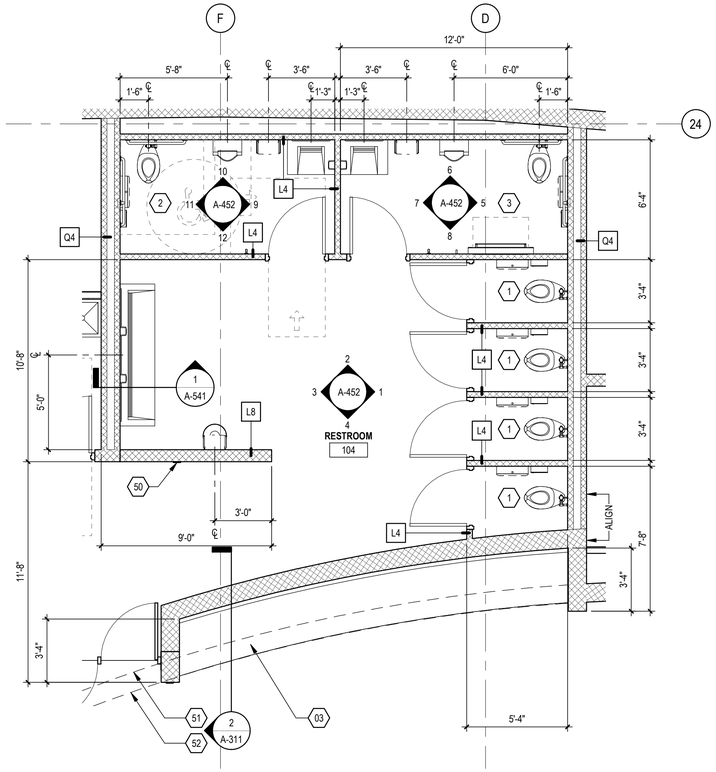
WALL SECTIONS

SHEET A-313



2 BLDG 'A' ENLARGED PLAN - GREAT HALL 151

1/4" = 1'-0"



1 BLDG 'A' ENLARGED PLAN - RESTROOM 105

1/4" = 1'-0"

GENERAL NOTES - PLANS

1. BUILDING 'A' (PAVILION) FIRST FLOOR REFERENCE ELEVATION: 100'-0" = 681.00' (REFER TO CIVIL.)
   BUILDING 'B' (UTILITY) FIRST FLOOR REFERENCE ELEVATION: 99'-0" = 680.00' (REFER TO CIVIL.)
2. DO NOT SCALE DRAWINGS. IF DIMENSIONS CANNOT BE DETERMINED OR DOCUMENTS ARE IN CONFLICT, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ARCHITECT PRIOR TO CONTINUATION OF WORK
3. REFER TO A-001 FOR TYPICAL MATERIAL / REFERENCE SYMBOLS, ABBREVIATIONS, AND ACCESSORY MOUNTING DIAGRAMS
4. REFER TO LIFE SAFETY DRAWINGS (G-SERIES) FOR LOCATIONS AND EXTENTS OF RATED ASSEMBLIES, AS WELL AS FIRE EXTINGUISHER LOCATIONS. IF PARTITION DESIGNATION DISCREPANCY OCCURS BETWEEN THE CODE DRAWINGS AND FLOOR PLANS, PROVIDE THE PARTITION TYPE INDICATED WITH THE MOST STRINGENT REQUIREMENTS
5. REFER TO A-011 FOR ALL ASSEMBLY TYPES
6. REFER TO A-600 SERIES FOR DOOR, AND WINDOW INFORMATION AND DETAILS
7. ALL MASONRY DIMENSIONS ARE NOMINAL, UNO
8. ALL DIMENSIONS ARE TO FACE OF STUD OR MASONRY, UNO
9. ALL DOORS TO BE BE 4" FROM FINISH FACE OF WALL TO HINGE, UNO

SHEET KEYNOTES - PLAN

1	STALL TYPE 'TR-1', (RE: A-001)
2	STALL TYPE 'TR-2', (RE: A-001)
3	STALL TYPE 'TR-3', (RE: A-001)
50	PUSH BUTTON (REF: ELECTRICAL AND TECHNOLOGY DRAWINGS)
51	LINE OF WALL ABOVE
52	LINE OF SOFFIT ABOVE

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ENLARGED PLANS

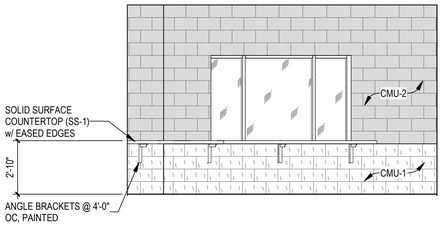
SHEET A-411

GENERAL NOTES - INTERIOR ELEVATIONS

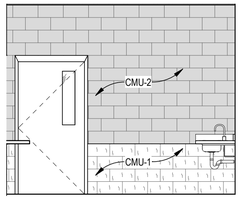
1. PLACEHOLDER
2. PLACEHOLDER
3. PLACEHOLDER

SHEET KEYNOTES - INT. ELEVATION

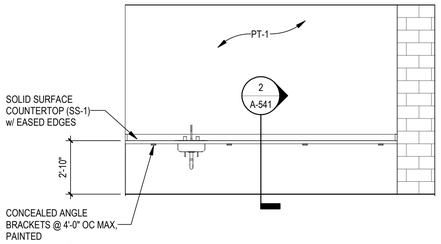
01	PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1
02	PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2
03	PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3
04	PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4



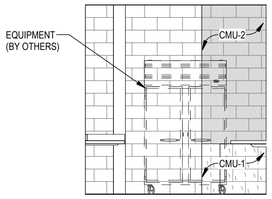
8 CONCESSIONS 107 SOUTH
1/4" = 1'-0"



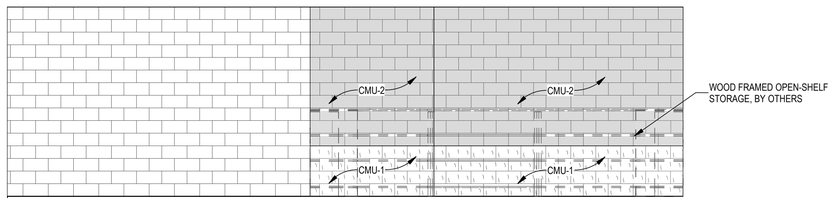
7 CONCESSIONS 107 WEST
1/4" = 1'-0"



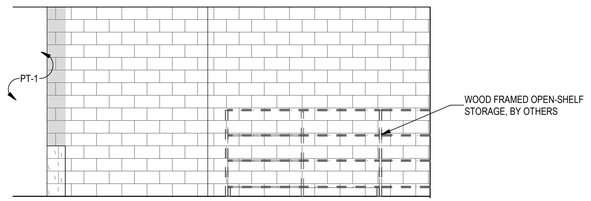
6 CONCESSIONS 107 NORTH
1/4" = 1'-0"



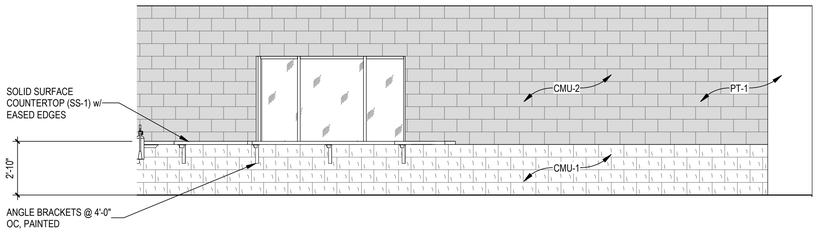
5 CONCESSIONS 107 EAST
1/4" = 1'-0"



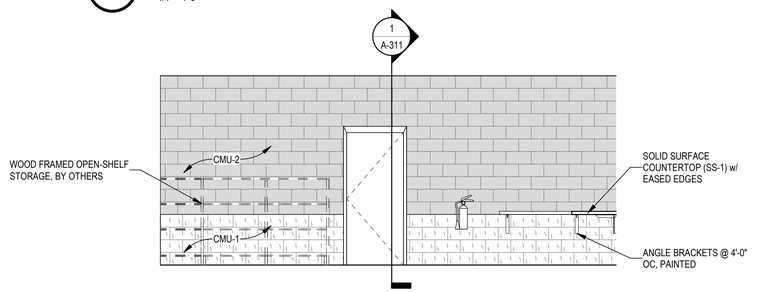
4 RENTAL 101 NORTH
1/4" = 1'-0"



3 RENTAL 101 WEST
1/4" = 1'-0"



2 RENTAL 101 SOUTH
1/4" = 1'-0"



1 RENTAL 101 EAST
1/4" = 1'-0"

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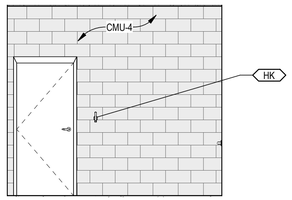
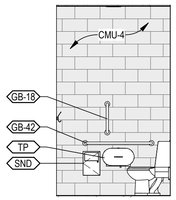
INTERIOR ELEVATIONS

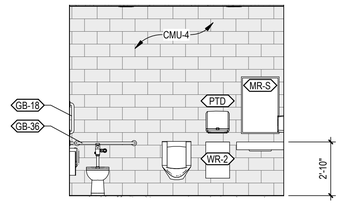
SHEET A-451



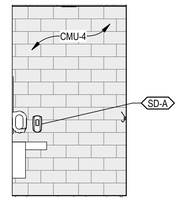
12 TR-2 SOUTH
1/4" = 1'-0"



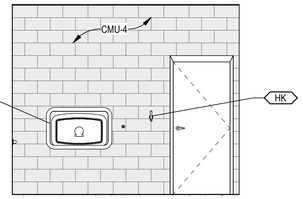
11 TR-2 WEST
1/4" = 1'-0"



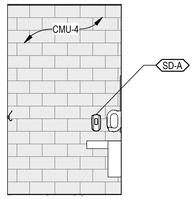
10 TR-2 NORTH
1/4" = 1'-0"



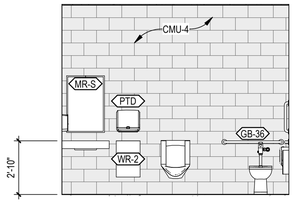
9 TR-2 EAST
1/4" = 1'-0"



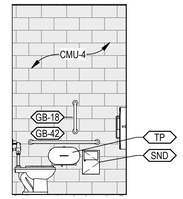
8 TR-3 SOUTH
1/4" = 1'-0"



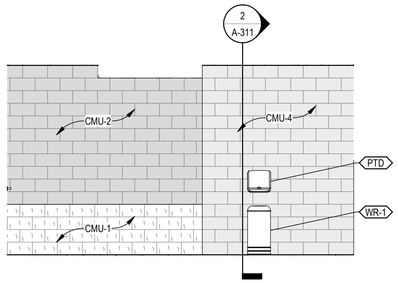
7 TR-3 WEST
1/4" = 1'-0"



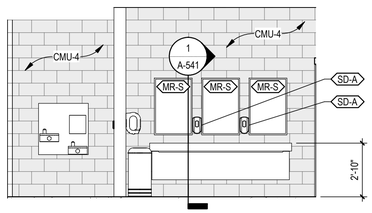
6 TR-3 NORTH
1/4" = 1'-0"



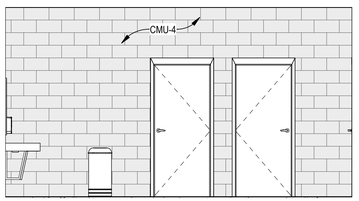
5 TR-3 EAST
1/4" = 1'-0"



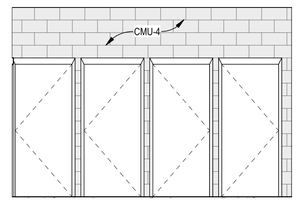
4 RESTROOM 104 SOUTH
1/4" = 1'-0"



3 RESTROOM 104 WEST
1/4" = 1'-0"



2 RESTROOM 104 NORTH
1/4" = 1'-0"



1 RESTROOM 104 EAST
1/4" = 1'-0"

GENERAL NOTES - INTERIOR ELEVATIONS

1. PLACEHOLDER
2. PLACEHOLDER
3. PLACEHOLDER

SHEET KEYNOTES - INT. ELEVATION

01	PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1
02	PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2
03	PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3
04	PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4

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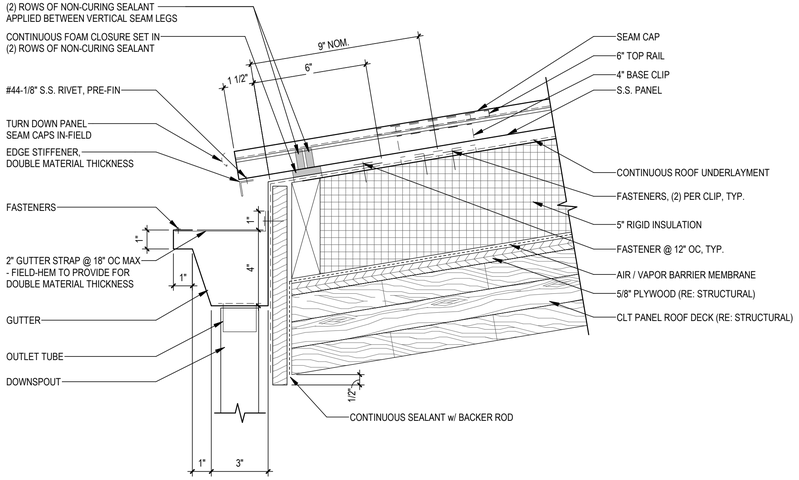
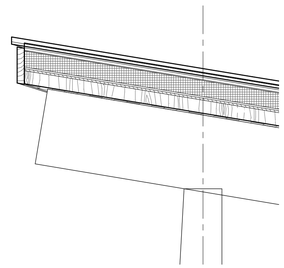
INTERIOR ELEVATIONS

SHEET A-452



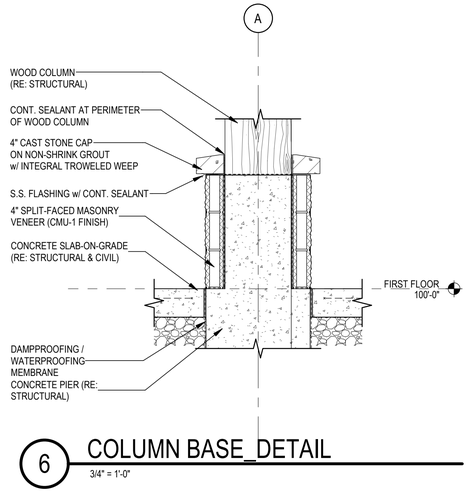
12 METAL ROOF @ EAVE WITH GUTTER

3" = 1'-0"



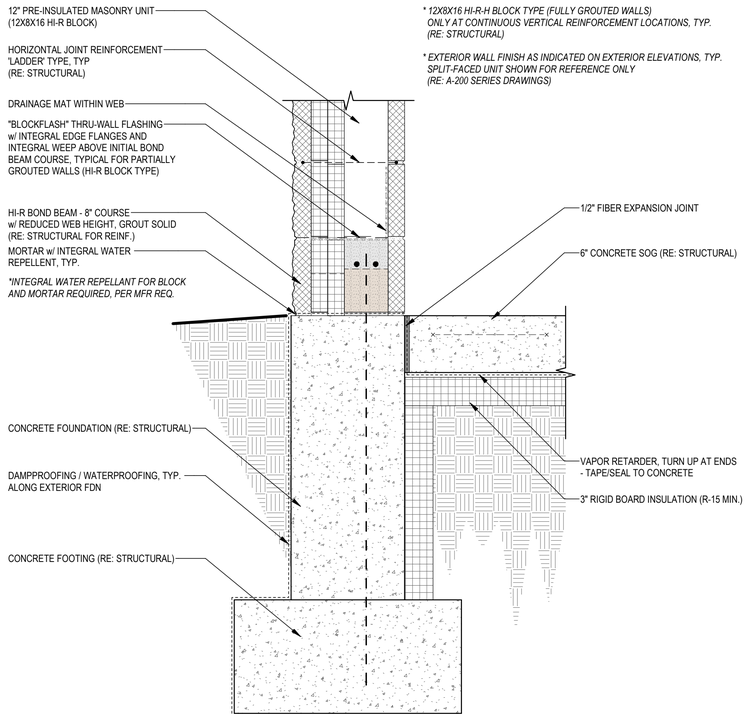
3 ROOF EDGE DETAIL

1/2" = 1'-0"



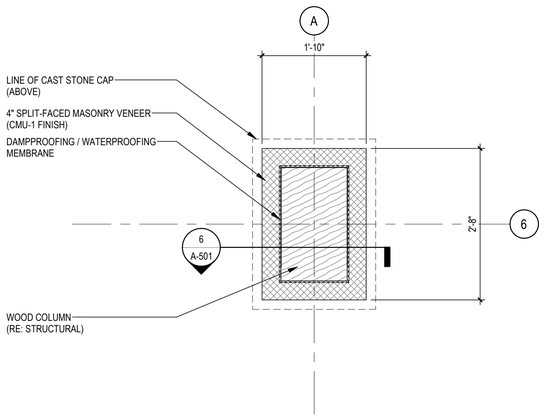
6 COLUMN BASE_DETAIL

3/4" = 1'-0"



2 TYPICAL WALL BASE

1 1/2" = 1'-0"



1 PLAN DETAIL - COLUMN BASE

3/4" = 1'-0"

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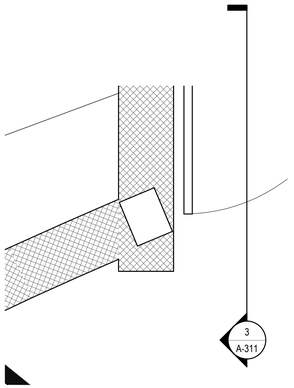
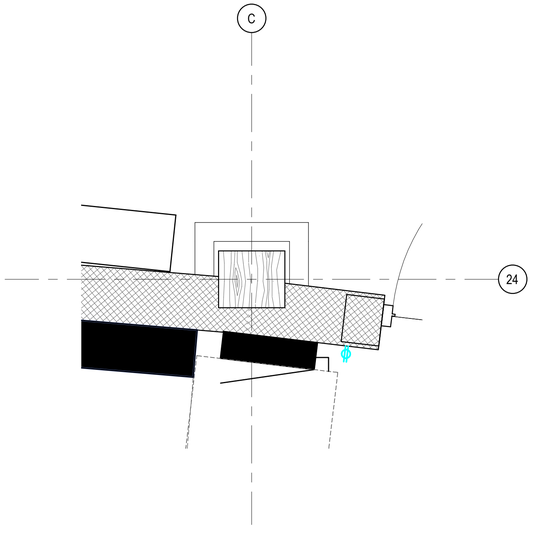
TYPICAL DETAILS

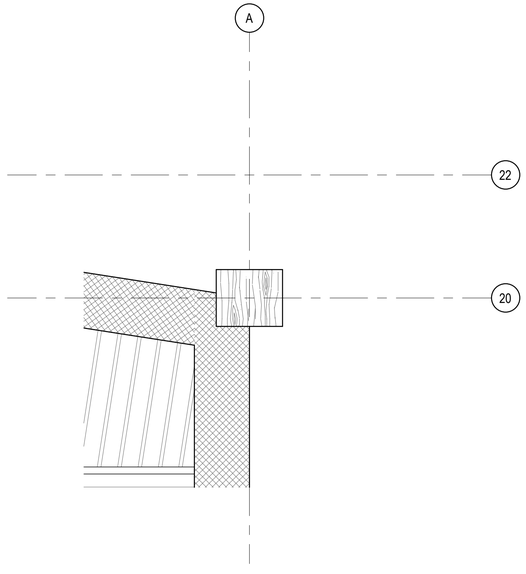
SHEET A-501



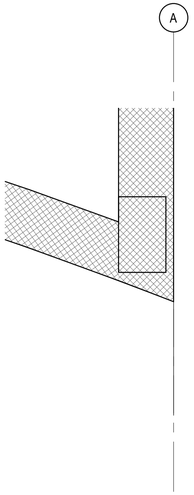
6 PLAN DETAIL
3/4" = 1'-0"



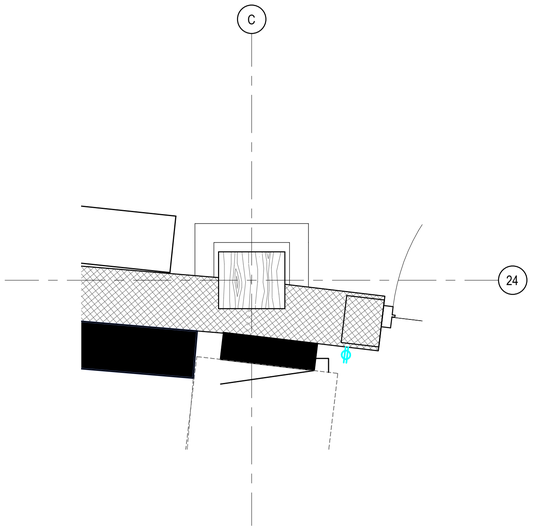
5 PLAN DETAIL - COLUMN/WALL ABOVE
3/4" = 1'-0"



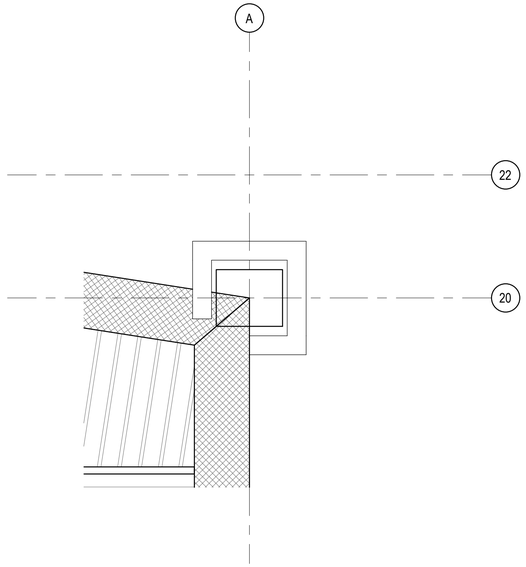
4 PLAN DETAIL - CORNER ABOVE
3/4" = 1'-0"



3 PLAN DETAIL - CMU CORNER
3/4" = 1'-0"



2 PLAN DETAIL - COLUMN/WALL AT BASE
3/4" = 1'-0"



1 PLAN DETAIL - CORNER AT BASE
3/4" = 1'-0"

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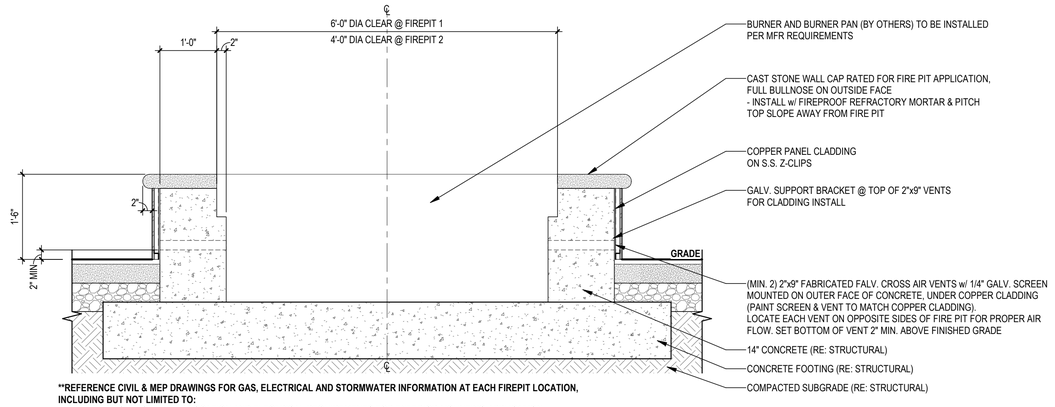
PLAN DETAILS

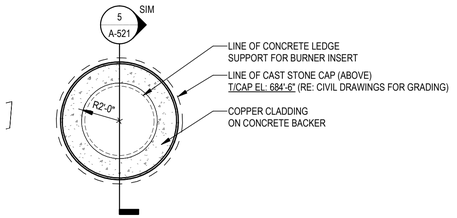
SHEET A-511



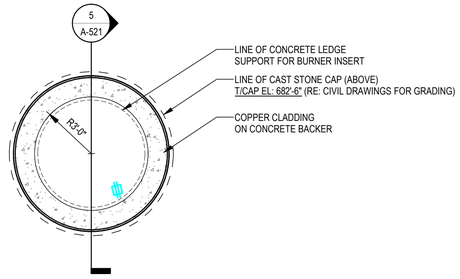
****REFERENCE CIVIL & MEP DRAWINGS FOR GAS, ELECTRICAL AND STORMWATER INFORMATION AT EACH FIREPIT LOCATION, INCLUDING BUT NOT LIMITED TO:**

- FIRE PIT SHUTOFF TIMER LOCATION AND ELECTRICAL REQUIREMENTS FOR EXTERIOR MOUNTING APPLICATION
- FIRE PIT EMERGENCY STOP BUTTON LOCATION AND ELECTRICAL REQUIREMENTS FOR EXTERIOR MOUNTING APPLICATION
- GAS SUPPLY LINES, JUNCTION BOXES, VALVES, AND CONTROL MODULE LOCATION AND REQUIREMENTS
- FIRE PIT STORM DRAIN

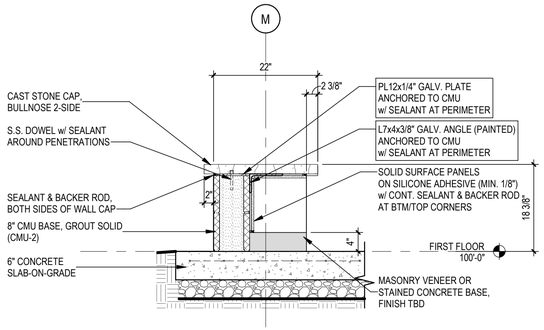
5 FIREPIT
3/4" = 1'-0"



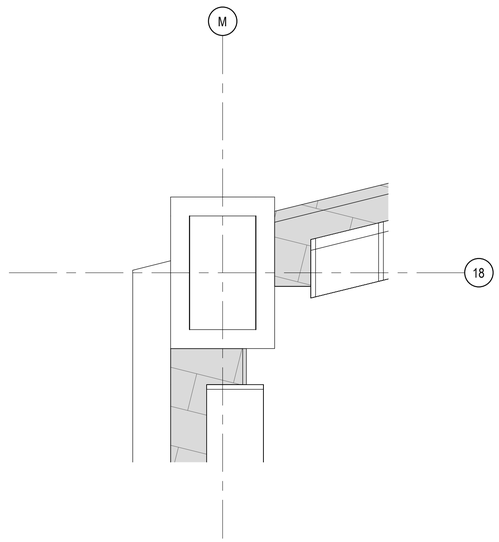
6 PLAN DETAIL - FIREPIT 2
1/4" = 1'-0"



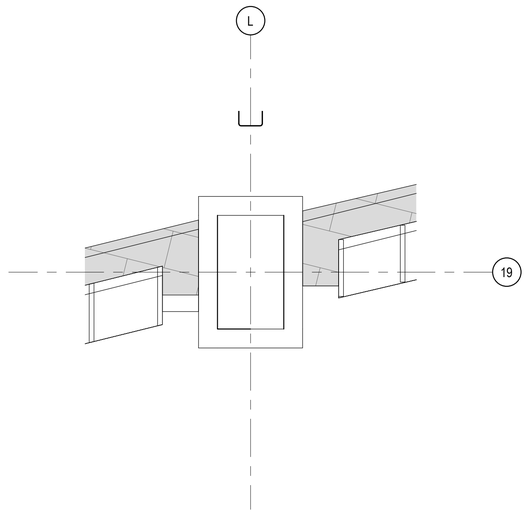
4 PLAN DETAIL - FIREPIT 1
1/4" = 1'-0"



3 GREAT HALL_STORAGE CUBBY DETAIL
3/4" = 1'-0"



2 PLAN DETAIL - GREAT HALL CUBBIES 2
3/4" = 1'-0"



1 PLAN DETAIL - GREAT HALL CUBBIES 1
3/4" = 1'-0"

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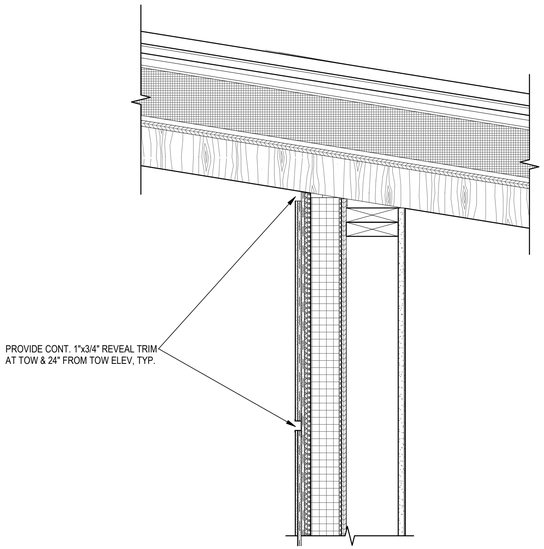
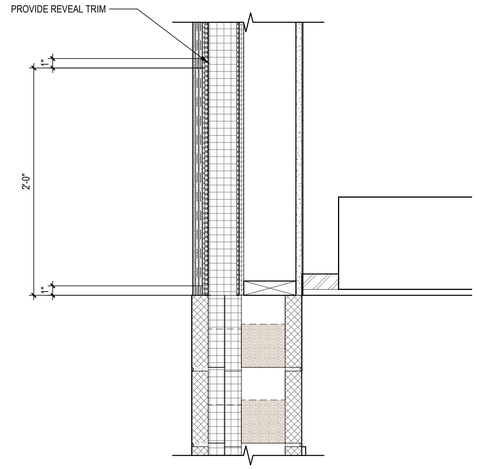
EXTERIOR DETAILS

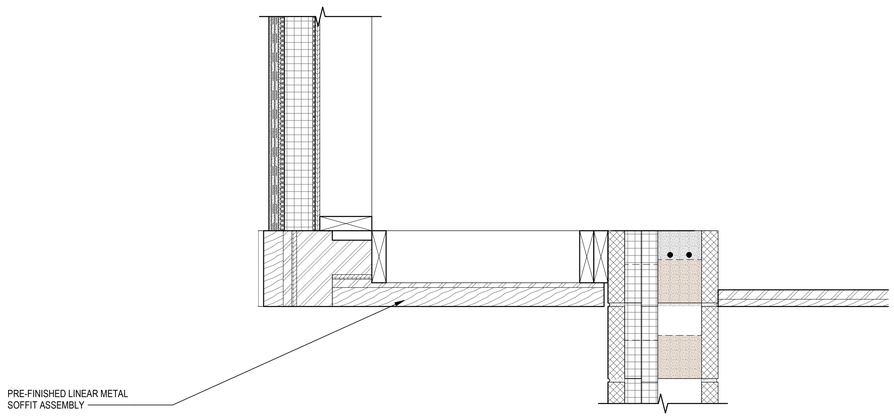
SHEET A-521



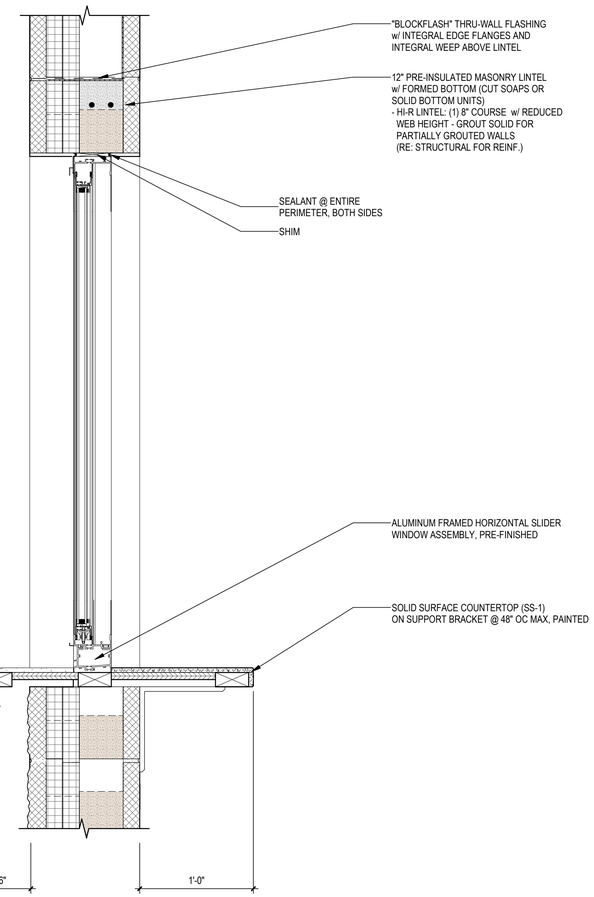
4 CONCESSIONS 107_WALL/ROOF
1 1/2" = 1'-0"



3 CONCESSIONS 107_HEAD OF WALL
1 1/2" = 1'-0"



2 COVERED WALK_SOFFIT
1 1/2" = 1'-0"



1 TYPICAL TRANSACTION COUNTER
1 1/2" = 1'-0"

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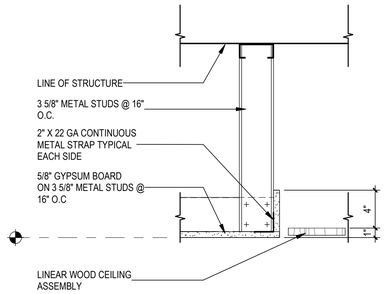
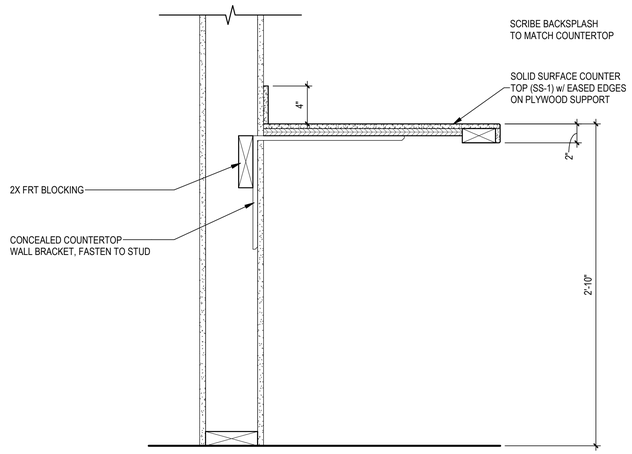
SECTION DETAILS

SHEET A-531



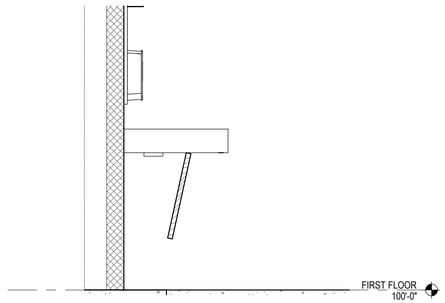
12 CEILING TRANSITION

1 1/2" = 1'-0"



2 OPEN COUNTER

1 1/2" = 1'-0"



1 TYPICAL LAV

3/4" = 1'-0"

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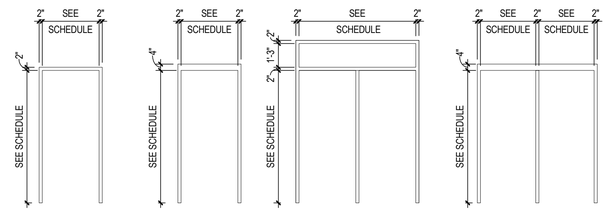
INTERIOR DETAILS

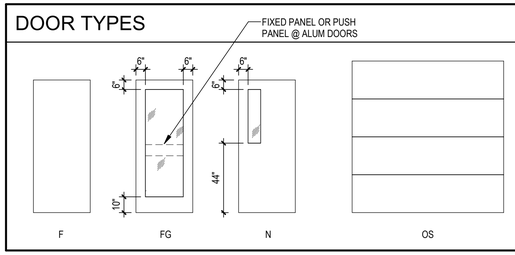
SHEET A-541

DOOR FRAME TYPES

MFR = REFER TO MANUFACTURER



DOOR TYPES



DOOR SCHEDULE

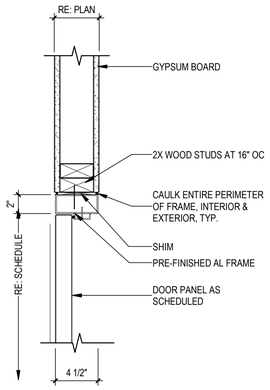
SCHEDULE KEY:

MARK:	TYPE:	DOOR MATERIAL:	FRAME MATERIAL:	DOOR / FRAME FINISH:	GLAZING TYPE:	DETAIL:	FIRE RATING:	HARDWARE SET:
AS SPECIFIED ON FLOOR PLANS	REFER TO LEGENDS ON THIS SHEET	AL ALUMINUM FRP FIBERGLASS REINFORCED POLYMER	AL ALUMINUM	PF PRE-FINISHED	GL-1 SINGLE PANE, CLEAR GL-2 DOUBLE PANE, CLEAR	REFER TO DETAILS AS INDICATED	IN MINUTES	REFER TO PROJECT MANUAL DIVISION 08 FOR HARDWARE SCHEDULE

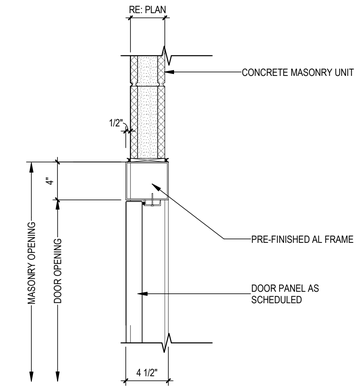
SCHEDULE NOTES:

1.
2.
3.

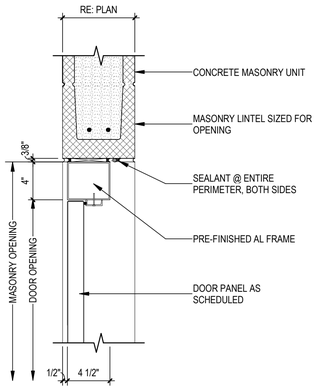
REV.	MARK	SIZE			NO. OF LEAFS	DOOR			FRAME				GLAZING TYPE	DETAIL			FIRE RATING		HDW	NOTES
		WIDTH	HEIGHT	THICK.		TYPE	MAT'L	FINISH	TYPE	MAT'L	FINISH	DEPTH		HEAD	JAMB	THRSH	WALL	LBL.		
	101	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	6/A-601	1/A-601 SIM				1	INTEGRATED CARD READER
	102	3'-6"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	6/A-601	1/A-601 SIM				7	INTEGRATED CARD READER
	103	6'-2"	7'-0"	1 3/4"	2	FG	FRP	PF	F3	AL	PF	4 1/2"	GL-1	7.2/A-601	1/A-601				9	INTEGRATED CARD READER / AUTO OPERATORS
	104A	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	9/A-601	4/A-601	-			5	
	104B	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	9/A-601	4/A-601	-			5	
	104C	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	9/A-601	4/A-601	-			4	
	104D	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	9/A-601	4/A-601	-			4	
	104E	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	9/A-601	4/A-601	-			4	
	104F	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	9/A-601	4/A-601	-			4	
	105	3'-6"	7'-0"	1 3/4"	1	N	FRP	PF	F2	AL	PF	4 1/2"	-	6/A-601	1/A-601 SIM				1	INTEGRATED CARD READER
	106A	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	8/A-601	3/A-601				6	
	106B	6'-0"	7'-0"	1 3/4"	2	F	FRP	PF	F4	AL	PF	4 1/2"	-	6/A-601	1/A-601 SIM				2	INTEGRATED CARD READER
	201A	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F2	AL	PF	4 1/2"	-	6/A-601	1/A-601 SIM	-			1	INTEGRATED CARD READER
	201B	12'-0"	10'-0"	2"	1	OS	AL	PF	MFR	AL	PF		GL-2	5/A-602	1/A-602				---	
	201C	6'-0"	7'-0"	1 3/4"	2	F	FRP	PF	F4	AL	PF	4 1/2"	-	6/A-601	1/A-601 SIM	-			3	
	202	3'-0"	7'-0"	1 3/4"	1	F	FRP	PF	F1	AL	PF	4 1/2"	-	10/A-601	5/A-601	-			8	



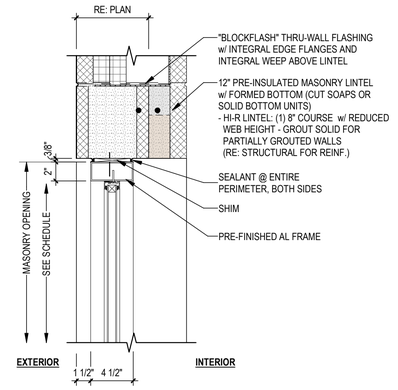
10 DOOR HEAD DETAIL
1 1/2" = 1'-0"



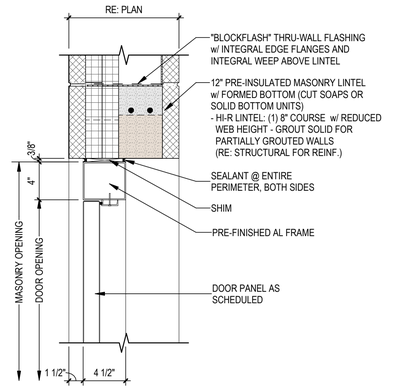
9 DOOR HEAD DETAIL
1 1/2" = 1'-0"



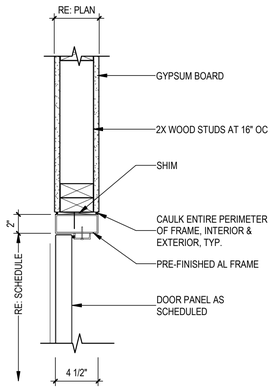
8 DOOR HEAD DETAIL
1 1/2" = 1'-0"



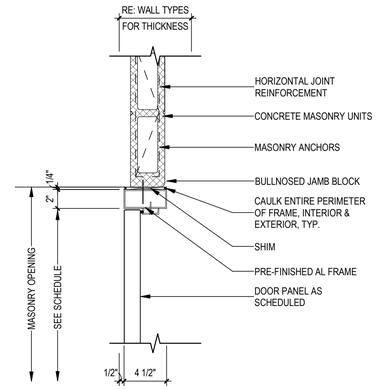
7 BL HEAD DETAIL
1 1/2" = 1'-0"



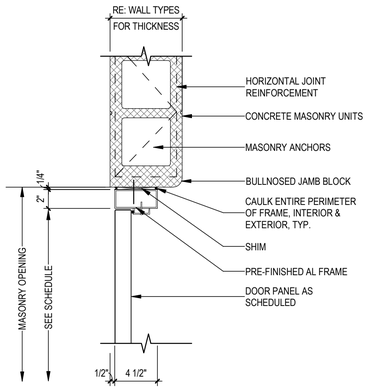
6 DOOR HEAD DETAIL
1 1/2" = 1'-0"



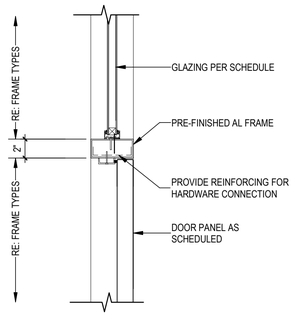
5 DOOR JAMB DETAIL
1 1/2" = 1'-0"



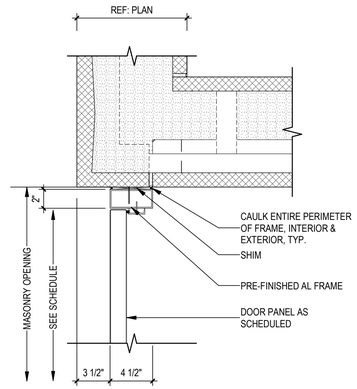
4 DOOR JAMB DETAIL
1 1/2" = 1'-0"



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



2 BL INTERMEDIATE DETAIL
1 1/2" = 1'-0"



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

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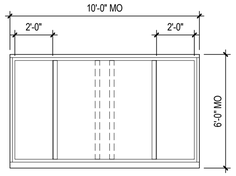
OPENING SCHEDULE & TYPICAL DETAILS

SHEET A-601

WINDOW TYPES



BASIS OF DESIGN:
KAWNEER 8470TL HORIZONTAL SLIDER (XOX)
1" CLEAR INSULATED GLAZING
PRE-FINISHED ANODIZED FRAME

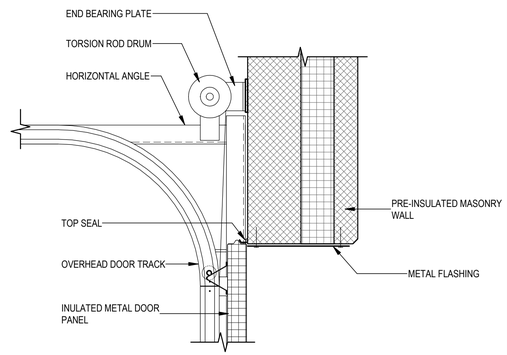
WINDOW SCHEDULE

SCHEDULE KEY:

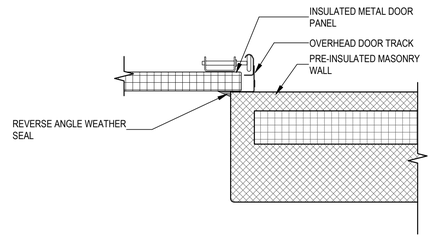
MARK:	FRAME MATERIAL:	FRAME FINISH:	GLAZING TYPE:	GLAZING SET:	DETAILS:	FIRE RATING:
AS SHOWN ON FLOOR PLANS	AG ALL GLASS AL ALUMINUM EXS EXISTING TO REMAIN SS STAINLESS STEEL ST... STEEL...	AN ANODIZED BRZ BRONZE CLR CLEAR PTD PAINTED PC POWDER COATED STN STAINED	GL-1 1 PANE, CLEAR GL-2 2 PANE, CLEAR GL-3 2 PANE, GRAY	BCK BACK CTR CENTER FNT FRONT	REFER TO DETAILS AS INDICATED	IN MINUTES

SCHEDULE NOTES:
1.
2.
3.

REV.	MARK	FRAME FINISH	GLAZING TYPE	GLAZING SET	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	FIRE RATING	NOTES
FIRST FLOOR									
	W1	PF	GL-2	FNT	1/A-531	X/A-XXX	1/A-531		



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



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

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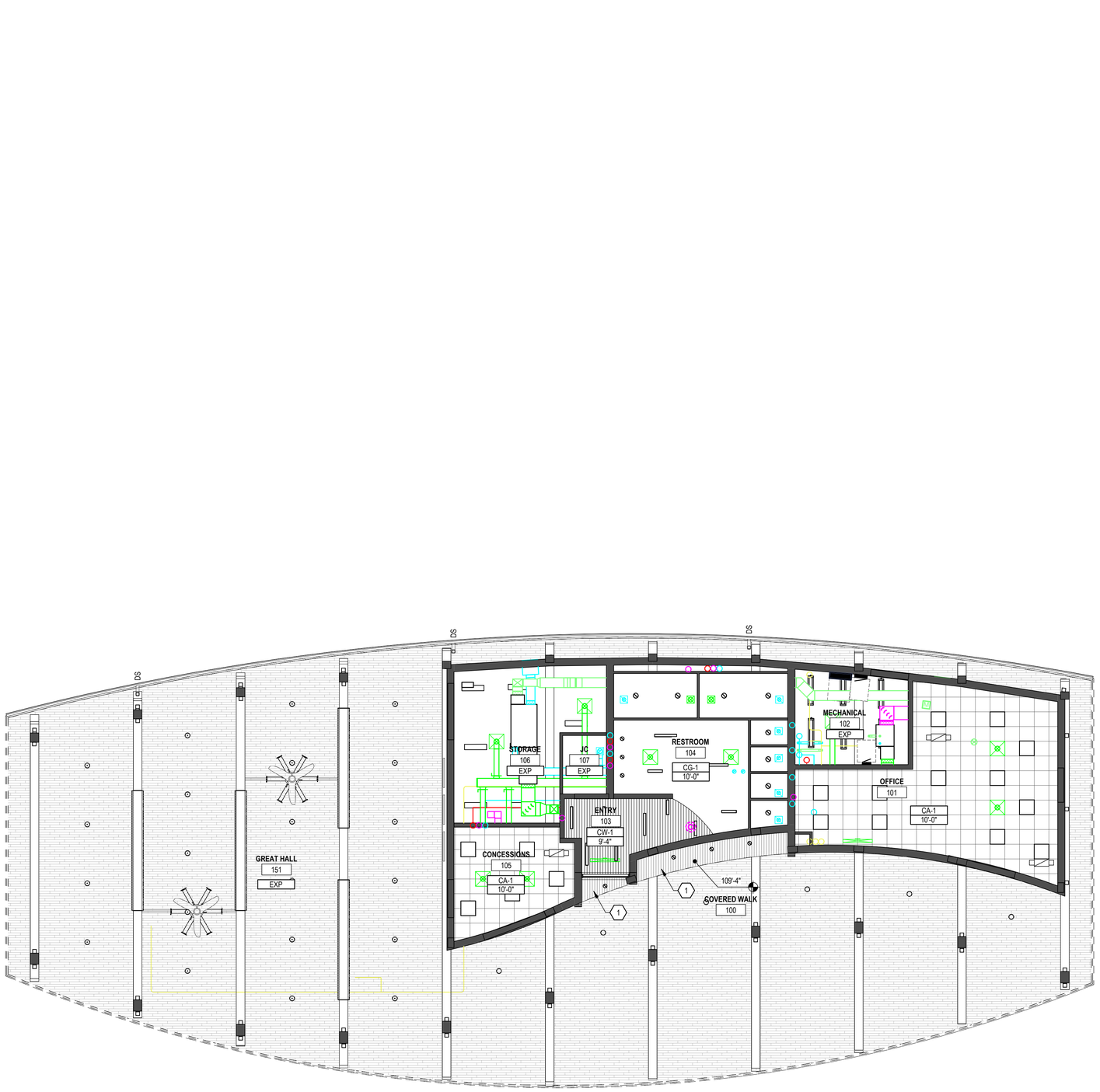
OPENING SCHEDULE & TYPICAL DETAILS

SHEET A-602



1 BUILDING 'A' - PAVILION REFLECTED CEILING PLAN

1/8" = 1'-0"

N

GENERAL NOTES - REF. CEILING PLANS

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS CANNOT BE DETERMINED OR DOCUMENTS ARE IN CONFLICT, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ARCHITECT PRIOR TO CONTINUATION OF WORK
2. REFER TO PROJECT INFORMATION SHEET FOR MATERIAL / REFERENCE SYMBOLS AND ABBREVIATIONS
3. REFER TO MECHANICAL, ELECTRICAL, FIRE SUPPRESSION & TECHNOLOGY DRAWINGS FOR QUANTITY AND TYPE OF CEILING MOUNTED FIXTURES / DEVICES
4. ALL CEILING MOUNTED FIXTURES, DEVICES, ETC. ARE TO BE CENTERED WITHIN THE CEILING TILE, UNO
5. PROVIDE CONTROL JOINTS @ 30'-0" OC MAX AT ALL GYPSUM BOARD BULKHEADS. LOCATE TO BE EVENLY SPACED OR TO ALIGN WITH COLUMN CENTERLINES, ADJACENT WALLS, OR OTHER ARCHITECTURAL ELEMENTS. REVIEW PROPOSED LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION
6. REFERENCE MECHANICAL AND ELECTRICAL DRAWINGS FOR MOUNTING LOCATIONS OF ITEMS WHERE NO CEILINGS ARE REQUIRED OR INDICATED
7. REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE SCHEDULE
8. REFER TO MECHANICAL DRAWINGS FOR DIFFUSER FIXTURE SCHEDULE

00 00 00.A REFERENCE KEYNOTES

SHEET KEYNOTES - RCP

1	LINEAR METAL SOFFIT ASSEMBLY
01	PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1
02	PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2
03	PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3
04	PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4

REFLECTED CEILING PLAN LEGEND

CEILING TYPES

CA-1 / X' - X" — CEILING TYPE / CEILING ELEVATION

CA-1 2X2 ACOUSTICAL LAY-IN CEILING TILE

CG-1 GYPSUM BOARD PT-_

CG-2 GYPSUM BOARD PT-_

CW-1 LINEAR METAL

LIGHT FIXTURES

(REFER TO ELECTRICAL DRAWINGS)

- SURFACE / CEILING MOUNT
- EMERGENCY SURFACE / CEILING MOUNT
- PENDANT / CHAIN MOUNT
- EMERGENCY PENDANT / CHAIN MOUNT
- RECESSED MOUNT
- EMERGENCY RECESSED MOUNT
- COMBINATION FAN / LIGHT
- TRACK STRIP
- WALL MOUNT (INT.) (EXT.)
- EMERGENCY WALL MOUNT (INT.) (EXT.)
- EXTERIOR POLE MOUNT
- EXTERIOR POST MOUNT
- INTERIOR EMERGENCY WALL PACK
- EXIT SIGN (WALL) (CEILING)
- CEILING FAN (LIGHT) (NO LIGHT)

HVAC DEVICES

(REFER TO MECHANICAL DRAWINGS)

- RECTANGLE DIFFUSERS
- LINEAR DIFFUSERS
- JET DIFFUSERS
- REGISTER GRILLES
- RETURN GRILLES
- FIRE PROTECTION SPRINKLER HEAD
- FIRE ALARM PULL STATION
- ACCESS DOOR

DIFFUSERS (SUPPLY)
RECTANGULAR
JET
LINEAR

GRILLES (RETURN)
RETURN BAR
GRILLE
SIDE WALL GRILLE

REGISTER (SUPPLY)
GRILLE + DAMPER

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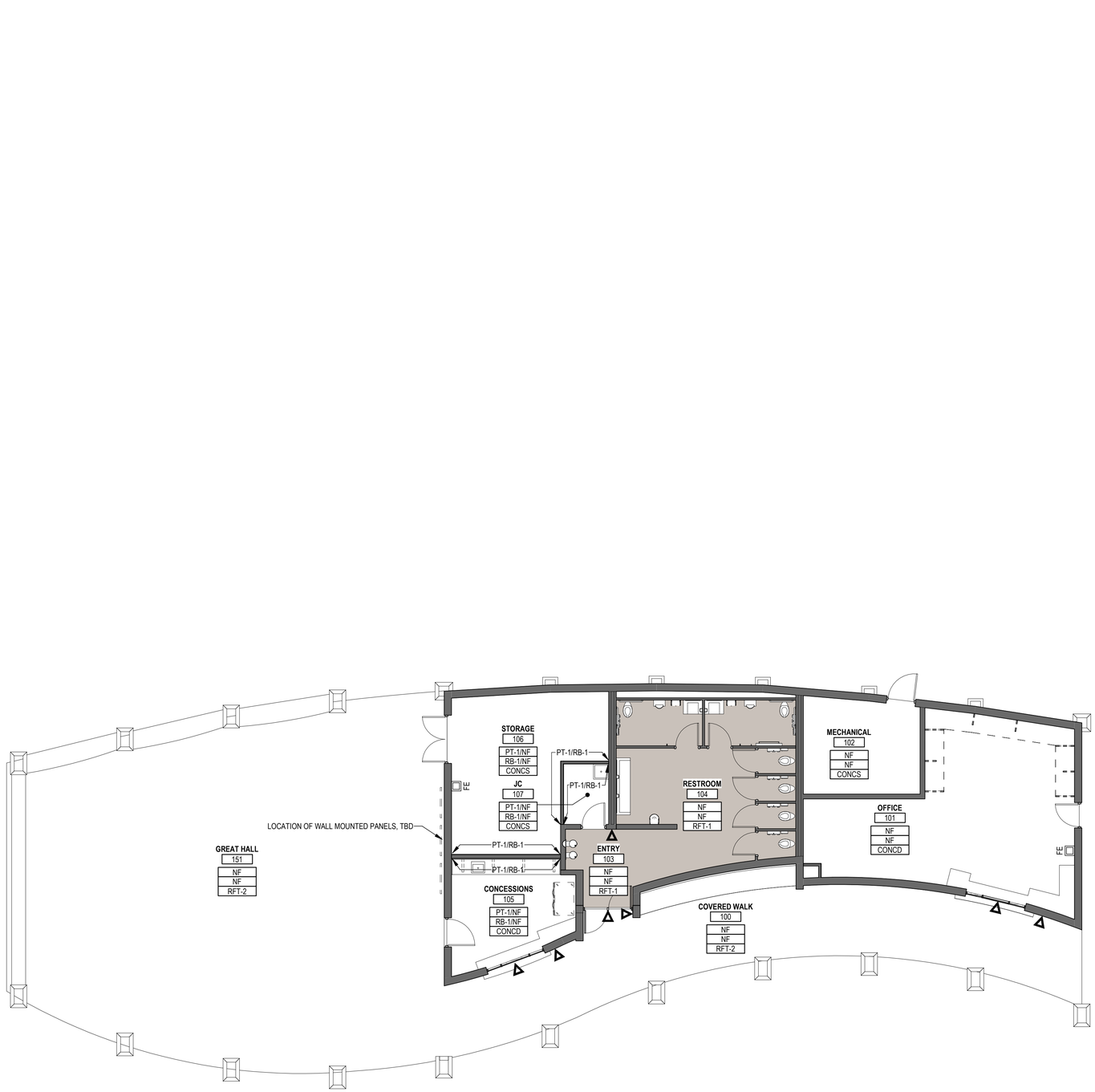
BUILDING 'A' - REFLECTED CEILING PLAN

SHEET A-701



1 BUILDING 'A' - PAVILION FLOOR FINISH PLAN

1/8" = 1'-0"

N

GENERAL NOTES - FINISH PLANS

1. REFER TO REFLECTED CEILING PLANS FOR CEILING TYPES, HEIGHTS, AND FINISH INFORMATION.
2. REFER TO STRUCTURAL DRAWINGS FOR DEPRESSED SLAB LOCATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR DRAIN ELEVATIONS AND LOCATIONS.
3. PROVIDE RESILIENT BASE AT TOE KICK OF ALL CASEWORK AND BEHIND ALL MOVABLE EQUIPMENT/APPLIANCES, WHEN SCHEDULED WITHIN A ROOM.
4. ALL WALL MOUNTED MECHANICAL EQUIPMENT (DIFFUSERS, GRILLES, ETC.) AND ELECTRICAL EQUIPMENT (PANELS, ETC.) SHALL BE PAINTED TO MATCH THE ADJACENT WALL COLOR. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR QUANTITIES AND LOCATIONS.
5. REFER TO SPEC SECTION 012300 FOR COMPLETE LIST AND DESCRIPTION OF ALTERNATES.
6. PROVIDE APPROPRIATE TRANSITION STRIPS BETWEEN DISSIMILAR FLOORING MATERIALS AT VERTICAL AND HORIZONTAL APPLICATIONS.

SHEET KEYNOTES - FINISH PLAN

01	PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1 PLACEHOLDER TEXT 1
02	PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2 PLACEHOLDER TEXT 2
03	PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3 PLACEHOLDER TEXT 3
04	PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4 PLACEHOLDER TEXT 4

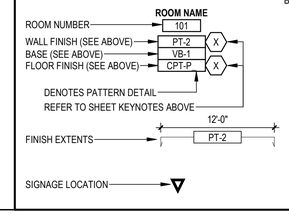
FINISH ABBR.

BASE	
NB	NO BASE
NF	NO FINISH
RB	RESILIENT BASE
FLOORS	
CONCD	CONCRETE - DYE STAINED GROUND AND COLORED
CONCS	CONCRETE - WITH APPLIED SURFACE SEALER
EX	EXISTING (NO NEW FINISH)
RFT	RUBBER FLOOR TILE
SR	SHEET RUBBER
WALLS	
EPT	EPOXY PAINT
EX	EXISTING (NO NEW FINISH)
NF	NO FINISH
PT	PAINT

FINISH PLAN LEGEND

ROOM FINISH INDICATOR

ROOM NAME AND NUMBER PLUS GENERAL ROOM FINISH INFORMATION. FINISH TAGS SHALL APPLY TO ALL LIKE MATERIALS WITHIN A ROOM (UNO).



FINISH LEGEND
FINISH LEGEND IS GENERAL. REFER TO SPECIFICATIONS FOR SPECIFIC FINISH INFORMATION. MULTIPLE FINISH TYPES ARE DENOTED BY NUMBER FOLLOWING ABBREVIATION.

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BUILDING 'A' - FLOOR FINISH PLAN

SHEET A-801

MECHANICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSER UNIT
AD	ACCESS DOOR
AD	AREA DRAIN
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AMP	AMPERE
APD	AIR PRESSURE DROP
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ATD	AIR TRANSFER DUCT
AUX	AUXILIARY
BAS	BUILDING AUTOMATION SYSTEM
BCU	BLOWER COIL UNIT
BDD	BACK DRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BVC	BEVERAGE CONDUIT
BWV	BACKWATER VALVE
C	COMMON
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CB	CATCH BASIN
CC	COOLING COIL
CD	COLD DECK
CD	CONDENSATE DRAIN
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG	COOLING
CNDS	CONDENSATE
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CONT	CONTINUATION OR CONTINUED
CONTR	CONTRACTOR
CONV	CONVECTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CSS	CLINICAL SERVICE SINK
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CWF	DOMESTIC COLD WATER - FILTERED
D&T	DRIP AND TRAP
DA	DISCHARGE AIR
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DMPR	DAMPER
D/N	DAY/NIGHT
DN	DOWN
DNZ	DOWNSPOUT NOZZLE
DS	DUCT SILENCER
DT	DRAIN TILE
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
DWG	DRAWING
(E)	EXISTING
E	EXHAUST GRILLE OR REGISTER
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EXPANSION COMPENSATOR
ECUH	ELECTRIC CABINET UNIT HEATER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EES	EMERGENCY EYE WASH / SHOWER
EEW	EMERGENCY EYE WASH
EF	EXHAUST FAN
EFF	EFFICIENCY
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ERU	ENERGY RECOVERY UNIT
ESH	EMERGENCY SHOWER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FIRE PROTECTION
°F	DEGREES FAHRENHEIT
F&B	FACE AND BYPASS
F&T	FLOAT AND THERMOSTATIC
FA	FACE AREA

ABBREVIATION	DESCRIPTION
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER
FMS	FLOW MEASURING STATION
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FP	FIRE PUMP
FS	FLOOR SINK
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FTR	FINNED TUBE RADIATION
FV	FACE VELOCITY
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GRH	GRAVITY RELIEF HOOD
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GSAN	GREASE SANITARY WASTE
H	HOSE BIBB
HB	HEATING COIL
HC	HOT DECK
HD	HIGH EFFICIENCY PARTICULATE ARRESTANCE
HEPA	HIGH LIMIT
HL	HAND/OFF/AUTO
HOA	HEAT PUMP
HP	HORSEPOWER
HP	HOUR
HR	HEATING
HTG	HEATING VENTILATING
HV	HEATING, VENTILATING, AIR CONDITIONING
HVAC	HOT WATER HEATING
HWH	HOT WATER HEATING RETURN
HWHR	HOT WATER HEATING SUPPLY
HWHS	DOMESTIC HOT WATER
HW	DOMESTIC HOT WATER (SPECIFIC TEMP °F)
HW(_)	DOMESTIC HOT WATER RETURN
HWR	HEAT EXCHANGER
HX	HERTZ
HZ	
	INDOOR AIR QUALITY
IAQ	INSIDE DIAMETER
ID	INVERT ELEVATION
IE	INTAKE HOOD
IH	INCHES
IN	INFRARED HEATER
IR	INDIRECT WASTE
IW	
	JANITOR'S CLOSET
JC	JOCKEY PUMP
JP	
	THOUSAND AMP
KA	KILOWATT
KW	KILOWATT-HOUR
KWH	
	LEAVING AIR TEMPERATURE
LAT	LABORATORY
LAB	LAVATORY
LAV	POUNDS
LBS	LEAVING DRY BULB
LDB	LOW LIMIT
LL	LOW PRESSURE CONDENSATE
LPC	LOW PRESSURE STEAM
LPS	LOCKED ROTOR AMPS
LRA	LEAVING WET BULB
LWB	LEAVING WATER TEMPERATURE
LWT	
	MIXED AIR
MA	MIXED AIR TEMPERATURE
MAT	MAKE-UP AIR UNIT
MAU	MAXIMUM
MAX	THOUSAND BRITISH THERMAL UNITS PER HOUR
MBH	MINIMUM CIRCUIT AMPACITY
MCA	MOTOR CONTROL CENTER
MCC	MECHANICAL
MECH	MEZZANINE
MEZZ	MANUFACTURER
MFR	MANHOLE
MH	1/1000th INCH
MIL	MINIMUM
MIN	MISCELLANEOUS
MISC	MILLION BRITISH THERMAL UNITS PER HOUR
MMBH	MAXIMUM OVERCURRENT PROTECTION
MOP	MOTOR STARTER
M/S	MOUNTED
MTD	MOTOR
MTR	MANUAL AIR VENT
MV	
	NOISE CRITERIA
NC	NORMALLY CLOSED
NC	NORMALLY CLOSED TIMED CLOSED
NCTC	NORMALLY CLOSED TIMED OPEN
NCTO	NATIONAL FIRE PROTECTION AGENCY
NFPA	NORMALLY OPEN TIMED CLOSED
NOTC	NORMALLY OPEN TIMED OPEN
NOTO	NOT IN CONTRACT
NIC	NORMALLY OPEN
NO	NOMINAL
NOM	

ABBREVIATION	DESCRIPTION
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OB	OUTLET BOX
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER/CENTER TO CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OS&Y	OUTSIDE SCREW AND YOKE
OV	OUTLET VELOCITY
OWS	OPERATOR WORKSTATION
PBD	PARALLEL BLADE DAMPER
PC	PUMPED CONDENSATE
PD	PRESSURE DROP (FEET OF WATER)
PH	PERIMETER HEAT
PHR	PERIMETER HEAT RETURN
PHS	PERIMETER HEAT SUPPLY
PNL	PANEL
PPM	PARTS PER MILLION
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
(R)	RELOCATED
R	RETURN GRILLE OR REGISTER
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RCP	RADIANT CEILING PANEL
RD	ROOF DRAIN
REQD	REQUIRED
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RLFA	RELIEF AIR
RPM	REVOLUTIONS PER MINUTE
RPDA	REDUCED PRESSURE BACKFLOW DETECTION ASSY
RPZA	REDUCED PRESSURE BACKFLOW ZONE ASSY
RS	REFRIGERANT SUCTION
S	SUPPLY AIR DIFFUSER OR GRILLE
SA	SOUND ATTENUATOR
SA	SUPPLY AIR
SAN	SANITARY WASTE
SAT	SUPPLY AIR TEMPERATURE
SCCR	SHORT CIRCUIT CURRENT RATING
SECT	SECTION
SF	SUPPLY FAN
SH	SHOWER
SK	SINK
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQFT	SQUARE FOOT/SQUARE FEET
S/S	START/STOP
SS	SERVICE SINK
ST	STORM
STD	STANDARD
STK	STACK
S/W	SUMMER/WINTER
SW	SWITCH
T	TRANSFER GRILLE
TC	TEMPERATURE CONTROL
TC	TEMPERING COIL
TCP	TEMPERATURE CONTROL PANEL
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TEMP	TEMPORARY
TH	TERMINAL HEATING
THA	TOTAL HEAT ABSORBED
THR	TERMINAL HEATING RETURN
THR	TOTAL HEAT REJECTED
THS	TERMINAL HEATING SUPPLY
TMR	TIMER SWITCH
TSP	TOTAL STATIC PRESSURE
TU	(AIR) TERMINAL UNIT
TV	TURNING VANES
TW	TEMPERED WATER
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UON	UNLESS OTHERWISE NOTED
UR	URINAL
V	VALVE
V	VENT
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VOL	VOLUME
VFC	VARIABLE FREQUENCY CONTROLLER
VTR	VENT THROUGH ROOF
VTU	VENTURI TERMINAL UNIT
VUV	VERTICAL UNIT VENTILATOR
W	WASTE
W&V	WASTE AND VENT
WB	WET BULB
WC	WATER CLOSET
WC	WATER COLUMN
WG	WATER GAUGE
WH	WALL HYDRANT
WPD	WATER PRESSURE DROP
WT	WEIGHT
XFMR	TRANSFORMER
ZVB	ZONE VALVE BOX

TEMPERATURE CONTROL - PARTIAL SYMBOLS LIST

SYMBOL	DESCRIPTION
CO2	CARBON DIOXIDE SENSOR
CO	CARBON MONOXIDE SENSOR
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
FM	FLOW METER
	GUARD FOR STAT OR SENSOR
H	HUMIDISTAT OR HUMIDITY SENSOR (AS DEFINED ON TC DRAWINGS)
OS	OCCUPANCY SENSOR
PT	PRESSURE TRANSMITTER
SP	STATIC PRESSURE SENSOR OR PROBE
	VALVE - 2 WAY CONTROL VALVE
	VALVE - 3 WAY CONTROL VALVE
T	THERMOSTAT OR TEMPERATURE SENSOR (AS DEFINED ON TC DRAWINGS)

NOTE: LIST OF ADDITIONAL SYMBOLS & ABBREVIATIONS ASSOCIATED WITH TEMPERATURE CONTROLS ARE IDENTIFIED ON TC DRAWINGS.

MECHANICAL SYMBOL LIST

PIPING SYMBOLS

SYMBOL	DESCRIPTION
AV	AIR VENT - AUTOMATIC
MV	AIR VENT - MANUAL
BFP	BACKFLOW PREVENTER
	CATCH BASIN
	CIRCULATING PUMP
CO	CLEAN OUT - IN FLOOR
CO	CLEAN OUT - FLANGE
	DIRECTION OF FLOW
	DIRECTION OF PITCH - DOWN
	FINNED TUBE RADIATION
	FLOOR DRAIN
	FLOOR DRAIN - ELEVATION
	FLOOR DRAIN - FUNNEL
	FLOOR DRAIN - FUNNEL, ELEVATION
	FLOW MEASURING DEVICE (FOR TEST AND BALANCING)
FS	FLOW SWITCH
FM	FLOW METER
HB	HOSE BIBB
MH	MANHOLE
	OPEN SITE DRAIN
	PIPE - ANCHOR
	PIPE - CAP OR PLUG
	PIPE - ELBOW DOWN
	PIPE - ELBOW UP
	PIPE - EXPANSION JOINT OR COMPENSATOR
	PIPE - FLANGE
	PIPE - HOSE AND BRAID FLEXIBLE CONNECTION
	PIPE - RUBBER FLEXIBLE CONNECTION
	PIPE - GUIDE
	PIPE - TEE DOWN
	PIPE - TEE UP
	PIPE - UNION
P/T	PRESSURE AND TEMPERATURE TEST PLUG
	PRESSURE GAUGE AND COCK
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	ROOF/OVERFLOW DRAIN
	STEAM TRAP - FLOAT AND THERMOSTATIC
	STRAINER
	STRAINER WITH VALVE AND BLOW-OFF
	THERMOMETER
	TRAP
	VALVE - ANGLE
	VALVE - BALL
0.5	VALVE - BALANCE (i.e. BALANCE VALVE TO 0.5 GPM)
0.5	VALVE - COMBINATION BALANCE & FLOW MEASURING (i.e. BALANCE VALVE TO 0.5 GPM)
	VALVE - BUTTERFLY
	VALVE - CHECK
	VALVE - SPRING CHECK
	VALVE - GAS (MANUAL)
	VALVE - GLOBE
	VALVE - ISOLATION
	VALVE - NEEDLE
	VALVE - OS&Y
	VALVE - PLUG
	VALVE - PRESSURE REGULATING
	VALVE - PRESSURE REDUCING
	VALVE - PRESSURE RELIEF
	VALVE - PRESSURE & TEMPERATURE RELIEF
VTR	VENT THROUGH ROOF
WH	WALL HYDRANT
WM	WATER METER
GM	GAS METER

DUCTWORK SYMBOLS

SYMBOL	DESCRIPTION
TU-101	AIR TERMINAL UNIT
TU-101	AIR TERMINAL UNIT WITH HEATING COIL
	DAMPER - HORIZONTAL FIRE (EXISTING, NEW)
	DAMPER - HORIZONTAL FIRE / SMOKE (EXISTING, NEW)
	DAMPER - SMOKE (EXISTING, NEW)
	DAMPER - VERTICAL FIRE (EXISTING, NEW)
	DAMPER - VERTICAL FIRE / SMOKE (EXISTING, NEW)
BDD	DAMPER - BACK DRAFT
M	DAMPER - MOTORIZED
	DAMPER - VOLUME (MANUALLY ADJUSTABLE)
	DIFFUSER - BLANK OFF
	DIFFUSER - LINEAR SLOT
	DIFFUSER - SQUARE OR RECTANGULAR
	DUCT CROSS SECTION - SUPPLY
	DUCT CROSS SECTION - RETURN
	DUCT CROSS SECTION - EXHAUST
	DUCT - FLEXIBLE CONNECTION
	DUCT - FLEXIBLE DUCT
	DUCT TAKE-OFF - ROUND CONICAL
	DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	ELBOW - RECTANGULAR WITH TURNING VANES
	ELBOW - RECTANGULAR/ ROUND SMOOTH RADIUS
	ELBOW DOWN - RECTANGULAR
	ELBOW DOWN - ROUND
	ELBOW UP - RECTANGULAR
	ELBOW UP - ROUND
	FAN - AXIAL
	FAN - CENTRIFUGAL (ELEVATION)
	HEATING COIL
D	INCLINED DROP IN DIRECTION OF AIRFLOW
R	INCLINED RISE IN DIRECTION OF AIRFLOW
	INTAKE OR RELIEF HOOD
	REGISTER - RETURN OR EXHAUST
	REGISTER - RETURN WITH BOOT
	REGISTER - TRANSFER GRILLE
	ROOF EXHAUST FAN
	TRANSITION - CONCENTRIC
	TRANSITION - ECCENTRIC
	UNIT HEATER - HORIZONTAL THROW
	UNIT HEATER - VERTICAL THROW

DOUBLE LINE DUCTWORK SYMBOLS

SYMBOL	DESCRIPTION
	DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	DUCT TAKE-OFF - ROUND CONICAL
	ELBOW - RECTANGULAR WITH TURNING VANES
	ELBOW DOWN - RECTANGULAR
	ELBOW DOWN - ROUND
	ELBOW UP - RECTANGULAR
	ELBOW UP - ROUND
	HEATING COIL
D	INCLINED DROP IN DIRECTION OF AIRFLOW
R	INCLINED RISE IN DIRECTION OF AIRFLOW
	TRANSITION - CONCENTRIC
	TRANSITION -ECCENTRIC

MECHANICAL DRAWING INDEX

STANDARD METHODS OF NOTATION

S-1
10ø
350-4
SUPPLY DIFFUSER WITH SCHEDULE TAG "1",
10" DIAMETER NECK SIZE
350 CFM TYPICAL FOR 4

R-1
22x22
640-2
RETURN REGISTER WITH SCHEDULE TAG "1",
22"x 22" NECK SIZE
640 CFM TYPICAL FOR 2
EXHAUST REGISTER E DESIGNATION SIMILAR.

TU-101
AIR TERMINAL UNIT WITH HEATING COIL NO. 101
WITH SERVICE CLEARANCE SHOWN

(2)WC-1
FD-1
PLUMBING FIXTURE UNIT IDENTIFICATION TAG
WATER CLOSET TYPE "1"
TYPICAL FOR 2

8
PIPE DIAMETER NOTATION
ALL SIZES IN INCHES

8ø
22x10
18x14ø
DUCT SIZE NOTATION
ALL SIZES IN INCHES
OVAL DUCT
RECTANGULAR DUCT

1
CONSTRUCTION KEY NOTE (NUMBER) OR
DEMOLITION KEY NOTE (LETTER)

EF
1
EQUIPMENT DESIGNATION,
(i.e. EXHAUST FAN NUMBER 1)

NEW SYSTEM COMPONENT
EXISTING SYSTEM COMPONENT TO REMAIN
POINT OF NEW CONNECTION SYMBOL

1
M5.1
SECTION OR PLAN NUMBER
SHEET WHERE SECTION IS DRAWN

AREA OF ENLARGEMENT
1
M5.1
PLAN NUMBER
SHEET WHERE ENLARGED PLAN IS DRAWN

SECTION OR PLAN NUMBER
1
M5.1
SECTION OR ENLARGED PLAN
SCALE: 1/8" = 1' - 0"
SHEET WHERE SECTION IS CUT OR
ENLARGED PLAN IS REFERENCED

SHEET M1.0
SHEET M1.1
MATCHLINE

HEAVY LINE WEIGHT INDICATES NEW WORK

LIGHT LINE WEIGHT INDICATES EXISTING
EQUIPMENT OR REFERENCED INFORMATION

GRAY LINE INDICATES BACKGROUND INFORMATION

DASHED LINES INDICATE PIPING
ROUTED BELOW SLAB OR GRADE

HATCH MARKS INDICATE EQUIPMENT OR MATERIALS
TO BE DISCONNECTED AND REMOVED.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

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MECHANICAL STANDARDS AND DRAWING INDEX

SHEET M-001

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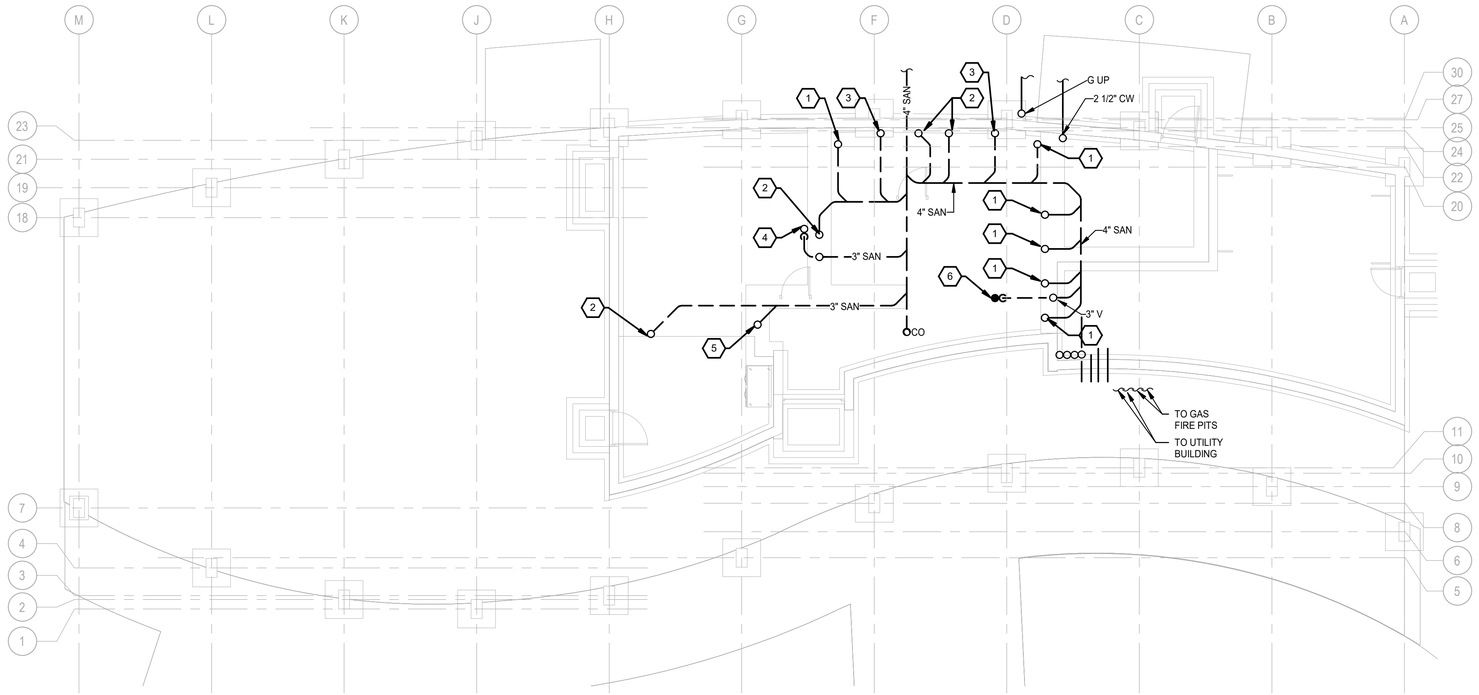
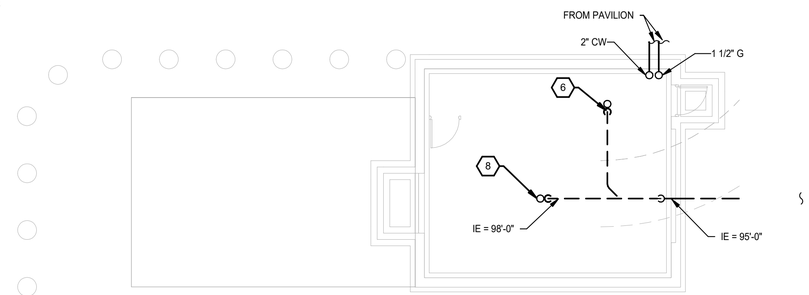
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



UNDERGROUND PLUMBING PLAN - PAVILION

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



UNDERGROUND PLUMBING PLAN - UTILITY

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

PLUMBING GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

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5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.

7 HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.

8 PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.

9 PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

10 MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

11 WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<<72">>>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

CONSTRUCTION KEY NOTES:

1 4 SAN TO WC.

2 3 SAN TO LAV/SK.

3 3 SAN TO UR.

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8 4" SAN TO TRENCH DRAIN.

9 ROUTE 1 1/2" CW DOWN IN WALL TO SERVE LAV AND WC.

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UNDERGROUND PLUMBING PLANS

SHEET M-200

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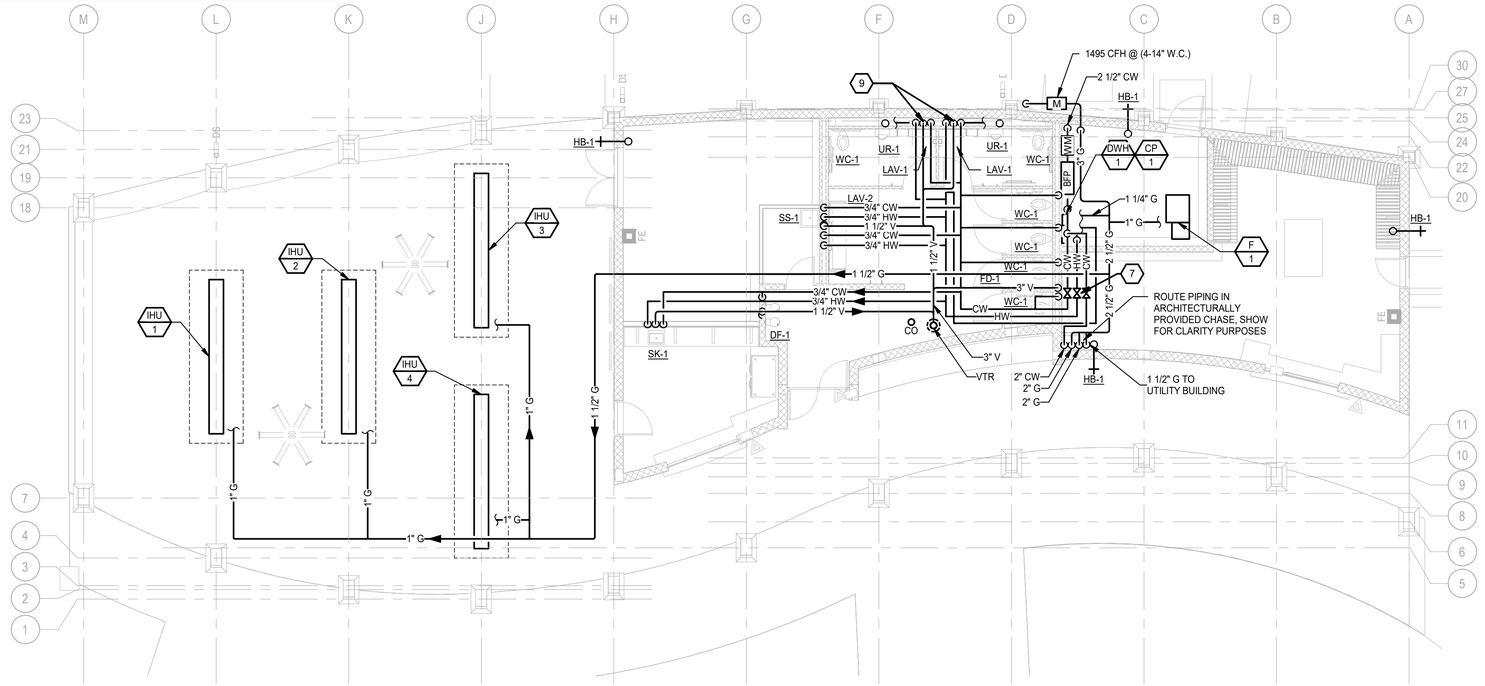
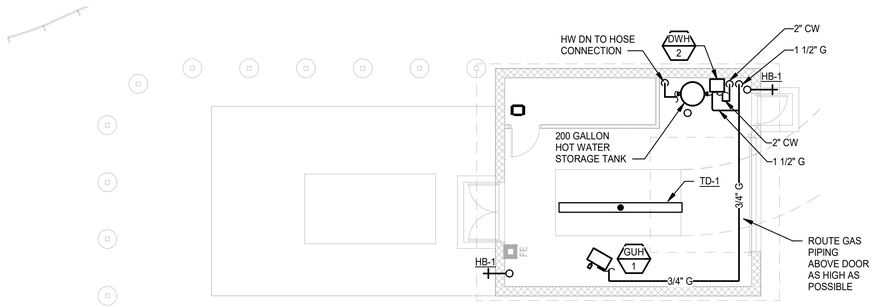


ABOVEGROUND PLUMBING PLAN - PAVILION

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



ABOVEGROUND PLUMBING PLAN - UTILITY

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8 4" SAN TO TRENCH DRAIN.

9 ROUTE 1 1/2" CW DOWN IN WALL TO SERVE LAV AND WC.

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ABOVEGROUND PLUMBING PLANS

SHEET M-201

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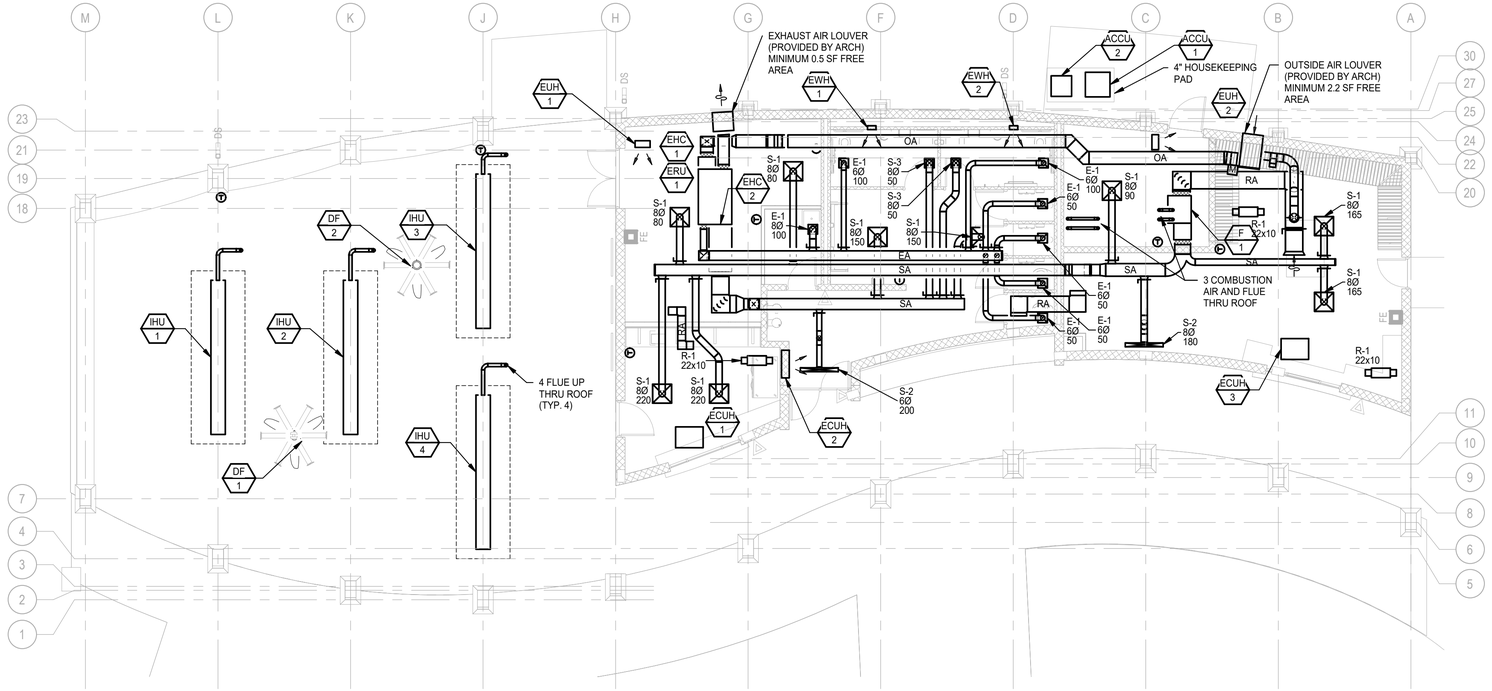
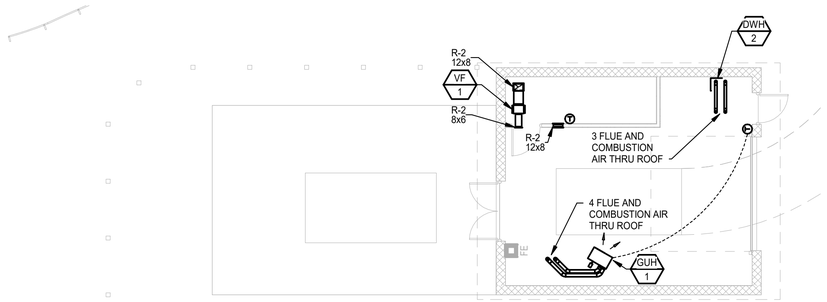


SHEET METAL PLAN - PAVILION

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



SHEET METAL PLAN - UTILITY

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

SHEET METAL GENERAL NOTES:

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6 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.

7 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

CONSTRUCTION KEY NOTES:

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SHEET METAL PLANS

SHEET M-401

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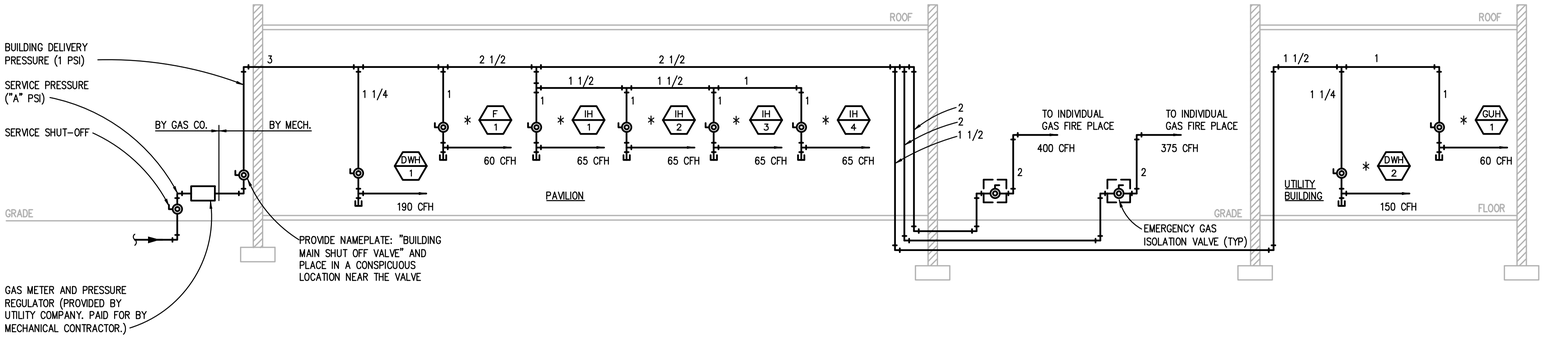
GAS LOAD SCHEDULE

ITEM	TOTAL CFH
WATER HEATER 1	190
FURNACE	60
INFRARED HEATER	65
INFRARED HEATER	65
INFRARED HEATER	65
INFRARED HEATER	65
GAS FIRE PIT	400
GAS FIRE PIT	375
WATER HEATER 2	150
GAS UNIT HEATER	60
CONNECTED GAS LOAD =	1495 @ 1 PSI

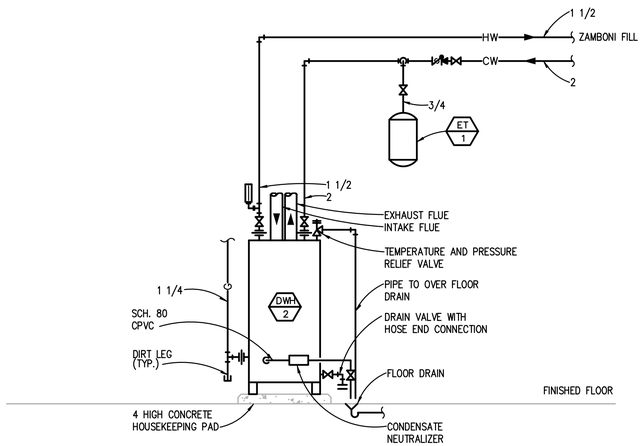
*GAS TRAIN PROVIDED BY EQUIPMENT MANUFACTURER – SEE SPECIFICATIONS

**THE GAS SERVICE COMPONENTS SHALL BE RATED IN ACCORDANCE WITH THE FOLLOWING CHART

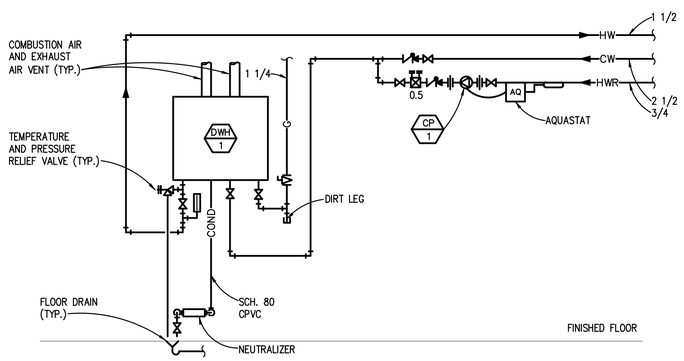
METER OUTLET PRESSURE (psig)	MINIMUM SYSTEM PRESSURE RATING (psig)
0.4	0.5
1 OR 2	10
3 OR 30	DELIVERY +10
31 TO 100	DELIVERY +20
101 TO 200	DELIVERY +30



NATURAL GAS PIPING DIAGRAM
NO SCALE



GAS FIRED CONDENSING WATER HEATER PIPING DIAGRAM
NO SCALE



INSTANTANEOUS GAS FIRED WATER HEATER PIPING DIAGRAM
NO SCALE

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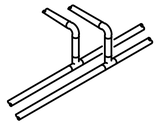
MECHANICAL DETAILS

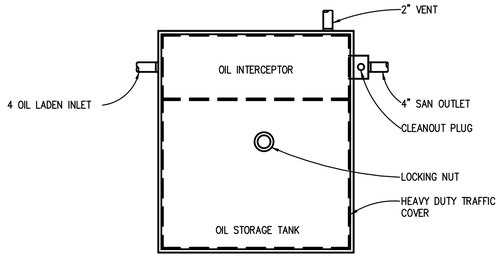
SHEET M-601



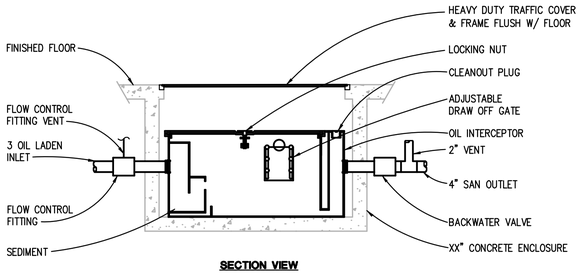
BRANCH CONNECTION OFF TOP

APPLIES TO THE FOLLOWING SYSTEMS:
DOMESTIC WATER
NATURAL GAS

TYPICAL BRANCH TAKE-OFF CONNECTION PIPING DETAIL
NO SCALE



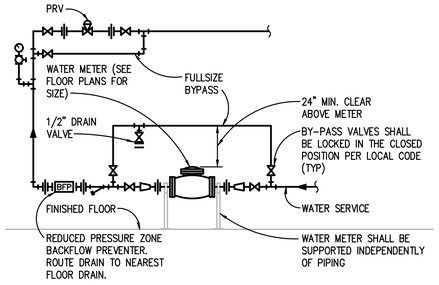
PLAN VIEW



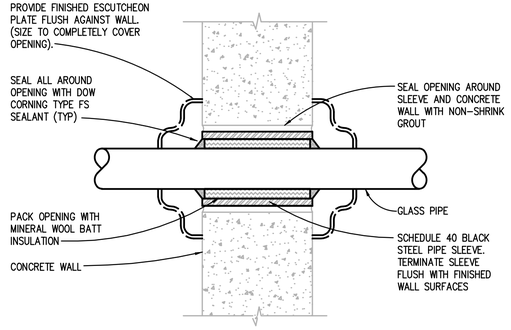
SECTION VIEW

OIL INTERCEPTOR DETAIL
NO SCALE

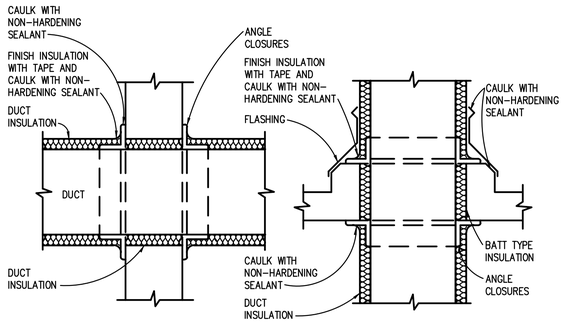
NOTES:
1. FOR 4" AND LARGER WATER SERVICES SHALL BE ROLLED OFF AT A 45° ANGLE FROM CENTERLINE OF WATER METER.
2. ALL PIPING SHALL BE SUPPORTED INDEPENDENTLY FROM WATER METER.
3. WHERE UNIONS ARE INDICATED FLANGED COMPONENTS MAY BE SUBSTITUTED.
4. INCOMING WATER PRESSURE VARIES FROM 42 TO 85 PSIG. PRESSURE AFTER PRV SHALL BE 40 PSIG.
5. PRV IS NOT REQUIRED FOR IRRIGATION WATER METER ASSEMBLY.



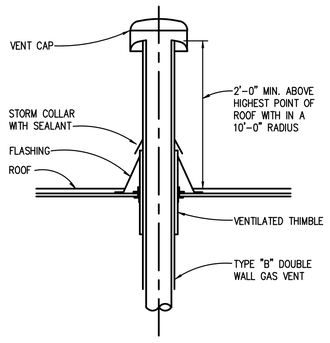
WATER METER ASSEMBLY PIPING DIAGRAM
NO SCALE



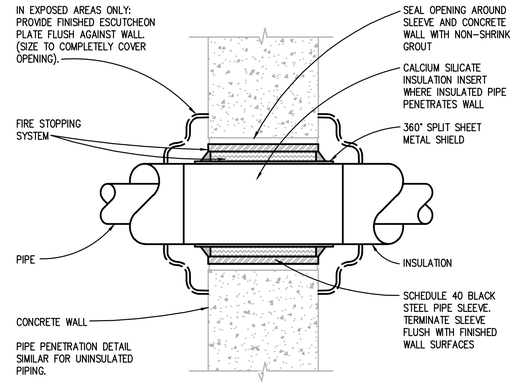
POURED CONCRETE OR BLOCK WALL (FIRE RATED ASSEMBLY) GLASS PIPE PENETRATION DETAIL
NO SCALE



VERTICAL OR HORIZONTAL (NON FIRE RATED ASSEMBLY) DUCT PENETRATION DETAIL
NO SCALE

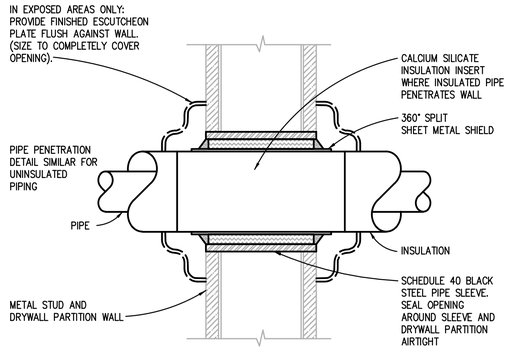


FLUE THRU ROOF DETAIL
NO SCALE



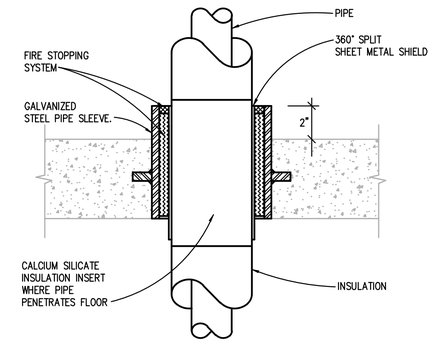
DETAIL INDICATES THE INSTALLATION REQUIREMENTS FOR A FIRE RATED ASSEMBLY. FOR A NON-FIRE RATED ASSEMBLY PACK SLEEVED OPENING WITH INSULATION MATERIAL AND CAULK WITH NON-HARDENING SEALANT.

FIRE RATED AND NON-FIRE RATED POURED CONCRETE OR BLOCK WALL PIPE PENETRATION DETAIL
NO SCALE



DETAIL INDICATES THE INSTALLATION REQUIREMENTS FOR A FIRE RATED ASSEMBLY. FOR A NON-FIRE RATED ASSEMBLY PACK SLEEVED OPENING WITH INSULATION MATERIAL AND CAULK WITH NON-HARDENING SEALANT.

FIRE RATED AND NON-FIRE RATED METAL STUD AND DRYWALL PARTITION WALL PIPE PENETRATION DETAIL
NO SCALE



NEW FLOOR PIPE PENETRATION DETAIL
NO SCALE

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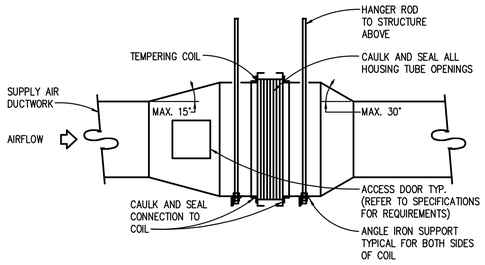
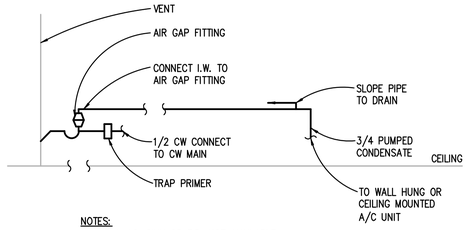
MECHANICAL DETAILS

SHEET M-602



DUCT MOUNTED TEMPERING COIL INSTALLATION DETAIL

NO SCALE

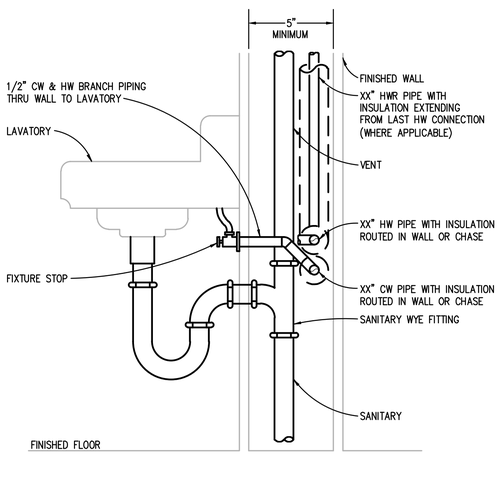


NOTES:

1. IF A J.C. SINK OR F.D. NOT AVAILABLE.
2. FOR ABOVE CEILING INSTALLATIONS A TRAP PRIMER SHALL BE USED TO KEEP TRAP SEAL INTACT.

CONDENSATE DRAIN DETAIL

NO SCALE



TYPICAL LAVATORY DETAIL

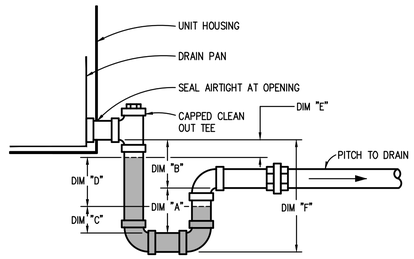
NO SCALE

TRAP DIMENSION TABLE

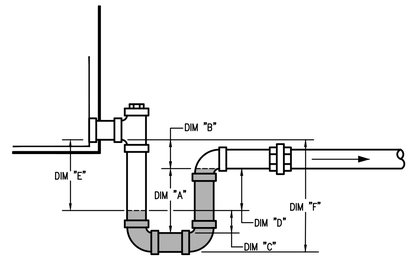
TYPE OF SYSTEM	S.P. AT DRAIN PAN (IN.) (NOTE A)	DIMENSION "A" (INCHES) MIN.	DIMENSION "B" (INCHES)	DIMENSION "C" (INCHES) (TRAP SEAL)	DIMENSION "D" (INCHES)	DIMENSION "E" (INCHES)	DIMENSION "F" (INCHES) (+/−) DRAIN PIPE SIZE (INCHES)			
							1 TO 1−1/2	2	2 1/2, 3	4
DRAW THROUGH	−2.1 TO −3	3.5	3.5	2	3	2	8.0−8.5	9.0	9.5−10.0	11.0
	UP TO −2	3.0	3.0	2	2	2	7.0−7.5	8.0	8.5−9.0	10.0
BLOW THROUGH	UP TO +2	4.0	2.0	2	2	4	7.0−7.5	8.0	8.5−9.0	10.0
	+2.1 TO +3	5.0	2.0	2	3	5	8.0−8.5	9.0	9.5−10.0	11.0

NOTES:

A. REFER TO EQUIPMENT SCHEDULES FOR (−) OR (+) STATIC PRESSURE AT DRAIN PAN.
A. BASE TRAP DIMENSIONS ON −___" S.P. FOR DRAW THROUGH UNITS AND +___" S.P. FOR BLOW THROUGH UNITS.
B. DRAIN PIPE SIZE SHALL BE SIZE OF DRAIN PAN OUTLET, MINIMUM 1".
C. DIMENSION "G" IS MIN: 3" FOR UP TO 1 1/2" DRAIN PIPE
4" FOR 2" DRAIN PIPE
5" FOR 2 1/2" OR 3" DRAIN PIPE
6" FOR 4" DRAIN PIPE



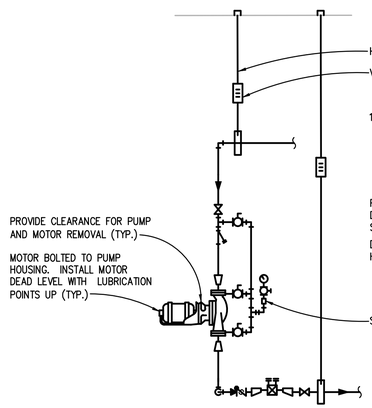
DRAW THROUGH



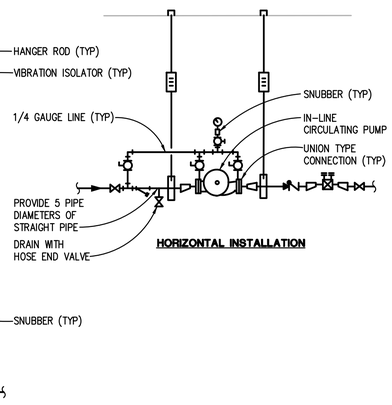
BLOW THROUGH

CONDENSATE DRAIN PAN TRAP DETAIL (UNITARY UNITS NOT ABOVE CEILING)

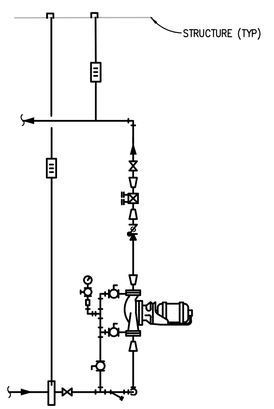
NO SCALE



DOWN FLOW VERTICAL INSTALLATION



HORIZONTAL INSTALLATION



UP FLOW VERTICAL INSTALLATION

IN-LINE FLEXIBLE COUPLING (BELL AND GOSSETT SERIES 60) CIRCULATING PUMP PIPING DIAGRAM

NO SCALE

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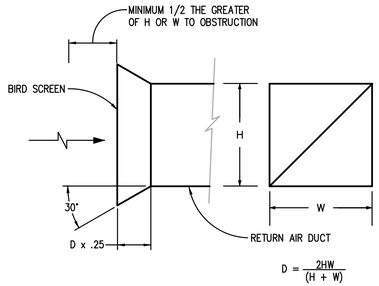
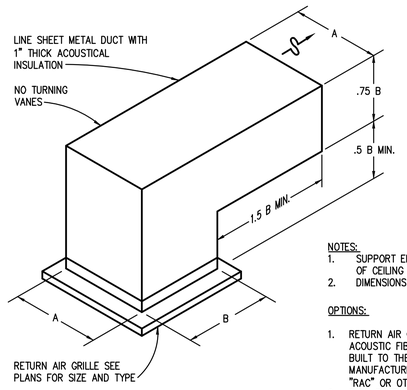
MECHANICAL DETAILS

SHEET M-603



BELLMOUTH DETAIL
NO SCALE

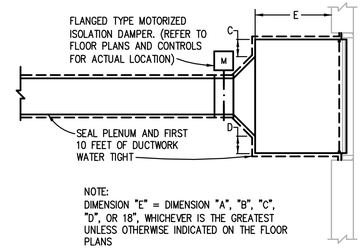


NOTES:
1. SUPPORT ELBOW INDEPENDENT OF CEILING GRID
2. DIMENSIONS ARE INSIDE CLEAR

OPTIONS:

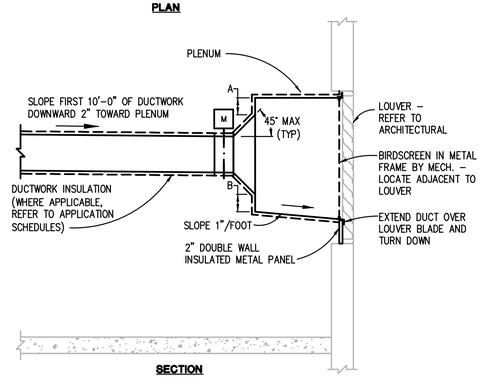
1. RETURN AIR CANOPY. GALVANIZED STEEL WITH ACOUSTIC FIBERGLASS LINER. UNIT SHALL BE BUILT TO THE RETURN GRILLE SIZE. AS MANUFACTURED BY PRICE INDUSTRIES–MODEL "RAC" OR OTHER APPROVED.
2. RIGID FIBER BOARD IN LIEU OF LINED SHEET METAL DUCT.

CEILING GRILLE TO/FROM PLENUM



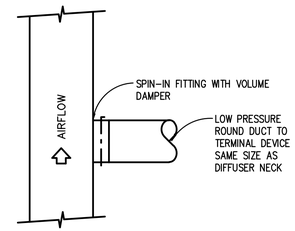
NOTE:
DIMENSION "E" = DIMENSION "A", "B", "C", "D", OR 18", WHICHEVER IS THE GREATEST UNLESS OTHERWISE INDICATED ON THE FLOOR PLANS

PLAN

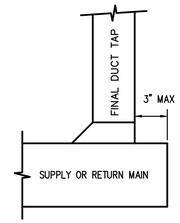


SECTION

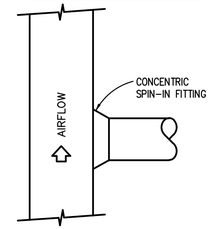
OUTDOOR AIR INTAKE OR EXHAUST/RELIEF PLENUM DETAIL
NO SCALE



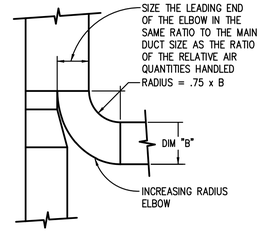
LOW PRESSURE INLET/OUTLET TO/FROM DIFFUSER, REGISTER OR GRILLE



LOW PRESSURE END OF RUN

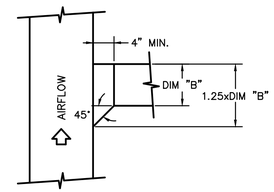


RECTANGULAR TO ROUND DUCT

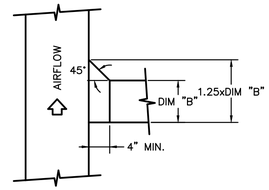


SUPPLY, RETURN OR EXHAUST DUCT

FOR USE WHEN A BRANCH TAKE–OFF IS TO HANDLE MORE THAN 25% OF THE AIR HANDLED BY THE MAIN DUCT

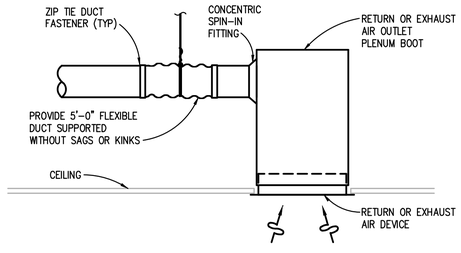


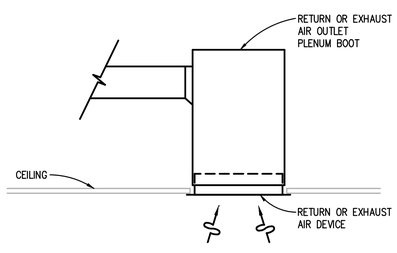
SUPPLY DUCT

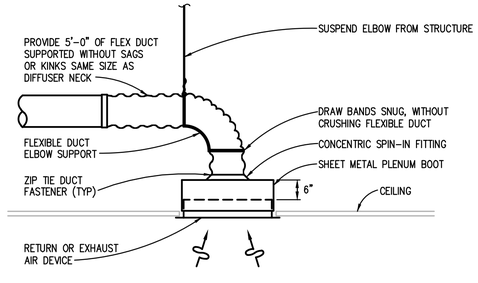


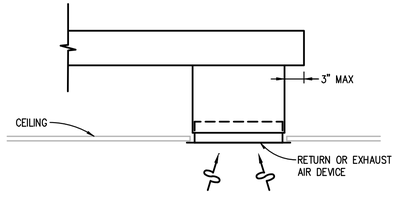
RETURN OR EXHAUST DUCT

RECTANGULAR DUCT BRANCH TAKE-OFF DETAILS
NO SCALE





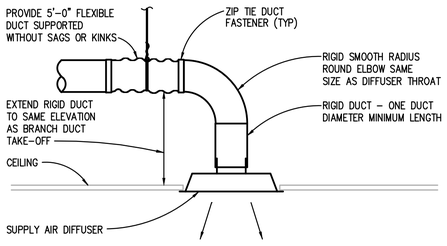


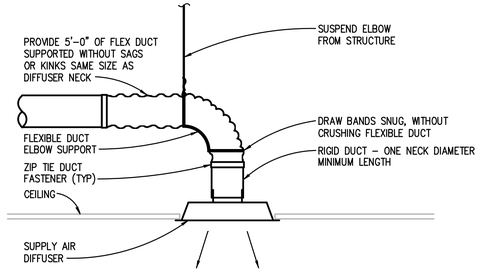


RETURN OR EXHAUST AIR DEVICE INSTALLATION DETAIL
NO SCALE

NOTE: PAINT INTERIOR SURFACE OF PLENUM BOX FLAT BLACK.

PLENUM RETURN AIR GRILLE DETAILS
NO SCALE





ROUND NECK SUPPLY AIR DIFFUSER DETAIL
NO SCALE

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SHEET M-604

DUCT SYSTEM APPLICATION SCHEDULE

AIR SYSTEMS	G90 GALV. SHEET METAL	DOUBLE-WALL LINED G90 GALV. SHEET METAL (SOLID INNER WALL)	DOUBLE-WALL LINED G90 GALV. SHEET METAL (PERF. INNER WALL)	G90 GALV. SHEET METAL WITH 1-INCH LINING	GALVANNEALED SHEET METAL	ALUMINUM	TYPE 304 STAINLESS STEEL	TYPE 316 STAINLESS STEEL	PVC COATED GALV. SHEET METAL (4X1)	PVC COATED GALV. SHEET METAL (1X4)	PVC COATED GALV. SHEET METAL (4X4)	16 GA. CARBON STEEL	ZERO-CLEARANCE PREFABRICATED RANGE HOOD EXHAUST DUCT	FABRIC	DESIGN PRESSURE CLASS (INCHES WG)	SEAL CLASS	MAX. ALLOWABLE LEAKAGE RATE (PERCENT)	KEYED NOTES
SUPPLY AIR WITHOUT TERMINAL UNITS	X														+2	A	5	
RETURN AIR WITHOUT TERMINAL UNITS	X														-2	A	5	
EXHAUST AIR WITHOUT TERMINAL UNITS	X														-2	A	5	
AIR TRANSFER DUCT				X											+2	A	5	
RELIEF AIR DOWNSTREAM OF FANS	X														+6	A	5	
OUTSIDE AIR AND MIXED AIR DUCT	X														-6	A	5	
OUTSIDE AIR, RELIEF AIR AND EXHAUST AIR PLENUMS ADJACENT TO EXTERIOR LOUVERS		X													+/-6	A	5	

GENERAL NOTES:
1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.

HORIZONTAL PIPING AND SUPPORT APPLICATION...

METAL PIPE TYPE & SIZE	MSS TYPE 1 CLEVIS HANGER	MSS TYPE 10 SWIVEL RING BAND HANGER	MSS TYPE 41 DOUBLE ROD PIPE ROLLER	MSS TYPE 43 SINGLE ROD ROLLER HANGER	MSS TYPE 44 PIPE ROLLER & STAND	MSS TYPE 46 ADJUSTABLE PIPE ROLL STAND	MSS TYPE 39 PROTECTION SADDLE	MSS TYPE 40 INSULATION PROTECTION SHIELD	THERMAL-HANGER SHIELD	KEYED NOTES
UNINSULATED SINGLE PIPE										
UP TO 2 INCH	X	X								
2-1/2 INCH TO 4 INCH	X	X								
INSULATED SINGLE COLD PIPES										
UP TO 2 INCH	X	X						X	X	A
2-1/2 INCH TO 4 INCH	X								X	
INSULATED SINGLE HOT PIPES										
UP TO 2 INCH	X	X					X	X	X	A, C
2-1/2 INCH TO 4 INCH			X	X	X	X	X		X	B, C

GENERAL NOTES:
1. 'X' INDICATES APPROVED HANGER OR SUPPORT ELEMENTS. IF MORE THAN ONE HANGER OR SUPPORT ELEMENT IS INDICATED, SELECTION FROM APPROVED ELEMENTS IS CONTRACTOR'S OPTION.
2. REFER TO HANGER AND SUPPORT SECTION FOR APPROVED MANUFACTURERS.
3. HANGERS AND SUPPORTS USED FOR FIRE PROTECTION SERVICES SHALL BE UL LISTED OR FMG APPROVED.
4. HANGER ELEMENTS IN CONTACT WITH BARE COPPER PIPE SHALL BE COPPER PLATED, PLASTIC COATED, FELT LINED, OR USE MANUFACTURED COPPER TUBE ISOLATORS.
5. REFER TO INDIVIDUAL PIPING SPECIFICATION SECTIONS FOR HANGER SPACING.
6. MULTIPLE PARALLEL COLD PIPES MAY BE TRAPEZE SUPPORTED FROM BELOW USING U-BOLTS OR STRUT CLAMPS AND THERMAL HANGER SHIELDS. REFER TO KEYED NOTE A.
7. MULTIPLE PARALLEL COLD PIPES MAY BE TRAPEZE SUPPORTED FROM ABOVE USING STANDARD HANGER ELEMENTS INDICATED FOR SINGLE COLD PIPES.
8. MULTIPLE PARALLEL HOT PIPES MAY BE TRAPEZE SUPPORTED FROM BELOW USING ROLLER ELEMENTS AND THERMAL HANGER SHIELD OR INSULATION PROTECTION SADDLE. REFER TO KEYED NOTES B AND C.
9. MULTIPLE PARALLEL HOT PIPES MAY BE TRAPEZE SUPPORTED FROM ABOVE USING STANDARD ROLLER HANGERS INDICATED AND THERMAL HANGER SHIELD OR INSULATION PROTECTION SADDLE. REFER TO KEY NOTES B AND C.
10. REFER TO INDIVIDUAL PIPING SPECIFICATION SECTIONS FOR ADDITIONAL SYSTEM SPECIFIC HANGER APPLICATIONS.

KEYED NOTES:
A. USE THERMAL HANGER SHIELD ON TRAPEZE SUPPORTED INSULATED PIPE TO PREVENT CRUSHING OF INSULATION.
B. USE THERMAL HANGER SHIELD DESIGNED FOR USE ON ROLLER SUPPORTS FOR INSULATED HOT PIPE.
C. USE TYPE 39 PROTECTION SADDLES IF INSULATION WITHOUT VAPOR BARRIER IS INDICATED. FILL INTERIOR VOIDS WITH INSULATION MATCHING ADJOINING INSULATION.

DUCT SYSTEM INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES)							FIELD APPLIED JACKET MATERIAL		
	FIBERGLASS BLANKET 0.75 LB/CU FT	FIBERGLASS BLANKET 1.0 LB/CU FT	FIBERGLASS BOARD 2.25 LB/CU FT	FIBERGLASS BOARD 6.0 LB/CU FT	FLEXIBLE ELASTOMERIC	ASTM E2336 2-HOUR FIRE RATED BLANKET	2-HOUR FIRE RATED BLANKET	ALUMINUM	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	KEYED NOTES
DUCT SYSTEMS LOCATED INDOORS										
SUPPLY AIR, EXCEPT AS NOTED BELOW		1.5								A,B
RECTANGULAR SUPPLY AIR IN MECHANICAL ROOMS			1.5							
ROUND & FLAT OVAL SUPPLY AIR IN MECHANICAL ROOM		1.5								
OUTSIDE AIR AND MIXED AIR, EXCEPT AS NOTED BELOW		1.5								
RECTANGULAR OUTSIDE AIR AND MIXED AIR IN MECHANICAL ROOMS			1.5							
EXHAUST AND RELIEF AIR BETWEEN ISOLATION DAMPER AND PENETRATION OF BUILDING EXTERIOR, EXCEPT AS NOTED BELOW		1.5								
RECTANGULAR EXHAUST AND RELIEF AIR BETWEEN ISOLATION DAMPER AND PENETRATION OF BUILDING EXTERIOR, IN MECHANICAL ROOMS			1.5							

PLENUMS, DUCTS, AND DUCT ACCESSORIES NOT REQUIRING INSULATION:
- FIBROUS-GLASS DUCTS
- DOUBLE-WALL METAL DUCTS WITH INSULATION OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE / IESNA 90.1 - 2013
- METAL DUCTS WITH DUCT LINER OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE / IESNA 90.1 - 2013
- FABRIC SUPPLY DUCTS
- FACTORY-INSULATED FLEXIBLE DUCTS
- FACTORY-INSULATED PLENUMS AND CASINGS
- FLEXIBLE CONNECTORS
- VIBRATION-CONTROL DEVICES
- FACTORY-INSULATED ACCESS PANELS AND DOORS

GENERAL NOTES:
1. 'X' OR THICKNESS IN INCHES INDICATE ACCEPTABLE SELECTION. IF MORE THAN ONCE SELECTION IS INDICATED FOR A SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. REFER TO METAL DUCT SECTION OF SPECIFICATIONS FOR DUCT LINING AND DOUBLE-WALL INSULATED DUCT.
3. REFER TO HVAC CASINGS SECTION OF SPECIFICATIONS FOR DOUBLE-WALL INSULATED PLENUMS.

KEYED NOTES:
A. INCLUDE INSULATION AROUND DUCT MOUNTED COILS AND AIR TERMINAL UNITS COILS.
B. EXPOSED SUPPLY DUCTWORK LOCATED IN A CONDITIONED SPACE SERVED BY THE SAME AIR HANDLING SYSTEM IS NOT REQUIRED TO BE INSULATED.

PLUMBING PIPING & VALVE APPLICATION SCHEDULE

	MATERIAL																PRESSURE CONNECTIONS												GRAVITY DWV CONNECTIONS				ISOLATION VALVES					
PIPE SIZE (INCHES)	SOFT COPPER TYPE K	HARD COPPER TYPE L	HARD COPPER TYPE M	CARBON STEEL (SCHED. 40)	CARBON STEEL (STD.)	GALV. STEEL (SCHED. 40)	STAINLESS STEEL (SCHED. 10)	PEX	PE PIPE	PE SHEATHED CARBON STEEL PIPE	CSST	NO-HUB CISP	PVC TYPE DWV	PP DRAINAGE PIPE	COPPER TYPE DWV	DUCTILE IRON PIPE	SOLDERED	BRAZED	WELDED	THREADED	FLANGED	GROOVED	INSERT & CRIMP	FUSION	PRESSURE-SEAL	MECHANICALLY-FORMED TEE	MECHANICAL JOINT	PUSH-ON-JOINT	SOLVENT WELDED	SOLDERED	FUSION	CISP HUBLESS	HEAVY-DUTY HUBLESS	BALL	AGA BALL	GENERAL SERVICE BUTTERFLY	LUBRICATED PLUG	GATE	KEYED NOTES
ABOVEGROUND DOMESTIC WATER (POTABLE AND NON-POTABLE) ON DISTRIBUTION SIDE OF METER - MIN. WORKING PRESS. & TEMP.: 125 PSIG AT 200 DEG F																																						
UP TO 4		X															X	X			X	X			X	X								X		X			A
4 AND LARGER							X															X														X			A
UNDERGROUND DOMESTIC WATER (POTABLE AND NON-POTABLE) ON DISTRIBUTION SIDE OF METER - MIN. WORKING PRESS. & TEMP.: 125 PSIG AT 150 DEG F																																						
UP TO 1-1/2	X																																					B
2 TO 2-1/2	X																																					B
ABOVEGROUND SANITARY WASTE & VENT - MIN. WORKING PRESS.: 10-FOOT HEAD OF WATER																																						
1-1/2 TO 15												X																				X							
UNDERGROUND SANITARY WASTE & VENT - MIN. WORKING PRESS.: 10-FOOT HEAD OF WATER																																						
3 TO 12												X																				X							
3 TO 12													X																	X									
ABOVEGROUND COLD CONDENSATE DRAIN - MIN. WORKING PRESSURE: 10 FT. HEAD OF WATER																																						
ALL SIZES		X														X		X	X																				
ABOVEGROUND PUMPED COLD CONDENSATE DRAIN - MIN. WORKING PRESSURE: 125 PSIG																																						
UP TO 2			X															X	X															X					
2-1/2 TO 4			X																X																	X			
ABOVEGROUND FUEL GAS - MIN. WORKING PRESS.: 100 PSIG																																						
UP TO 2				X															X	X															X			C
2-1/2 TO 3				X															X		X														X			C
UNDERGROUND FUEL GAS - MIN. WORKING PRESS.: 100 PSIG																																						
1/2 TO 12									X															X														D

GENERAL NOTES:
1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. DISSIMILAR-METAL PIPING JOINTS: CONSTRUCT JOINTS USING DIELECTRIC FITTINGS COMPATIBLE WITH BOTH PIPING MATERIALS.

   a. NPS 2 AND SMALLER : USE DIELECTRIC NIPPLE/WATERWAY.
   b. NPS 2-1/2 AND LARGER: USE DIELECTRIC FLANGE KITS.

3. USE UNIONS OR FLANGES AT VALVE AND EQUIPMENT CONNECTIONS.
4. PLUMBING EQUIPMENT DRAINS, VENTS, SAFETY VALVE PIPING, BLOWDOWN PIPING AND THE LIKE SHALL BE SAME PIPING MATERIAL AS ASSOCIATED PIPING SYSTEM.
5. GROOVED END VALVES MAY BE USED WITH GROOVED PIPING.

KEYED NOTES:
A. GROOVED AND FLANGED FITTINGS, JOINTS, AND COUPLINGS, IF INDICATED AS AN ACCEPTABLE SELECTION, MAY BE USED IN ACCESSIBLE LOCATIONS ONLY FOR THIS PIPING SYSTEM. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS.
B. JOINTS ARE NOT PERMITTED ON UNDERGROUND WATER PIPING.
C. VALVES, UNIONS, AND FLANGED JOINTS MAY BE USED IN ACCESSIBLE LOCATIONS ONLY, EXCLUDING CEILINGS USED AS AIR PLENUMS. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS. USE ONLY STEEL WELDED FITTINGS AND WELDED JOINTS IN CEILING USED AS AIR PLENUMS.
D. NO JOINTS ALLOWED UNDERGROUND.

ABOVEGROUND PLUMBING PIPE & ACCESSORY INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES)						FIELD-APPLIED JACKET MATERIAL					
	FLEXIBLE ELASTOMERIC	FIBERGLASS	MINERAL WOOL	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	ALUMINUM	STAINLESS STEEL	PVC	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	PVDC (INDOOR)	PVDC (OUTDOOR)	KEYED NOTES
INDOOR PIPE SYSTEM AND SIZE (INCHES):														
DOMESTIC COLD WATER	1	1						X		X				A
DOMESTIC HOT WATER SUPPLY & RETURN 140 DEG AND LESS:														
• NPS 1-1/4 AND SMALLER	1	1						X		X				A
• NPS 1-1/2 AND LARGER	1.5	1.5						X		X				A
CONDENSATE AND EQUIPMENT DRAIN PIPING BELOW 60 DEG F	0.75	1												

UNLESS OTHERWISE INDICATED OR SCHEDULED, DO NOT INSULATE THE FOLLOWING:
- FIRE SUPPRESSION PIPING
- UNDERGROUND PIPING
- LABORATORY GAS AND VACUUM PIPING
- MEDICAL GAS AND VACUUM PIPING
- FUEL GAS PIPING
- FUEL OIL PIPING

GENERAL NOTES:
1. 'X' OR THICKNESS IN INCHES INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONCE SELECTION IS INDICATED FOR A SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. INSULATE PIPING WITHIN AIR HANDLING EQUIPMENT THE SAME AS INDOOR PIPING. PROVIDE ALUMINUM OR STAINLESS STEEL JACKET.

KEYED NOTES:
A. PROVIDE FIELD APPLIED JACKET FOR PIPING EXPOSED IN EQUIPMENT ROOMS, STORAGE ROOMS, JANITORS CLOSETS, RECEIVING ROOMS, TEST AREAS, CIRCULATION AREAS AND SUCH AREAS SUBJECT TO DAMAGE, WITHIN 10 FEET (3 METERS) OF FINISHED FLOOR.

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MECHANICAL SCHEDULES

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VIBRATION ISOLATOR APPLICATION SCHEDULE

EQUIPMENT CATEGORY	HORSEPOWER AND OTHER	RPM	EQUIPMENT LOCATION: SLAB ON GRADE BASE TYPE	SLAB ON GRADE ISOLATOR TYPE	SLAB ON GRADE MIN. DEFL., IN. (MM)	UP TO 40 FT (12 M) FLOOR SPAN BASE TYPE	UP TO 40 FT (12 M) FLOOR SPAN ISOLATOR TYPE	UP TO 40 FT (12 M) FLOOR SPAN MIN. DEFL., IN. (MM)	KEYED NOTES
PUMPS									
INLINE	5 TO 25	ALL	A	3	0.75 (19)	A	3, 8a OR 8b	1.50 (38)	NOTE 2
	≥ 30	ALL	A	3	1.50 (38)	A	3, 8a OR 8b	2.50 (64)	
SUSPENDED HEAT PUMPS, FAN COILS, CONDENSING UNITS, COMPUTER ROOM UNITS, LOCATED INDOORS.									
ALL	ALL	ALL				A OR B	8a OR 8b	1.50 (38)	NOTES 1, 2, 3
SUSPENDED DUCTED ROTATING EQUIPMENT									
SMALL FANS, FAN-POWERED BOXES	≤ 600 CFM	ALL				A	8a OR 8b	0.50 (13)	NOTES 2, 3
	> 600 CFM	ALL				A	8a OR 8b	0.75 (19)	

KEYED NOTES:
1. THRUST RESTRAINTS: PROVIDE THRUST RESTRAINTS BETWEEN FAN DISCHARGE AND DUCT (IN PAIRS, LOCATED ON THE CENTERLINE OF THE DISCHARGE OUTLET OF THE FAN, BRIDGING THE FLEXIBLE DUCT CONNECTOR) FOR ALL FAN HEADS, FOR AXIAL AND CENTRIFUGAL FANS UNITS OPERATING AT 2 INCHES OR GREATER TOTAL STATIC PRESSURE AND AS SHOWN ON DRAWINGS. SPRING DEFLECTION SHALL BE SAME AS THE SUPPORT ISOLATORS.
2. HORIZONTAL PIPING VIBRATION ISOLATION: PROVIDE TYPE 8a OR 8b SPRING HANGERS FOR PIPING CONNECTED TO VIBRATION ISOLATED EQUIPMENT FOR ALL PIPING IN MECHANICAL ROOMS OR THE FOLLOWING MINIMUM HORIZONTAL DISTANCES FROM THE ISOLATED EQUIPMENT: UP TO 6" - 50 FEET (1 1/2" MINIMUM DEFLECTION), 8" AND LARGER - 100 FEET (2 1/2" MINIMUM DEFLECTION), WHICHEVER IS GREATER, AND AS SHOWN ON DRAWINGS. THE FIRST 4 HANGERS FROM THE ISOLATED EQUIPMENT SHALL BE TYPE 8b.
3. DUCTWORK VIBRATION ISOLATION: PROVIDE TYPE 8a OR 8b SPRING HANGERS FOR DUCTWORK WITH A CROSS SECTION OF 2 SQUARE FEET OR GREATER CONNECTED TO AIR HANDLING UNITS, RETURN OR RELIEF FANS, AND VIBRATION ISOLATED EQUIPMENT FOR ALL SUCH DUCTWORK IN MECHANICAL ROOMS OR FOR A MINIMUM HORIZONTAL DISTANCE OF 100 FEET FROM THE ISOLATED EQUIPMENT, WHICHEVER IS GREATER, AND AS SHOWN ON DRAWINGS (3/4" MINIMUM DEFLECTION).

BASE TYPES:
BASE TYPE A - NO BASE, ISOLATORS ATTACHED DIRECTLY TO EQUIPMENT.
BASE TYPE B - STRUCTURAL, STEEL RAILS OR BASE.
BASE TYPE C - CONCRETE INERTIA BASE.
BASE TYPE D - CURB - MOUNTED ALUMINUM BASE WITH 1" DEFL. SPRING ISOLATORS
BASE TYPE E - CURB - MOUNTED STEEL BASE WITH ADJUSTABLE 1", 2" OR 3" DEFL. SPRING ISOLATORS

ISOLATOR TYPES:
ISOLATOR TYPE 1a - ELASTOMERIC ISOLATION PAD.
ISOLATOR TYPE 1b - ELASTOMERIC ISOLATION PAD WITH STEEL LOAD BEARING PLATE.
ISOLATOR TYPE 2 - ELASTOMERIC FLOOR ISOLATOR.
ISOLATOR TYPE 3 - FREE STANDING SPRING FLOOR ISOLATOR.
ISOLATOR TYPE 4 - RESTRAINED SPRING ISOLATOR.
ISOLATOR TYPE 5 - THRUST RESTRAINT.
ISOLATOR TYPE 6 - AIR SPRING.
ISOLATOR TYPE 7 - ELASTOMERIC HANGERS.
ISOLATOR TYPE 8a - SPRING HANGERS.
ISOLATOR TYPE 8b - SPRING HANGERS WITH VERTICAL-LIMIT STOP.

ELECTRIC COIL SCHEDULE

UNIT IDENTIFICATION DES.	UNIT IDENTIFICATION NO.	CAPACITY MBH	AIRFLOW CFM	HEATING ELEMENT KW	FINAL AIR TEMPERATURE °F	MODULATION / CONTROL TYPE	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL SCCR KA	ELECTRICAL OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
EHC	1	5.4	500	0	-1	SCR	208	3	0		H05IN-ERV-BP	
EHC	2	20.8	500	0	90	SCR	208	3	0		H05IN-ERV-BP	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE OXYGEN8 UNLESS OTHERWISE NOTED.

ABOVEGROUND HVAC PIPE & ACCESSORY INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES): FLEXIBLE ELASTOMERIC	FIBERGLASS	MINERAL WOOL	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	FIELD-APPLIED JACKET MATERIAL: ALUMINUM	STAINLESS STEEL	PVC	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	PVDC (INDOOR)	PVDC (OUTDOOR)	KEYED NOTES
INDOOR PIPE SYSTEM AND SIZE (INCHES):														
REFRIGERANT SUCTION & HOT GAS (SOFT COPPER)	1							X		X				
OUTDOOR (ABOVEGROUND AND TUNNEL PIPE SYSTEM AND SIZE (INCHES):														
REFRIGERANT SUCTION & HOT GAS (SOFT COPPER)	2													A

UNLESS OTHERWISE INDICATED OR SCHEDULED, THE FOLLOWING DO NOT REQUIRE INSULATION:
DIRECT BURIED COOLING SYSTEM PIPING.
PIPING THAT CONVEYS FLUIDS HAVING DESIGN OPERATING TEMPERATURE RANGE BETWEEN 60 DEG F. AND 105 DEG F., INCLUSIVE.

GENERAL NOTES:
1. 'X' OR THICKNESS IN INCHES INDICATED ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED, CONTACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. INSULATE PIPING WITHIN AIR HANDLING EQUIPMENT THE SAME AS INDOOR PIPING. PROVIDE ALUMINUM OR STAINLESS STEEL JACKET.
3. FOR PIPING NPS 1-1/4 AND SMALLER WITHIN PARTITIONS IN CONDITIONED SPACES INSULATION MAY BE REDUCED BY ONE-INCH THICKNESS, BUT NOT TO LESS THAN ONE-INCH THICKNESS.
4. FOR PIPING NPS 1 AND SMALLER, INSULATION IS NOT REQUIRED FOR STRAINERS, CONTROL VALVES, AND BALANCING VALVES.

KEYED NOTES:
A. PROVIDE MANUFACTURER'S RECOMMENDED PROTECTIVE COATING FOR FLEXIBLE ELASTOMETRIC THERMAL INSULATION.

DIRECT EXPANSION COOLING COIL SCHEDULE

UNIT IDENTIFICATION DES.	UNIT IDENTIFICATION NO.	SYSTEM SERVED	ASSOCIATED CONDENSING UNIT	REFRIGERANT TYPE	MINIMUM NUMBER ROWS	TOTAL CAPACITY MBH	AIR: AIRFLOW CFM	AIR: E.D.B. °F	AIR: E.W.B °F	AIR: L.D.B. °F	AIR: L.W.B. °F	AIR: MAXIMUM A.P.D. IN. W.G.	MINIMUM FACE AREA SQ. FT.	FACE VELOCITY FPM	FINS PER INCH	COIL SUCTION TEMPERATURE °F	NUMBER OF CIRCUITS	MODEL NUMBER	KEYED NOTES
CC	1	ERU-1	ACCU-2	R-410	6	18	500	79	67	54	53	0.52	0	0	10	0	1	38D9x18-10-6-F-J-L	

GENERAL NOTES:
1. MODEL NUMBERS ARE DAIKIN UNLESS OTHERWISE NOTED.

ENERGY RECOVERY UNIT SCHEDULE

UNIT IDENTIFICATION DES.	UNIT IDENTIFICATION NO.	AREA/SYSTEM SERVED	SUPPLY FAN CFM	SUPPLY FAN MIN. OA CFM	SUPPLY FAN ESP"	SUPPLY FAN TSP"	SUPPLY FAN CONROL TYPE	SUPPLY FAN MOTOR BHP	SUPPLY FAN MOTOR HP	EXHAUST FAN CFM	EXHAUST FAN ESP"	EXHAUST FAN TSP"	EXHAUST FAN CONTROL TYPE	EXHAUST FAN MOTOR BHP	EXHAUST FAN MOTOR HP	HEAT EXCHANGER (SUMMER) SUPPLY SIDE E.A.T. °F	SUPPLY SIDE L.A.T. °F	SUPPLY SIDE A.P.D. IN. WG.	EXHAUST SIDE E.A.T. °F	EXHAUST SIDE L.A.T. °F	EXHAUST SIDE A.P.D. IN. WG.	EFFIC. (%)	HEAT EXCHANGER (WINTER) SUPPLY SIDE E.A.T. °F	SUPPLY SIDE L.A.T. °F	SUPPLY SIDE A.P.D. IN. WG.	EXHAUST SIDE E.A.T. °F	EXHAUST SIDE L.A.T. °F	EXHAUST SIDE A.P.D. IN. WG.	EFFIC. (%)
ERU	1		500	500	1.00	2.50	AUTO	0	0	500	1.00	2.00	AUTO	0	0	91	79	0.59	75	87	0.58		-1	51	0.59	70	18	0.58	

GENERAL NOTES:
1. MODEL NUMBERS ARE OXYGEN8 UNLESS OTHERWISE NOTED.

AIR COOLED CONDENSING UNIT SCHEDULE

UNIT IDENTIFICATION DES.	UNIT IDENTIFICATION NO.	SYSTEM SERVED	TOTAL CAPACITY MBH	MINIMUM EER	REFRIGERATION TYPE	NUMBER OF CIRCUITS	NUMBER OF CONTROL STAGES	CONDENSER: DESIGN AMBIENT TEMPERATURE °F	CONDENSER: MINIMUM AMBIENT TEMPERATURE °F	CONDENSER FAN QUANTITY	COMPRESSOR: NUMBER OF COMPRESSORS	COMPRESSOR: TYPE OF COMPRESSOR	MODULATION / CONTROL TYPE	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL MCA	ELECTRICAL MOP	ELECTRICAL SCCR KA	ELECTRICAL OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
ACCU	1	F-1	36	17	R-410	1	1	95	45	1	1	SCROLL	AUTO	208	1	20	35	0		24ACB	
ACCU	2	ERU-1	18	14	R-410	1	1	95	45	1	1	SCROLL	AUTO	208	1	0	20	0		DAIKIN DX14SA0191	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES
2. MODEL NUMBERS ARE CARRIER UNLESS OTHERWISE NOTED.
3. REFER TO AIR HANDLING UNIT DIRECT EXPANSION COOLING COIL SCHEDULE FOR ASSOCIATED COOLING COIL.
4. EFFICIENCY RATING SHALL BE IN ACCORDANCE WITH ARI-STANDARD 340/360-2004.

FURNACE SCHEDULE

UNIT IDENTIFICATION DES.	UNIT IDENTIFICATION NO.	AREA SERVED	FAN CFM	FAN MINIMUM O.A. CFM	FAN E.S.P. IN. W.G.	FAN NUMBER FANS	FAN H.P. EACH	COOLING SECTION - DX: MINIMUM TOTAL CAPACITY MBH	COOLING SECTION - DX AIR E.D.B. °F	COOLING SECTION - DX AIR L.D.B. °F	COOLING SECTION - DX MAX. FACE VELOCITY F.P.M.	COOLING SECTION - DX ASSOCIATED REMOTE CONDENSING UNIT	HEATING SECTION - GAS FIRED (NATURAL GAS) [ELECTRIC] AIR E.A.T. °F	AIR L.A.T. °F HIGH	AIR L.A.T. °F LOW	CAPACITY INPUT (MBH) HIGH	CAPACITY INPUT (MBH) LOW	CAPACITY AFUE	CAPACITY INPUT (kW)	MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN MIN	MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN MAX	MIN. NO. OF CAPACITY CONTROL STAGES	ARRANGEMENT	MODULATION / CONTROL TYPE	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL MCA	ELECTRICAL SCCR KA	ELECTRICAL OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
F	1		1200	200	0.50	1	0.00	36	0	0	0	ACCU-1	0	0	0	60	0	96	0.0	0	0	2	HORIZONTAL	AUTO	120	1	15	0		59TP	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MANUFACTURER BASED ON LENNOX UNLESS OTHERWISE INDICATED.
3. PROVIDE CONCENTRIC ROOF FLUE/INTAKE KIT.
4. NON-FUSED DISCONNECT SWITCH PROVIDED BY ELECTRICAL CONTRACTOR.
5. SYSTEM TO BE PROVIDED WITH ZONE CONTROL DAMPERS INTEGRATED WITH THE FURNACE CONTROLS.
6. PROVIDE 4" RETURN AIR FILTER KIT.

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MECHANICAL SCHEDULES

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ELECTRIC CENTRIFUGAL FAN CABINET UNIT HEATER SCHEDULE

UNIT IDENTIFICATION		CAPACITY	AIR			FAN		HEATING ELEMENT	DIMENSIONS			RECESS DEPTH	FILTER	MODULATION /	ELECTRICAL						MODEL	KEYED
DES.	NO.	MBH	AIRFLOW CFM	E.D.B. °F	L.D.B. °F	HP	RPM	TOTAL KW	LENGTH INCHES	HEIGHT INCHES	DEPTH INCHES	INCHES	TYPE	CONTROL TYPE	VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS / ACCESSORIES	NUMBER	NOTES
ECUH	1	13.6	250	65	95	0	0	5	35	10	26	10	DISP.	AUTO	208	1	0	0	0	B	CUHS93505203FFW	
ECUH	2	13.6	250	65	95	0	0	5	10	26	35	10	DISP.	AUTO	208	1	0	0	0	B	CUHS93505203FFW	
ECUH	3	13.6	250	65	95	0	0	5	35	10	26	10	DISP.	AUTO	208	1	0	0	0	B	CUHS93505203FFW	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE BERKO UNLESS OTHERWISE NOTED.

ELECTRIC PROPELLER FAN UNIT HEATER SCHEDULE

UNIT IDENTIFICATION			FAN	HEATING	FINAL AIR	MODULATION /	ELECTRICAL						MODEL	KEYED
DES.	NO.	CAPACITY MBH	CFM	ELEMENT KW	TEMPERATURE °F	CONTROL TYPE	VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS / ACCESSORIES	NUMBER	NOTES
EUH	1	13.6	350	5	95	AUTO	208	1	24	30	0	B	MUH0581	
EUH	2	13.6	350	5	95	AUTO	208	1	24	30	0	B	MUH0581	
EWH	1	5.1	100	1.5	95	AUTO	120	1	13	15	0	B	AWH3150F	
EWH	2	5.1	100	1.5	95	AUTO	120	1	13	15	0	B	AWH3150F	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE BERKO UNLESS OTHERWISE NOTED.

GAS-FIRED PROPELLER FAN UNIT HEATER SCHEDULE

UNIT IDENTIFICATION			FAN		FUEL						MODULATION /	ELECTRICAL							
DES.	NO.	CAPACITY MBH	RPM	CFM	TYPE	MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN MIN	MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN MAX	INPUT MBH	OUTPUT MBH	FINAL AIR TEMPERATURE °F	MOTOR HP	CONTROL TYPE	VOLTS	PHASE	FLA	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
GUH	1	49.2	1625	990	NATURAL GAS	0	0	60	49.2	100	0.08	AUTO	120	1	3	0		HDS 60AS01	

GENERAL NOTES:
1. REFER TO SCHEDULE GENEARL NOTES.
2. MODEL NUMBERS ARE MODINE UNLESS OTHERWISE NOTED.

HIGH VOLUME LOW SPEED FAN SCHEDULE

UNIT IDENTIFICATION				FAN DIAMETER			MODULATION /	ELECTRICAL				MODEL	KEYED
DES.	NO.	LOCATION	AIRFOILS	INCHES	FAN RPM	MOTOR HP	CONTROL TYPE	VOLTS	PHASE	SCCR KA	OPTIONS / ACCESSORIES	NUMBER	NOTES
DF	1	PATIO	3		0	0	AUTO	120	1			HAIKU	
DF	2	PATIO	3		0	0	AUTO	120	1			HAIKU	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE BIG ASS FANS MODEL UNLESS OTHERWISE NOTED..

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

UNIT IDENTIFICATION									MODEL	KEYED
DES.	NO.	TYPE	FACE SIZE	NECKSIZE	FRAME TYPE	ACCESSORY	CONSTRUCTION	FINISH	NUMBER	NOTES
S	1	DIFFUSER	24x24	SEE PLANS	LAY-IN	---	STEEL	WHITE	SPD	1
S	2	DIFFUSER	48x4	SEE PLANS	LAY-IN	---	STEEL	WHITE	TBD	
R	1	GRILLE	24x12	SEE PLANS	LAY-IN	---	STEEL	WHITE	PAR	
R	2	GRILLE	NK + 1-3/4	SEE PLANS	SURFACE MOUNT	---	STEEL	WHITE	530	
E	1	GRILLE	12x12	SEE PLANS	SURFACE MOUNT	OBD	STEEL	WHITE	PAR	

GENERAL NOTES:
1. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.

KEYED NOTES:
1. PROVIDE CABLE OPERATED DAMPER SIMILAR TO YOUNG REGULATOR CO. 270-275.

GAS-FIRED INFRARED TUBE HEATER SCHEDULE

UNIT IDENTIFICATION			FUEL					ELECTRICAL					
DES.	NO.	NATURAL GAS INPUT CFH	TYPE	INLET PRESSURE AT GAS TRAIN	TUBE LENGTH (FT)	MOUNTING HEIGHT (FT)	MODULATION / CONTROL TYPE	VOLTS	PHASE	SCCR KA	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
IHU	1						AUTO	120	1			DSRL-30-65	
IHU	4						AUTO	120	1				
IHU	3						AUTO	120	1				
IHU	2						AUTO	120	1				

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE RE-VERBER-RAY UNLESS OTHERWISE NOTED..

POWER VENTILATOR SCHEDULE

UNIT IDENTIFICATION								MOTOR				CURB HEIGHT		ELECTRICAL						
DES.	NO.	SYSTEM SERVED	TYPE	AIRFLOW CFM	T.S.P. IN. W.G.	TIP SPEED FPM	FAN RPM	BHP	HP	RPM	DRIVE TYPE	INCHES	MODULATION / CONTROL TYPE	VOLTS	PHASE	SCCR KA (NOTE 3)	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
VF	1	ELEC ROOM	INLINE	150	0.25	0	1400	0.00	0.07	1400	DIRECT	0	AUTO	120	1	0	A	CSP-A190	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED.
3. CONTROLLER (E.G. VARIABLE FREQUENCY CONTROLLER, MOTOR STARTER) FOR SPECIFIED EQUIPMENT SHALL BE MANUFACTURED AND MARKED PER NEC WITH A MINIMUM SHORT CIRCUIT CURRENT RATING AS INDICATED.

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CITY OF TROY
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Town Center Dr
Troy, MI 48084

MECHANICAL SCHEDULES

SHEET M-703

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PUMP SCHEDULE

UNIT IDENTIFICATION		SYSTEM SERVED	LOCATION	TYPE	COUPLING TYPE	WATERFLOW GPM	FLUID TYPE	COLDEST SYSTEM OPERATING TEMP. °F. FOR PUMP SELECTION	PUMP HEAD FT.	OVERLOAD GPM	MINIMUM EFFICIENCY %	MOTOR			MODULATION / CONTROL TYPE	ELECTRICAL				MODEL NUMBER	KEYED NOTES
DES.	NO.											BHP	HP	RPM		VOLTS	PHASE	SCCR KA (NOTE 4)	OPTIONS / ACCESSORIES		

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBER ARE BELL & GOSSETT UNLESS OTHERWISE NOTED.
3. FLUID TYPE: W = WATER, PGXX = PROPYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL, EGXX = ETHYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL.
4. CONTROLLER (E.G. VARIABLE FREQUENCY CONTROLLER, MOTOR STARTER) FOR SPECIFIED EQUIPMENT SHALL BE MANUFACTURED AND MARKED PER NEC WITH A MINIMUM SHORT CIRCUIT CURRENT RATING AS INDICATED.

PLUMBING CONNECTION SCHEDULE

UNIT IDENTIFICATION		CW INCHES	HW INCHES	SAN INCHES	VENT INCHES	KEYED NOTES
DES.	NO.					
DF	1	1/2	-	1 1/2	1 1/2	
FD	1	-	-	3	-	
FS	1	-	-	3	-	
LAV	1	1/2	1/2	1 1/2	1 1/2	
SK	1	3/4	3/4	1 1/2	1 1/2	
SS	1	3/4	3/4	3	-	
UR	1	-	-	2	1 1/2	
WC	1	1 1/2	-	4	2	

GENERAL NOTES:
1. INDIVIDUAL WATER LINE BRANCHES, WASTE LINES, VENTS, AND TRAPS FOR CONNECTION TO INDIVIDUAL FIXTURES, FIXTURE FITTINGS, AND SPECIALTIES SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE OR AS INDICATED ON DRAWINGS, WHICHEVER IS GREATER.

FUEL FIRED DOMESTIC WATER HEATER SCHEDULE

UNIT IDENTIFICATION		STORAGE CAPACITY GALLONS	FUEL				RECOVERY GPH	E.W.T. °F	L.W.T. °F	MODULATION / CONTROL TYPE	ELECTRICAL						MODEL NUMBER	KEYED NOTES
				MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN		INPUT MBH												
DES.	NO.		TYPE	MIN	MAX						VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS / ACCESSORIES		
DWH	1	0.0	NATURAL GAS	4	14	190	8	40	120	AUTO	120	1	0	0	0		LTI-310U	
DWH	2	200.0	NATURAL GAS	4	14	150	175	40	145	AUTO	120	1	0	0	0		AWN-CA-01	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE LOCHINVAR UNLESS OTHERWISE NOTED.

DOMESTIC HOT WATER SYSTEM EXPANSION TANK SCHEDULE

UNIT IDENTIFICATION		SYSTEM SERVED	ESTIMATED TOTAL SYSTEM VOLUME GALLONS	TYPE	OPERATING PRESSURES AT EXPANSION TANK			SYSTEM OPERATING TEMPERATURES		EXPANSION VOLUME GALLONS	ACCPETANCE FACTOR	MINIMUM TANK VOLUME GALLONS	DIMENSIONS		MODEL NUMBER	KEYED NOTES
DES.	NO.				INITIAL PSIG	PRE-CHARGE PSIG	MAX (OPERATING) PSIG	MINIMUM °F	MAXIMUM °F				DIAMETER INCHES	HEIGHT INCHES		

GENERAL NOTES:
1. MODEL NUMBERS ARE BELL & GOSSETT UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL PRE-CHARGE THE TANK TO THE VALUE INDICATED IN THE SCHEDULE. FOR TANKS THAT ARE SUPPLIED PRE-CHARGED BY THE MANUFACTURER, THE CONTRACTOR SHALL CONFIRM THE PRESSURE AND MAKE ADJUSTMENTS AS REQUIRED.

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MECHANICAL SCHEDULES

SHEET M-704

TEMPERATURE CONTROL - SYMBOLS LIST

SCHEMATIC SYMBOLS

SYMBOL	DESCRIPTION
AFC	AIR FLOW CONTROLLER
AQ	AQUASTAT, STRAP ON BULB
CO2	CARBON DIOXIDE SENSOR – WALL MOUNTED
CO2	CARBON DIOXIDE SENSOR – DUCT MOUNTED
CO	CARBON MONOXIDE SENSOR – WALL MOUNTED
CO	CARBON MONOXIDE SENSOR – DUCT MOUNTED
CS	CURRENT SWITCH
CT	CURRENT TRANSMITTER
	DAMPER – OPPOSED BLADE
	DAMPER – PARALLEL BLADE
M	DAMPER MOTOR
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
DPS	DIFFERENTIAL PRESSURE SWITCH
CM	FIRE ALARM SYSTEM, ADDRESSABLE CONTROL MODULE
IM	FIRE ALARM SYSTEM, ADDRESSABLE INTERFACE MODULE
FMS	FLOW MEASURING STATION
FM	FLOW METER
FS	FLOW SWITCH
FZ	FREEZESTAT
F	GAUGE – FLOW
P	GAUGE – PRESSURE
T	GAUGE – TEMPERATURE
	GUARD FOR STAT OR SENSOR
	HUMIDIFIER
H	HUMIDISTAT OR HUMIDITY SENSOR (AS DEFINED ON TC DRAWINGS)
H	HUMIDITY SENSOR, DUCT MOUNTED
LVL	LEVEL SWITCH OR TRANSMITTER
LS	LIMIT SWITCH
	LINE – ELECTRIC
	LINE – INSTRUMENT AIR
M/S	MOTOR STARTER
OS	OCCUPANCY SENSOR
R	PILOT LIGHT OR BEACON R – RED LENS A – AMBER LENS B – BLUE LENS G – GREEN LENS
PS	PRESSURE SWITCH
PT	PRESSURE TRANSMITTER
R	RELAY, ELECTRIC
N	SELECTOR SWITCH, (N=NUMBER OF POSITIONS)
AI	SIGNAL – DDC/BAS, ANALOG INPUT
AO	SIGNAL – DDC/BAS, ANALOG OUTPUT
DI	SIGNAL – DDC/BAS, DIGITAL INPUT
DO	SIGNAL – DDC/BAS, DIGITAL OUTPUT
AI	SIGNAL – PACKAGED EQUIPMENT, ANALOG INPUT
AO	SIGNAL – PACKAGED EQUIPMENT, ANALOG OUTPUT
DI	SIGNAL – PACKAGED EQUIPMENT, DIGITAL INPUT
DO	SIGNAL – PACKAGED EQUIPMENT, DIGITAL OUTPUT

NOTES:

1. SOME SYMBOLS & ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.
2. REFER TO MECHANICAL STANDARDS ON DRAWING M0.1 FOR ADDITIONAL SYMBOLS & ABBREVIATIONS THAT MAY BE USED ON TEMPERATURE CONTROL DRAWINGS.

SCHEMATIC SYMBOLS (CONT.)

SYMBOL	DESCRIPTION
DD	SMOKE DETECTOR – DUCT MOUNTED
SD	SMOKE DETECTOR – SPACE MOUNTED
S/S	START/STOP RELAY
SPT	STATIC PRESSURE TRANSMITTER
SP	STATIC PRESSURE SENSOR OR PROBE
SW	SWITCH
T	TEMPERATURE SENSOR – RIGID ELEMENT IN WELL
T	TEMPERATURE SENSOR – STRAP ON BULB
T	TEMPERATURE SENSOR – DUCT MOUNTED AVG ELEMENT
T	TEMPERATURE SENSOR – DUCT MOUNTED RIGID ELEMENT
T	THERMOSTAT OR TEMPERATURE SENSOR (AS DEFINED ON TC DRAWINGS)
TMR	TIMER SWITCH
XF	TRANSFORMER
	VALVE – 2 WAY CONTROL VALVE
	VALVE – 3 WAY CONTROL VALVE
VFC	VARIABLE FREQUENCY CONTROLLER
VS	VELOCITY SENSOR
VIB	VIBRATION SWITCH
V	VOLTAGE SENSOR

WIRING SYMBOLS

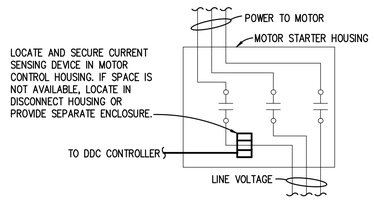
SYMBOL	DESCRIPTION
	AUDIBLE DEVICE (AS DEFINED ON TC DRAWINGS)
M/S	COIL – MOTOR STARTER CONTACTOR
R	COIL – RELAY
TDR	COIL – TIME DELAY RELAY
VFC	COIL – VARIABLE SPEED DRIVE CONTACTOR
	COIL – EP OR SOLENOID VALVE
	CONTACT – INSTANT OPERATING, NO
	CONTACT – INSTANT OPERATING, NC
	CONTACT – TIMED AFTER COIL IS ENERGIZED, NOTC
	CONTACT – TIMED AFTER COIL IS ENERGIZED, NCTO
	CONTACT – TIMED AFTER COIL IS DE-ENERGIZED, NOTO
	CONTACT – TIMED AFTER COIL IS DE-ENERGIZED, NCTC
	GROUND
	MOTOR, SINGLE PHASE
R	PILOT LIGHT OR BEACON R – RED LENSE A – AMBER LENS B – BLUE LENS G – GREEN LENS
R	PILOT LIGHT, WITH PUSH-TO-TEST
	PUSH BUTTON – MOMENTARY CONTACT, NO
	PUSH BUTTON – MOMENTARY CONTACT, NC
	PUSH BUTTON – MOMENTARY CONTACT, NO & NC
	PUSH BUTTON – MOMENTARY, NO (MUSHROOM HEAD)
	PUSH BUTTON – MOMENTARY, NC (MUSHROOM HEAD)

WIRING SYMBOLS (CONT.)

SYMBOL	DESCRIPTION
1 2	SWITCH – 2 POSITION SELECTOR
H O A	SWITCH – 3 POSITION SELECTOR HAND/OFF/AUTO
	SWITCH – FLOW (AIR, WATER, ETC.), NO
	SWITCH – FLOW (AIR, WATER, ETC.), NC
	SWITCH – LIMIT, NO
	SWITCH – LIMIT, NO, HELD CLOSED
	SWITCH – LIMIT, NC
	SWITCH – LIMIT, NC, HELD OPEN
	SWITCH – LIQUID LEVEL, NO
	SWITCH – LIQUID LEVEL, NC
	SWITCH – MANUAL SPST, NO
	SWITCH – MANUAL DPST, NO
	SWITCH – MANUAL SPST, NC
	SWITCH – MANUAL DPST, NC
	SWITCH – MANUAL SPDT
	SWITCH – MANUAL DPDT
	SWITCH – PRESSURE & VACUUM, NO
	SWITCH – PRESSURE & VACUUM, NC
	SWITCH – TEMPERATURE ACTUATED, NO
	SWITCH – TEMPERATURE ACTUATED, NC
	THERMAL OVERLOAD, SINGLE PHASE
OLs	THERMAL OVERLOAD CONTACTS – 3 PHASE
	TRANSFORMER
	WIRE TERMINATION AT DEVICE
	WIRE TO WIRE TERMINATION
	WIRING NOT CONNECTED

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
BAS	BUILDING AUTOMATION SYSTEM
DDC	DIRECT DIGITAL CONTROL
TC	TEMPERATURE CONTROLS
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
NOTC	NORMALLY OPEN TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NCTC	NORMALLY CLOSED TIMED CLOSED
SPST	SINGLE POLE SINGLE THROW
SPDT	SINGLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DPDT	DOUBLE POLE DOUBLE THROW

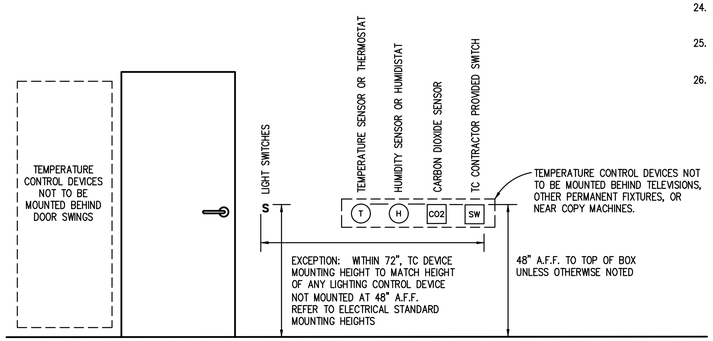


CURRENT SWITCH INSTALLATION DETAIL

TYPICAL

NOTES:

1. WHERE INDICATED ON CONTROL DETAILS, CURRENT SWITCHES SHALL BE INSTALLED FOR DDC SYSTEM STATUS INDICATION OF FAN OR PUMP OPERATION. APPROPRIATE TIME DELAY FOR STATUS FEEDBACK UPON DDC START AND STOP COMMANDS SHALL BE INCLUDED WITH THE DDC LOGIC TO AVOID NUISANCE OPERATIONAL ALARMS.
2. AS APPLICABLE, CURRENT SWITCH SHALL BE ADJUSTED TO MEET THE CURRENT DRAW REQUIRED TO DETECT FAN BELT LOSS, PUMP COUPLING DETACHMENT, OR VFC LOSS.
3. WHEN FAN OR PUMP IS ON AND NOT IN ALARM, DDC SYSTEM SHALL TOTALIZE RUN TIME HOURS FOR OPERATOR INFORMATION FROM BUILDING AUTOMATION SYSTEM OPERATOR INTERFACE.



TC DEVICE STANDARD MOUNTING HEIGHTS DETAIL

NO SCALE

TC GENERAL NOTES

1. THESE GENERAL NOTES SHALL BE APPLICABLE FOR ALL TEMPERATURE CONTROL (TC) DRAWINGS.
2. "PROVIDE" IS DEFINED AS "FURNISH AND INSTALL".
3. TEMPERATURE CONTROLS CONTRACTOR (TC CONTRACTOR) SHALL BE RESPONSIBLE TO COMPLY WITH ALL APPLICABLE CODES AND STANDARDS.
4. FOR TEMPERATURE CONTROL DRAWINGS ONLY: ALL DETAILED INFORMATION IDENTIFIED WITH HEAVY LINE WEIGHT SHALL BE PROVIDED BY TC CONTRACTOR. ALL OTHER INFORMATION IDENTIFIED WITH LIGHT LINE WEIGHT SHALL BE PROVIDED BY OTHER TRADES.
5. ALL CONTROL SCHEMATICS AND WIRING DIAGRAMS ARE FOR THE CLARIFICATION OF EQUIPMENT INTERLOCKING FUNCTIONS AND THE INTERFACE OF VARIOUS CONTRACTORS' WORK AND SHALL NOT BE MISTAKEN AS SHOP DRAWINGS FOR ACTUAL INSTALLATION.
6. TC CONTRACTOR SHALL PROVIDE DDC CONTROLLERS AS REQUIRED TO MEET INTENT OF DESIGN DOCUMENTS. REFER TO THE PLANS FOR THE DDC FUNCTIONS THAT APPLY TO EACH MECHANICAL SYSTEM.
7. ALL TC PROVIDED COMPONENTS AND ALL TC CONTRACTOR INSTALLED WIRING SHALL BE LABELED PER SPECIFICATIONS.
8. ALL WIRING AND SYSTEM CONTROL VOLTAGES SHALL BE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATION AND THE ELECTRICAL SPECIFICATIONS.
9. VARIABLE FREQUENCY CONTROLLER, FAN AND PUMP MOTOR STARTERS, STARTER WIRING, CONTROL VOLTAGE TRANSFORMERS AND ASSOCIATED POWER WIRING SHALL BE PROVIDED BY OTHER TRADES.
10. DUCT SMOKE DETECTORS SHALL BE FURNISHED, INSTALLED AND WIRED TO THE FIRE ALARM SYSTEM BY THE ELECTRICAL CONTRACTOR. ELECTRICAL SHALL PROVIDE FIRE ALARM SYSTEM CONTROL MODULES FOR REQUIRED SAFETIES TO MOTOR STARTERS OR VFC'S AS INDICATED. CONTROL MODULES SHALL BE LOCATED NEAR RESPECTIVE MOTOR STARTERS OR VFCs. TC CONTRACTOR SHALL PROVIDE INTERLOCK WIRING FROM CONTROL MODULES TO MOTOR STARTERS OR VFCs.
11. ALL DDC AND CONTROL INTERLOCK WIRING SHALL BE BY TC CONTRACTOR UNLESS OTHERWISE NOTED. TC CONTRACTOR SHALL COORDINATE WITH VFC AND MOTOR STARTER SUPPLIERS TO DETERMINE EXACT WIRING REQUIREMENTS AND TERMINATION POINTS.
12. ALL DDC AND CONTROL INTERLOCK WIRING BETWEEN COMPONENTS SHALL BE INSTALLED WITHOUT INTERMEDIATE STOPS. WIRE SPLICING AT INTERMEDIATE TERMINAL STRIPS IS NOT ACCEPTABLE.
13. ALL ELECTRICAL WIRING AND RACEWAY SYSTEMS SHALL COMPLY WITH ELECTRICAL SPECIFICATION REQUIREMENTS. WHERE RACEWAY IS REQUIRED, TWO SEPARATE ELECTRICAL RACEWAY SYSTEMS SHALL BE PROVIDED: ONE FOR 120V WIRING AND THE OTHER FOR 24V WIRING.
14. TC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER SUPPLIES REQUIRED FOR TC SYSTEM UNLESS OTHERWISE NOTED. REFER TO ELECTRICAL PANEL SCHEDULES FOR SPARE CIRCUITS OR CIRCUITS DEDICATED TO TEMPERATURE CONTROLS. COORDINATE CIRCUIT USE WITH ELECTRICAL CONTRACTOR.
15. TC CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL FIELD MOUNTED COMPONENTS.
16. REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES. PROVIDE WALL MOUNTED DEVICE GUARDS WHERE INDICATED ON TC DETAILS OR AT SPECIFIC LOCATIONS INDICATED ON MECHANICAL FLOOR PLANS.
17. TC CONTRACTOR SHALL PROVIDE AUXILIARY PANELS FOR REQUIRED PANEL MOUNTED EQUIPMENT SUCH AS RELAYS, TRANSDUCERS, CONTROL TRANSFORMERS, ETC. AUXILIARY PANELS SHALL BE LOCATED NEXT TO ASSOCIATED DDC PANEL DEPENDING ON WIRE QUANTITY OR COMPLEXITY, PROVIDE CONDUITS BETWEEN PANELS OR WIRING THROUGH WITH CONDUIT STUBS ABOVE ALL ASSOCIATED PANELS.
18. REMOTELY MOUNTED FIELD DEVICES SUCH AS RELAYS, CONTROL TRANSFORMERS, ETC., SHALL BE HOUSED IN AN ENCLOSURE PROVIDED BY THE TC CONTRACTOR.
19. CONTROL TRANSFORMERS WHEN REQUIRED SHALL BE SIZED FOR 150% OF ACTUAL LOAD.
20. FREEZESTATS SHALL BE MOUNTED ON UPSTREAM FACE OF COOLING COILS. FREEZESTAT QUANTITY SHALL BE ONE PER 20 SQ. FT OF CROSS SECTIONAL AREA.
21. CURRENT SWITCHES USED FOR OPERATIONAL STATUS SHALL HAVE CURRENT THRESHOLD SETPOINT ADJUSTED TO INDICATE BELT OR DRIVE FAILURE.
22. ALL CONTROL VALVES, CONTROL DAMPERS AND ASSOCIATED CONTROL ACTUATORS IDENTIFIED ON TC DRAWINGS SHALL BE FURNISHED BY TC CONTRACTOR UNLESS OTHERWISE NOTED. DAMPER SIZE AND LOCATIONS ARE INDICATED ON MECHANICAL FLOOR PLAN DRAWINGS.
23. ALL CONTROL VALVES AND DAMPERS FURNISHED BY THE TC CONTRACTOR SHALL BE INSTALLED BY THE MECHANICAL CONTRACTOR. ALL PIPE PENETRATIONS AND BASIC FITTINGS REQUIRED FOR SENSOR INSTALLATIONS SHALL BE PROVIDED BY MECHANICAL CONTRACTOR.
24. DAMPER ACTUATORS SHALL BE INSTALLED BY TC CONTRACTOR WHEN FURNISHED BY TC CONTRACTOR.
25. ALL INSTRUMENTATION TUBING REQUIRED FOR DPS AND DPT COMPONENT INSTALLATIONS SHALL BE PROVIDED BY TC CONTRACTOR.
26. TC CONTRACTOR SHALL FIELD MOUNT ALL REQUIRED "SHIPPED LOOSE" PACKAGED CONTROL COMPONENTS FURNISHED BY EQUIPMENT SUPPLIERS WHERE INDICATED. ALL REQUIRED 24V AND 120V FIELD WIRING SHALL BE PROVIDED BY TC CONTRACTOR UNLESS NOTED OTHERWISE. TC CONTRACTOR SHALL COORDINATE SPECIFIC SYSTEM WIRING REQUIREMENTS WITH PACKAGED EQUIPMENT SUPPLIERS.

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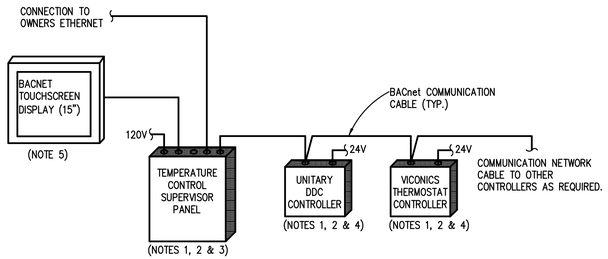
TEMPERATURE CONTROL STANDARDS AND GENERAL NOTES

SHEET M-801

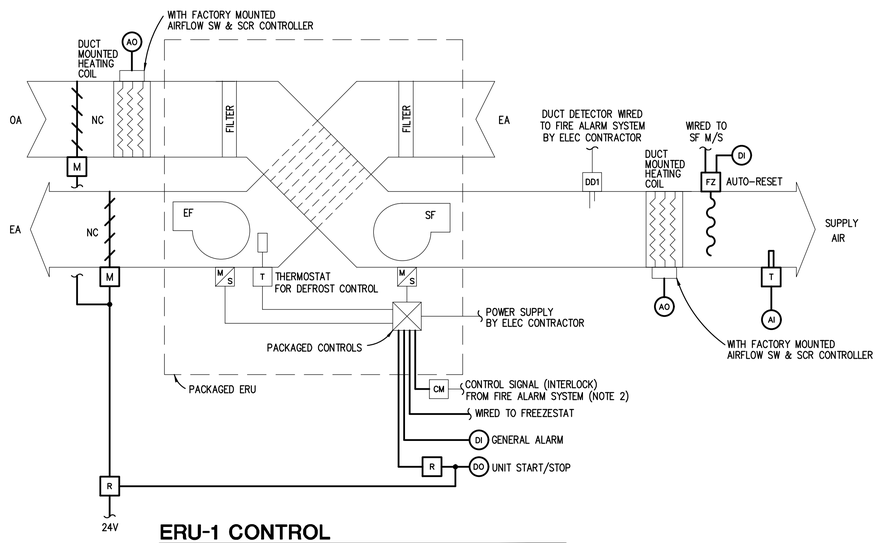


DDC SYSTEM ARCHITECTURE

NO SCALE

NOTES:

1. REFER TO TEMPERATURE CONTROL SCHEMATICS FOR THE REQUIRED POINTS ASSOCIATED FOR EACH SYSTEM.
2. TC CONTRACTOR SHALL DETERMINE DDC PANEL QUANTITY BASED ON POINT DENSITIES AND AVAILABLE MOUNTING SPACE. UNLESS SPECIFICALLY NOTED IN DESIGN DRAWINGS, TC CONTRACTOR SHALL LOCATE DDC PANELS AND COORDINATE WITH OTHER TRADES.
3. TC CONTRACTOR SHALL PROVIDE REQUIRED POWER SUPPLIES FROM SPARE CIRCUITS WHERE IDENTIFIED ON ELECTRICAL PANEL SCHEDULES. COORDINATE WITH ELEC CONTRACTOR. REFER TO ELECTRICAL DWGS FOR PANEL LOCATIONS.
4. 24V TRANSFORMERS REQUIRED FOR TERMINAL UNIT DDC CONTROLLERS SHALL BE LOCATED IN MECHANICAL OR ELECTRICAL ROOMS – COORDINATE LOCATIONS. MAXIMUM TRANSFORMER SIZE SHALL BE 100VA. PROVIDE ENCLOSURE(S) FOR TRANSFORMERS.
5. BUILDING DDC NETWORK SHALL BE CONNECTED TO THE BACNET TOUCHSCREEN DISPLAY TC CONTRACTOR SHALL PROVIDE INTERFACE COMPONENT COMPATIBLE FOR THIS CONNECTION. TC CONTRACTOR SHALL PROVIDE TOUCHSCREEN PROGRAMMING AND SET UP TO PROVIDE SCHEDULING, ALARM VIEWS, DATA POINT VALUES, SETPOINT ADJUSTMENTS AND SYSTEM GRAPHICS.



ERU-1 CONTROL

NOTES:

1. COORDINATE WIRING AND TERMINATIONS WITH ERU SUPPLIER.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE ALARM SYSTEM COMPONENTS AND WIRING FROM FIRE ALARM PANEL TO CONTROL MODULE. TC CONTRACTOR SHALL PROVIDE WIRING FROM CONTROL MODULE TO FAN MOTOR CONTROL CIRCUIT.

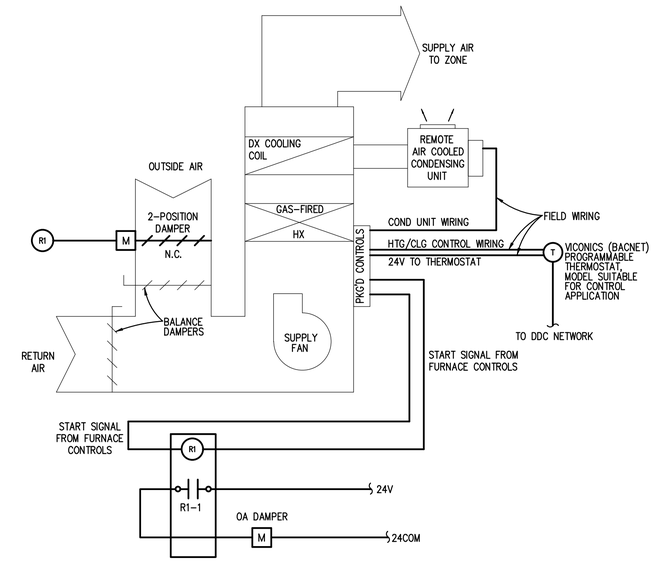
SEQUENCE OF OPERATION:

NOTE: ALL SETPOINTS DESCRIBED IN SEQUENCE SHALL BE ADJUSTABLE BY SYSTEM OPERATORS (CREATE REQUIRED VIRTUAL POINTS). APPROPRIATE DEADBANDS SHALL BE USED TO PREVENT SHORT CYCLING SITUATIONS.

1. ERU SHALL HAVE START/STOP CAPABILITY FROM THE DDC SYSTEM. ERU SHALL BE SCHEDULED TO RUN CONTINUOUSLY DURING FLOOR OCCUPIED MODE.
2. ERU OUTDOOR AIR AND EXHAUST AIR ISOLATION DAMPERS SHALL BE OPENED BY DDC SYSTEM WHENEVER ERU IS ACTIVATED.
3. WHEN ERU IS ACTIVATED, THE ENERGY RECOVERY WHEEL, EXHAUST FAN AND SUPPLY FAN SHALL ALL BE ACTIVATED. DDC SHALL MONITOR GENERAL ALARM CONTACT AT THE ERU CONTROL PANEL. UPON ALARM, DDC SHALL ACTIVATE AN ALARM FOR SYSTEM OPERATORS.
4. DDC SYSTEM SHALL MODULATE HEATING COIL VALVE CONTROL TO MAINTAIN A DISCHARGE AIR TEMP LOW LIMIT SETPOINT OF 60℉ (ADJUSTABLE).
5. DDC SHALL ACTIVATE AN ALARM FOR SYSTEM OPERATORS IF DISCHARGE AIR TEMPERATURE FALLS BELOW 45℉ OR RISES ABOVE 80℉.
6. FREEZESTAT SHALL DEACTIVATE ERU IF TEMPERATURE IS 35℉ OR BELOW.
7. DUCT SMOKE DETECTOR SHALL DEACTIVATE ERU THRU FIRE ALARM SYSTEM CONTROL MODULE WHEN PRODUCTS OF COMBUSTION ARE DETECTED.
8. WHEN ERU IS DEACTIVATED, HEATING COIL VALVE SHALL REMAIN CLOSED.
9. DDC SYSTEM SHALL MONITOR EXHAUST AIR TEMP TO ERU FOR SYSTEM DIAGNOSTICS.

TC GENERAL NOTES

TC GENERAL NOTES ON DRAWING M-801 APPLY TO THIS DRAWING.



FURNACE F-1 CONTROL

SEQUENCE OF OPERATION:

NOTE: HEATING AND COOLING SETPOINTS ALL SETPOINTS SHALL BE ADJUSTABLE BY SYSTEM OPERATORS (CREATE REQUIRED VIRTUAL POINTS). APPROPRIATE DEADBANDS SHALL BE USED TO PREVENT SHORT CYCLING SITUATIONS.

1. 7-DAY PROGRAMMABLE THERMOSTATS SHALL BE NETWORKED TO THE BUILDING AUTOMATION SYSTEM (BAS).
2. HEATING AND COOLING SETPOINTS MAY BE ADJUSTED LOCALLY OR REMOTELY THRU BAS. THERE WILL BE A MINIMUM 3 DEGREE DEADBAND BETWEEN SETPOINTS.
6. DURING OCCUPIED MODE, FURNACE FAN OPERATION WILL BE CONTINUOUS. UPON THERMOSTAT STARTING THE FURNACE, FROM EITHER OCCUPIED MODE START OR UNOCCUPIED RUN START, THE FURNACE CONTROLLER SHALL SIGNAL RELAY R1 TO OPEN THE OUTSIDE AIR DAMPER. UPON LOSS OF SIGNAL, DAMPER SHALL CLOSE, PROVIDE DAMPER ACTUATOR WITH SPRING RETURN.
7. SPACE THERMOSTAT WILL CONTROL HEATING AND COOLING TO MAINTAIN SPACE TEMP SETPOINTS.
8. DURING UNOCCUPIED MODE, FURNACE UNIT WILL CYCLE TO MAINTAIN HEATING SETBACK OR COOLING SETUP SPACE TEMP SETPOINTS.

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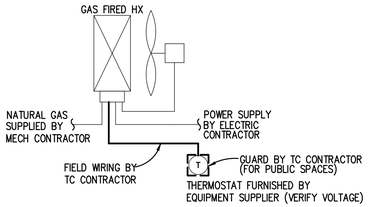
TEMPERATURE CONTROLS

SHEET M-802

TC GENERAL NOTES

TC GENERAL NOTES ON DRAWING M-801 APPLY TO THIS DRAWING.



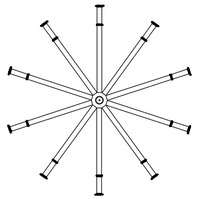
GAS FIRED UH

NOTE:

REFER TO FLOOR PLANS FOR QUANTITY AND LOCATION OF UNITS.

SEQUENCE OF OPERATION:

1. SPACE THERMOSTAT SHALL ENERGIZE UNIT HEATER CONTROL CIRCUIT TO MAINTAIN SPACE TEMPERATURE SETPOINT.



CIRCULATION FAN CONTROL

TYPICAL FOR 2 FANS AND ONE CONTROLLER.

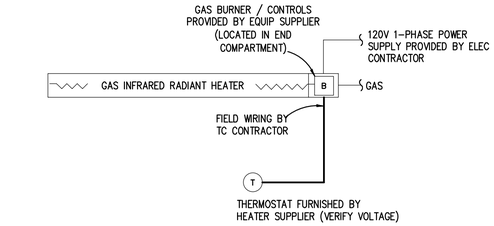
NOTES:

1. REFER TO MECHANICAL FLOOR PLANS FOR LOCATION.
2. FAN CONTROLLER PROVIDED BY MANUFACTURER.
3. COORDINATE WIRING REQUIREMENTS WITH THE EQUIPMENT SUPPLIER.

SEQUENCE OF OPERATION

1. LOCAL CONTROLLER PROVIDED BY MANUFACTURER ALLOWS FOR USER SETTINGS AND IS WIRED BY ELECTRICAL CONTRACTOR. FAN IS CONTROLLED MANUALLY.

CIRCULATION FAN CONTROL WIRING



GAS INFRARED RADIANT HEATER CONTROL

TYPICAL

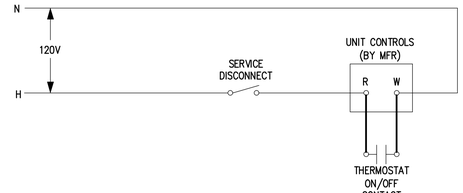
SEQUENCE OF OPERATION

NOTES:

1. REFER TO FLOOR PLANS FOR LOCATION OF UNITS AND THERMOSTATS
2. COORDINATE WIRING DETAILS AND TERMINATIONS REQUIREMENTS WITH EQUIPMENT SUPPLIER.

SEQUENCE OF OPERATION:

1. THERMOSTAT SHALL ENABLE/DISABLE GAS INFRARED HEATING UNIT AS REQUIRED TO MAINTAIN DESIRED SPACE TEMPERATURE..



GAS INFRARED RADIANT HEATER CONTROL WIRING

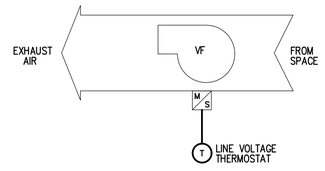
TYPICAL

DDC SPACE TEMPERATURE SENSOR

TYPICAL

SEQUENCE OF OPERATION:

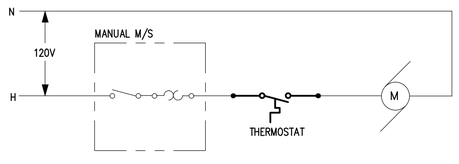
1. DDC SHALL MONITOR SPACE TEMP AND ACTIVATE ALARM IF HIGH OR LOW LIMIT SETPOINTS ARE REACHED.



VENTILATION FAN VF-1 CONTROL

SEQUENCE OF OPERATION:

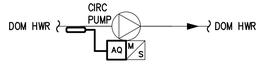
1. VENTILATION FAN SHALL BE ACTIVATED WHEN SPACE TEMP RISES ABOVE 80°F (ADJ. AT THERMOSTAT).
2. THERMOSTAT SHALL PROVIDE 2°F DEADBAND (MINIMUM) FOR CONTROL.



VF-1 M/S WIRING

NOTES:

1. WIRING DETAIL IDENTIFIES INTENT AND DOES NOT INDICATE ACTUAL WIRING REQUIREMENTS. CONSULT WITH EQUIPMENT SUPPLIER FOR THE ACTUAL WIRING REQUIREMENTS.

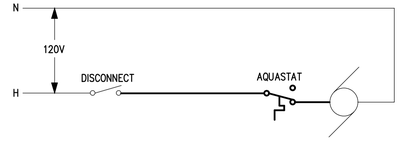


DOMESTIC HW CIRC PUMP CONTROL

TYPICAL – REFER TO SCHEDULES & FLOOR PLANS FOR QUANTITY & LOCATION OF UNITS

SEQUENCE OF OPERATION:

1. AQUASTAT WILL START PUMP WHEN WATER TEMPERATURE FALLS BELOW SETPOINT.



DOM HW CP WIRING

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TEMPERATURE CONTROLS

SHEET M-803

ELECTRICAL SYMBOL LIST (NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.)

SYMBOL	DESCRIPTION
FX (NL)	FIXTURE TYPE (NL INDICATES NIGHT LIGHT)
	LIGHTING FIXTURE
	DIRECT/INDIRECT LIGHTING FIXTURE
	EMERGENCY LIGHTING FIXTURE
	LIGHTING FIXTURE
	WALL MOUNTED LIGHTING FIXTURE
	LIGHTING FIXTURE
	RECESSED OR SURFACE MOUNTED DIRECTIONAL LIGHTING FIXTURE
	PENDANT LIGHTING FIXTURE
	WALL SCONCE
	LIGHTING TRACK
	TRACK LIGHTING FIXTURE
	POLE MOUNTED LIGHTING FIXTURE
	POLE MOUNTED LIGHTING FIXTURE - POST TOP
	BOLLARD LIGHTING FIXTURE
	EMERGENCY LIGHTING UNIT
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
	EXIT LIGHTING FIXTURE - WALL MOUNTED
	EXIT/EMERGENCY LIGHTING COMBO
ALCR	AUTOMATIC LOAD CONTROL RELAY
BCELTS	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH
LC	LIGHTING CONTROL DEVICE - REFER TO LIGHTING CONTROL SCHEDULE
XX	ROOM CONTROL DESIGNATION - REFER TO LIGHTING CONTROL SCHEDULE
S	SINGLE POLE TOGGLE SWITCH
S2	TWO POLE TOGGLE SWITCH
S3	3 WAY TOGGLE SWITCH
S4	4 WAY TOGGLE SWITCH
K	KEY OPERATED SWITCH
K3	3 WAY KEY OPERATED SWITCH
K4	4 WAY KEY OPERATED SWITCH
D	DIMMER SWITCH
DO	DIMMER OCCUPANCY SENSOR SWITCH
DL	LOW VOLTAGE DIMMER SWITCH
D3	3 WAY DIMMER SWITCH
SP	PILOT SWITCH
UPS	UNINTERRUPTIBLE POWER SUPPLY
CSX	LOW VOLTAGE CONTROL STATION "X" INDICATES TYPE

SYMBOL	DESCRIPTION
	SINGLE / DUPLEX RECEPTACLE OUTLET "X" INDICATES TYPE
	SINGLE / DUPLEX RECEPTACLE OUTLET CONTROLLED BY AUTOMATIC CONTROL DEVICE / SYSTEM
	QUAD RECEPTACLE OUTLET
	ABOVE COUNTER DUPLEX RECEPTACLE (SIMILAR FOR TAMPER RESISTANT, QUADS, EMERGENCY AND GFCI RECEPTACLES)
	DUPLEX RECEPTACLE-GROUND FAULT CIRCUIT INTERRUPTER
	DEAD FRONT-GROUND FAULT CIRCUIT INTERRUPTER
	TAMPER RESISTANT RECEPTACLE OUTLET
	QUAD TAMPER RESISTANT RECEPTACLE OUTLET
	ABOVE COUNTER TAMPER RESISTANT RECEPTACLE OUTLET
	DUPLEX RECEPTACLE WITH 2 USB PORTS OUTLET
	USB 4 PORT CHARGING STATION
	CEILING MOUNTED DUPLEX / QUAD RECEPTACLE
	WALL / CEILING MOUNTED SPECIAL RECEPTACLE - REFER TO ELECTRICAL STANDARD SCHEDULES
	MULTI-OUTLET RACEWAY
"X"	MULTI-SERVICE DROP SEE ELECTRICAL DETAILS AND DIAGRAMS SHEET "X" INDICATES TYPE
FBX	FLOOR SERVICE FITTING "X" INDICATES TYPE
RX	CORD REEL "X" INDICATES TYPE
ST	DIGITAL TIME SWITCH
SL	LOW VOLTAGE SWITCH
SO	OCCUPANCY SENSOR
SO2	OCCUPANCY SENSOR - REFER TO ELECTRICAL STANDARD SCHEDULE
OS X	OCCUPANCY SENSOR - REFER TO ELECTRICAL STANDARD SCHEDULES - "X" INDICATES TYPE
CP	CONTROL PANEL
	MOTOR
VFC	VARIABLE FREQUENCY CONTROLLER
	MANUAL CONTROLLER
	MAGNETIC CONTROLLER
	COMBINATION MAGNETIC CONTROLLER

SYMBOL	DESCRIPTION
	NON-FUSIBLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
CB	ENCLOSED CIRCUIT BREAKER
	PUSH BUTTON STATION
J	JUNCTION BOX
	HARD WIRE POWER CONNECTION
	GROUND ROD
	GROUND CONNECTION
HH	HANDHOLE
X	CONDUIT SLEEVE WITH BUSHINGS LENGTH AS REQUIRED "X" INDICATES CONDUIT SIZE
	CONDUIT UP
	CONDUIT DOWN
	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET MOUNTED 8" ABOVE COUNTERTOP
	EMPTY BOX FOR FUTURE CEILING MOUNTED TELECOMMUNICATION OUTLET
X	TELECOMMUNICATION OUTLET "X" INDICATES TYPE
X	TELECOMMUNICATION OUTLET MOUNTED 8" ABOVE COUNTERTOP "X" INDICATES TYPE
X	TELECOMMUNICATION CEILING MOUNTED OUTLET "X" INDICATES TYPE
	TELECOMMUNICATION BACKBOARD
TGB	TELECOMMUNICATION GROUNDING BUS BAR
TMGB	TELECOMMUNICATION MAIN GROUNDING BUS BAR
IC	INTERCOM OUTLET
S	SPEAKER
S	SPEAKER - WALL MOUNTED
MIC	MICROPHONE
VC	VOLUME CONTROL
	SINGLE FACE CLOCK - CEILING MOUNTED
	SINGLE FACE CLOCK - WALL MOUNTED
	DOUBLE FACE CLOCK - CEILING MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER CEILING MOUNTED
	DOUBLE FACE CLOCK - WALL MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER WALL MOUNTED
T/C	TIME CLOCK
C	CONTACTOR
P	PHOTOCELL

REFER TO ELECTRICAL STANDARD SCHEDULES

SYMBOL	DESCRIPTION
	SECURITY CAMERA
MD	MOTION DETECTOR
K	SECURITY KEY SWITCH
DC	DOOR CONTACT
KP	KEY PAD
CR	CARD READER
DB	DURESS PUSH BUTTON STATION
DE	DELAYED EGRESS
REX	REQUEST TO EXIT STATION
PP	AUTOMATIC DOOR PUSH PAD OPERATOR
DO	DOOR OPERATOR
DA	DOOR ACTUATOR
AC	ACCESS CONTROL STATION
ACCP	ACCESS CONTROL CONTROL PANEL
ACPS	ACCESS CONTROL POWER SUPPLY
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED
	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED
	SWITCH
	AUTOMATIC OR MANUAL TRANSFER SWITCH
	FUSE
	TRANSFORMER
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
X	PANELBOARD "X" INDICATES PANELBOARD NAME
	GROUND
	STRESS CONE TERMINATION
K	SECURITY KEY INTERLOCK
M	UTILITY METER
EMU	ELECTRONIC METERING UNIT
A	AMMETER
V	VOLTMETER
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
SPD	SURGE PROTECTIVE DEVICE

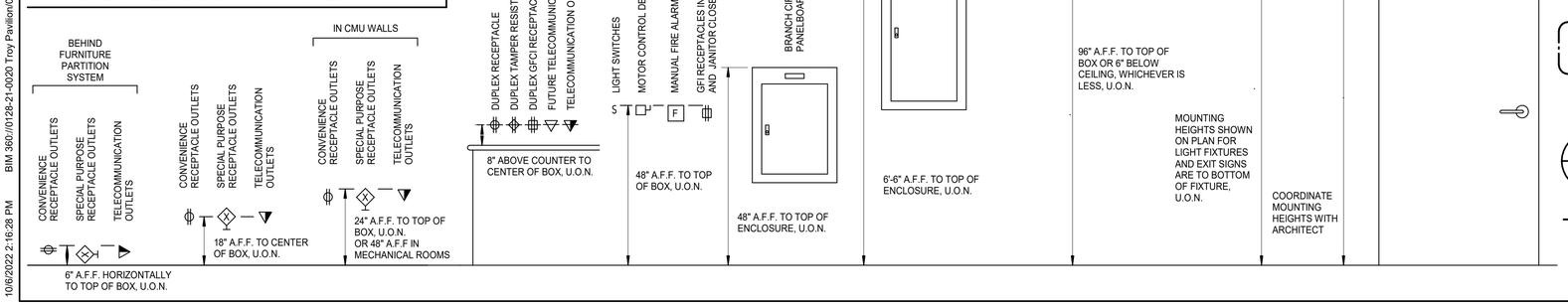
SYMBOL	DESCRIPTION
	DISTRIBUTION PANEL
GB	GROUND BUS
F	MANUAL FIRE ALARM BOX
SD	SMOKE DETECTOR
DD	DUCT SMOKE DETECTOR
CO	CARBON MONOXIDE DETECTOR
TS	TAMPER SWITCH
FS	FLOW SWITCH
	BRANCH CIRCUIT PANEL BOARD
	LOAD CENTER
T	TRANSFORMER
	TRACK
	TRACK
	TRACK LIGHTING FIXTURE
	TRACK LIGHTING FIXTURE
	TRACK LIGHTING FIXTURE
	TRACK LIGHTING FIXTURE
	DIRECTIONAL LIGHTING FIXTURE
	DIRECTIONAL LIGHTING FIXTURE
	RECESSED LIGHTING FIXTURE
	RECESSED LIGHTING FIXTURE
	MULTIPLES LIGHTING FIXTURE
	STEP OR WALL RECESSED LIGHTING FIXTURE
	STEP OR WALL WALL RECESSED LIGHTING FIXTURE
	LED STRIP LIGHTING
	PENDANT LINEAR LIGHTING FIXTURE
	LINEAR LIGHTING FIXTURE
	SURFACE MOUNTED LINEAR LIGHTING FIXTURE
	UNDER CABINET LIGHTING FIXTURE
	UNDER CABINET LIGHTING FIXTURE
	DECORATIVE LIGHTING FIXTURE
	DECORATIVE LIGHTING FIXTURE
	DECORATIVE LIGHTING FIXTURE
	WALL SCONCE
	WALL SCONCE
	WALL MOUNTED LIGHTING FIXTURE
	WALL MOUNTED LIGHTING FIXTURE
	WALL MOUNTED LIGHTING FIXTURE
	WALL MOUNTED LIGHTING FIXTURE

ELECTRICAL DRAWING INDEX

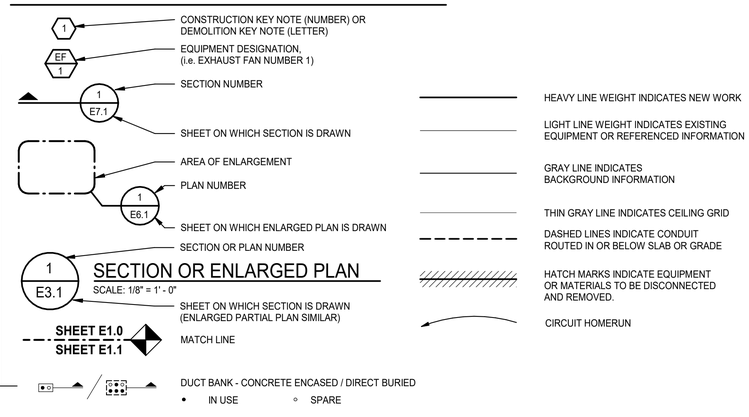
ELECTRICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A	AMPERES	MAX	MAXIMUM
AER	ARC ENERGY REDUCTION	MCA	MINIMUM CIRCUIT AMPACITY
AF	AMPERES FRAME (BREAKER RATING)	MCB	MAIN CIRCUIT BREAKER
AFCI	ARC FAULT CIRCUIT INTERRUPTER	MCC	MOTOR CONTROL CENTER
A.F.F.	ABOVE FINISH FLOOR	MDP	MAIN DISTRIBUTION PANEL
AIC	AMPS INTERRUPTING CAPACITY	MECH	MECHANICAL
AL	AUDIENCE LEFT	MIN	MINIMUM
ALCR	AUTOMATIC LOAD CONTROL RELAY	MISC.	MISCELLANEOUS
AR	AUDIENCE RIGHT	MLO	MAIN LUGS ONLY
AT	AMPERES TRIP (BREAKER SETTING)	MOP	MAXIMUM OVERCURRENT PROTECTION
ATS	AUTOMATIC TRANSFER SWITCH	MTD	MOUNTED
AUX	AUXILIARY	MTG	MOUNTING
		MTR	MOTOR
BCELTS	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH	N	NEUTRAL
BKR	BREAKER	NC	NORMALLY CLOSED
BPS	BOLTED PRESSURE SWITCH	NEC	NATIONAL ELECTRICAL CODE
		NF	NON-FUSIBLE
C	CONDUIT	NIC	NOT IN CONTRACT
CB	CIRCUIT BREAKER	NL	NIGHT LIGHT
CKT	CIRCUIT	NO	NORMALLY OPEN
CT	CURRENT TRANSFORMER	NTS	NOT TO SCALE
DEMO	DEMOLITION	OC	ON CENTER
DIM	DIMENSION	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
DISC	DISCONNECT		
DP	DISTRIBUTION PANEL	OFOI	OWNER FURNISHED, OWNER INSTALLED
DS	DOWNSTAGE		
DWG	DRAWING	P	POLE
EBU	EMERGENCY BATTERY UNIT	PB	PUSHBUTTON STATION
EC	ELECTRICAL CONTRACTOR	PH	PHASE
ELEC	ELECTRICAL	PT	POTENTIAL TRANSFORMER
EM/ EMERG	EMERGENCY	PDP	POWER DISTRIBUTION PANEL
EMT	ELECTRICAL METALLIC TUBING		
EO	ELECTRICALLY OPERATED	RECEPT.	RECEPTACLE
EPO	EMERGENCY POWER OFF	RDP	RECEPTACLE DISTRIBUTION PANEL
EWC	ELECTRIC WATER COOLER	RP	RECEPTACLE PANEL
EXIST	EXISTING	RSC	RIGID STEEL CONDUIT
FA	FIRE ALARM	SCCA	SHORT CIRCUIT CURRENT RATING
FLA	FULL LOAD AMPS	SCHED	SCHEDULE
FLR	FLOOR	SPD	SURGE PROTECTION DEVICE
FOH	FRONT OF HOUSE	ST	SHUNT TRIP
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR	SW	SWITCH
FU	FUSE	SWBD	SWITCHBOARD
		SWGR	SWITCHGEAR
G/GRD/EG	GROUND		
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TB	TERMINAL BOX
GFP	GROUND FAULT PROTECTION	TELECOM	TELECOMMUNICATIONS
		TR	TAMPER RESISTANT
HOA	HAND-OFF-AUTO	TTP	TELEPHONE TERMINAL BACKBOARD
HP	HORSEPOWER	TYP	TYPICAL
HV	HIGH VOLTAGE		
HZ	HERTZ	U.O.N.	UNLESS OTHERWISE NOTED
		US	UPSTAGE
IG	ISOLATED GROUND		
		V	VOLTS
JB	JUNCTION BOX		
		W	WIRE OR WATTS
KA	THOUSAND AMP	WG	WIRE GUARD
KV	KILOVOLT	WP	WEATHERPROOF
KVA	KILOVOLT - AMPERES	WR	WEATHER RESISTANT
KW	KILOWATT		
KWH	KILOWATT - HOURS	XFMR	TRANSFORMER
		XP	EXPLOSION PROOF
LA	LIGHTING ARRESTOR		
LP	LIGHTING PANEL	(E)	EXISTING
LDP	LIGHTING DISTRIBUTION PANEL	(R)	RELOCATED

STANDARD MOUNTING HEIGHTS



STANDARD METHODS OF NOTATION



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ELECTRICAL STANDARDS AND DRAWING INDEX

SHEET E-001

10/6/2022 2:16:28 PM BIM 360://0128-21-0020 Troy Pavilion/0128210020_MEP_TroyPavilion_2021.rvt

BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR SINGLE PHASE CIRCUITS

BRANCH CIRCUIT RATING (A)	WIRE SIZE (AWG)	MAXIMUM BRANCH CIRCUIT LENGTH (IN FEET)				
		120V	208V	240V	277V	480V
20A	12	83	143	165	191	331
20A	10	128	222	256	295	511
20A	8	201	348	402	464	804
20A	6	313	542	625	721	1250
30A	10	85	148	170	197	341
30A	8	134	232	268	309	536
30A	6	208	361	417	481	833
30A	4	313	542	625	721	1250

GENERAL NOTES:
1. THE ABOVE TABLE VALUES ARE BASED ON COPPER CONDUCTORS, IN STEEL CONDUIT, WITH A LOAD POWER FACTOR OF 0.85,PER NEC CHAPTER 9, TABLE 9.
2. PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
3. CONDUCTOR SIZES ARE BASED ON MAXIMUM OF 9 CURRENT CARRYING CONDUCTORS IN A SINGLE CONDUIT.
4. LIMITS FOR CONDUCTOR LENGTHS SHOWN ARE BASED ON A MAXIMUM BRANCH CIRCUIT LOADING OF 64% OF THE BRANCH BREAKER RATING AND A MAXIMUM OF 3 PERCENT VOLTAGE DROP TO COMPLY WITH ASHRAE 90.1 AND THE NEC. FOR CIRCUITS LOADED GREATER THAN 64% OF BRANCH BREAKER RATING, THE CONTRACTOR SHALL PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

Revit Note: use the Formatting tab to hide any undesired columns, for example: AL Conductors

FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE

OVERCURRENT DEVICE RATING (AMPERES)	COPPER CONDUCTORS						KEYED NOTES	ALUMINUM CONDUCTORS				
	WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE					WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE		
	PHASE & NEUTRAL	GROUND	SINGLE PHASE 2 WIRE+G (1PH, 1N, 1G)	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)		PHASE & NEUTRAL	GROUND	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)
15-20	12	12	3/4"	3/4"	3/4"	3/4"		N/A	N/A	N/A	N/A	N/A
25-30	10	10	3/4"	3/4"	3/4"	3/4"		N/A	N/A	N/A	N/A	N/A
35-40	8	10	3/4"	3/4"	3/4"	3/4"		N/A	N/A	N/A	N/A	N/A
45-50	8 (6)	10	3/4"	3/4"	3/4"	3/4"	1	N/A	N/A	N/A	N/A	N/A
60	6 (4)	10	3/4" (1")	3/4" (1")	3/4" (1")	1" (1 1/4")	1	N/A	N/A	N/A	N/A	N/A
70	4	8	1"	1 1/4"	1 1/4"	1 1/4"		N/A	N/A	N/A	N/A	N/A
80	4 (3)	8	1"	1 1/4"	1 1/4"	1 1/4"	1	N/A	N/A	N/A	N/A	N/A
90-100	3 (2)	8	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1	1	6	1 1/2"	1 1/4"	1 1/2"
110	2 (1)	6	-	1 1/4"	1 1/4"	1 1/4" (1 1/2")	1	1/0	4	1 1/2"	1 1/2"	2"
125	1 (1/0)	6	-	1 1/4" (1 1/2")	1 1/4" (1 1/2")	1 1/2"	1	2/0	4	1 1/2"	1 1/2"	2"
150	1/0	6	-	1 1/2"	1 1/2"	1 1/2"		3/0	4	2"	2"	2 1/2"
175	2/0	6	-	2"	2"	2"		4/0	4	2"	2"	2 1/2"
200	3/0	6	-	2"	2"	2 1/2"		250	4	2"	2"	3"
225	4/0	4	-	2"	2"	2 1/2"		300	2	2 1/2"	2 1/2"	3"
250	250	4	-	2 1/2"	2 1/2"	2 1/2"		350	2	2 1/2"	2 1/2"	3"
300	350	4	-	2 1/2"	2 1/2"	3"		500	2	3"	3"	3 1/2"
350	500	3	-	3"	3"	3"		2-4/0	2-1/0	2-2"	2-2"	2-2"
400	500	3	-	3"	3"	3"		2-250	2-1/0	2-2 1/2"	2-2 1/2"	2-2 1/2"
450	2-4/0	2-2	-	2-2"	2-2"	2-2 1/2"		2-300	2-1/0	2-2 1/2"	2-2 1/2"	2-3"
500	2-250	2-2	-	2-2 1/2"	2-2 1/2"	2-2 1/2"		2-350	2-1/0	2-2 1/2"	2-2 1/2"	2-3"
600	2-350	2-1	-	2-2 1/2"	2-2 1/2"	2-3"		2-500	2-2/0	2-3"	2-3"	2-3 1/2"
700	2-500	2-1/0	-	2-3"	2-3"	2-3"		2-600	2-3/0	2-3"	2-3"	2-3 1/2"
800	2-500	2-1/0	-	2-3"	2-3"	2-3 1/2"		3-400	3-3/0	3-3"	3-3"	3-3 1/2"
1000	3-400	3-2/0	-	3-3"	3-3"	3-3"		3-600	3-4/0	-	3-3 1/2"	3-3 1/2"
1200	3-600	3-3/0	-	3-3 1/2"	3-3 1/2"	3-3 1/2"		4-500	4-250	-	4-3"	4-3 1/2"
1600	4-600	4-4/0	-	4-3 1/2"	4-3 1/2"	4-3 1/2"		5-600	5-350	-	5-3 1/2"	5-4"
2000	5-600	5-250	-	5-3 1/2"	5-3 1/2"	5-3 1/2"		6-600	6-400	-	6-3 1/2"	6-4"

GENERAL NOTES:
1. CONTRACTOR TO SIZE FEEDERS AND BRANCH CIRCUITS BASED ON THIS SCHEDULE AND OVER CURRENT DEVICE SIZE, UNLESS NOTED OTHERWISE.
2. CONTRACTOR MAY COMBINE 20A CIRCUITS AS NOTED IN SPECIFICATION.
3. CONDUCTORS ARE BASED ON THHN/THWN UP TO AND INCLUDING #4/0. LARGER THAN #4/0 ARE BASED ON TYPE XHHW.
4. CONDUIT SIZES ARE VALID FOR EMT OR RGS. CONDUIT SIZES SHALL BE ADJUSTED AS REQUIRED FOR OTHER TYPES OF CONDUIT.
5. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE REQUIRED WIRE SIZES TO ACCOMMODATE MECHANICAL EQUIPMENT LUG SIZES.
6. SIZE OF DISCONNECT SWITCH LOCATED AT EQUIPMENT SHALL BE SIZED BASED UPON OVERCURRENT PROTECTION OF THAT DEVICE.
7. OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLING DIFFERENT SIZE/QUANTITY OF CONDUCTORS TO OBTAIN AN EQUIVALENT AMPACITY.
8. SPLICE FROM ALUMINUM TO COPPER PRIOR TO ENTERING EQUIPMENT LISTED FOR USE WITH COPPER CONDUCTORS ONLY OR USE COPPER CONDUCTORS FOR THE ENTIRE LENGTH OF FEEDER.
9. N/A = NOT ACCEPTABLE

KEYED NOTES:
1. CONDUCTORS ARE BASED ON 90°C, 600V. INSULATED WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C. FOR TERMINATION RATED AT 60°C, USE CONDUCTORS AND CONDUIT SIZES INDICATED IN PARENTHESES.

MOTOR CIRCUIT SIZING SCHEDULE (120V, SINGLE PHASE)

MOTOR HP	CIRCUIT BREAKER	MANUAL MOTOR STARTER SIZE	COMBINATION STARTER SIZE	MOTOR DISCONNECT (NOTE 3)
1/6	15A	1 HP	0	20A
1/4	15A	1 HP	0	20A
1/3	15A	1 HP	0	20A
1/2	20A	1 HP	0	20A

MOTOR CIRCUIT SIZING SCHEDULE (208V, 3 PHASE)

MOTOR HP	SWITCH/FUSE	CIRCUIT BREAKER	STARTER SIZE/TYPE	MOTOR DISCONNECT (NOTE 3)
1/2	30/6A	15A	1	30A
3/4	30/6A	15A	1	30A
1	30/10A	15A	1	30A
1 1/2	30/10A	15A	1	30A
2	30/10A	15A	1	30A
3	30/20A	20A	1	30A
5	30/25A	35A	1	30A
7 1/2	60/40A	50A	1	60A
10	60/50A	60A	2	60A
15	60/60A	90A	3	60A
20	100/90A	100A	3	100A
25	100/100A	110A	3	100A
30	200/125A	125A	4	200A
40	200/175A	175A	4	200A
50	200/200A	200A	5	200A
60	400/250A	250A	5	400A
75	400/300A	300A	5	400A
100	400/400A	400A	6	400A
125	600/500A	600A	6	600A
150	600/600A	600A	6	600A

RACEWAY / CONDUCTOR / CABLE APPLICATION SCHEDULE

	WIRE		RACEWAY										CABLE/CORD				
	COPPER, TYPE THHN/THWN-2	COPPER, TYPE XHHW-2	ALUMINUM, TYPE XHHW-2 (100A AND ABOVE ONLY)	ELECTRICAL METALLIC TUBING (EMT)	INTERMEDIATE METAL CONDUIT (IMC)	RIGID STEEL CONDUIT (RSC)	PVC COATED RIGID STEEL CONDUIT	RIGID NON-METALLIC CONDUIT (RNC) TYPE EPC-40	RIGID NON-METALLIC CONDUIT (RNC) TYPE EPC-80	HIGH DENSITY POLYETHYLENE (HDPE) SCHEDULE 40	HIGH DENSITY POLYETHYLENE (HDPE) SCHEDULE 80	FLEXIBLE METAL CONDUIT (FMC)	LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC)	METAL CLAD TYPE CABLE WITH INSULATED GROUND WIRE (TYPE MC)	TWO HOUR FIRE RATED MINERAL INSULATED CABLE (TYPE MI) (KEYED NOTE 4)	VFC CABLE	PHOTOVOLTAIC CABLE (TYPE PV)	POWER LIMITED CABLE
FEEDERS - EXTERIOR																		
EXPOSED, SURFACE MOUNTED TO STRUCTURE		X	X		X	X	X											
EXPOSED, WITH FREESTANDING SUPPORT		X	X		X	X	X											
CONCEALED IN RETAINING WALL OR SIMILAR ELEMENT		X	X			X	X	X	X									
BELOW PARKING LOTS AND ROADWAYS		X	X				X		X		X							
BELOW GREEN SPACE		X	X				X	X		X								
WITHIN 5' OF FOUNDATION WALL		X	X			X	X											
FEEDERS - INTERIOR																		
CONCEALED, ACCESSIBLE CEILINGS	X		X	X	X										X			
CONCEALED, INACCESSIBLE CEILINGS	X		X	X											X			
CONCEALED IN GYPSUM BOARD PARTITION WALLS	X		X	X											X			
CONCEALED IN CMU WALLS	X		X	X														
EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X		X		X	X	X								X			
EXPOSED, BELOW 10' AFF AND NOT SUBJECT TO DAMAGE	X		X	X	X										X			
EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X		X	X											X			
EXPOSED, FINISHED SPACES	X		X															
BELOW SLAB ON GRADE	X		X			X	X	X	X						X			
DAMP AND WET LOCATIONS	X		X		X	X	X	X										
BRANCH CIRCUITS - EXTERIOR																		
EXPOSED, SURFACE MOUNTED TO STRUCTURE		X			X	X	X		X									
EXPOSED, WITH FREESTANDING SUPPORT		X			X	X	X											
CONCEALED IN RETAINING WALL OR SIMILAR ELEMENT		X				X	X	X										
BELOW PARKING LOTS AND ROADWAYS		X				X	X	X		X								
BELOW GREEN SPACE		X						X										
WITHIN 5' OF FOUNDATION WALL		X				X	X											
BRANCH CIRCUITS - INTERIOR																		
CONCEALED, ACCESSIBLE CEILINGS	X			X	X								X					
CONCEALED, INACCESSIBLE CEILINGS	X			X	X								X					
CONCEALED IN GYPSUM BOARD PARTITION WALLS	X			X	X							X	X					
CONCEALED IN CMU WALLS	X			X	X													
EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X				X	X	X											
EXPOSED, BELOW 10' AFF AND NOT SUBJECT TO DAMAGE	X			X	X										X			
EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X			X	X													
EXPOSED, FINISHED SPACES	X																	
BELOW SLAB ON GRADE	X							X										
EMBEDDED IN ELEVATED CONCRETE SLAB	X							X										
DAMP AND WET LOCATIONS	X				X	X	X	X					X					
SPECIAL APPLICATIONS																		
SERVICE ENTRANCE - UNDERGROUND		X	X				X	X	X	X	X							
SERVICE ENTRANCE - ABOVE GROUND		X	X	X	X	X												
CONNECTION BETWEEN VFC AND MOTORS (KEYED NOTE 1)																X		
CLASS 1 CONTROL CIRCUITS	X			X	X	X												
CLASS 2 CONTROL CIRCUITS	X			X	X	X												X
CLASS 3 CONTROL CIRCUITS	X			X	X	X												X
CONNECTIONS TO TRANSFORMERS, MOTORS AND VIBRATING EQUIPMENT		X											X					
PHOTOVOLTAIC PANELS																	X	

GENERAL NOTES:
1. TRANSITION FROM PVC/HDPE AND PROVIDE RIGID STEEL OR RTRC SWEEPS WHERE CONDUITS PENETRATE WALLS, CONCRETE SLABS, CONCRETE BASES, AND ASPHALT.
2. REFER TO SPECIFICATIONS FOR RESTRICTIONS ON MC/AC CABLE INSTALLATION.
3. EMT SHALL NOT BE USED ON THE EXTERIOR OF A BUILDING OR IN AREAS SUBJECT TO DAMAGE BELOW 10' AFF.
4. INSTALL SURFACE RACEWAYS ONLY WHERE SHOWN ON DRAWINGS.

KEYED NOTES:
1. NON-ARMORED CABLE SHALL BE INSTALLED IN RACEWAY. ARMORED CABLE SHALL BE INSTALLED IN TRAY OR FREE-AIR AS APPLICABLE.
2. CONDUIT AND BUILDING WIRE ALLOWED WHEN ENCASED IN MINIMUM 2" CONCRETE.
3. EMERGENCY FEEDERS IN OCCUPANCIES THAT ARE UNDER 700.10(D) SHALL HAVE A TWO HOUR RATING. RATING SHALL BE OBTAINED BY ROUTING CONDUIT AND BUILDING WIRE IN SPRINKLERED SPACE, IN A TWO HOUR SHAFT, OUTSIDE OF THE BUILDING, IN A LISTED TWO HOUR RATED RACEWAY, OR UNDER A MINIMUM OF 2" OF CONCRETE; OR BY USING A LISTED TWO-HOUR RATED CABLE ASSEMBLY.
4. SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS BASED ON UL TESTING AND RATING.

SPECIAL RECEPTACLES

TYPE	DESCRIPTION
Type 2	250V, 20A, SINGLE PHASE, LOCKING RECEPTACLE, 2 POLE, 3 WIRE (NEMA L6-20R)
Type 6	208Y/120V, 20A, THREE PHASE, LOCKING RECEPTACLE, 4 POLE, 5 WIRE (NEMA L21-20R)

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ELECTRICAL STANDARD SCHEDULES

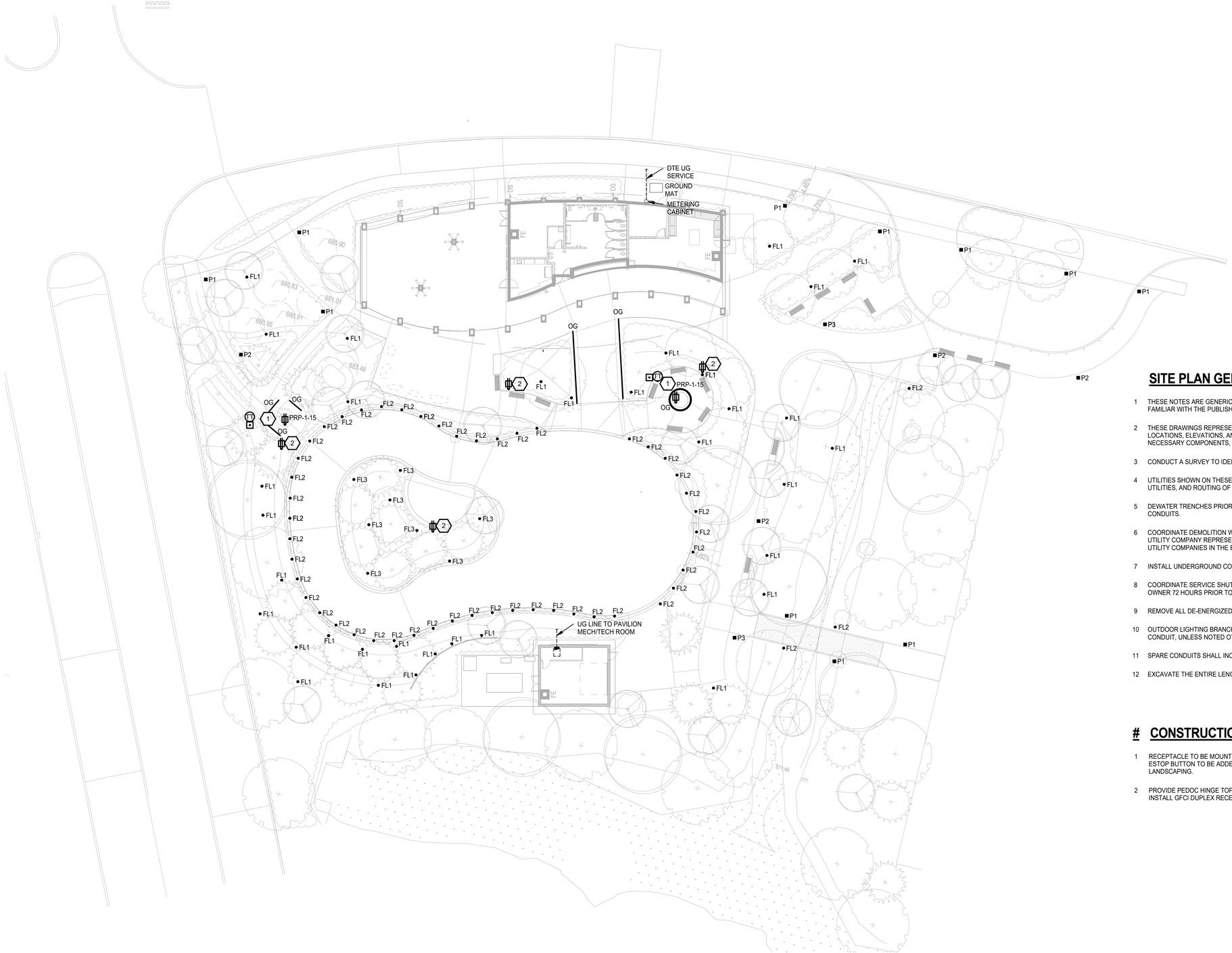
SHEET E-002

10/6/2022 2:16:31 PM BIM 360://0128-21-0020 Troy Pavilion/0128210020_MEP_TroyPavilion_2021.rvt

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

EXISTING 600A 208/120V PANELBOARD

EXISTING TRANSFORMER 300KVA 132KV-208/120V



ELECTRICAL SITE PLAN
SCALE: 1" = 20'-0"

SITE PLAN GENERAL NOTES:

1 THESE NOTES ARE GENERIC GUIDELINES ONLY. ELECTRICAL CONTRACTOR'S PERSONNEL ON SITE SHALL BE THOROUGHLY FAMILIAR WITH THE PUBLISHED SPECIFICATIONS FOR EXACT DESCRIPTIONS OF SCOPE, METHODS, AND MATERIAL.

2 THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.

3 CONDUCT A SURVEY TO IDENTIFY ALL UNDERGROUND UTILITIES. CALL 811 PRIOR TO EXCAVATION.

4 UTILITIES SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY. COORDINATE EXACT LOCATION OF ALL EXISTING UTILITIES, AND ROUTING OF ALL NEW UNDERGROUND UTILITIES PRIOR TO EXCAVATION.

5 DEWATER TRENCHES PRIOR TO INSTALLATION OF CONDUITS. PROVIDE WATER TIGHT FITTINGS ON ALL UNDERGROUND CONDUITS.

6 COORDINATE DEMOLITION WORK, AND ELECTRICAL AND TELEPHONE SERVICES TO THE SITE, WITH THE RESPECTIVE LOCAL UTILITY COMPANY REPRESENTATIVES PRIOR TO COMMENCEMENT OF WORK. INCLUDE ALL ASSOCIATED COST/FEES BY THE UTILITY COMPANIES IN THE BID PRICE.

7 INSTALL UNDERGROUND CONDUITS 42" BELOW FINISHED GRADE, MINIMUM, UNLESS NOTED OTHERWISE.

8 COORDINATE SERVICE SHUT-DOWNS WITH ALL TRADES INVOLVED ON SITE AND OBTAIN WRITTEN AUTHORIZATION FROM OWNER 72 HOURS PRIOR TO ANY ELECTRICAL AND/OR TELEPHONE SHUT-DOWN.

9 REMOVE ALL DE-ENERGIZED CONDUCTORS FROM SITE AT COMPLETION OF THE PROJECT.

10 OUTDOOR LIGHTING BRANCH CIRCUIT WIRING SHALL BE MINIMUM #8 AWG CONDUCTORS (XHHW-2), IN MINIMUM 1" DIA. CONDUIT, UNLESS NOTED OTHERWISE.

11 SPARE CONDUITS SHALL INCLUDE PULL STRING AND SHALL BE TERMINATED WITH A CAP.

12 EXCAVATE THE ENTIRE LENGTH OF TRENCH TO PROPERLY SET DUCT ELEVATIONS.

CONSTRUCTION KEY NOTES:

1 RECEPTACLE TO BE MOUNTED INSIDE FIRE PIT WALL FOR PLUG IN CONNECTION TO FIRE PIT CONTROLLER. TWIST TIMER AND ESTOP BUTTON TO BE ADDED ON PEDESTAL TO CONTROL FIRE PIT. PEDESTAL LOCATION TO BE COOREDINATED WITH LANDSCAPING.

2 PROVIDE PEDOC HINGE TOP SINGLE GANG OUTLET BOX MODEL NUMBER 142-HT IN POWDER COATED BROWN FINISH. INSTALL GFCI DUPLEX RECEPTACLE INSIDE EMPTY GANG BOX.

N

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ELECTRICAL SITE PLAN

SHEET E-003

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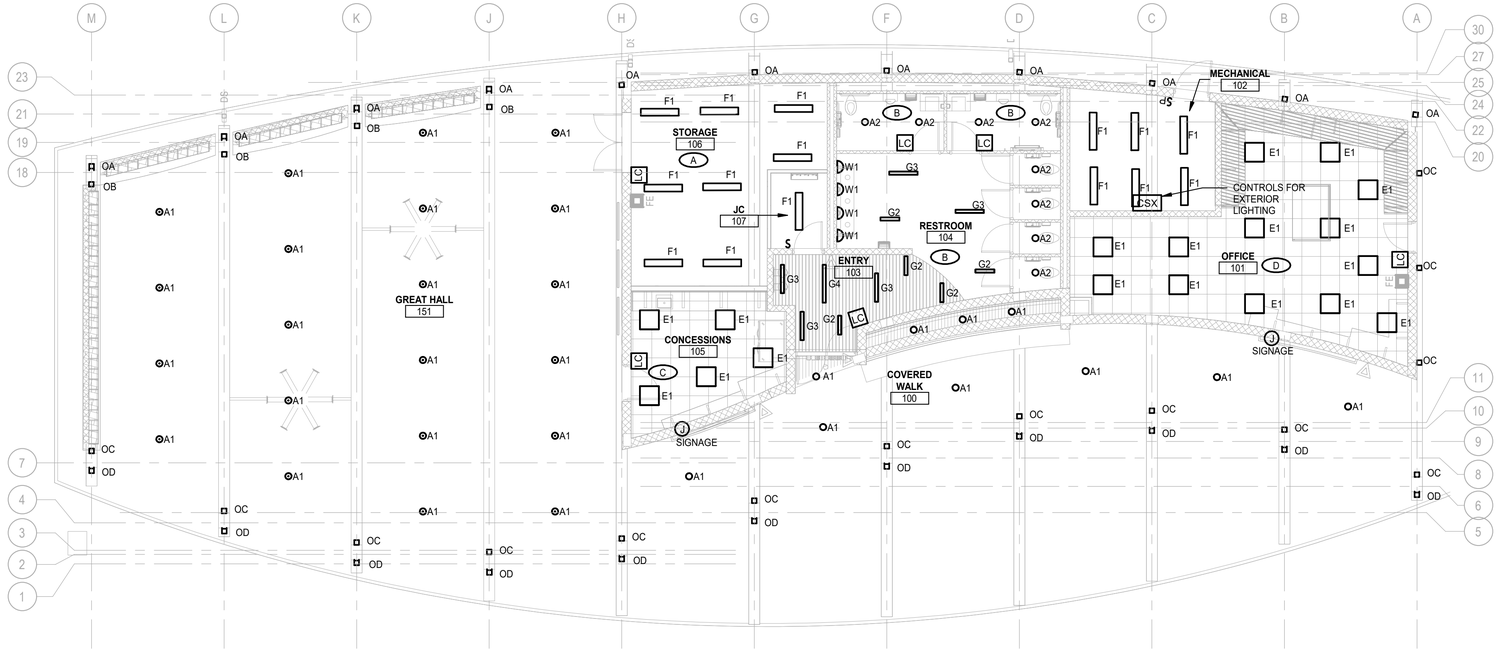
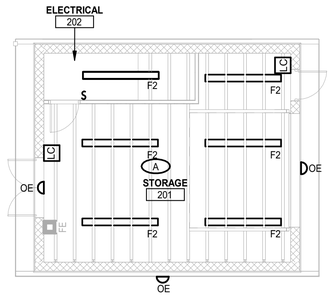
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



LIGHTING PLAN - PAVILION

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



LIGHTING PLAN - UTILITY

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

ELECTRICAL GENERAL NOTES:

1 THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

4 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

5 MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

6 COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.

7 REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.

8 REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.

CONSTRUCTION KEY NOTES:

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LIGHTING PLANS

SHEET E-201

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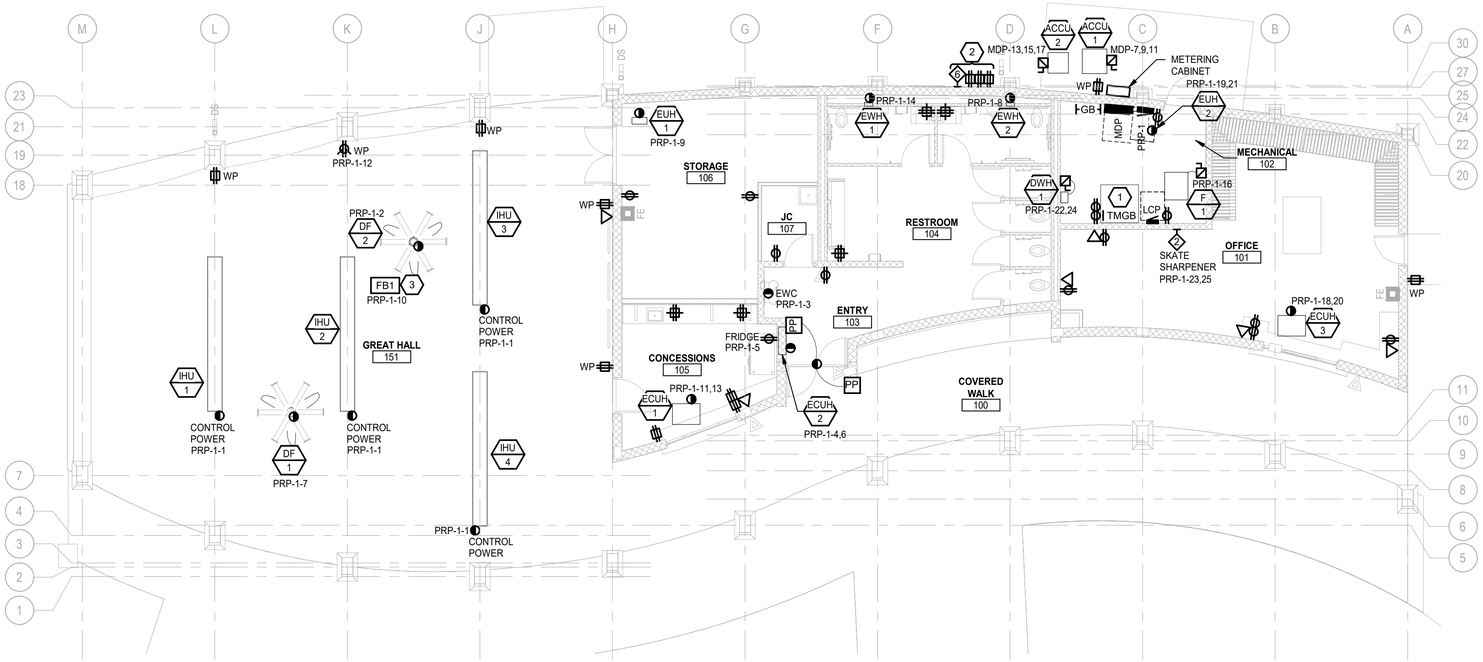
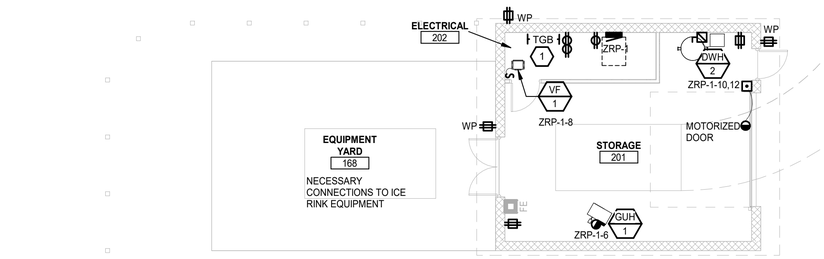


POWER AND AUXILIARY SYSTEMS PLAN - PAVILION

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



POWER AND AUXILIARY SYSTEMS PLAN - UTILITY

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

ELECTRICAL GENERAL NOTES:

1 THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

4 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

5 MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

6 COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.

7 REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.

8 REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.

CONSTRUCTION KEY NOTES:

1 SPACE RESERVED FOR IT EQUIPMENT. REFER TO TECHNOLOGY PLANS.

2 INDICATED EXTERIOR RECEPTACLES ARE FOR TROY-DAZE USE AND SHALL BE LABELED AS SUCH ON THE DEVICE AND IN THE PANELBOARD. ALL RECEPTACLES TO HAVE A WEATHER-PROOF WHILE-IN-USE COVER.

3 PROVIDE WIREMOLD MODEL #XB814C520XX EXTERIOR RATED POWER 2-GANG NON-METALLIC FLOOR BOX WITH 2 WEATHER RESISTANT DUPLEX RECEPTACLES AND FLIP DOOR. FINISH TO BE DETERMINED.

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POWER AND AUXILIARY SYSTEM PLANS

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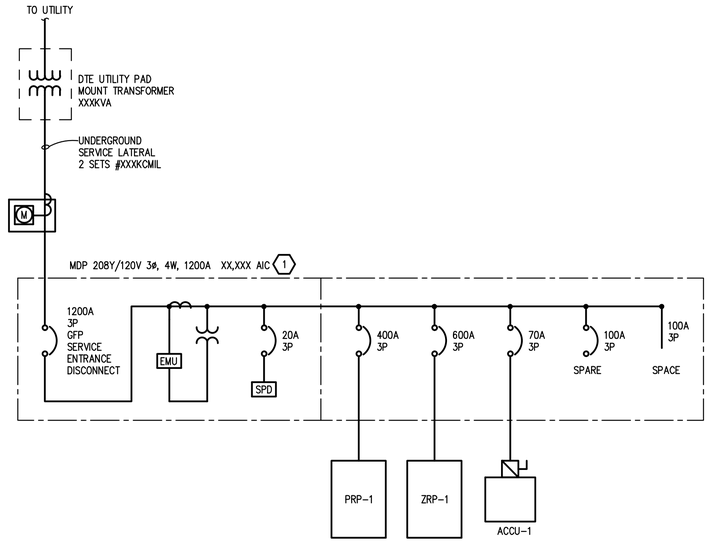

DIAGRAM GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
2. FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE "FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE--GENERAL PURPOSE" ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
3. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH THE MOTOR CIRCUIT SIZING SCHEDULES ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
4. BASIS OF DESIGN IS EATON DISTRIBUTION EQUIPMENT. IF THE CONTRACTOR ELECTS TO PROVIDE EQUIPMENT FROM OTHER APPROVED MANUFACTURERS, THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE LAYOUT AND CLEARANCE REQUIREMENTS IN ALL SPACES CONTAINING ELECTRICAL EQUIPMENT AND PROVIDE EQUIPMENT MEETING THE SPECIFICATIONS AND ACHIEVING CODE REQUIRED CLEARANCES WITHIN THE SPACE PROVIDED.
5. VARIABLE FREQUENCY CONTROLLERS (VFC) FURNISHED BY MECHANICAL TRADES. ELECTRICAL CONTRACTOR SHALL INSTALL VFC, PROVIDE POWER FEEDER FROM DISTRIBUTION EQUIPMENT TO VFC AND PROVIDE POWER FEEDER FROM VFC TO MOTOR. REFER TO SPECIFICATIONS FOR APPLICATION OF VFC POWER CABLE FROM VFC TO MOTOR.

(#) CONSTRUCTION KEY NOTES:

1. MDP TO BE LISTED AND LABELED AS SERVICE ENTRANCE EQUIPMENT.

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PBA Project No.: 2022.0180

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CITY OF TROY
TROY PAVILION
Town Center Dr
Troy, MI 48084

ONE LINE DIAGRAM

SHEET E-501

PANELBOARD MDP

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1					12741	696									2
3	R; M; NC, E	PRP-1		400			11916	500			600		ZRP-1	Spare; M; NC	4
5									14121	1000					6
7					5867	0									8
9	NC	ACCU-1 5 TON 17.6KW		70			5867	0			100	--	SPARE	--	10
11									5867	0					12
13					5867	--									14
15	NC	ACCU-2		40			5867	--			--	--	SPACE	--	16
17									5867	--					18
					25170		24149		26854						
					ØA		ØB		ØC						

PANELBOARD INFORMATION

VOLTAGE:	208Y/120V
BUS AMPACITY:	1200A
MAIN TYPE:	1200A
MINIMUM A.I.C.:	TBD DTE INFO
MOUNTING:	SURFACE

PANELBOARD LOCATION

MECH/TECH RM 102

BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...
CONTINUOUS LOAD (C):	0	100%	0	125% 0
ELECTRIC HEAT (E)	26500	100%	26500	100% 26500
NON-CONTINUOUS LOAD (NC):	42796	100%	42796	100% 42796
KITCHEN LOAD (K):	0		0	100% 0
RECEPT BASE LOAD (R):	5182	100%	5182	100% 5182
RECEPT DEMAND LOAD (R):	0	50%	0	100% 0
LIGHTING LOAD (L):	0	100%	0	125% 0
ADDITIONAL TRACK LIGHTING...				100% 0
MOTORS, HIGHEST LOAD (M):	696	125 %	870	100% 870
MOTORS, REMAINING	1000	100 %	1000	100 % 1000
NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	76.35	
		TOTAL...	211.92	TOTAL... 211.92

NOTES

LOAD SUMMARY

PANELBOARD ZRP-1

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1					0	0					20	--	CONTROL POWER CHILLER	--	2
3	--	100 HP CHILLER (285FLA)	--	400			0	0			20	--	CONTROL POWER PUMPS	--	4
5									0	500	20		GUH-1	NC	6
7					0	696					20		VF-1	M	8
9	--	20HP PUMP (62.1FLA)	--	100			0	500			20		DWH-2	NC	10
11									0	500					12
13					0										14
15	--	20HP PUMP (STANDBY)	--	100			0								16
17									0						18
19					0										20
21	--	34A HEATER AND 3HP PUMP (11FLA)	--	75			0								22
23									0						24
25															26
27															28
29															30
					696		500		1000						
					ØA		ØB		ØC						

PANELBOARD INFORMATION

VOLTAGE:	208Y/120V
BUS AMPACITY:	600A
MAIN TYPE:	600A MCB
MINIMUM A.I.C.:	TBD DTE INFO
MOUNTING:	SURFACE

PANELBOARD LOCATION

ELECTRICAL 202

BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...
CONTINUOUS LOAD (C):	0	100%	0	125% 0
ELECTRIC HEAT (E)	0	100%	0	100% 0
NON-CONTINUOUS LOAD (NC):	1500	100%	1500	100% 1500
KITCHEN LOAD (K):	0		0	100% 0
RECEPT BASE LOAD (R):	0	100%	0	100% 0
RECEPT DEMAND LOAD (R):	0	50%	0	100% 0
LIGHTING LOAD (L):	0	100%	0	125% 0
ADDITIONAL TRACK LIGHTING...				100% 0
MOTORS, HIGHEST LOAD (M):	696	125 %	870	100% 870
MOTORS, REMAINING	0	100 %	0	100 % 0
NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	2.37	
		TOTAL...	6.58	TOTAL... 6.58

NOTES

PANELBOARD PRP-1

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	NC	RADIENT HEATER CONTROL POWER		20	400	500					20		HVLS-1 CEILING FAN	M	2
3	NC	EWC	GFCI	20			696	4000			50		ECUH-2 RESTROOM VESTIBULE 8KW	E	4
5	R	FRIDGE CONCESSIONS	GFCI	20					600	4000					6
7	M	HVLS-2 CEILING FAN		20	500	1000					20		EH-1 RESTROOM 1KW	E	8
9	E	EUH-1 STORAGE 1KW		20			1000	360			20	GFCI	EXTERIOR FLOORBOX IN HALL	R	10
11	E	ECUH-1 CONCESSIONS 5KW		35					2500	180	20	GFCI	PAVILION CHARGING STATION	R	12
13					2500	1000					20		EH-1 RESTROOM 1KW	E	14
15	R	FIRE PIT CONTROLS		20			360	500			20		FURNACE MECH RM	E	16
17										2500	35		ECUH-4 RENTAL AREA 5KW	E	18
19	E	EUH-3 MECH/TECH RM 5KW		35	2500	2500									20
21							2500	2500			20		DWH-1	NC	22
23	R	SKATE SHARPENER		20					1841	2500					24
25					1841										26
27															28
29															30
31															32
33															34
35															36
37															38
39															40
41															42
43															44
45															46
47															48
49															50
51															52
53															54
55															56
57															58
59															60
					12741		11916		14121						
					ØA		ØB		ØC						

PANELBOARD INFORMATION

VOLTAGE:	208Y/120V
BUS AMPACITY:	400A
MAIN TYPE:	MLO
MINIMUM A.I.C.:	TBD DTE INFO
MOUNTING:	SURFACE

PANELBOARD LOCATION

MECH/TECH 102

BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OVERCURRENT...
CONTINUOUS LOAD (C):	0	100%	0	125% 0
ELECTRIC HEAT (E)	26500	100%	26500	100% 26500
NON-CONTINUOUS LOAD (NC):	6096	100%	6096	100% 6096
KITCHEN LOAD (K):	0		0	100% 0
RECEPT BASE LOAD (R):	5182	100%	5182	100% 5182
RECEPT DEMAND LOAD (R):	0	50%	0	100% 0
LIGHTING LOAD (L):	0	100%	0	125% 0
ADDITIONAL TRACK LIGHTING...				100% 0
MOTORS, HIGHEST LOAD (M):	500	125 %	625	100% 625
MOTORS, REMAINING	500	100 %	500	100 % 500
NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED...		TOTAL (kVA):	38.9	
		TOTAL...	107.98	TOTAL... 107.98

NOTES

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CITY OF TROY
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PANEL SCHEDULES

SHEET E-502

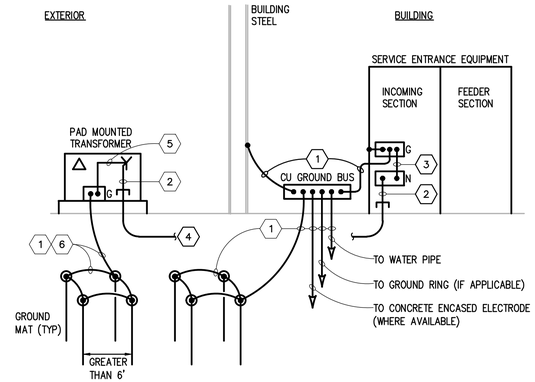
10/6/2022 3:28:44 PM BIM 360://0128-21-0020 Troy Pavilion/0128210020_MEP_TroyPavilion_2021.rvt

LIGHTING CONTROL SCHEDULE

PLAN REFERENCE	ROOM TYPE	LOCAL CONTROL			CONTROL ON / OFF	SENSOR TYPE	TURN ON LIGHTING TO %	BI-LEVEL CONTROL	DAYLIGHT			NO DETECTION PARTIAL OFF (NOTE 10)		NO DETECTION FULL OFF (MIN)	TIME-CLOCK SCHEDULE	RECEPTACLE CONTROL	EMERGENCY LIGHTING CIRCUIT CONTROL	CONTACT FOR HVAC CONTROL	NOTES
		SWITCH TYPE	SWITCH CONTROL	SCENE CONTROL					SIDE LIGHT	TOP LIGHT	MAINTAIN FC LEVEL	REDUCE TO (%)	AT(MIN)						
A	STORAGE ROOM (≥50 SQFT AND ≤ 1000 SQFT)	LOW VOLTAGE		NA															
B	RESTROOM (ALL OTHER RESTROOMS)	LOW VOLTAGE		NA															
C	FOOD PREPARATION AREA	LOW VOLTAGE		NA															
D	OFFICE (OPEN PLAN)	LOW VOLTAGE		NA															

NOTE:
1. REFER TO PLANS FOR LOCATION OF LOCAL CONTROL.
2. REFER TO PLANS FOR SCENE CONTROL.
3. REFER TO PLANS FOR PRIMARY AND SECONDARY DAYLIGHT ZONES.
4. PROVIDE EMERGENCY LIGHTING CIRCUIT CONTROL (BCELTS OR ALCR) PER SWITCHING CIRCUIT AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE FLOOR PLAN INDICATING SENSOR AND EQUIPMENT LOCATIONS OF CHOSEN CONTROL SYSTEM.
6. REFER TO LUMINAIRE SCHEDULE FOR FIXTURE CHARACTERISTICS.
7. LIGHTING SENSOR SHALL HAVE CONTACT FOR HVAC CONTROL WHEN A "YES" SELECTION IS MADE IN THE HVAC CONTROL COLUMN.
8. REFER TO TEMPERATURE CONTROL DRAWINGS AND DIAGRAMS FOR ADDITIONAL SENSOR REQUIREMENTS.
9. PROVIDE WIRING CONTROL DIAGRAM FOR APPLICABLE CONTROL SYSTEM(S).
10. PERCENTAGE LIGHT OUTPUT REDUCTION IS FOR ALL FIXTURES WITHIN THE DESIGNATED ROOM UNLESS OTHERWISE NOTED.

NA = NOT APPLICABLE



TYPICAL SECONDARY SERVICE ENTRANCE GROUNDING

NO SCALE

(#) KEYED NOTES:

1. GROUNDING ELECTRODE CONDUCTOR, #4/0 COPPER.
2. GROUNDED CONDUCTOR (NEUTRAL), SEE ONE LINE DIAGRAM.
3. MAIN BONDING JUMPER, PROVIDED BY MANUFACTURER AS PART OF LISTED EQUIPMENT SIZED PER NEC 250.28 AND 250.102.
4. SERVICE ENTRANCE PHASE CONDUCTORS AND GROUNDED CONDUCTOR IN CONDUIT. SEE ONE LINE DIAGRAM.
5. CONNECTION FROM GROUNDED SERVICE CONDUCTOR TO GROUNDING ELECTRODE AT THE TRANSFORMER PER NEC 250.24. COORDINATE WITH UTILITY.
6. COORDINATE REQUIREMENTS WITH UTILITY COMPANY PRIOR TO INSTALLATION. PROVIDE ALL NECESSARY GROUND RODS AND CONDUCTORS TO MEET UTILITY COMPANY REQUIREMENTS.

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ELECTRICAL DETAILS

SHEET E-701

COMMUNICATION SYMBOL LEGEND

SYMBOL	DESCRIPTION
(1)	THIS SYMBOL WITH A NUMBER INSIDE REFERS TO KEYNOTES. REFER TO NOTES ON THE SHEET OR WITHIN THE DETAIL FOR ADDITIONAL INFORMATION
[A]	EQUIPMENT SCHEDULE. THIS SYMBOL WITH LETTERS INSIDE REFERS EQUIPMENT SCHEDULES, SEE DETAILS AND EQUIPMENT SCHEDULES ON TC101, TC301, TC501 AND TC701.
[1]	CABLE SCHEDULE. THIS SYMBOL WITH NUMBERS INSIDE REFERS EQUIPMENT SCHEDULES, SEE DETAILS AND EQUIPMENT SCHEDULES ON TC101, TC301, TC501 AND TC701.
◇ XXXX	DATA COMMUNICATIONS OUTLET CONNECTIVITY CODE. X IS A 1 THRU 99. SEE TC1XX SHEETS FOR SPECIFIC REQUIREMENTS. XXXX NOTES THAT THE CABLE IS FOR A SPECIFIC USE
(1)	EXISTING CABLING. REMOVE THE FACEPLATE AND CABLING AT THE PLATE. NUMBER INSIDE CIRCLE REPRESENTS QUANTITY OF CABLES TO REMOVE. REMOVE PLATE AND CABLES FROM BUILDING.

ABBREVIATIONS

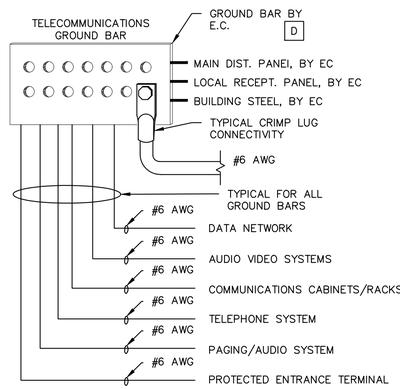
ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
2G	TWO–GANG BOX – PROVIDED BY EC	NIC	NOT IN CONTRACT
AC	ABOVE COUNTER – INSTALL BACKBOX SAME HEIGHT AS OTHER ELECTRICAL OUTLETS ABOVE THE COUNTER.	PBO	PROVIDED BY OTHERS
AFF	ABOVE FINISHED FLOOR	PCO–1	PATCH CORD ORGANIZER – 1 UNIT HIGH
AFG	ABOVE FINISHED GROUND	PCO–2	PATCH CORD ORGANIZER – 2 UNITS HIGH
AWG	AMERICAN WIRE GAUGE	PET	PROTECTED ENTRANCE TERMINAL
EMT	EMT TYPE CONDUIT	QTY	QUANTITY
EC	ELECTRICAL CONTRACTOR		

COMMUNICATION EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	PART NO.
[A]	SINGLE RACK UNIT PATCH CORD ORGANIZER (PCO–1) WITH HINGED COVER.	HUBBELL	HS13C
[B]	PATCH PANEL–24 PORT, EQUIPPED WITH 8–PIN MODULAR JACKS TO MATCH THE CABLE COLOR AND CABLE TYPE BEING TERMINATED. PROVIDE ONE MODULAR JACK FOR EACH CABLE BEING TERMINATED. SEE SPEC AND DRAWINGS FOR COLORS. EQUIP WITH REAR CABLE ORGANIZER	HUBBELL	PANEL: HPJ24 ORGANIZER: ECMBR3
[C]	RACK MOUNT FIBER PANEL. USE WHEN TERMINATING 24 OR LESS FIBER STRANDS. PROVIDE EACH FIBER PANEL WITH "SC" SIX OR 12 PACKS AS REQUIRED FOR TERMINATION OF ALL FIBERS. PROVIDE SPLICE TRAY AND SHELF FOR FUSION SPLICES TO PIGTAILS.	HUBBELL	FPR3SP
[D]	FIBER OPTIC CABLE STOWAGE RING. WALL MOUNTED. 12" OR 24". PROVIDE AND INSTALL TO SUPPORT BEND RADIUS REQUIREMENTS OF THE FIBER CABLE'	LEVITON	12" #48900–IFR / 24" #48900–OFR

CABLE SCHEDULE

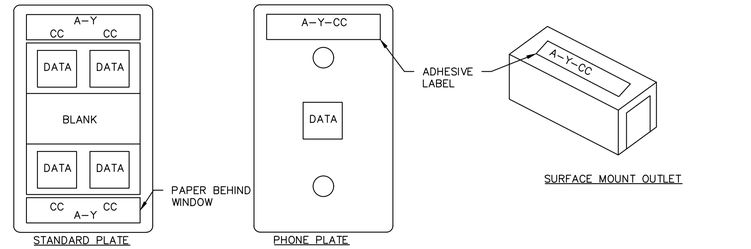
MARK	DESCRIPTION	MANUFACTURER	PART NO.
[1]	CAT–6 UTP CABLES FOR DATA COMMUNICATIONS SHALL BE BLUE IN COLOR	MOHAWK	M58281
[2]	CAT–6 UTP CABLES FOR SECURITY CAMERAS SHALL BE WHITE IN COLOR	MOHAWK	M58280
[3]	CAT–6 UTP CABLES FOR WIRELESS ACCESS POINTS SHALL BE YELLOW IN COLOR	MOHAWK	M58283
[4]	CAT–6 UTP CABLES FOR TELEPHONE CABLES	MOHAWK	M58286
[5]	24 STRAND SINGLEMODE FIBER CABLE, INDOOR/OUTDOOR, PLENUM RATED	OCC	DX024KSLX9YP



GROUNDING NOTES:

1. CONNECTIONS TO ALL COMMUNICATIONS EQUIPMENT & PANELS.
2. CONNECT GROUND BAR TO ALL ITEMS SHOWN & AS DIRECTED IN THE GROUNDING SPECIFICATIONS.
3. ALL GROUND CONNECTIONS SHALL BE MADE WITH CRIMP LUGS ONLY. THIS APPLIES TO ALL CONNECTIONS TO THE GROUND BAR & THE CONNECTIONS TO THE ASSOCIATED EQUIPMENT.
4. GROUND CONNECTIONS SHALL BE MADE WITH A MINIMUM OF #6 AWG CABLE.
5. ALL CONNECTIONS TO THE GROUND BAR SHALL BE MADE WITH PHOSPHER BRONZE BOLTS & NUTS.
6. ALL GROUND WIRES SHALL HAVE GREEN INSULATION UNLESS INSTALLED IN A PLENUM AREA. GROUND CABLES THAT MUST BE INSTALLED IN A PLENUM AREA SHALL BE BARE COPPER WIRE WITH GREEN TAPE AT ENDS.

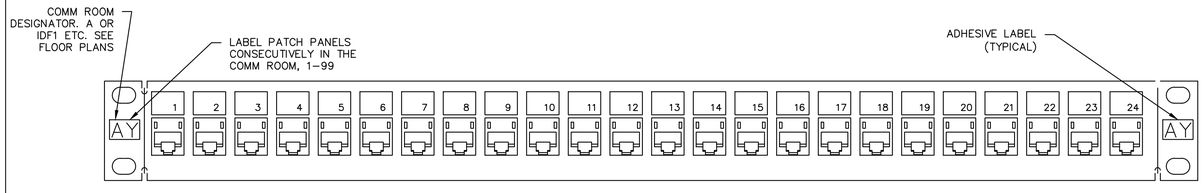
3 TC101 COMMUNICATIONS GROUNDING DETAIL



NOTES:
1. INSTALL A PAPER LABEL BEHIND THE PLASTIC WINDOW IN STANDARD PLATES THAT ARE EQUIPPED WITH THE WINDOWS.
2. PROVIDE ADHESIVE LABELS ON WALL PHONE PLATES & SURFACE MOUNT OUTLETS & PLATES WITHOUT LABELING WINDOWS.

DATA CABLE LABEL:
A = COMMUNICATIONS ROOM, A, B, ETC.
Y = PATCH PANEL IN THAT RACK OR CABINET 1–X
CC = PORT ON THAT PANEL FROM 01–24

1 TC101 TYPICAL FACEPLATE LABELING

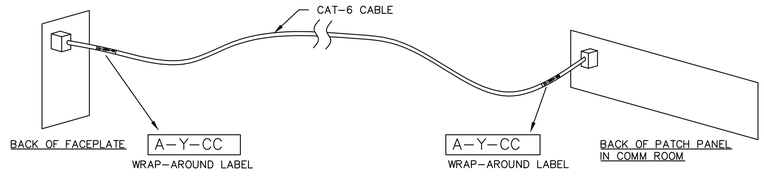


NOTES:
1. INSTALL A LABEL TO EACH PATCH PANEL DETAILING THE COMM ROOM NUMBER AND PATCH PANEL NUMBER. EACH PANEL IS PRE–NUMBERED 01–24 ON EACH PANEL.
2. ALL LABELS ADDED TO THE PANEL SHALL BE LASER PRINTED AND CUT TO FIT. ALL NUMBERS SHALL EXACTLY ALIGN WITH THE LOCATION ON THE PATCH PANEL.
3. IF THE PANEL IS NOT PRE–LABELED 01–24 THEN THE CONTRACTOR SHALL INSTALL A LABEL FOR EACH PORT.
4. INDIVIDUAL CABLES AT A SINGLE FACEPLATE SHALL BE LABELED IN SEQUENCE AS PER THE PATCH PANEL.
5. THE CABLES SHALL BE TERMINATED ON THE PATCH PANEL IN NUMERICAL ORDER. NO EXCEPTIONS.

DATA CABLE LABELING A–Y–CC

A = COMMUNICATIONS ROOM NUMBER. A, B OR C ETC.
Y = PATCH PANEL IN THAT COMMUNICATIONS ROOM
CC = PORT NUMBER ON PATCH PANEL 0–24.

4 TC101 CAT-6 DATA PANEL LABELING



NOTES:
1. INSTALL A WRAP–AROUND LABEL AT EACH END OF EACH CABLE.
2. WRAP–AROUND LABELS SHALL BE LASER–PRINTED AND SHALL BE SELF–LAMINATING.

CABLE LABEL:

A = COMMUNICATIONS ROOM NUMBER. A, B OR C ETC.
Y = PATCH PANEL IN THAT COMMUNICATIONS ROOM
CC = PORT NUMBER ON PATCH PANEL 0–24.
DDD = CAMERA OR WAP NUMBER

2 TC101 TYPICAL CABLE LABELING AT FACEPLATE & PATCH PANEL

SEAL

PRELIMINARY - NOT FOR CONSTRUCTION

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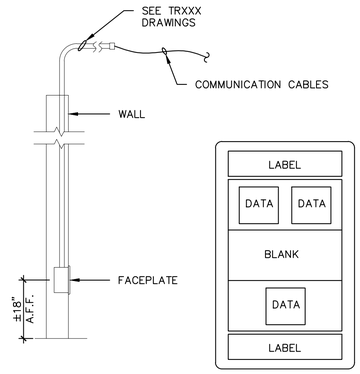
DESIGN DEVELOPMENT 10/10/2022

DATE | PROJ.NUMBER | PROJ.MGR | COUNTY | MUNICIPALITY
| #### | #### | #### |

CITY OF TROY
TROY PAVILION
TOWN CENTER DR.
TROY, MI 48084

CABLING LEGENDS, SCHEDULES & DETAILS

SHEET TC101



3

PARTS

QTY	DESCRIPTION	MANUFACTURER	PART #
1	FACEPLATE	HUBBELL	IMF10W
3	CAT-6 CABLES	MOHAWK	M58281
3	CAT-6 JACK	HUBBELL	HXJ60W
1	TWO-HOLE KEYSTONE	HUBBELL	IM2K10W
1	ONE-HOLE KEYSTONE	HUBBELL	IM1K10W
1	1 UNIT BLANK	HUBBELL	IMB10W

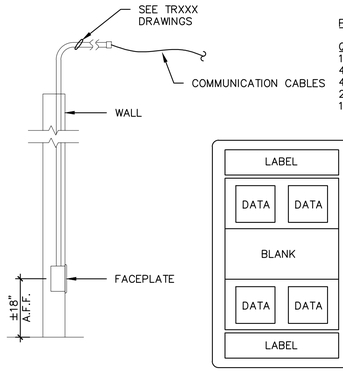
CONNECTIVITY CODE

3 CONNECTIVITY CODE
TC102

INSTALLATION NOTES:

1. REFER TO THESE NOTES FOR ALL CONNECTIVITY CODES. FOR SPECIALIZED NOTES SEE THE ACTUAL CONNECTIVITY CODE.
2. ROUTE ALL USER CABLES FROM THE RACK OR CABINET, THROUGH THE CABLE TRAY IF SO PROVIDED. IF NO CABLE TRAY IS SHOWN INSTALL CABLES THROUGH "J" HOOKS. PROVIDE ALL "J" HOOKS.
3. CABLES SHALL BE SUPPORTED NO LESS THAN EVERY 5 FEET.
4. PROVIDE A SMALL LOOP OF CABLE ABOVE THE CEILING PRIOR TO INSTALLING THE CABLE INTO THE USER CONDUIT OR RACEWAY.
5. ROUTE THE CABLE THROUGH THE CONDUIT OR RACEWAY AND TO THE WALLBOX, FLOORBOX OR SURFACE MOUNT BOX. PROVIDE ENOUGH EXTRA CABLE FOR TERMINATION AND MAINTENANCE.
6. TERMINATE ALL CABLES WITH THE CORRECT CONNECTORS.
7. ALL CONNECTORS SHALL BE INSERTED INTO THE KEYSTONE PLATES AND THEN THE KEYSTONE PLATES SHALL BE INSTALLED INTO THE FACEPLATES.
8. INSTALL FACEPLATES TO THE BOXES OR DIRECTLY TO THE WALL OR FURNITURE IN THE CASE OF SURFACE MOUNT BOXES.
9. EACH CABLE SHALL HAVE A LASER-PRINTED, SELF-LAMINATING WRAP-AROUND LABEL AT EACH END. SEE DETAILS ON TC101
10. OUTLETS SHALL BE AT 18" AFF UNLESS NOTED ON THE CONNECTIVITY CODE OR PLAN DRAWINGS.
11. LABEL EACH FACEPLATE WITH A LASER-PRINTED LABEL THAT IS INSTALLED BEHIND THE CLEAR PLASTIC LABEL STRIP. WHERE NO LABEL STRIP IS PROVIDED, THE CONTRACTOR SHALL INSTALL A LASER PRINTED ADHESIVE LABEL. WHERE SPECIFICALLY NOTED, THE CONTRACTOR SHALL INSTALL ENGRAVED LAMACOID LABELS.
12. AFTER INSTALLATION, ALL CABLES SHALL BE TESTED. SEE SPECIFICATIONS FOR TESTING REQUIREMENTS.
13. FOR AUDIO AND VIDEO CONNECTIONS, THE CONTRACTOR SHALL ROUTE SIGNALS ACROSS THE CABLES FOR TESTING.
14. PROVIDE FLEXIBLE CONDUIT FROM THE WALLBOX OR FLOORBOX TO THE FURNITURE RACEWAY WHERE CABLES ARE INSTALLED IN FURNITURE.

N CONNECTIVITY CODE MOHAWK NOTE
TC102



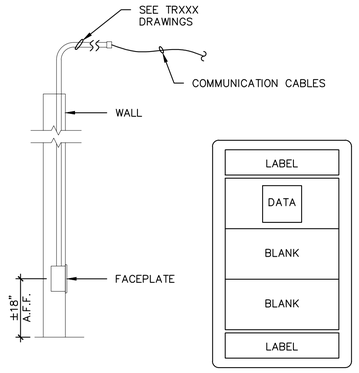
4

PARTS

QTY	DESCRIPTION	MANUFACTURER	PART #
1	FACEPLATE	HUBBELL	IMF10W
4	CAT-6 CABLES	MOHAWK	M58281
4	CAT-6 JACK	HUBBELL	HXJ60W
2	TWO-HOLE KEYSTONE	HUBBELL	IM2K10W
1	1 UNIT BLANK	HUBBELL	IMB10W

CONNECTIVITY CODE

4 CONNECTIVITY CODE
TC102



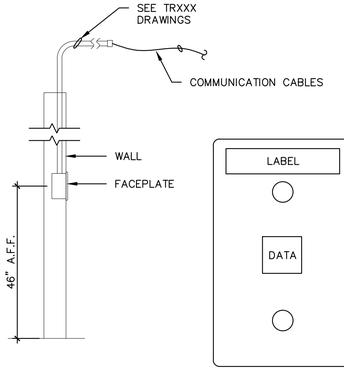
1

PARTS

QTY	DESCRIPTION	MANUFACTURER	PART #
1	FACEPLATE	HUBBELL	IMF10W
1	CAT-6 CABLES	MOHAWK	M58281
1	CAT-6 JACK	HUBBELL	HXJ60W
1	ONE-HOLE KEYSTONE	HUBBELL	IM1K10W
2	1 UNIT BLANK	HUBBELL	IMB10W

CONNECTIVITY CODE

1 CONNECTIVITY CODE
TC102



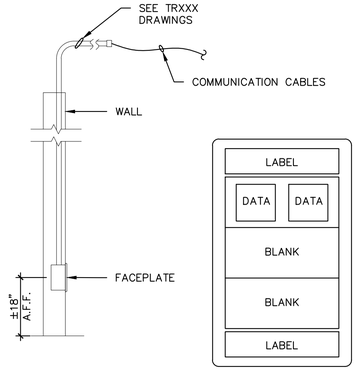
5

PARTS

QTY	DESCRIPTION	MANUFACTURER	PART #
1	CAT-6 CABLE	MOHAWK	M58281
1	TELEPHONE PLATE	HUBBELL	SP6F

CONNECTIVITY CODE

5 CONNECTIVITY CODE
TC102



2

PARTS

QTY	DESCRIPTION	MANUFACTURER	PART #
1	FACEPLATE	HUBBELL	IMF10W
2	CAT-6 CABLES	MOHAWK	M58281
2	CAT-6 JACK	HUBBELL	HXJ60W
1	TWO-HOLE KEYSTONE	HUBBELL	IM2K10W
2	1 UNIT BLANK	HUBBELL	IMB10W

CONNECTIVITY CODE

2 CONNECTIVITY CODE
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CABLING CONNECTIVITY CODES

SHEET
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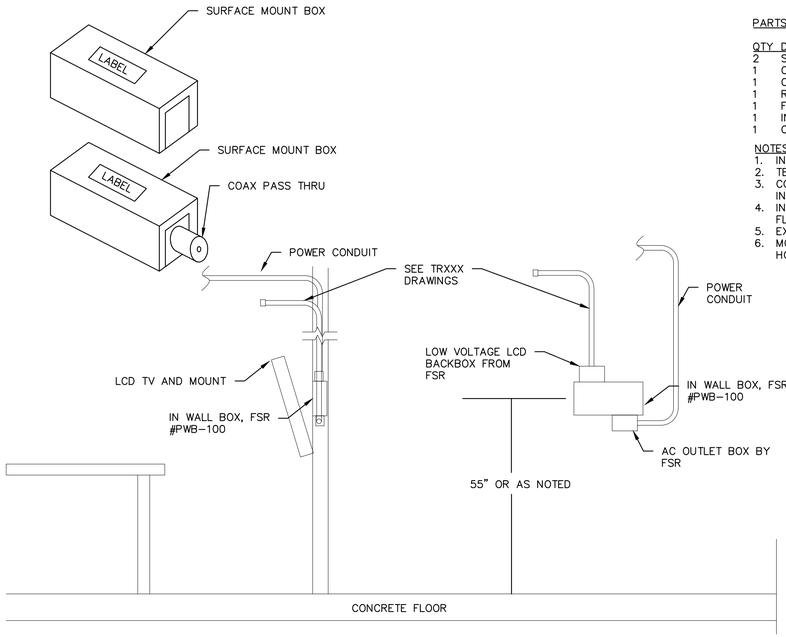


4 TC103 LCD BACKBOX

9

PARTS — CONNECTIVITY CODE

QTY	DESCRIPTION	MANUFACTURER	PART #
2	SURFACE BOX	COMMSCOPE	MS101SMB-B-003
1	CAT-6 CABLE	COMMSCOPE	CS34P BLUE
1	CAT-6 JACK	COMMSCOPE	UNJ600-OR
1	RG-6 COAX	BELDEN	SEE SPECS
1	F-PASS THRU	COMMSCOPE	CONTRACTOR
1	IN WALL BOX	FSR	PWB-100
1	COVER FOR BOX	FSR	COVER-WHT

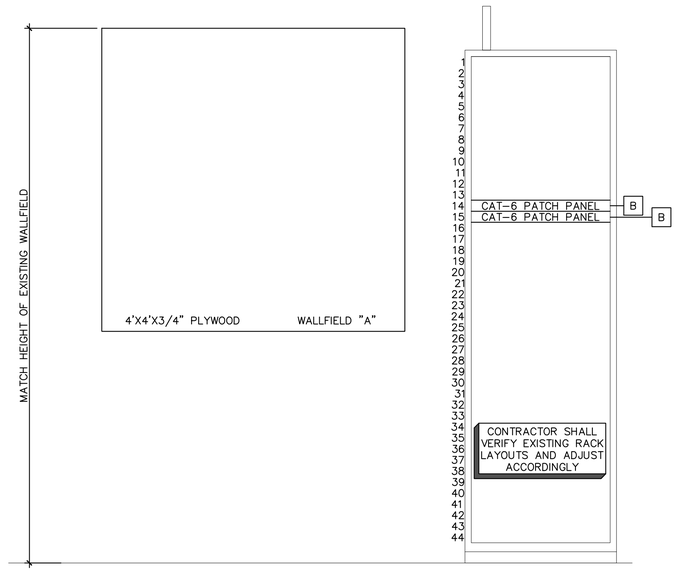
NOTES:
1. INSTALL SURFACE BOX TO THE IN-WALL BOX.
2. TERMINATE CABLES INTO JACKS AND LABEL SURFACE MOUNT BOX.
3. COORDINATE HEIGHT WITH ELECTRICAL CONTRACTOR AND AV INSTALLER PRIOR TO INSTALLATION.
4. INSTALL A STAINLESS STEEL FACEPLATE AT THE WALL. CONNECT FLEXIBLE CONDUIT TO THE PLATE.
5. EXTEND FLEXIBLE CONDUIT TO KICKPLATE OF FURNTIURE.
6. MOUNT SURFACE BOX TO KICKPLATE WITH MECHANICAL SCREWS. CUT HOLE INTO THE KICKPLATE TO ROUTE CABLES INTO SURFACE BOX

GENERAL NOTES:

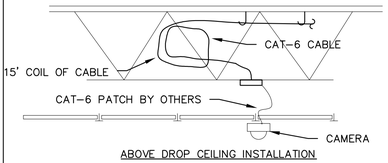
1. RACKS/CABINETS SHALL BE INSTALLED DIRECTLY BESIDE EACH OTHER & MECHANICALLY TO EACH OTHER.
2. RACKS & CABINETS SHALL BE SECURED TO THE FLOOR WITH ANCHORS. WALL MOUNTED CABINETS SHALL BE MOUNTED TO WALL SO TOP OF RACK IS NO HIGHER THAN 7' AFF.
3. INSTALL THE BACKBONE CABLES THAT ROUTE BETWEEN COMMUNICATIONS ROOMS. COIL SPARE FIBER CABLE ON THE WALL. ROUTE CABLES TO THE RACK/CABINET VIA CABLE LADDER.
4. ALL USER DATA CABLES SHALL ROUTE IN THE CEILING & THEN ROUTE DOWN VERTICAL CABLE LADDER TO THE RACK. AT THE RACK/CABINET, PROVIDE A "DRIP LOOP" FOR ALL THE CABLES DRIP LOOP SHALL BE A MINIMUM OF ONE FOOT.
5. CONNECT ALL RACKS, CABINETS AND CABLE LADDER TO THE GROUND BAR AS DESCRIBED IN THE GROUNDING DETAIL DETAIL & THE GROUNDING SPECIFICATIONS.

WALLFIELD NOTES:

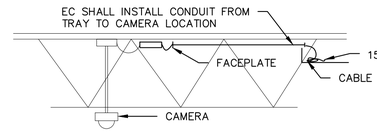
A. PLYWOOD SHALL BE INSTALLED ON THE WALL SHOWN IN THE COMMUNICATIONS ROOM FLOOR PLAN AND AS DETAILED IN THIS DRAWING.
B. VERTICAL PLYWOOD SHALL BE MOUNTED AT 12" AFF TO THE BOTTOM OF THE PLYWOOD
C. HORIZONTAL PLYWOOD SHALL BE MOUTED AT 42" AFF TO THE BOTTOM OF THE PLYWOOD.
D. PLYWOOD SHALL BE FIRE RESISTANT PLYWOOD. GRADE "A" ON THE SIDE TOWARDS THE USER.
E. PLYWOOD SHALL BE PAINTED WITH WHITE PAINT. LEAVE ONE OF THE FIRE RESISTANT STAMPS VISIBLE. DO NOT PAINT OVER THE STAMP.
F. THE CONTRACTOR SHALL INSTALL D-RINGS OR CABLE LADDER TO ROUTE CABLES HORIZONTALLY & VERTICALLY ALONG THE WALLFIELD.



5 TC103 COMM ROOM MDF CABINET LAYOUT



ABOVE DROP CEILING INSTALLATION



OPEN CEILING INSTALLATION

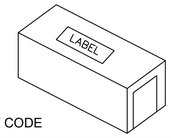
SECURITY CAMERA

6

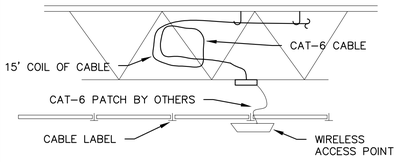
PARTS — CONNECTIVITY CODE

QTY	DESCRIPTION	MANUFACTURER	PART #
1	SURFACE BOX	HUBBELL	HSB10W
1	CAT-6 CABLES-GREEN	MOHAWK	M58286
1	CAT-6 JACK	HUBBELL	HXJ6GN

INSTALLATION NOTES:
1. PROVIDE A SURFACE MOUNT BOX TO THE BUILDING STRUCTURE NEAR THE SECURITY CAMERA LOCATION.
2. SEE CEILING PLAN FOR INSTALLATION. EC TO INSTALL CONDUIT FOR LOCATIONS WHERE THE CAMERA IS IN AN OPEN CEILING.



1 TC103 CONNECTIVITY CODE



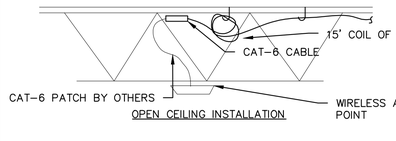
ABOVE DROP CEILING INSTALLATION

7

PARTS — CONNECTIVITY CODE

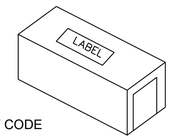
QTY	DESCRIPTION	MANUFACTURER	PART #
1	SURFACE BOX	HUBBELL	HSB10W
1	CAT-6 CABLES-YELLOW	MOHAWK	M58283
1	CAT-6 JACK	HUBBELL	HXJ6Y

INSTALLATION NOTES:
1. PROVIDE A SURFACE MOUNT BOX TO THE BUILDING STRUCTURE NEAR THE ACCESS POINT LOCATION.
2. SEE CEILING PLAN FOR INSTALLATION. INSTALL CONDUIT FOR LOCATIONS WHERE THE AP IS IN AN OPEN CEILING.
3. INSTALL A LASER PRINTED CABLE LABEL ON THE CEILING WHERE THE CABLE TERMINATES. THIS WILL ALLOW THE FUTURE USER TO FIND THE CABLE TO EVENTUALLY INSTALL WIRELESS ACCESS POINT.

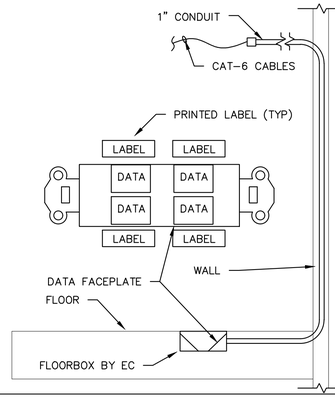


OPEN CEILING INSTALLATION

WIRELESS ACCESS POINT



2 TC103 CONNECTIVITY CODE



8

PARTS — CONNECTIVITY CODE

QTY	DESCRIPTION	MANUFACTURER	PART #
4	CAT-6 CABLES	MOHAWK	M58281
4	CAT-6 JACKS	HUBBELL	HXJ60W
1	4-HOLE 106	HUBBELL	Q1060

INSTALLATION NOTES:
1. INSTALL DATA CABLES FROM THE BACK OF FACEPLATE THROUGH RACEWAY & ABOVE DROP CEILING.
2. TERMINATE CABLES ON THE JACKS. INSTALL JACK INTO KEYSTONE. INSTALL KEYSTONE INTO FACEPLATE.
3. EACH CABLE SHALL BE LABELED AT EACH END WITH A LASER PRINTED WRAP AROUND LABEL.
4. FLOORBOX IS BY E.C.

3 TC103 CONNECTIVITY CODE

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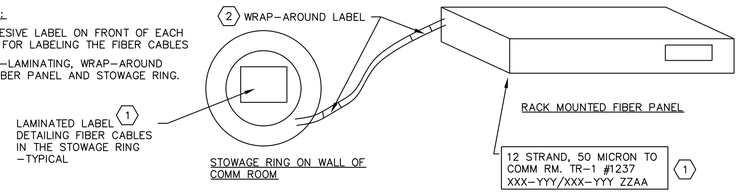
CABLING CONNECTIVITY CODES & RACK LAYOUTS

SHEET
TC103

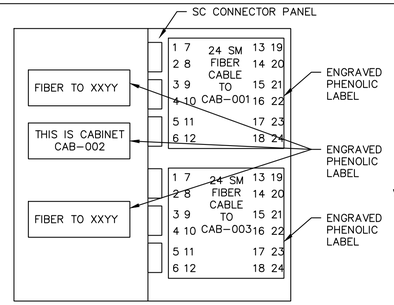
KEYED NOTES:

1. PROVIDE ADHESIVE LABEL ON FRONT OF EACH FIBER PANEL FOR LABELING THE FIBER CABLES
2. INSTALL SELF-LAMINATING, WRAP-AROUND LABELS AT FIBER PANEL AND STOWAGE RING.



XXX-YYY/XXX-YYY ZZAA
WRAP-AROUND LABEL
XXX = CABINET OR BUILDING. CAB/ADM IN EXAMPLE
YYY = CABINET NUMBER OR BUILDING ROOM #
ZZ = FIBER STRAND COUNT
AA = MULTIMODE MM OR SINGLEMODE SM

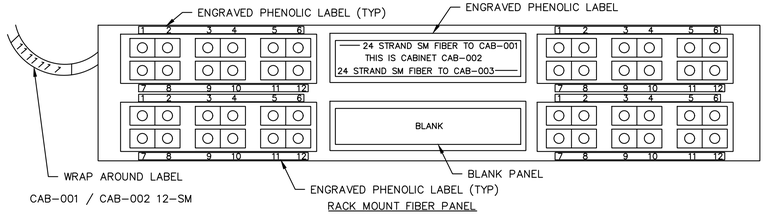
1 TC104 FIBER OPTIC CABLE LABELING



WALL MOUNT FIBER PANEL

NOTES

1. THE FIBER PANELS AT THE RACK AND AT THE EXTERIOR CABINETS SHALL BE LABELED TO IDENTIFY THE FIBER.
2. LABELS IDENTIFYING THE FIBER CABLES SHALL BE ENGRAVED LABELS WITH BLACK BACKGROUND AND WHITE LETTERS.
3. SIZE THE LABELS TO MATCH THE SIZE OF THE PANEL. PROVIDE A SAMPLE TO THE OWNER AND ENGINEER PRIOR TO PURCHASING.
4. PROVIDE A WRAP-AROUND LABEL ON THE FIBER CABLE AS IT ENTERS THE PATCH PANEL. LASER PRINTED



RACK MOUNT FIBER PANEL

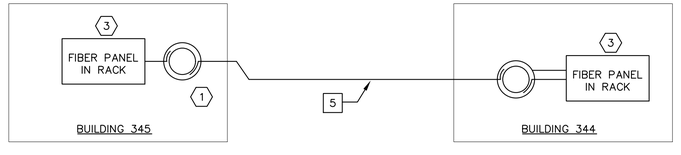
2 TC104 FIBER OPTIC PANEL LABELING DETAIL
NOT TO SCALE

GENERAL NOTES:

1. INSTALL ALL EQUIPMENT SHOWN. THE CONTRACTOR SHALL WALK THE BUILDING AND SITE WITH THE OWNER PRIOR TO INSTALLATION TO IDENTIFY ACTUAL LOCATION OF ALL EQUIPMENT.
2. IDENTIFY LOCATION OF ALL FIBER PANELS IN THE RACKS WITH THE OWNER. PRIMARILY IDENTIFY AT THE TOP OF THE RACKS IN EACH COMM ROOM
3. ALL CABLES SHALL HAVE A WRAP-AROUND LABEL AT THE TERMINATION TO IDENTIFY THE CABLE AT EACH END. INSTALL AT COIL ON WALL AND
4. TEST ALL FIBER CABLES FOR LOSS. PROVIDE REPORTS.

KEYED NOTES:

1. INSTALL FIBER OPTIC RINGS ON THE WALL OF THE COMM ROOM. PROVIDE A SPARE 30' COIL OF CABLE.
2. INSTALL FIBER CABLES THROUGH THE CONDUITS BETWEEN BUILDINGS. WHEN INSTALLING THE FIBER INSIDE THE BUILDING ENSURE IT IS ROUTED INSIDE CONDUIT. SEE ELECTRICAL PLANS FOR CONDUIT LOCATIONS
3. SEE RACK LAYOUTS FOR FIBER PANEL PARTS.



3 TC104 BUILDING FIBER BACKBONE CONNECTIVITY

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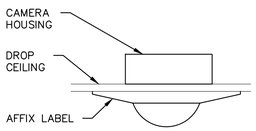
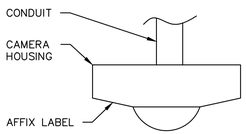
CABLING FIBER DETAILS

SHEET
TC104

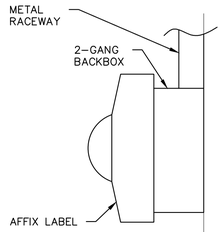
NOTES:
1. INSTALL A SELF–ADHESIVE, LASER PRINTER LABEL TO THE CAMERA THAT IS VISIBLE FROM BELOW THE DROP CEILING.
2. LABEL SHALL BE OF STRONG ADHESIVE TO ATTACH TO CAMERA HOUSING. LABEL SHALL MATCH THE CAMERA NUMBER IN THE SOFTWARE.
3. DEMONSTRATE TO THE DESIGNER THE LABEL AND WHERE THE LABEL WILL BE AFFIXED TO EACH CAMERA PRIOR TO INSTALLATION. AFFIX A LABEL TO EACH CAMERA



DROP CEILING LABELING



PENDANT TYPE LABELING



WALL MOUNT TYPE LABELING

XX–DDD
ADHESIVE CAMERA LABEL

XX = BUILDING NAME
DDD = CAMERA NUMBER

3 / TC501 CAMERA LABELING VISIBLE PORTION OF THE BUILDING

SECURITY SYMBOL LEGEND

SYMBOL	DESCRIPTION
(1)	THIS SYMBOL WITH A NUMBER INSIDE REFERS TO KEYNOTES. REFER TO NOTES ON THE SHEET OR WITHIN THE DETAIL FOR ADDITIONAL INFORMATION
A	EQUIPMENT SCHEDULE. THIS SYMBOL WITH LETTERS INSIDE REFERS EQUIPMENT SCHEDULES, SEE DETAILS AND EQUIPMENT SCHEDULES ON TC101, TC301, TC501 AND TC701.
1	CABLE SCHEDULE. THIS SYMBOL WITH NUMBERS INSIDE REFERS EQUIPMENT SCHEDULES, SEE DETAILS AND EQUIPMENT SCHEDULES ON TC101, TC301, TC501 AND TC701.
XX	ACCESS CONTROL SYMBOL. "XX" IS LETTERS. SEE DETAILS ON TC5XX SHEETS FOR EQUIPMENT, CABLING AND RACEWAY DETAILS.
XXX	DOOR NUMBER
SEC.PNL	SECURITY PANEL. PROVIDE PANEL AND CONNECT AS SHOWN ON FLOORPLANS AND IN THE SPECIFICATIONS.
	SECURITY CAMERA. PROVIDE AND INSTALL A NEW SECURITY CAMERA. SEE DETAILS ON TC5XX SHEETS.
	SECURITY CAMERA WITH 270 OR 360 DEGREE VIEWING, MULTI–IMAGER. PROVIDE AND INSTALL A NEW SECURITY CAMERA. SEE DETAILS ON TC5XX SHEETS.

ABBREVIATIONS

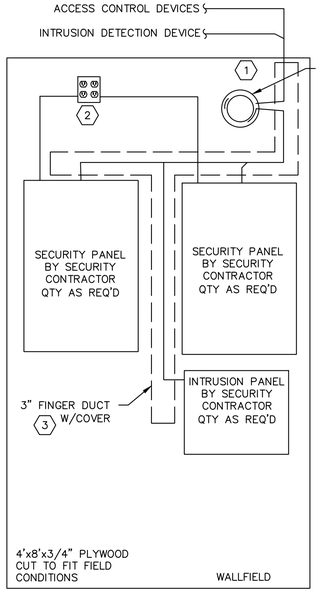
ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
2G	TWO–GANG BOX – PROVIDED BY EC	NIC	NOT IN CONTRACT
AC	ABOVE COUNTER – INSTALL BACKBOX SAME HEIGHT AS OTHER ELECTRICAL OUTLETS ABOVE THE COUNTER.	PBO	PROVIDED BY OTHERS
AFF	ABOVE FINISHED FLOOR	PCO–1	PATCH CORD ORGANIZER – 1 UNIT HIGH
AFG	ABOVE FINISHED GROUND	PCO–2	PATCH CORD ORGANIZER – 2 UNITS HIGH
AWG	AMERICAN WIRE GAUGE	PET	PROTECTED ENTRANCE TERMINAL
EMT	EMT TYPE CONDUIT	QTY	QUANTITY
EC	ELECTRICAL CONTRACTOR		

VIDEO SECURITY EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	PART NO.
SA	VIDEO SECURITY NVR SERVER AND RECORDING SOFTWARE. PROVIDE AND INSTALL A SERVER OR SERVERS WITH THE PROCESSING AND STORAGE TO MEET THE OWNERS NEED AS DETAILED ON THE DRAWINGS AND SPECS.	SEE SPECS	SEE SPECS
SC	EXTERIOR IP CAMERA. 5 MP RESOLUTION. MOUNT AS DETAILED. SEE DETAILS AND SPECIFICATIONS. SEAL AROUND CONDUIT AND MOUNT. –OBJECT ANALYTIC, INTEGRATED WITH THE VMS FOR DETECTING AND SEARCHING BASED UPON SPECIFICS SUCH AS PERSON/VEHICLE/COLOR OF CLOTHES AND COLOR OF VEHICLE	AXIS	P3267–LV OR P3267–LVE
SF	270 DEGREE CAMERA WITH DOWN COVERAGE –FOUR (4) SEPARATE IMAGERS. 270 COVERAGE WITH A DOWNARDS FACING CMAERA. INDOOR/OUTDOOR. –OBJECT ANALYTIC, INTEGRATED WITH THE VMS FOR DETECTING AND SEARCHING BASED UPON SPECIFICS SUCH AS PERSON/VEHICLE/COLOR OF CLOTHES AND COLOR OF VEHICLE	AXIS	P3727–PLE
SG	180 DEGREE CAMERA –MULTIPLE IMAGERS OUTDOOR RATED. –OBJECT ANALYTIC, INTEGRATED WITH THE VMS FOR DETECTING AND SEARCHING BASED UPON SPECIFICS SUCH AS PERSON/VEHICLE/COLOR OF CLOTHES AND COLOR OF VEHICLE	AXIS	Q3819–PVE

ACCESS CONTROL EQUIPMENT SCHEDULE

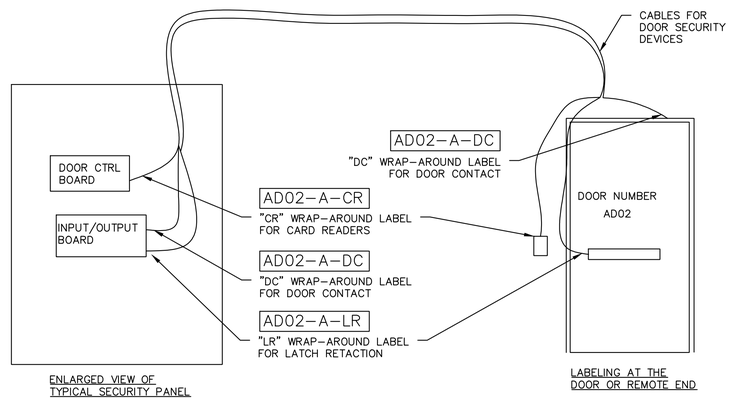
MARK	DESCRIPTION	MANUFACTURER	PART NO.
CA	ACCESS CONTROL SYSTEM, SOFTWARE AND ASSOCIATED/REQUIRED SERVERS	SEE SPECS	SPECS
CB	ACCESS CONTROL ENCLOSURE. BACKPLATE AND LOCKABLE PANEL	ALTRONIX	TROVE 1/2/3
CC	POWER SUPPLY FOR ACCESS CONTROL EQUIPMENT. EQUIP WITH ETHERNET CONNECTIVITY MODULE	ALTRONIX	E–FLOW SERIES W/ LINQ2 ENET MOD.
CD	POWER DISTRIBUTION BOARD AND VOLTAGE REGULATOR. POWERS OTHER BOARDS IN THE ACCESS CTRL PANEL	ALTRONIX	PDS8 SERIES WITH VR6 REGULATOR
CE	ACCESS POWER CONTROLLER	ALTRONIX	ACMS8 OR EQUAL
CF	DOOR ACCESS CONTROL MODULE. IP ATTACHED. QTY AS REQUIRED	MERCURY	LP SERIES OR EQUAL
CG	DOOR ACCESS CONTROL MODULE. RS–485 ATTACHED. QTY AS REQUIRED	MERCURY	MR SERIES OR EQUAL
CH	BATTERY FOR ACCESS CONTROL PANEL	SEE SPECS	SEE SPECS



SECURITY PANEL WALLFIELD NOTES:
1. PLYWOOD SHALL BE INSTALLED ON THE WALL BEHIND THE PANELS AND RACEWAYS.
2. PLYWOOD SHALL BE FIREPROOF. A/C GRADE. C SIDE TO THE WALL.
3. INSTALL "FINGER–DUCT" TYPE RACEWAY OR D–RINGS TO ROUTE THE CABLES FROM THE CEILING TO THE PANELS.
4. MOUNT THE PANELS SO THAT THE TOP OF THE PANELS IS ABOUT 6' AFF.
5. CONNECT SECURITY PANELS TO A GROUND BAR. PROVIDE GROUND BAR ON THE WALLFIELD.

KEYED NOTES:
(1) PROVIDE 5' OF CABLE PRIOR TO TERMINATION IN THE SECURITY PANEL. PROVIDE ON A FIBER OPTIC METAL RING. INSTALL ABOVE THE PANELS. PROVIDE ONE FOR EACH PANEL. GROUP PANEL CABLES ONTO PANEL SPECIFIC RING.
(2) EXTEND 120V POWER TO THE POWER SUPPLIES IN THE PANELS. HARDWIRE ALL CONNECTIONS. PROVIDE CONDUIT AND WIRING FROM CLOSEST CIRCUIT.
(3) PROVIDE SUPPORT FOR THE CABLES WITH "FINGER–DUCT" OR OTHER RACEWAY.

2 / TC501 TYPICAL SECURITY WALLFIELD
NO SCALE



ENLARGED VIEW OF TYPICAL SECURITY PANEL

LABELING AT THE DOOR OR REMOTE END

AD02 = DOOR NUMBER AS SHOWN ON DRAWINGS
A = COMM ROOM WHERE PANEL RESIDES
LR = TWO LETTER DESIGNATION FOR DEVICE THAT THE CABLE CONNECTS TO.

NOTES:
1. INSTALL A WRAP–AROUND LABEL AT EACH END OF EACH CABLE.
2. WRAP–AROUND LABELS SHALL BE LASER–PRINTED AND BE SELF–LAMINATING.
3. AT THE PANEL THE CABLE SHALL BE LABELED AS IT CONNECTS TO THE PANEL. LABEL INDIVIDUAL SHEATHED CABLES IN A MULTI–SERVICE CABLE.
4. AT THE DOOR INSTALL THE LABEL AT THE DEVICE WHERE IT IS CONNECTED.

1 / TC501 TYPICAL ACCESS CONTROL CABLE LABELING

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CITY OF TROY
TROY PAVILION
TOWN CENTER DR.
TROY, MI 48084

SECURITY LEGENDS, SCHEDULES & DETAILS

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GENERAL NOTES:

1. SEE OTHER DETAILS FOR RACEWAY REQUIREMENTS FOR ALL CABLING AND DEVICES. REFER TO THE PLAN DRAWINGS FOR THE SPECIFIC FIELD DEVICE AND WHERE IT IS TO BE INSTALLED.
2. AT SOME LOCATIONS THE CARD READER WILL HAVE TO BE INSTALLED INTO THE DOOR FRAME. PROVIDE A FRAME TYPE READER AT THESE LOCATIONS. VERIFY PRIOR TO ORDERING EQUIPMENT.
3. ALL SECURITY DEVICES SHALL BE WIRED DIRECTLY BACK TO THE SECURITY SYSTEM (ACCESS CONTROL) PANELS OR INTRUSION DETECTION PANEL. LOCATE PANELS ON THE WALLS OF COMMUNICATIONS ROOMS OR AS SHOWN ON THE FLOOR PLANS. SEE OTHER DETAILS FOR MOUNTING AND RACEWAY REQUIREMENTS FOR CABLING.
4. PROVIDE ALL SECURITY CABLES AND ALL SECURITY PANELS REQUIRED FOR CONNECTIVITY OF THE SYSTEM. SHALL BE PLENUM RATED IN PLENUM AREAS.
5. LABEL THE OUTSIDE OF THE PANEL FOR THE DOORS AND DEVICES THAT ARE CONNECTED INSIDE THE PANEL. PROVIDE A PANEL DIAGRAM INSIDE THE PANEL THAT SHOWS THE CARDS AND WHAT IS CONNECTED TO EACH PORT ON THE CARDS.
6. PROVIDE MAGNETIC CABLE SUPPORTS THROUGHOUT THE PANEL FOR SUPPORT OF CABLES AS THEY ROUTE BETWEEN CARDS IN THE PANEL.
7. INCLUDE NYLON OR PLASTIC GROMMETS IN THE PANELS WHERE CABLES ROUTE INTO THE PANELS.
8. CONNECT BATTERIES TO THE PANEL TO SUPPORT THE PANEL AND DEVICES FOR A SHORT POWER OUTAGE.

KEYED INTRUSION DETECTION NOTES:

(21) PROVIDE AN INTRUSION DETECTION PANEL THAT CONNECTS TO THE VARIOUS MONITORING DEVICES IN THE SYSTEM. ENTER THE USERS INFORMATION FOR THE ALARM SYSTEM.

(22) INSTALL A KEYPAD AND CONNECT TO THE INTRUSION PANEL. SET THIS UP FOR ARMING AND DISARMING AND REPORTING OF ZONES AND SYSTEM ALARMS.

(23) PROVIDE A POWER SUPPLY TO SUPPORT THE INTRUSION DETETCTION AND ALL END USER DEVICES SUCH AS MOTIONS, DOOR CONTACTS ETC.

(24) INSTALL A DIALER TO THE SYSTEM SO THAT IN AN ALARM THE SYSTEM WILL CALL THE THIRD PARTY CENTRAL STATION.

(25) AFFIX A CUSTOM SHEET OF PAPER INSIDE THE PANEL DOOR THAT SHOWS WHAT DOORS OR DEVICES ARE CONNECTED TO EACH PANEL. LAMINATE OR INSTALL IN A PLASTIC SLEEVE.

(26) CUT HOLE IN PANEL TO SUPPORT CABLE INSTALLATION. INSTALL A NYLON OR PLASTIC GROMMET IN THE PANEL.

(27) CONNECT ALL CABLES AND DEVICES TO THE BOARDS WITHIN THE PANEL THAT IS REQUIRED FOR CONNECTIVITY AND SYSTEM OPERATION.

KEYED ACCESS CONTROL NOTES:

(1) CONTRACTOR SHALL EXTEND POWER FROM EXISTING OUTLET TO THE POWER SUPPLIES ON THE WALL/IN THE PANEL. PROVIDE ALL RACEWAY AND WIRING FOR EXTENSION OF POWER. MAKE ALL CONNECTIONS

(2) PROVIDE A POWER SUPPLY TO SUPPORT THE SECURITY PANELS AND ALL END USER DEVICES SUCH AS LOCKS, STROBES, REQUEST TO EXIT DEVICES, ALARMS ETC.

(3) AFFIX A CUSTOM SHEET OF PAPER INSIDE THE PANEL DOOR THAT SHOWS WHAT DOORS OR DEVICES ARE CONNECTED TO EACH PANEL. LAMINATE OR INSTALL IN A PLASTIC SLEEVE.

(4) CUT HOLE IN PANEL TO SUPPORT CABLE INSTALLATION. INSTALL A NYLON OR PLASTIC GROMMET IN THE PANEL.

(5) CONNECT ALL CABLES AND DEVICES TO THE CONTROLLERS/BOARDS WITHIN THE PANEL THAT IS REQUIRED FOR CONNECTIVITY AND SYSTEM OPERATION. PROVIDE A COIL OF 5' OF CABLE ABOVE THE PANEL ON THE WALL.

(6) FOR AN EL OR LR DEVICE THE DOOR HARDWARE SUPPLIER WILL PROVIDE A WIRING HARNESS FROM THE LOCK THROUGH THE HINGE AND INTO THE DOOR FRAME. SECURITY CONTRACTOR TO WIRE FROM PANEL OR POWER SUPPLY TO THE WIRING HARNESS.

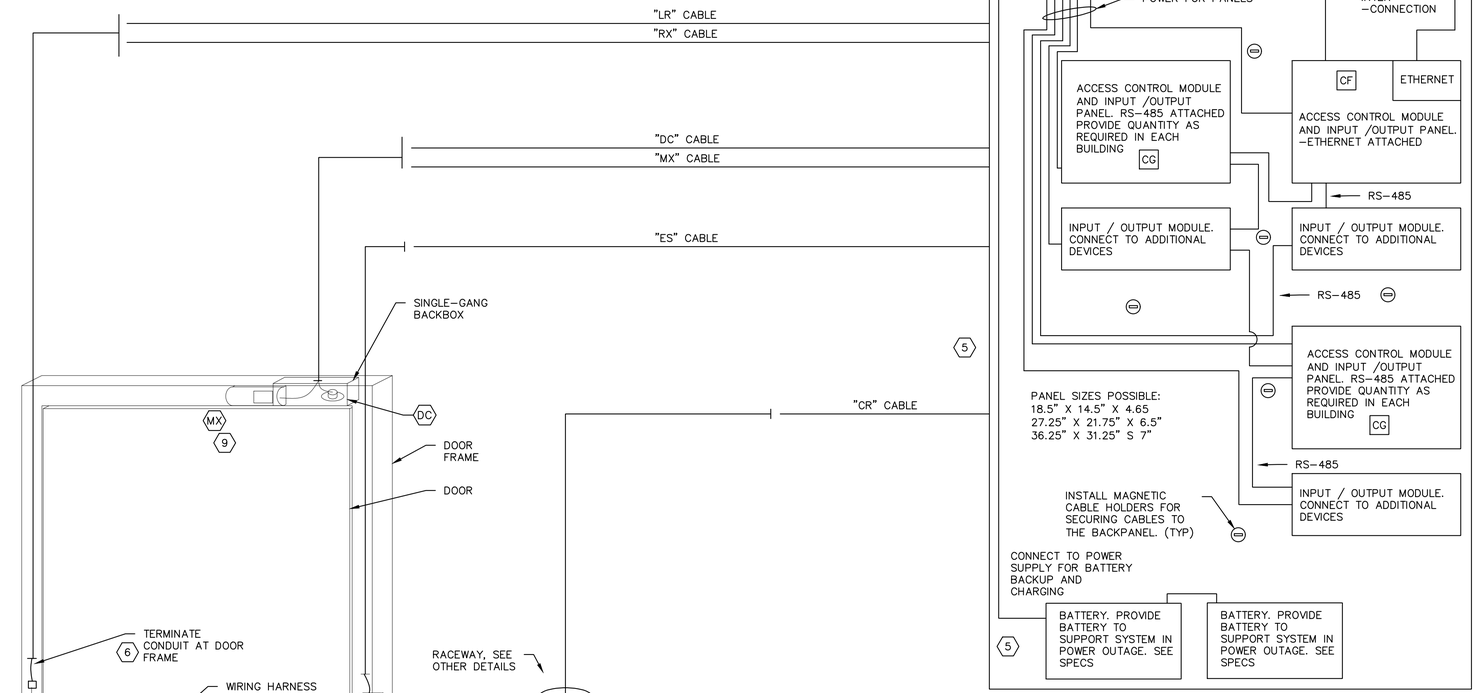
(7) INSTALL A CAT-6 CABLE FROM THIS LOCATION TO THE PATCH PANEL IN THE RACK IN THE COMM ROOM. CABLE AND JACKS SHALL BE PURPLE. TERMINATE WITH A CAT-6 MODULAR JACK AT EACH END.

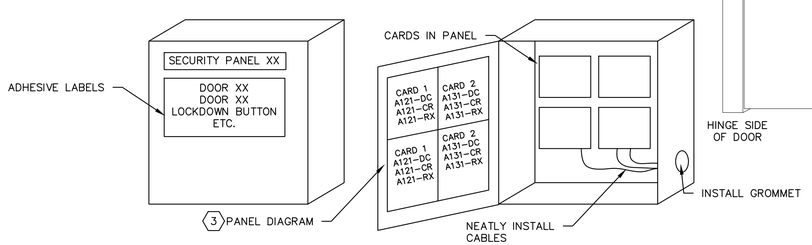
(8) CONNECT THE FIRE ALARM SYSTEM TO THE ACCESS CONTROL SYSTEM TO UNLOCK ONE OR MORE DOORS AND RELEASE ANY HOLD OPENS IN CASE OF A FIRE ALARM, PROVIDE AND INSTALL ALL HARDWARE AND CONFIGURATION OF THE SYSTEMS REQUIRED TO MAKE THIS INTERFACE OPERATIONAL.

(9) CONNECT TO THE MOTION REQUEST TO EXIT (MX) OR REQUEST TO EXIT (RX) TO SHUNT ALARM. SHALL BE MOUNTED TO THE SECURE SIDE OF THE DOOR.

(10) MEET WITH THE OWNER TO DETERMINE WHAT THE PUSH BUTTON AND TOGGLE SWITCH WILL CONTROL. SHALL HAVE SEPARATE CONTROLS FOR EACH POSITION.

(11) IP CONNECTED LOCK: CONNECT ETHERNET CABLE FROM DOOR TO MODULAR JACK ABOVE THE DOOR. PROVIDE ALL PATCH CABLES. PATCH INTO ETHERNET SWITCH. CONNECT GROUND WIRE TO BUILDING STEEL WITH CRIMP LUG.





TYPICAL ACCESS CONTROL PANEL LABELING

ACCESS CONTROL READER DETAILS

(CR)	CARD READER – INSTALL TO THE BACKBOX OR IN THE DOOR FRAME. COORDINATE IN FIELD PRIOR TO ORDERING. WIRE TO SECURITY SYSTEM

ACCESS CONTROL LOCK DETAILS

(LR)	LATCH RETRACTION DEVICE – THIS DEVICE IS AN ELECTRONIC PUSHBAR ON THE SECURE SIDE OF THE DOOR. WIRE FROM THIS DEVICE, THROUGH THE DOOR HINGETO THE POWER SUPPLY IN THE COMMUNICATIONS ROOM. PROVIDE POWER SUPPLY
(ES)	ELECTRIC STRIKE – STRIKE IS PROVIDED AND INSTALLED BY DOOR CONTRACTOR. WIRE FROM THIS DEVICE TO SECURITY PANEL. PROVIDE POWER SUPPLY IN COMM ROOM.

ACCESS CONTROL AT DOOR DETAILS

(MX)	MOTION SENSOR REQUEST TO EXIT – MOUNT ABOVE THE DOOR. WIRE TO SECURITY SYSTEM/ACCESS CONTROL SYSTEM TO SHUNT DOOR CONTACT WHEN EXITING BLDG.
(RX)	REQUEST TO EXIT IN LOCK – THIS IS A SWITCH THAT IS PROVIDED WITH THE DOOR LOCKING DEVICE. WIRE TO SECURITY PANEL TO SHUNT DOOR CONTACT WHEN EXITING BLDG.
(DC)	DOOR CONTACT – MOUNT ABOVE THE DOOR. WIRE TO SECURITY SYSTEM/INTRUSION DETECTION SYSTEM TO TRIGGER AN ALARM

1 TC502 DOOR HARDWARE & SECURITY EQUIPMENT CONNECTIVITY REQUIREMENTS

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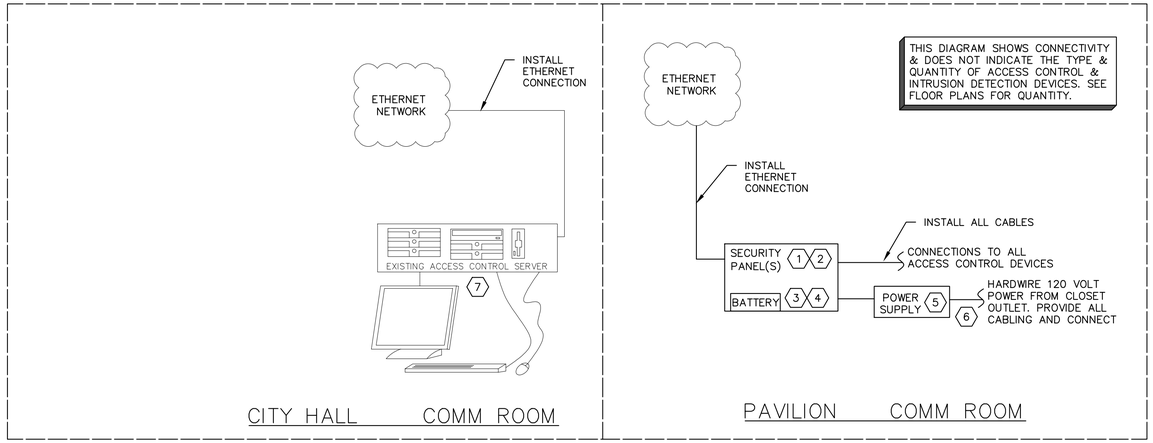
SECURITY EQUIPMENT DETAILS

SHEET TC502



CONNECTIVITY NOTES:

1. PROVIDE THE QUANTITY OF EACH ITEM AS SHOWN ON THE DRAWINGS.
2. THE COMMUNICATIONS CONTRACTOR SHALL WORK WITH THE OWNER TO CONFIGURE THE SYSTEM TO MEET THE OWNERS REQUIREMENTS.
3. CABLES FOR CONNECTION FROM THE ACCESS CONTROL PANELS SHALL BE PLENUM RATED.
4. CONTRACTOR SHALL PROVIDE ALL CABLING FOR CONNECTION OF NEW SECURITY DEVICES. THE CABLES SHALL BE THE SAME COLOR. COORDINATE CABLE COLOR WITH OTHER CONTRACTORS SO THAT THE SECURITY CABLES ARE A UNIQUE COLOR.
5. ALL CABLES SHALL BE LABELED AT EACH END. LABEL THEM WITH THE DOOR NUMBER AND THEN FOR THE DEVICE TO WHICH THEY CONNECT. IN EXAMPLE: P124–DC.
6. THE CONTRACTOR SHALL INCLUDE SUFFICIENT TIME INTO THE PROJECT TO CUSTOM CONFIGURE THE ACCESS CONTROL SYSTEM TO INTERFACE AND CONTROL EACH SYSTEM SHOWN ON THE DIAGRAM AND DESCRIBED IN THE SPECIFICATIONS.
7. PROVIDE THE QUANTITY OF BADGES/FOBS/MOBILE CREDENTIALS AS NOTED. PRINT ALL PROXIMITY CARDS AS PER THE OWNERS DIRECTION.

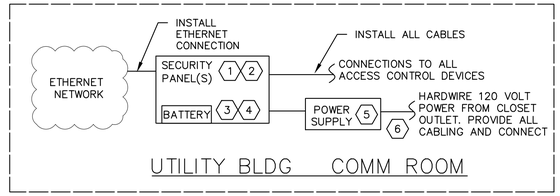
KEYED NOTES:

1. ACCESS CONTROL PANELS SHALL BE LOCATED WHERE SHOWN ON THE DRAWINGS. CONNECT ALL DEVICES TO THESE PANELS. ALSO PROVIDE CABLING TO CONNECT THE PANELS TO THE ETHERNET SWITCHES IN THE RACKS.
2. WHERE MORE THAN ONE PANEL IS AT THE SAME LOCATION, THE CONTRACTOR CAN CONNECT ONE PANEL TO THE ETHERNET NETWORK AND
3. CONNECT THE OTHER PANELS TO THE ETHERNET CONNECTED PANEL.

   THERE WILL BE PANELS IN ONE OR MORE COMMUNICATIONS ROOMS. SEE THE FLOOR PLANS FOR SUGGESTED PANEL LOCATIONS. INSTALL PANELS
4. AS NOTED AND AS REQUIRED FOR COMPLETE CONNECTIVITY. CONNECT TO THE DATA NETWORK AND OTHER ACCESS CONTROL PANELS.
5. INSTALL BATTERY BACKUP TO EACH PANEL TO SUPPORT DURING A SHORT POWER OUTAGE. SEE SPECIFICATIONS FOR BATTERY BACKUP
6. REQUIREMENTS.
7. THE CONTRACTOR SHALL PROVIDE A POWER SUPPLY IN THE COMMUNICATIONS ROOM TO POWER ALL THE DOOR HARDWARE.

   CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTING THE PANELS TO 120 VOLT POWER. CONNECT WITH A HARDWIRED CONNECTION. PROVIDE CABLING AND CONDUIT/BOXES FOR CONNECTIVITY

   SERVER IS EXISTING AT CITY HALL. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION.



1 / TC503 ACCESS CONTROL DIAGRAM

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SECURITY EQUIPMENT DETAILS

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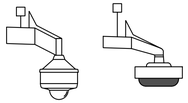
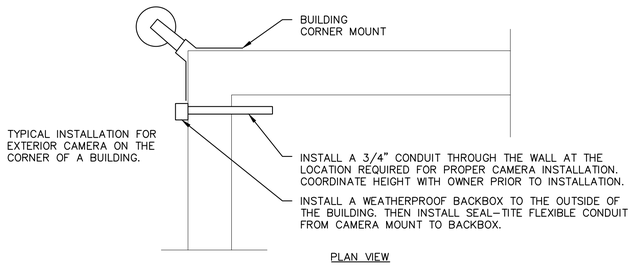
EXTERIOR CORNER MOUNT

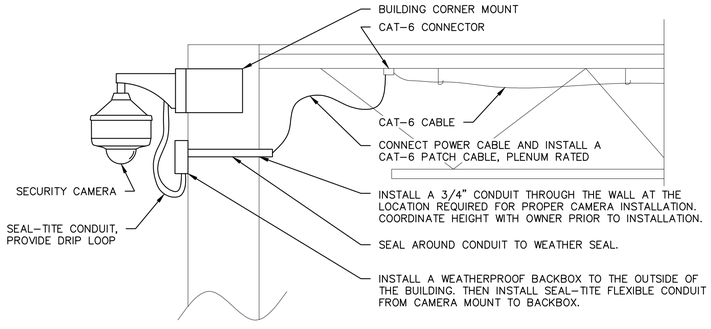


CORNER WALL MOUNT
ON ONE-LINE DIAGRAM

NOTES:
1. INSTALL A CORNER MOUNT AT HEIGHT APPROVED BY OWNER.
2. INSTALL PATCH CABLE FROM CAT-6 CONNECTOR TO CAMERA. SHALL BE PLENUM RATED.
3. ALL CAMERAS SHALL BE INSTALLED WITH SECURE SCREWS.



PLAN VIEW

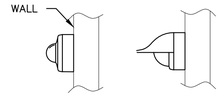


ELEVATION

3 TC504 EXTERIOR CORNER, WALL MOUNT CAMERA INSTALLATION

NOT TO SCALE

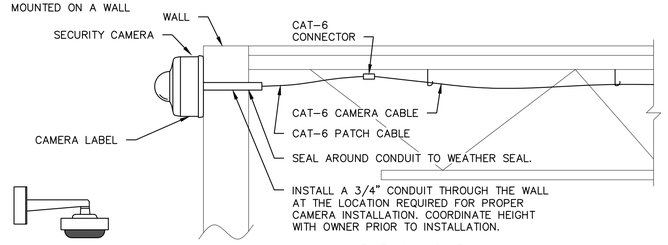
EXTERIOR WALL MOUNT



EXTERIOR WALL MOUNT
ON ONE-LINE DIAGRAM

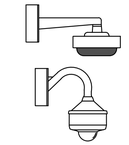
NOTES
1. INSTALL CAMERAS TO THE EXTERIOR WALL. VERIFY HEIGHT WITH OWNER. INSTALL CONDUIT.
2. SEE SPECS & DRAWINGS FOR INFORMATION ABOUT WHO INSTALLS CAT-6 CABLE FROM COMM ROOM TO CAMERA LOCATION.
3. SECURITY CONTRACTOR SHALL INSTALL THE PATCH CABLE FROM CAT-6 CONNECTOR TO CAMERA. SHALL BE PLENUM RATED.
4. WHERE THE CAMERA LOOKS OUT FROM THE BUILDING INSTALL THE FLAT WALL MOUNT. WHERE THE CAMERA IS SHOWN LOOKING ALONG THE BUILDING THE CONTRACTOR SHALL INSTALL THE PENDANT WALL MOUNT.

TYPICAL INSTALLATION
FOR EXTERIOR CAMERA
MOUNTED ON A WALL

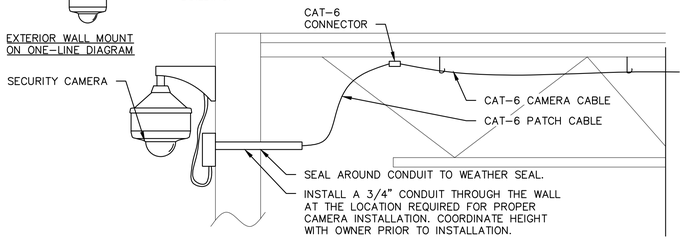


FLAT WALL MOUNT

USE THIS MOUNT WHEN THE CAMERA IS LOOKING STRAIGHT OUT FROM THE BUILDING.



EXTERIOR WALL MOUNT
ON ONE-LINE DIAGRAM

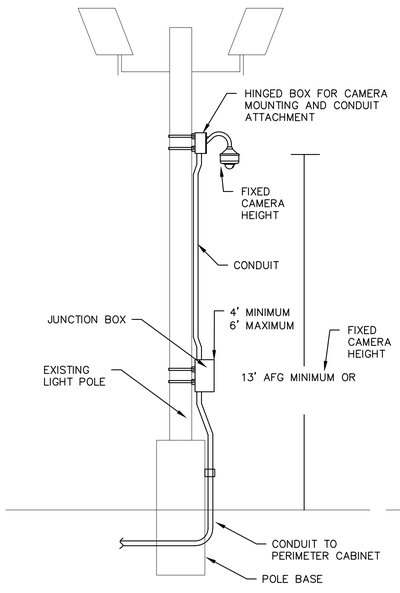


PENDANT WALL MOUNT

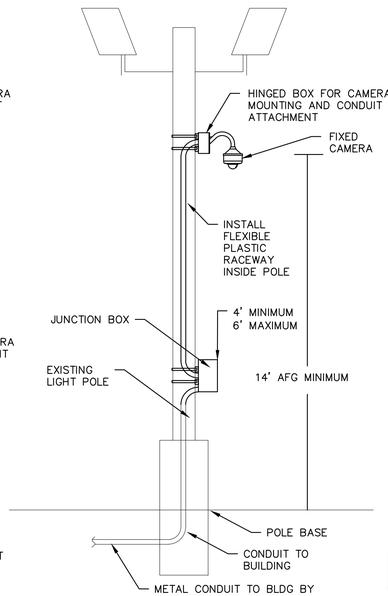
USE THIS MOUNT WHEN THE CAMERA IS AIMED TO PROVIDE AN IMAGE ALONG THE EXTERIOR WALL.

1 TC504 EXTERIOR WALL MOUNT CAMERA DETAILS

NOT TO SCALE



CONDUIT EXTERIOR TO POLE



CABLE INSIDE OF POLE

GENERAL NOTES:
1. POLE EXISTS. CAMERA MAY ALREADY BE INSTALLED. SEE SITE PLAN. INSTALL NEW CAMERAS WHERE SHOWN ON SITE PLAN OR CAMERA ONE LINE.
2. WHEN INSTALLING A NEW CAMERA INSTALL CONDUIT FROM THE PERIMETER CABINET TO THE POLE. SEE ELECTRICAL FOR SPECIFICS.
3. INSTALL JUNCTION BOX AT BOTTOM OF POLE FOR TERMINATION OF CABLE AND INSTALLATION OF LIGHTNING ARRESTOR. SEE ELECTRICAL FOR BOX SIZE.
4. WHERE NO JUCTION BOX IS EXISTING AT THE BOTTOM OF THE POLE, INSTALL A JUNCTION BOX. BACKPULL CABLE TO THE NEW JUNCTION BOX FROM THE CAMERA. TERMINATE AND TEST AND LABEL CABLE.
5. INSTALL CONDUIT AND PATCH CABLE FROM JUNCTION BOX TO THE CAMERA. CONNECT CAMERA AND TEST.
6. SEE ELECTRICAL DIAGRAMS FOR GROUNDING OF LIGHTNING ARRESTOR.
7. INSTALL CONDUIT FROM JUNCTION BOX TO CAMERA BOX FOR NEW CAMERA LOCATIONS.

KEYED NOTES:

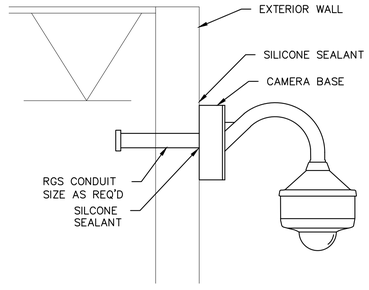
1. PROVIDE ONE (1) SURGE SUPPRESSOR FOR EACH CAT-6 CABLE THAT IS FED INTO THE CABINET, NEW AND EXISTING. CONNECT TO GROUND BAR. ENSURE DIRECTION OF ARRESTOR IS CORRECT. SEE ONE LINE FOR QUANTITY OF EXISTING CAMERAS AND NEW CAMERAS AT EACH CABINET.
2. CONNECT NEW SHIELDED CABLES AND LIGHTNING SUPPRESSORS TO THE GROUND BAR. ONE CONNECTION FOR EACH.
3. INSTALL NEW POE INJECTORS FOR EACH PTZ CAMERA. REMOVE EXISTING AND PROVIDE TO THE OWNER. MOUNT TO CABINET AND CONNECT TO POWER. PROVIDE PATCH CABLES TO CONNECT CAMERAS TO ETHERNET SWITCH
4. PROVIDE NEW ETHERNET SWITCH AND SFP MODULE FOR SWITCH. CONNECT TO FIBER BACKBONE AND CORE SWITCH IN ADMIN BUILDING. PROVIDE EXISTING SWITCH TO THE OWNER

SEE ELECTRICAL DRAWINGS FOR ACTUAL CONDUIT REQUIREMENTS AND ROUTING

4 TC504 CAMERA POLE MOUNTING DETAIL

NOTES

1. CORE THROUGH EXTERIOR WALL TO INSTALL A CONDUIT FROM THE INTERIOR TO THE EXTERIOR CAMERA BACKBOX.
2. CONDUIT SHALL BE NO SMALLER THAN 3/4" TRADE SIZE. INSTALL A NYLON GROMMET ON END OF CONDUIT.
3. SEAL AROUND CAMERA BASE WITH CLEAR SILICONE SEALANT. SEAL AROUND CONDUIT ON EXTERIOR WITH SEALANT.
4. ATTACH CAMERA BASE TO THE BUILDING WITH MECHANICAL CONNECTORS.



2 TC504 CAMERA THROUGH WALL RACEWAY & SEALANT DETAIL

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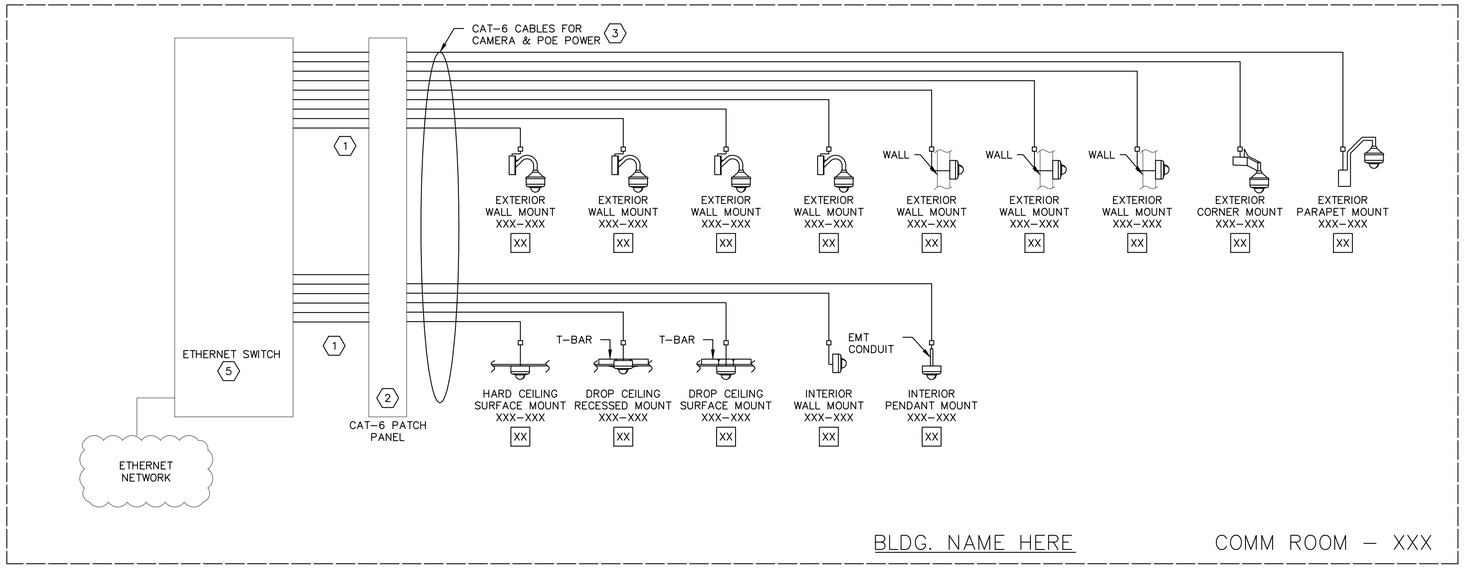

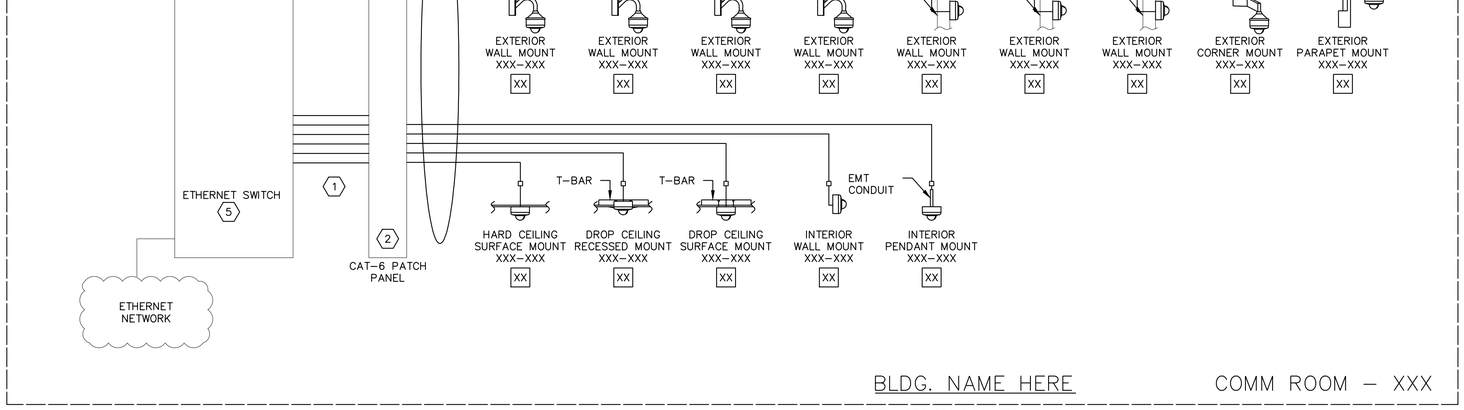

GENERAL VIDEO SECURITY NOTES:

1. CONTRACTOR SHALL PROVIDE ALL PATCH CABLES AT THE CAMERA AND AT THE COMM ROOM. MATCH COLOR OF CAMERA CABLE. 12" LONG AT SWITCH. 10' AT THE CAMERA
2. THE CONTRACTOR SHALL SUPPLY ANY & ALL BALUNS, COUPLERS ADAPTERS & CONVERTERS THAT ARE REQUIRED FOR THE INTER–CONNECTION OF ALL THE SECURITY COMPONENTS.
3. THE CAMERA CABLES SHALL TRANSPORT ALL VIDEO SIGNALS & CONTROL SIGNALS & POWER SIGNALS.
4. CONTRACTOR SHALL PROVIDE THE CORRECT CAMERA MOUNT BASED ON CAMERA LOCATION AND STRUCTURE AVAILABLE. PROVIDE RECESSED CAMERA MOUNTS IN DROP CEILINGS. REVIEW PLANS AND SITE PRIOR TO ORDERING.
5. CAMERAS IN DROP CEILINGS SHALL BE RECESSED MOUNT. PROVIDE BACKPLATE OR T–BAR FOR SUPPORT FROM GRID, NOT JUST THE TILE.
6. CONTRACTOR SHALL INSTALL AND CONFIGURE REMOTE VIEWING & CONTROL SOFTWARE ON THE FOLLOWING:
   - (NUMBER (X) MONITOR COMPUTERS PROVIDED AS PART OF THIS BID.
   - (NUMBER (X) OWNER PC'S
   - (NUMBER (X) WIRELESS TABLES/SMARTPHONES.
7. CONTRACTOR SHALL MEET WITH THE OWNER AND DETAIL ALL THE CAPABILITIES OF THE SYSTEM. THE CONFIGURATION OF THE RECORDER AND CAMERAS SHALL BE BASED ON THESE MEETINGS WITH THE OWNER. TAKE NOTES DURING THE MEETINGS. SUBMIT WITH AS–BUILTS
8. WHERE THE CAMERA IS NOT INSTALLED INTO A DROP CEILING THE CONTRACTOR SHALL PROVIDE A MOUNT AND HOUSING. PROVIDE WEATHERPROOF MOUNTS ON EXTERIOR CAMERAS.
9. EXTERIOR CAMERAS SHALL BE RATED FOR OUTDOOR INSTALLATION AND SHALL PROVIDE THEIR OWN HEAT.
8. CONTRACTOR SHALL PROVIDE THE CORRECT LENS TO EACH CAMERA BASED ON THE INSTALLED LOCATION AND THE OWNERS REQUIREMENTS FOR THE FIELD OF VIEW. WORK WITH THE OWNER DURING INSTALLATION.
9. ALL CAMERAS SHALL CONNECT TO THE IP NETWORK SWITCH IN THE COMMUNICATIONS ROOM. CONTRACTOR SHALL WORK WITH THE OWNER ON CONFIGURATION OF THE ETHERNET SWITCH.
7. CONTRACTOR SHALL MEET WITH THE OWNER AND DETAIL ALL THE CAPABILITIES OF THE SYSTEM. THE CONFIGURATION OF THE RECORDER AND CAMERAS SHALL BE BASED ON THESE MEETINGS WITH THE OWNER. TAKE NOTES DURING THE MEETINGS. SUBMIT WITH AS–BUILTS
8. NETWORK VIDEO RECORDER(S) (NVR) SHALL BE LOCATED IN THE COMM ROOM RACK/CABINET AND ARE TO BE PROVIDED BY THE CONTRACTOR. CONTRACTOR SHALL PROVIDE AND CONFIGURE ALL VMS AND SYSTEM SOFTWARE REQUIRED.

KEYED VIDEO SECURITYNOTES:

1. PROVIDE ALL PATCH CABLES REQUIRED FOR CONNECTION OF ALL CAMERAS AT THE CAMERA AND AT THE NETWORK SWITCH. ALL PATCH CABLES SHALL BE MATCH CABLE COLOR
2. LABEL THE CAT–6 PATCH PANEL WITH THE CAMERA NUMBER THE CABLE CONNECTS TO. SHALL BE LASER PRINTED. SEE SPECS
3. SEE SPECIFICATIONS AND BID SCOPES TO DETERMINE WHICH CONTRACTOR IS TO INSTALL AND TERMINATE THE CAT–6 CABLES USED FOR SECURITY CAMERAS.
4. THE SERVER(S) WILL BE LOCATED IN THE COMMUNICATIONS ROOM IN THE BUILDING NOTED. CONTRACTOR SHALL LOAD ALL SOFTWARE REQUIRED TO RECORD AND MANAGE ALL CAMERAS THROUGHOUT THE BUILDINGS. PROVIDE THE QUANTITY OF SERVERS AND STORAGE AS REQUIRED TO RECORD AND VIEW ALL CAMERAS AS PER THE SPECIFICATIONS
5. THE SECURITY CONTRACTOR SHALL MEET WITH THE OWNER TO CONFIRM ALL NETWORK SPECIFICATION REQUIREMENTS FOR A VLAN OR OTHER QUALITY OF SERVICE SETTINGS FOR THE CAMERA SYSTEM
6. PROVIDE AN SFP MODULE FOR 10 GIGABIT CONNECTIVITY VIA FIBER CABLE INTO THE ETHERNET SWITCH
7. PROVIDE A KVM (KEYBOARD/VIDEO/MOUSE) SWITCH/RACK MOUNT MONITOR FOR THE VIDEO SECURITY SYSTEM. CONNECT TO ALL SERVERS PROVIDED AS PART OF THIS PROJECT

REFER TO THE PLANS FOR CAMERA LOCATIONS

1 TC505 VIDEO SECURITY DIAGRAM BLDG. NAME HERE

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SECURITY EQUIPMENT DETAILS

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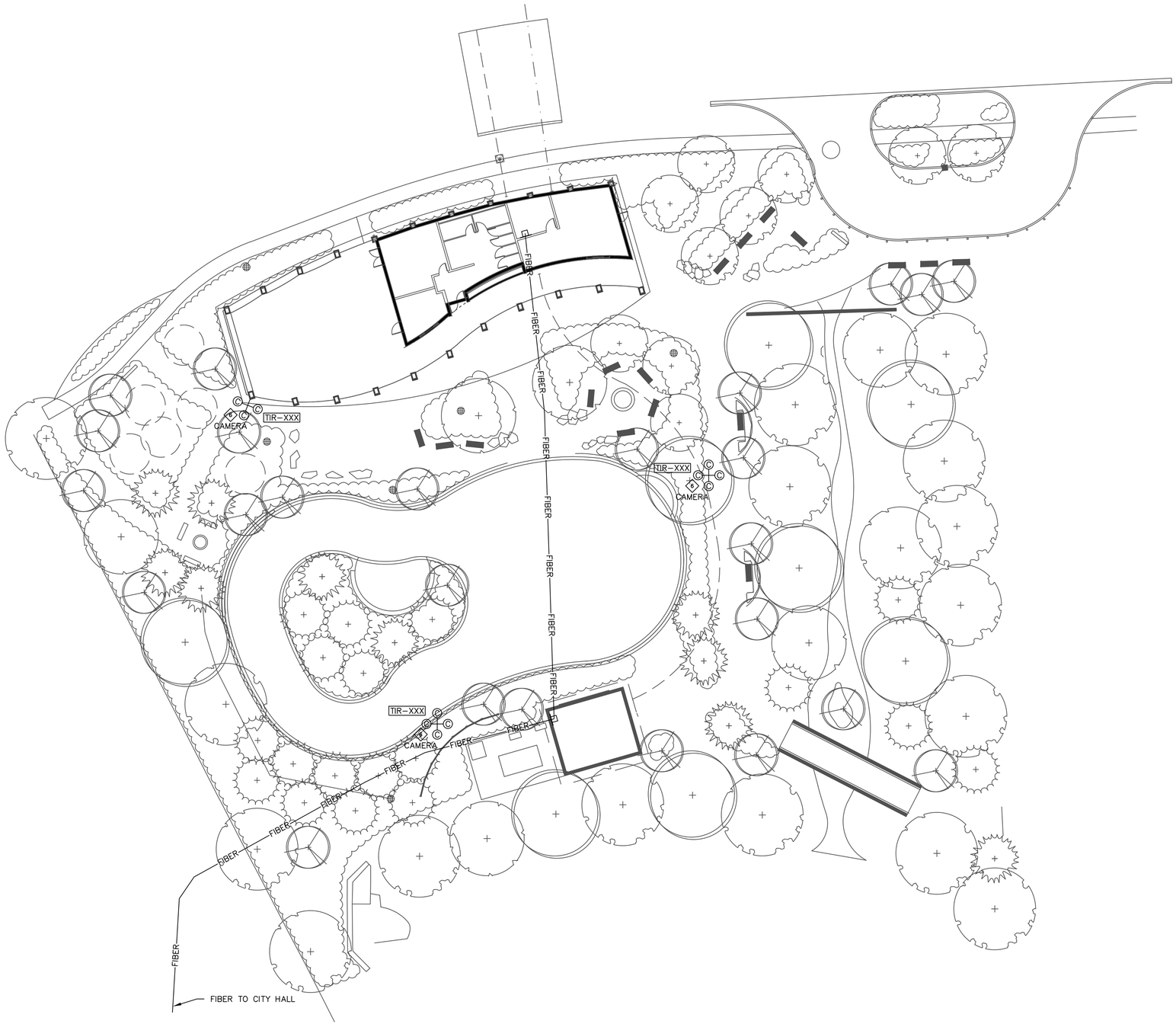
GENERAL CABLING NOTES

1. COMMUNICATIONS CONTRACTOR SHALL INSTALL ANY PASS–THRU'S REQUIRED FOR ROUTING CABLES AROUND THE BUILDING. FIRESTOP ALL PASS–THRU'S TO MEET APPLICABLE CODES.
2. CONTRACTOR SHALL COMPLETE A WALK–THRU OF THE SITE DURING CONSTRUCTION AND SHALL VERIFY ALL CONDUITS AND PASS THRU'S ARE INSTALLED FOR CABLES.
3. ALL CABLES SHALL BE SUPPORTED ABOVE THE DROP CEILING BY J–HOOKS. HOOKS SHALL BE LOCATED NO LESS THAN EVERY 5 FEET.
4.

KEYED CABLING NOTES

1 XXXXXXXXXX
2 XXXXXXX



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1 TC900 TECHNOLOGY SITE PLAN

1"=20'–0" 0 1'

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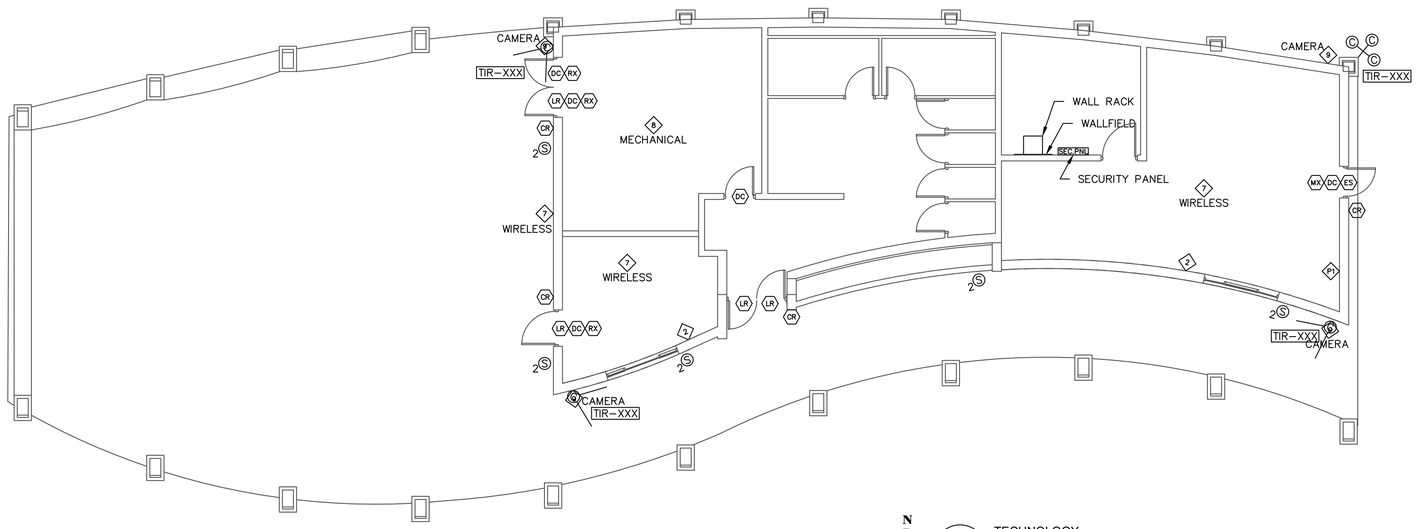
TROY, MI 48084

TECHNOLOGY SITE PLAN

SHEET TC901



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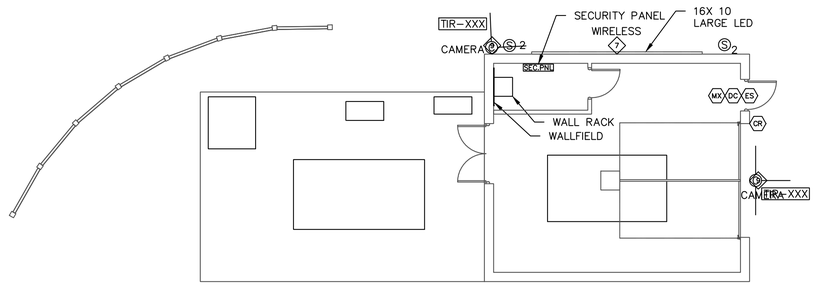
1 TC901 TECHNOLOGY PAVILION FLOOR PLAN

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



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2 TC901 TECHNOLOGY UTILITY BLDG. FLOOR PLAN

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

GENERAL CABLING NOTES

1. COMMUNICATIONS CONTRACTOR SHALL INSTALL ANY PASS-THRU'S REQUIRED FOR ROUTING CABLES AROUND THE BUILDING. FIRESTOP ALL PASS-THRU'S TO MEET APPLICABLE CODES.
2. CONTRACTOR SHALL COMPLETE A WALK-THRU OF THE SITE DURING CONSTRUCTION AND SHALL VERIFY ALL CONDUITS AND PASS THRU'S ARE INSTALLED FOR CABLES.
3. ALL CABLES SHALL BE SUPPORTED ABOVE THE DROP CEILING BY J-HOOKS. HOOKS SHALL BE LOCATED NO LESS THAN EVERY 5 FEET.
4.

KEYED CABLING NOTES

1 XXXXXXXXXX
2 XXXXXXX

PRELIMINARY - NOT FOR CONSTRUCTION

SEAL

ISSUE:
REVISIONS:
DESIGN DEVELOPMENT 10/10/2022

DATE	PROJ.NUMBER	PROJ.MGR	COUNTY	MUNICIPALITY
	####	####	####	####

CITY OF TROY
TROY PAVILION
TOWN CENTER DR.
TROY, MI 48084

TECHNOLOGY FLOOR PLANS

SHEET TC901

DRAWING PATH:


0
40
80
Feet

DATE: October 27, 2022

TO: Planning Commission

FROM: R. Brent Savidant, Community Development Director

SUBJECT: TROY DDA BIG BEAVER LANDSCAPE IMPROVEMENTS

On January 19, 2022, the Troy Downtown Development Authority (DDA) approved a contract with OHM Advisors to study improvements to the DDA, specifically to publicly owned right of way property, to improve placemaking, beautification, enhanced pedestrian walkability and connectivity.

On March 8, 2022, a representative of OHM Advisors presented a status report to the Planning Commission, including a summary of the project and development goals. The Planning Commission provided feedback which was considered as part of the engagement process.

The design has been refined, including phasing and timelines.

Public Works Director Kurt Bovensiep will present the project to the Planning Commission at the November 1, 2022 Planning Commission Special Meeting.

G:\Downtown Development Authority DDA\DDA Landscaping Project\November 1, 2022 Planning Commission meeting\PC Memo 2022 11 01.docx